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## National Urban Development Project

## National Urban Development Spatial Plan

Existing Situation and Diagnostic Final Report







ii

### Federal Democratic Republic of Ethiopia

MINISTRY OF URBAN DEVELOPMENT, HOUSING AND CONSTRUCTION

(Sudan Road, Ras Abebe Aregay Street, Legehar Area, Addis Ababa)

EXISTING SITUATION AND DISGNOSTIC FINAL REPORT – MARCH 2015

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## **Acronyms and Abbreviations**

AA	Addis Ababa
AACPPO	Addis Ababa City Planning Project Office
AADT	Average Annual Daily Traffic
AASOID	Addis Ababa and Surrounding Oromia Spatial Zone Integrated
	Development Project Office
AAU	Addis Ababa University
AfDB	African Development Bank
AIA	Agriculture Investment Agency
AGOA	Africa Growth and Opportunity Act
APF	Addis Pharmaceutical Factory
ATA	Agricultural Transformation Agency
AU	African Union
AUC	Africa Union Commission
AUPI	Amhara Urban Planning Institute
BEmONC	Basic Emergency Obstetric and Newborn Care
BOP	Back Office Processing
BOT	Build-Operate-Transfer
BRT	Bus Rapid Transit
BSD	Basic Service Delivery
CA	City Administration
CDE	Chemin de Fer Djibouto-Ethiopien (Ethio-Djibouti Railway)
CDM	Clean Development Mechanism
CDS	City Development Strategy
CEO	Chief Executve Officer
CEmONC	Comprehensive Emergency Obstetric and Newborn Care
CFRD	Concrete Faced Rockfill Dam
CIF	Cost Insurance & Freight
CRGE	Climate Resilient Green Economy
CSA	Central Statistical Authority/Agency
DAP	Diammonnium Phosphate
DCT	Doraleh Container Terminal
DLDP	District Level Decentralization Program
DPPA	Disaster Prevention and Preparedness Agency
EA	Expansion Area
EAE	Ethiopian Airports Enterprise
ECA	Economic Commission for Africa
ECIC	Ethiopian Chemical Industry Corporation
ECX	Ethiopian Commodity Exchange
EDHS	Ethiopia Demographic and Health Survey
EDRI	Ethiopian Development and Research Institute
EEA	Ethiopian Economic Association
EfW	Energy from Waste
EFFORT	Edowment Fund For the Rehabilitation of Tigrav
EHRS	Ethiopian Highland Reclamation Project

EIA	Ethiopian Investment Agency
EIZDC	Ethiopian Industrial Zones Development Corporation
EMA	Ethiopian Mapping Agency
EMAA	Ethiopia Martime Affairs Authority
EMIS	Education Management Information System
EEPCO	Ethiopian Electric Power Corporation
EPA	Environmental Protection Authority
EPC	Engineering Procurement and Construction
EPRDF	Ethiopian People's Revolutionnary Democratic Front
ESDP	Education Sector Development Program
ESLSE	Ethiopian Shipping and Logistic Services Enterprise
ERA	Ethiopian Road Authority
ERC	Ethiopian Railway Corporation
ESP	Education Sector Development Programs
ETB	Ethiopian Birr
ETP	Education and Training Policy
EU	European Union
EWCA	Ethiopian Wildlife Conservation Authority
EXIM	Export/Import
FAO	Food and Agriculture Organisation
FDI	Foreign Direct Investment
FDRE	Federal Democratic Republic of Ethiopia
FeMSEDA	Federal Micro and Small Scale Enterprises Development Agency
FIA	Federal Investment Agency
FOB	Free On Board
FTA	Federal Transport Authority
GC	Gregorian Calendar
GDA	Geothermal Development Associates
GDI	Gross Domestic Income
GDP	Gross Domestic Product
GER	Gross Enrollment Ratio
GERD	Grand Ethiopian Renaissance Dam
GHG	Greenhouse Gas
GIS	Geographical Information System
GIZ	Deutsche Gesellshaft für Internationale Zusammenarbeit
GSE	Geological Survey of Ethiopia
GTP	Gross and Transformation Plan
HGV	Heavy Goods Vehicles
HEW	Health Extension Worker
HP	Health Post
HQ	Head Quarter
HSDP	Health Sector Development Plan
Hz	
IAU Idt	Institut d'Aménagement et d'Urbanisme Ile de France
IBD	Important Bird Area
ICPS	Inter Censal Population Survey
ICT	Inland Container Terminal

IDA	International Development Agency
IDRC	International Development Research Centre
IGAD	Intergovernmental Authority on Development
IHDP	Integrated Housing Development Programme
lied	International Institute for Environment Development
ILRI	International Livestock Research Institute
IMF	International Monetary Fund
IMR	Infant Mortality Rate
IMT	Intermediate Means of Transport
IPCC	International Panel for Climate Change
ITCZ	Inter Tropical Convergence Zone
IZ	Industrial Zone
Kg	Kilogram
Km	Kilometre
LED	Local Economic Development
LDP	Local Development Plan
LNG	Liquid Natural Gas
LRT	Light Rail Transit
MAA	Maritime Affairs Authority
MoARD	Ministry of Agriculture and Rural Development
MoCT	Ministry of Culture and Tourism
MoE	Ministry of Education
MoEF	Ministry of Environment and Forests
MoFED	Ministry of Finance and Economic Development
МоН	Ministry of Health
Mol	Ministry of Industry
МоМ	Ministry of Mines
MoWIE	Ministry of Water, Irrigation and Energy
MoUDHC	Ministry of Urban Development, Housing and Construction
NDP	Neigbourhood Development Plan
MW	Megawatt
NER	Net Enrollment Ratio
NGO	Non Governmental Organisation
NLUP	National Land Use Plan
NMSA	National Meteorology Service Agency
NPC	National Planning Commission
NRS	National Regional State
NTDP	National Tourism Development Policy
NUDP	National Urban Development Project
NUDS	National Urban Development System
NULS	National Land Use Strategy
OSZ	Oromia Special Zone
OUPI	Oromia Urban Planning Institute
PAID	Port Autonome International de Djibouti (Autonomous Port of Djibouti)
PASDEP	Plan for Accelerated and Sustainable Development to End Poverty
PFM	Participatory Forest Management
PPM	Power Purchasing Agreement

PPP	Private Public Partnership
PV	Photo Voltaic
REDD+	Reduction Emissions from Deforestation and Forest Degradation
RFP	Request for Proposals
RSDP	Road Sector Development Program
SC	Steering Committee
SLMP	Sustainable Land Management Project
SMNP	Simien Mountains National Park
SNNPR	Southern Nations, Nationalities and Peoples Regional State
SP	Structure Plan
SPEE	Soviet Petroleum Exploration Expedition
SVC	Static Var Compensators
SWOT	Strengths, Weaknesses, Opportunities and Threats
TAC	Technical Advisory Committee
ТАН	Trans African Highway
TCF	Trillion Cubic Feet
TFR	Total Fertility Rate
TEU	Twenty-foot Equivalent Unit
TOR	Terms of Reference
UAE	United Arab Emirates
UDM	Urban Design Manual
UDP	Urban Design Plan
UGGCB	Urban Good Governance and Capacity Building Bureau
ULG	Urban Local Governments
UMP	Urban Management Program
UNCTAD	United Nations Conference on Trade and Development
UNECA	United Nations Economic Commission for Africa
UNESCO	United Nations Education and Science Council Bureau
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations Children's Fund
UN WUP	United Nations World Urbanisation Prospect
UPSBB	Urban Planning, Sanitation and Beautification Bureau
URRAP	Universal Rural Road Access Program
USA	United States of America
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
WB	World Bank
WBISPP	Woody Biomass Inventory and Strategic Planning Project
WHO	World Health Organisation
VKM	Vehicle Kilometer

## Acknowledgements

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Egis International in association with IAU-IdF & Urba Lyon – Existing Situation and Diagnostic Final Report (March 2015)

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# **Executive Summary**

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## **Executive Summary**

### Purpose and Context of the Report

This report (entitled: *The Existing Situation and Diagnostic Report*) is an output of the National Component (Component 1) of the National Urban Development Spatial Project (NUDSP). The report provides the necessary background information and analysis that is required in order to prepare the scenarios of urban development (to 2035) and the accompanying proposed national land use map for 2035.

Following the construction of the urban scenarios a preferred (or consolidated) scenario will be chosen, which could be any one of the proposed urban scenarios, or a hybrid of one scenario, or a composite constructed from two or more of the scenarios. The preferred scenario will be the basis of the vision of the urban sector in Ethiopia in 2035, which will address the location, size and function of key urban settlements across the country, how they are linked, and how they interact with their hinterlands.

A vision of the urban sector is required in order to:

- Support national economic growth: The Governments' first Growth and Transformation Plan (2010/11-2014/15) provided favourable economic conditions for urbanisation. It is the urban sector, however, that will allow the continuing successful implementation of the GTP process (with GTP II, 2014/15-2019/20, and GTP III, 2019/20-2024/25). This is so as economic development requires service functions that are only created, sustained and developed in urban environments. These services 'unlock' the development of the broader economy. Indeed, Ethiopia needs to urbanise in order to reach Middle Income Country status by 2025, in line with GTP II and III.
- **Promote equitable regional development:** Development is required over and above growth. Growth tends to concentrates in locations at which the greatest returns can be generated (in Addis Ababa for example). This can be socially devisive, as those not found in the selected locations are often marginalised. A clear vision for the urban sector is required in order to ensure that balanced urban development and equitable regional development is promoted which will underpin social harmony and progress, which in turn is necessary for further economic progress.

A key challenge that must be addressed if the vision is to be effective lies within each urban settlement, namely how the settlements are designed, planned, managed and serviced. Poor design, rudimentary physical planning, ineffective management and the lack of urban infrastructure and services quickly leads to the rise of agglomeration diseconomies, such as congestion, overcrowding and pollution, the development of dysfunctional urban markets (such as the urban housing and land markets) and a difficulty in attempting to improve the business environment. This bundle of problems can easily result in the failure of the whole urban system; urbanisation becomes chaotic and economic development stalls.

Avoiding such a deleterious outcome in Ethiopia may be difficult. The numbers of those residing in urban areas is expected to increase dramatically over the coming 20-25 years; indeed estimates indicate that this population could triple in size. Coping with this massive increase will strain the resources, and capacities and capabilities of Federal and city administrations alike and may, at times, appear to be overwhelming. Nevertheless it is vital to ensure that all urban settlements, especially those higher up in the urban hierarchy in each region, are characterised by adequate infrastructure and services, are well managed, and that their expansion is carefully planned and designed. Only by so doing will the vision for Ethiopia's urban sector be fully realised; only then will economic development be successfully supported and underpinned by *Plan–Led urbanisation and industrialisation* (see Figure 0-1).



Figure 0-1: Plan-led urbanisation accelerating the Implementation of GTP II and III

Source: The Consultant

While the urban scenarios will provide a roadmap to the future, a vision of what the urban system should and could be like in order to promote national economic progress and balanced regional development, it is the work of the urban component (Component 2 of the NUDSP) that will provide practical guidance on the ground needed in order to translate the vision into reality. This second component is focused on the production of neighbourhood and urban design plans, and the preparation of an urban design manual applicable across the country.

A vision for the future in the absence of concrete implementation steps is likely to fail. For any national urban development spatial plan to succeed a country needs a vision for its urban future and a clear plan for implementing that vision. This combination of vision and associated 'action plan' is the over-arching objective of the NUDSP; making both components of the NUDSP work together is of crucial importance for Ethiopia. Only by combining both components will effective Plan–Led urbanisation be possible.

### The Report as the Foundation for the Urban Scenarios

As stated above this report provides the necessary background information and analysis that is required in order to prepare the scenarios of urban development (to 2035). The scenarios will be built from the bottom-up (see Figure 0-2). They will be based on an understanding of <u>existing situation</u> and how it is most likely to change given an assessment of four key and readily identifiable <u>change drivers</u>, namely:

- On-going and planned infrastructure investments (e.g. important economic infrastructure investments, such as recently built or planned industrial zones, special economic zones, agro-industrial parks, agro-industrial growth corridors, and dry ports; important physical infrastructure investments such Renaissance Dam; and major transportation investments and key energy projects)
- Existing, future and potential economic activities (e.g. mineral extraction and use; the development of large commercial farms and sugar plants; light manufacturing opportunities including value addition in agro-processing and the future development of the textile sector; service opportunities including tourism and BOP [back-officeprocessing] developments)
- Existing and potential constraints on urban development (e.g. environmental hazards such as increasing water stress; inadequate urban management capacity and capabilities; inadequate urban infrastructure and services; and problematic urban housing and land markets)
- **Urban strategy and policy**, namely Government policy directives concerning the urban sector and the impetus and continuing impact of the over-arching GTP strategy.

Having outlined possible futures (scenarios) for the urban sector from the bottom up, a selected number of international benchmark countries are chosen. These are countries the urban system of which is similar to that of Ethiopia, or countries that have been through an urbanisation process that Ethiopia is entering, and / or countries that have or had urbanisation goals and targets similar to those of Ethiopia. These benchmark countries are used to validate and calibrate from the 'top-down' the urban scenarios that have been built from the 'bottom-up'.

The finalised scenarios will be reviewed with the MoUDHC in order to identify a preferred or consolidated scenario, which will be the vision for the urban system (2035)<sup>1</sup>. The task for Government will be to devise policy changes, and programme and project interventions that can be implemented in the future in order that the vision for 2035 is achieved.

This Executive Summary presents an overview of the nature of the existing urban system of Ethiopia and an assessment of the change drivers. These issues are more fully discussed in the main text and presented in thematic chapters; for example, environmental resources and constraints on urbanisation, infrastructure investments and their impacts on urbanisation, and economic developments and their relationship to the urbanisation process.

<sup>&</sup>lt;sup>1</sup> It should be noted that the scenarios are likely to be linked and may represent a transition, namely the urban system can evolve form one scenario to another; from, for example, a corridor based form of urban development which over time transforms into a cross between a polycentric and meshed form of development. The transition from one scenario to another constitutes a 'pathway' to the future. These issues will be fully discussed in the Scenario Report.





Source: The Consultant

### The Existing Urban System

The geographical pattern of urban settlements is concentrated and unbalanced. Most of the urban settlements can be found in the Highland areas of the country, and most of the urban population is concentrated in a few cities, namely Addis Ababa and the regional and zonal capitals. Some regions are devoid of any large urban settlements (see Map 0-1). Furthermore, many urban settlements are too small to function as key economic service centres for a modern industrial economy as envisaged by the Government.

Clearly, the urban settlement pattern of the country is dominated by its capital city, which acts as a magnet for individuals, and domestic and foreign companies. Around 30% of the national GDP is generated in and by the capital and it is here that you find large public investments (e.g. the building of the mass transit (LRT), the centre of national rail system for freight and passengers, and the project for a new international airport). Industrial investments often locate no more than 80-100 kms around Addis. Indeed, Addis Ababa concentrates a large fraction of the nation's urban jobs in most of the high value-added service sub-sectors. While 20% of the country's urban labour force works in Addis Ababa, the capital city is home to 68% of the country's urban jobs in real estate, 40% in information and communication, and 36% in financial services. Furthermore, Addis Ababa is the seat of key Pan-African institutions and thus hosts foreign dignitaries and the staff of international organisations.

### Urban Population Trends and Projections

Recent trends show a steady increase in the numbers that reside in urban areas and an increase in the number and size of the smaller urban settlements; the number of towns increased from 794 in 1994 to 973 in 2007. These trends are expected to be amplified in the future; the urban population will significantly increase (up to threefold over the coming 25 years) and the primacy of Addis could be reduced, primarily because of the increase beyond Addis not because of any contraction in the numbers living in the capital city. Table 0-1 shows the increase in the population residing in urban areas as expected by CSA (2014-2037), and Table 0-2 shows the estimates calculated by the Consultant for roughly the same time period (2012-2037); details of the methodology used to calculate the projects are given in Appendix C.

Regions	2014	2019	2024	2029	2037	% increase 2014-2037			
Oromia	4,647,000	5,933,000	7,595,000	9,617,000	13,562,000	+191.8			
Amhara	3,127,000	4,090,000	5,198,000	6,436,000	8,711,000	+178.6			
Tigray	1,200,000	1,547,000	1,964,000	2,447,000	3,334,000	+177.8			
SNNP	2,707,000	3,497,000	4,404,000	5,449,000	7,334,000	+1709			
Harari	125,000	145,000	166,000	189,000	228,000	+82.4			
Somali	764,000	893,000	1,039,000	1,202,000	1,511,000	+97.8			
Afar	290,000	387,000	504,000	638,000	897,000	+209.3			
Gambela	124,000	165,000	217,000	278,000	392,000	+216.1			
Benishangul	189,000	258,000	340,000	441,000	640,000	+238.6			
Dire Dawa	268,000	313,000	366,000	427,000	533,000	+98.9			
Addis Ababa	3,119,000	3,604,000	4,030,000	4,447,000	5,132,000	+64.5			
Total	16,734,000	20,965,000	25,960,000	31,687,000	42,274,000	+152.6			

Table 0-1: Projected Urban Population by Region

Source: CSA and Consultant's own calculations. The figures are extracted from the medium variant of CSA including Dire Dawa, Population Projections for Ethiopia 2007-2037 from <a href="http://www.csa.gov.et/images/general/news/icps2012pro">http://www.csa.gov.et/images/general/news/icps2012pro</a> report.pdf consulted in November 2014.

Map 0-1: Urban population ans growth rates (1994 and 2007)



Source: CSA 1994 and 2007 Census

	2012			2037				2012-2037	
								Urban	Addition of
				2037 Total		% urban	2037 Urban	population	urban
				Population	2037 Urban	population	population	variation	population by
			% urban	(based on CSA	Population	by region	distribution	2012-2037	region 2012-
	2012 Total	2012 Urban	population	Low fertility	(higher	2037 (Higher	(Higher	(Higher	2037 (Higher
	Population	Population	by region	scenario at	urbanization	Urbanization	Urbanization	Urbanization	Urbanization
Region	(estimation)	(estimation)	2012	national scale)	scenario)	scenario)	scenario %)	scenario)	scenario)
Tigray	4,773,000	1,080,000	23%	7,479,000	3,841,000	51%	7.6%	2,761,000	2.56
Afar	1,590,000	256,000	16%	2,820,000	1,369,000	49%	2.7%	1,113,000	4.35
Amhara	19,221,000	2,783,000	14%	25,440,000	9,186,000	36%	18.2%	6,403,000	2.30
Oromiya	31,094,000	4,221,000	14%	47,348,000	16,645,000	35%	32.9%	12,424,000	2.94
Somali	5,027,000	716,000	14%	8,268,000	2,719,000	33%	5.4%	2,003,000	2.80
Benishangul Gumuz	918,000	165,000	18%	1,566,000	694,000	44%	1.4%	529,000	3.21
SNNP	16,977,000	2,419,000	14%	25,320,000	7,769,000	31%	15.4%	5,350,000	2.21
Gambella	370,000	110,000	30%	907,000	511,000	56%	1.0%	401,000	3.65
Harari	214,000	117,000	55%	419,000	321,000	77%	0.6%	204,000	1.74
Addis Ababa	3,046,000	3,046,000	100%	6,648,000	6,648,000	100%	13.1%	3,602,000	1.18
Dire Dawa	402,000	252,000	63%	988,000	855,000	87%	1.7%	603,000	2.39
Total	83,632,000	15,165,000	18%	127,203,000	50,558,000	40%	100.0%	35,393,000	2.33

Table 0-2: Urban Population Projection - the Consultant's current Fast Urbanisation scenario

Source: CSA (2013) and Consultant's own calculations and urbanisation scenarios (as of Nov, 2014).

The Consultant's estimate of the numbers residing in urban areas in 2037 (some 50 million) is higher than that of the CSA (some 42 million) as the 'acceleration' of the rate of urbanisation that can be expected due to the structural changes of the economy have been taken into account. These structural changes both facilitate and require the rapid development of urban functions, and have been implemented through major industrial investments (e.g. SEZs; sugar factories; new manufacturing plants); significant transportation improvements and a policy focus on developing urban centres and functions.

### Drivers of urbanisation

With 85% of its employed population working in agriculture and a very narrow industrial base, Ethiopia is still one of the most agrarian countries in the world. But it is also one of the fastest growing economies in the world, posting 10-11% average annual growth rates since 2004. The country is increasingly attractive to foreign and domestic investors due to the large array of its resources and investment opportunities in, for example, mining, large-scale infrastructure investments; commercial farming and agro processing; industry and light manufacturing; and tourism (refer to Chapter Five on Economic Development for more details).

The Government of Ethiopia is intent on fostering the growth and diversification of the Ethiopian economy through its on-going Growth and Transformation Plan, GTP I, (2010-2015), continued through GTP II (2015-2020), and then GTP III (2020-2025). As a result, many large-scale projects, either state-owned or privately financed, are being implemented or are scheduled for completion in the near future. They include mega-projects in the energy sector such as the Renaissance Dam, large-scale sugar factories and commercial farms, state-of-the art industrial zones and Special Economic Zones (SEZs), and investments in the mining and extractive industries (e.g. gold, tantalum, potash, and natural gas).

All of these developments are likely to have direct impacts on Ethiopia's urbanisation process, but exactly how will depend on many factors. Two of the most important are as follows:

- Location of the investment: which refers to whether the investment is located in or near-by existing urban areas or in remote and sparsely populated regions of the country. For instance, many of the new sugar factories are being established in remote rural areas characterized by low population densities. This means that during the first years of operation they will probably attract only male single workers living on-site within the plantations. These factories are thus unlikely to create new urban settlements in the short and medium term.
- Employment associated with the investment: For instance, while close to ten thousands of workers are currently working on the construction site of the Renaissance Dam it is planned that the site will host only 400 permanent workers once the Dam is commissioned. Likewise, the large-scale commercial farms in Gambela, SNNP and Benishangul-Gumuz are unlikely to trigger the creation of significant new urban settlements as employment densities (employee per hectare) are generally very low (as detailed in Chapter Four: The Economy). Conversely, the industrial zones, which are being developed or planned on the outskirts of Addis Ababa, Kombolcha, Dire Dawa and Hawassa, are expected to attract tens of thousands of permanent workers so adding to the already densely populated urban areas.

The main factors that encourage urbanisation are illustrated in Map 0-2 (and described in detail in the main text). They include the following:

- **Proximity to existing cities**: an important trigger of new urban development due to agglomeration and metropolisation effects
- **Population density and growth rate**: Populous areas, especially those characterised by high population growth rates, facilitate the emergence of towns
- Administrative status of the urban settlement: whether a regional or zonal capital or a chartered city
- Surplus agriculture production: which can attract workers and stimulate urbanisation
- Presence of new and large commercial farms and agro-industries: that attract new workers to the regions in which these farms and industries are located, and which could, over time, encourage the formation of urban settlements
- **Presence of non-agricultural economic assets**: such as minerals (and their extraction) and industrial areas that attract job seekers and encourage urbanisation
- **Mega investment projects**: such as dams, sugar factories, fertilizer factories etc...that concentrate workers in specific areas and so encourage urbanisation
- Large infrastructure investments: such as airports, major transportation investments (e.g. the highway to Djibouti and Hawassa), and dry ports all of which attract investment and create jobs
- **Major Universities** that create knowledge and train people, and potentially support entrepreneurial activity and innovation in their local economies
- **Tourism assets**: both natural, and cultural that offer opportunities of jobs in their surroundings (natural parks and heritage cities like Harar, Gondar, Axum)

Indirect impacts of private sector investment projects on urbanisation should also be taken into account. These impacts include the capacity to generate export revenues and so increase Government corporate tax revenues thus allowing the increased financing of urban development.

It is not only the new mega-projects, however, which will have a marked impact on the way in which the urban system evolves over time. Perhaps more important is the existing pattern of urban settlements which, to a large extent, will determine the future pattern of urban settlements, particularly in the short to medium term. There is a 'path-dependency' to urban development, namely what is likely to happen in the future is influenced and constrained by the present. Indeed, it is within the current urban network that we can identify possible and potential growth nodes that are likely to drive the future expansion of the whole urban system.

The potential of many of these growth nodes will depend on their exact location. If they are located within areas with more or less favourable agricultural potential they are more likely to follow a "virtuous" urbanisation path based on food security, the development of agro-industries and agriculture-related services, and manageable levels of rural to urban migration. Conversely, potential growth nodes, which are located within less favourable rural hinterlands, are more likely to be threatened by issues of food insecurity or higher food supply and transportation costs, as well as by inflows of large numbers of rural migrants from poor rural areas. The potential of these nodes may be completely compromised and as a consequence their growth minimal. All these factors will be addressed in detail in the forthcoming 'Urban Scenarios report'

### **Constraints on Urbanisation**

Constraints that may hinder the development of the urban sector include the following:

- Natural hazard constraints (see Map 0-3 overleaf and Chapter 2: Environmental Resources): The vulnerability of cities to natural hazards is likely to increase in the future given the expected significant urban population expansion. These hazards include flooding, landslides, seismic activity and various forms of environmental degradation and pollution (many of which are likely to be amplified due to adverse climate change impacts). Perhaps the most important vulnerability or constraint is that related to water: its availability and/or scarcity (drought). Urban populations and water intensive industries generally require large quantities of water. Urban and industrial developments are likely to be limited in water scarce areas or require significant measures to overcome the scarcity (e.g. transporting water from other areas building an Ethiopian water-grid similar to the existing electricity-grid). Many of these measures, however, are costly and it is likely that they could only be considered when the economy was large enough to generate the required funds. But such constraints must be assessed and mitigation measures devised. This is a crucial task as it is estimated that the country will reach the 'hydric stress threshold' in only six years (in 2020).
- Economic and social constraints (see Chapter 3: Population; Chapter 4: The Economy and Chapter 5: Infrastructure). The impact on urbanisation of the growth model currently characterising the country is profound. Government-led, investment driven, export development based on low cost factors of production is generating remarkable growth rates. But the structural transformation of the economy is slow, the size of the export sector remains small, productivity increases are not dramatic, 'crowding-in' the private sector has not been as rapid as hoped, and the need to focus on value addition across the economy is marked. If the structural change is slow the urbanisation process is likely to slow down. More specifically, dysfunctional housing and land markets operate in urban areas (one consequence of which is the continuing lack of affordable housing and the expansion of the informal land market and

settlements /slums). Poor levels of education, seemingly intractable urban poverty, the limited affordability of transportation services for most of those living in urban areas and the poor business environment (Ethiopia lags behind its peers in Global competitiveness rankings) all constraint the development of the urban sector. Mention should also be made of accessibility constraints due to remoteness of some areas, the proximity to borders with security risks, and the lack of efficient transportation infrastructure.

• Urban management and financial constraints (see Chapter 7: Institutions and Finance). As stated in the Urban Development Policy of the Government: -

"Urban development is unthinkable without good governance...... our cities have grown only sluggishly and have not attained the image and feel of typical urban centre. They have therefore become not centres of development in their vicinity, but centres of unemployment, begging, worn-down neighbourhoods which have failed to satisfy the demand of their dwellers as weak governance, low financial capacities of local bodies, weak capacities of human resources".

The capacities and capabilities needed to manage, guide and finance urban development must be significantly improved, especially in cities outside of Addis Ababa, which are those urban areas that are expected to assume the bulk of the massive urban population increase over the coming 20-25 years. Indeed, the shift towards an urban economy underpins and requires financial decentralisation but the lack of resources currently hinders the provision of urban infrastructure and services. New financing methods are required and could involve private-public partnerships and the private sector provision of some services, especially those used by middle and upper income groups.

### The Future without Plan-Led Urbanisation

In the absence of plan-led urbanisation, the most likely evolution of the urban settlement pattern of Ethiopia is as follows:

- Concentration in and around Addis Ababa primacy is maintained, and perhaps strengthened
- Growth at a few selected Growth Poles many designated growth poles are likely to perform similar functions and some could be in direct competition; their growth may be muted and their ability to host the type of urban services required for a modern industrial economy will be reduced.
- **Growth along a few corridors** those with the greatest traffic and containing the urban settlements with the greatest economic development potential

Urbanisation is likely to be concentrated in the central, western northern regions and along, the Addis Ababa–Adama; Eastern; Northern and North-Eastern Corridors. The southern and western regions of the country are both relatively well suited to urban growth and expansion but there are no current designated secondary cities or growth poles for these regions

Map 0-2: Factors encouraging urbanisation.



Source: Consultant's own analysis

Map 0-3: Natural hazard constraints on urbanisation



Source: Consultant's own analysis

Some of the on-going and planned 'mega' projects, such as fertilizer plants and the sugar factories, will generate new settlements for workers and their families, but many will not. Furthermore, at present there appears to be a lack of urban and economic development opportunities in the south eastern areas of the country.

Figure 0-3: The future of the urban sector in the absence of Plan-Led Urbanisation?



In general, if plan-led urbanisation is not adopted, a concentrated and unbalanced urban system is likely to prevail – one that will struggle to support the implementation of GTP II and II. Worse, in the absence of efforts to ensure that urban areas are appropriately managed urban agglomeration diseconomies could rapidly materialise. Instead of witnessing the development of cities and towns that generate significant employment, which are characterised by low levels of unemployment, and are pleasant and invigorating places in which to live with green spaces and a range of cultural and social services, the urban sector in the future could be characterised by congestion, pollution, overcrowded informal settlements, unemployment and social distress and tensions.

### **Urban Expansion – Current Trajectories and Options**

The Government wants to reverse the current unbalanced urban system by actively supporting the emergence of a more 'balanced' urban system. At the same time the Government wants to encourage the development of a system of urban settlements that functions in a way that facilitates and encourages the development of a more modern and industrialised economy; the urban system is to underpin GTP II and III. Indeed global experience has demonstrated that modern urban services 'unlock' the rest of the economy.

There is a range of policy and programme instruments that the Government can marshal and deploy in order to achieve its goals including:

- The designation of Growth Poles, on which public sector investments are focused
- The identification of Economic Growth Corridors, based on transportation corridors and the developmental potential of the cities along these corridors
- The identification of City Clusters, many of which can support the expansion of the economic development corridors
- The promotion of small city markets; the implementation of more than 500 markets in small cities could trigger the emergence of a number of small towns

- The creation of one urban centre per three rural Kebele. The rural centre policy of Ministry of Agriculture and Rural Development involves the provision of one service cooperative and one primary market along with other services in a place favourably selected and adjacent to three rural Kebeles. This 'place' will plausibly become an urban centre in the future
- Sector policies, strategies and actions to develop urban services; e.g. solid waste and sanitation, paved road, street lighting, housing, greenery, public transportation
- City grading, to define city status and then develop criteria for budget allocations

These initiatives and policies are directly influencing how the urban system is evolving today into the future, and will be fully taken into account when constructing the urban scenarios for 2035. There are 'gaps' in the policy framework, however, that should be addressed. For example, regional development urban schemes (RUDS) do not exist though outline RUDS diagnoses have been prepared for the four most populous regions (Amhara, Oromia, SNPP and Tigray). The current preparation of the NUDSP could provide the framework for these RUDS. Indeed, there is a need to create a nesting of plans; Figure 0-4 below is a stylised diagram of one possible nesting that could be used to improve the current plan hierarchy and to manage the urbanisation process (see Chapter 7: Institutional & Finance Systems; Figure 7-1)



Figure 0-4: Stylised illustration of possible 'nesting' of plans needed to implement the NUDSP

Source: Consultant's Assessment

An important change to the urban sector of Ethiopia that is currently occurring is an increase in scale leading the emergence of a number of key cities and city clusters (see Map 0-4):

- A single metropolitan urban cluster, focused on Addis-Ababa with the urban cluster of Adama/Mojo/Bishoftu and the cities of Ambo, Debre Birhan, and Assela in its sphere of influence
- Three urban clusters with one or more leading cities: Mekele in the Tigray cluster, Bahir Dar and Gondar in the Tana Lake cluster; and Dire Dawa, Harar and Jijiga in the Western cluster; each with a range of related intermediate and smaller cities
- **Two urban corridors along main roads**: Dessie in the Northern corridor and Hawassa in the Southern Rift corridor each surrounded by a number of smaller settlements
- Four emerging urban clusters and corridors: The Jimma cluster, the Nekemte cluster, the Gojam corridor near Tana Lake, and the Southern urban Rift corridor.

The emergence of these urban clusters and corridors will require new management tools, particularly collaborative tools to enable planning across cities and to highlight (and encourage) synergies and complementary development. Regional development plans should encompass the large hinterlands of each city cluster and corridor. These plans should accelerate cost based integration into Ethiopian and global value chains with strong regional / hinterland spillovers (refer to Figure 0-4 above, and see Map 0-5, which shows the location of the emerging city clusters and corridors in relation to the size and potential of their agricultural and rural hinterlands, and Map 0-6, which shows the location of the economic development potential of the country)

#### Urban development and the role of Addis Ababa

Addis Ababa is extremely important. It is one of the most important engines of the Ethiopian economy, and is the seat of key national public and private decision makers. It is the biggest urban consumer and job market in the country. The majority of industrial operations and HQs are located in or around Addis Ababa, and, in general, investors are choosing Addis Ababa and its immediate hinterland over every other location in the country because of its excellent connectivity (domestically and internationally), and the availability of business and professional services, and skilled workers. Furthermore, the quality of urban infrastructure and services is better than can be found in any other city in the country.

The primacy of Addis Ababa, however, *is* reducing for several reasons:

- Higher population growth in other cities and regions (see Chapter Three: Population)
- Better communication inside the country triggering new opportunities for economic and urban development beyond the Capital (see Chapter Five: Infrastructure)
- The rise of new economic sectors (e.g. cut-flowers, mining, commercial farms, tourism) that facilitate the emergence of new cities (see Chapter Four: Economy)
- Important public investments in other cities (including universities, stadiums, conference centres, roads)
- Upgrading of urban infrastructure and services, and the development of the energy sector which has increased the attractiveness of cities beyond the Capital
- A federal system that facilitates the emergence of region capital cities.

Map 0-4: Urban clusters



Source: Consultant's own analysis, based on CAS Census and ERT traffic data
Map 0-5: Urban clusters and their hinterlands



Source: Consultant's Assessment

Map 0-6: Economic Development Potential



Source: Consultant's Assessment

Nevertheless the advantages of Addis Ababa will always be strong and unique because it is the Federal Capital of Ethiopia, and an international hub and diplomatic city. Furthermore, in order to support continuing economic growth of the country it may be appropriate to allow concentrated development based on economic comparative advantages. In that case Addis Ababa is likely to remain dominant within the country. Indeed it may be costly (and less efficient economically) to divert resources from the Capital to other cities as investment and broader economic returns will remain greater in Addis Ababa for many years to come.

It may be better to gradually and incrementally increase support for other cities while steadily reducing support for Addis (hopefully the city will be able to self-generate enough revenues to look after itself). In this regard the Chinese experience is instructive (see the International Case Studies presented in Chapter 6: Urbanisation). Over a 30 year period the Chinese developed urban areas located on the main communication hubs, a polycentric urban pattern was then promoted followed by attention given to the development of the smaller cities. **Transitioning from one urban pattern to another (from one urban scenario to the other) is an important, practical and economically efficient way to achieve a 30-40 year urban vision**.

## Challenges associated with Rapid Urbanisation

The urbanisation of Ethiopia will create new conditions and opportunities for economic development, but also will require improvements in urban planning and management if significant agglomeration diseconomies are to be avoided. It should be remembered that excessively rapid urbanisation *could* tip the country into a poverty trap with many urban areas characterised by congestion, over-crowding, unemployment, slums, poverty and environmental degradation instead of economic growth and inclusive social development. Rapid urbanisation could severely limit development if it is not managed in such a way that supports economic development and buttresses social welfare improvements. Several countries have experienced high level of urbanisation without equitable economic development (e.g. Bangladesh, Nigeria, and Cameroon) and have witnessed the rise of slums, poverty and urban unemployment which have compromised economic prosperity. This is to be avoided in Ethiopia as far as possible.

Indeed excessively rapid urbanisation *could* out-strip the Country's capacity and capability to manage the process of urbanisation if appropriate actions are not taken in a timely manner. New tools will be necessary in order to deal with the challenges of rapid urbanisation. Meeting these challenges will necessitate enhanced cooperation amongst different levels of government, and between urban government administrations. This co-operation can be expressed and channelled through the NUDSP, which will provide the framework for urban, regional, and sectoral policies based on a *shared vision* for the urban sector over the coming two to three decades. It will fix the framework for large investment projects and regional coordination as the Federal State co-develops the urban and regional economies with the Regions and cities

The case study of China is instructive: At the beginning of the 1980s China's economy was similar to that of Ethiopia today. Today's China's GDP per capita tops US\$ 6,000; – urbanisation was crucial to achieve economic progress, and remains a top priority (see Evidence Box below). Strong direction from Government; its ability to invest in infrastructure to support development; its policy of 'balancing' development across the country by *inter alia* establishing urban growth poles, have led to the impressive urban-industrial-economic development of China. The country's experience shows how to go from a 20% urbanisation rate to over 50% in only three decades. The NUDSP for Ethiopia can perform a similar function.

## Evidence Box: China Wants Its People in the Cities to Grow its Economy

Urbanisation has been designated a national priority. On March 16, 2014, the State Council and the central committee of the Communist Party released the "National New-type Urbanisation Plan (2014-2020)," which sets clear targets: By 2020 the country will have 60 percent of its people living in cities, up from 53.7 percent today......To prepare for the new masses, China knows it must vastly expand urban infrastructure and services. The plan calls for ensuring that expressways and railways link all cities with more than 200,000 people by 2020; high-speed rail is expected to link cities with more than a half million by then. Civil aviation will expand to be available to 90 percent of the population. Access to affordable housing projects funded by the government is also expected to rise substantially......China will map out city clusters across the country's central, western and north eastern regions and develop them into engines for growth as part of its urbanisation strategy, according to the nation's leadership.

Source: http://www.businessweek.com

Figure 0-5 overleaf summaries the factors that are promoting urbanisation and those that may hinder it. The figure also lists the challenges that must be addressed if urbanisation is to proceed smoothly and in a manner that facilitates and supports balanced and equitable growth. The key challenges related to institutional strengthening; the need to generate financial resources (particularly self-generated by the cities); the need to response to adverse climate change impacts, and the importance of focusing on value addition initiatives so improving economic returns and prospects. Of particular note is the urban infrastructure and service challenge; if urban settlements become characterised by agglomeration diseconomies, dysfunctional markets, unemployment and social tension, the target of Middle Income Country status will prove to be elusive

## The Next Steps – Producing the Urban Development Scenarios

As stated above, this report constitutes the background information required in order to prepare the urban scenarios (2035) and the associated proposed land use map for 2035. The preferred scenario will be the vision for the urban sector in 2035. This vision together with recommendations as to how it can be implemented will constitute the fundamentals of the Plan-Led Urbanisation as required by the Government (see Figure 0-6). Discussions with the MUDHCo will be necessary in order to ensure co-ordination between the NUDSP and national sector and regional policies and strategies. The urban vision presented within the NUDSP will also feed into the preparation of the GTP II and III and, as such, coordination with the National Planning Commission and MoFED will be necessary.

The Consultant's plan is to submit the urban scenarios in early March (2015). It is recommended that a workshop is held with the TAC and SC (and any other stakeholders that the TAC and SC feel should participate) in order to discuss and validate the urban scenarios, and, most importantly, to co-design with the Consultant the preferred or consolidated scenario which is to be the vision for the future of the Ethiopian urban sector and system. The Consultant will then detail up the preferred scenario and present the finalised version in the NUDSP final report (in late March 2015); see Figure 0-7 overleaf..

	Tailwinds	Headwinds
	(Promoting urbanisation – and equitable regionally development)	(Constraining urbanisation - and equitable regional development)
•	<ul> <li>Steady population increase (rural-urban migration is increasing)</li> <li>Dramatic recent economic growth</li> <li>Structural change towards an industrial-urbanised economy (an economy that 'requires' urban functions in order to continue to expand.)</li> <li>Potential future economic growth driving structural change and urbanisation: <ul> <li>Agriculture and agro-processing developments will accelerate urbanisation (e.g. cut flowers; sesame seed; coffee; sugar factories; latter likely to stimulate new settlement creation)</li> <li>Light industry expansion (e.g. textiles; footwear)</li> <li>Mineral based investments - extractive industries (e.g. potash; oil)</li> <li>Service sector expansion (e.g. ITC /BOP/Tourism)</li> </ul> </li> </ul>	<ul> <li>Constraints on economic development:         <ul> <li>Export growth not as fast as expected (small size of export sector and underlying vulnerabilities in export structure -unprocessed and undifferentiated agricultural products)</li> <li>Narrow industrial base</li> <li>Slow structural change – industry as a % of GDP only slowing increasing</li> <li>Labour productivity increases in both agricultural and industrial sectors not as fast as expected</li> <li>Poor trade logistics</li> <li>Urban unemployment rising</li> <li>Burdensome business rules that obstruct firm entry (Ethiopia lags behind its peers in Global</li> </ul> </li> </ul>
•	<ul> <li>Recent FDI inflow in the above</li> <li>East African development and intra regional trade increasing</li> <li>Infrastructure facilitating structural change towards an industrial-urban economy:</li> <li>Development of Industrial Zones , SEZs and agro-industrial parks</li> <li>Establishment of Dry Ports</li> <li>Major Transportation improvements (road / airports etc.)</li> <li>Major investments (<i>e.g. Renaissance Dam</i>)</li> <li>Access to state-of-art Djibouti container port</li> </ul>	<ul> <li>Competitiveness rankings and trade restrictions biased against exports)</li> <li>Some commercial farms and investments unlikely to trigger adjacent urban development (see Economic Chapter which explains which investments are likely to stimulate urbanisation and which may not)</li> <li>Settlements created by the new sugar factories located in remote areas may be limited in short-to-medium term (see Economic Chapter)</li> </ul>
•	Emergence of Economic Corridors 'pushing' growth around the country: • Addis – Adama (East Corridor) • Addis – Mekele (North Corridor) • Addis – Kenyan Border (South Corridor) • Addis – Wellega high potential agricultural area (West Corridor)	<ul> <li>Pull of Addis remains strong – industrial development (in short to medium term) likely to be occur with 50 Km radius of the capital. (see Economic Chapter; page 140). Service sector concentrating in Addis</li> <li>Inter-urban and rural-urban linkages remain underdeveloped.</li> </ul>
•	Emergence of geographical dispersed Growth Poles and city clusters (Mekele, Kombolcha – Dessie, Bahir Dar, Hawassa, Dire Dawa:, Jimma; Adama).	Ability of secondary cities / local government to manage and guide development currently limited
	Key Challenges to	Overcome
•	Capacity Challenge: (inability to manage urban growth may be 'ove possible overcrowding, slums and informal settlements expand, cong improve urban governance, management and planning) Financial Challenge (significant resources will be required for urban	rwhelming' leading to agglomeration diseconomies – restion, pollution, social tensions – major challenge to n infrastructure and service provision – calculations
	undertaken by EGIS indicate that unless the private sector is involve budgets – major challenge to structure financial instruments / mecha infrastructure and service	d the financial resources required may overwhelm city nisms that can be used to effectively provide urban

### Figure 0-5: Factors promoting and constraining urbanisation, and associated challenges

- Urban Infrastructure and Service Challenges– these challenges can severely limit growth prospects and often include (a) dysfunctional housing and land markets which are not up to that required of modern industrial-urban economy and (b) the difficulties providing adequate social and health services (e.g. inability to adequately house and service the new urban industrial labour force and possibly rise of informal settlements and slums). These problems educe the attractiveness of urban area to investment. Major challenge to change how key markets (housing / land) operate and improve the provision of urban services (see Chapter 3 for a description of the difficulties involved in providing urban infrastructure and services)
- Economic Challenge (Need to strengthen efforts to increase value addition in agriculture and industry competition based on low waged labour will be time-bound).
- Climate Change Challenge. Climate change impacts may severely affect agriculture and agro-processing operations (could include water availability stress which will directly impact on urban development). Climate and development are directly interlinked in Ethiopia

Source: Consultant's assessment





Figure 0-7: Next steps



Egis International in association with IAU-IdF & Urba Lyon - Existing Situation and Diagnostic Final Report (March 2015)

# Main Text

# 1 Introduction

## Purpose of the report

This report (entitled: *Existing Situation and Diagnostic Report*) is Part 1 of the final report of the National Urban Development Scheme (NUDS). The NUDS is one of two components of the National Urban Development Spatial Project (NUDSP). The other is the urban component which focuses on urban management, planning and design at the level of an individual town or city.

This report presents information and analysis that is required in order to prepare:

- The scenarios of urban development in 2035
- The associated land use map for Ethiopia( as proposed for 2035)

Part 2 of the NUDS will include the finalised land use maps (for 2014 and 2037) and a detailed description of the urban development scenarios prepared by the Consultant, including the scenario preferred by the MoUDHC, which may be a composite, or hybrid of those developed by the Consultant. The preferred scenario will be the basis of the urban development vision for the country for 2037. This vision will constitute the core of the proposed NUDS for Ethiopia. Outline recommendations will be presented in Part 2 concerning how the vision can be implemented in a cost-effective and efficient manner (See Figure 1-1 which shows the role of this report in relation to (a) the key project activities and their sequencing, and (b) other reports to be produced through this Component)



Source: The Consultant's Inception Report submitted to MoUDHCoin revised form in April 2014

An important objective of this Report is to present a comprehensive description and a concise analysis of the existing situation in Ethiopia as it pertains to the information required to prepare the proposed land use map, and the urban scenarios (for 2035). The report should be regarded as a '<u>resource document</u>' required for future work in the project, though it has been produced as a stand-alone report.

## Background

Ethiopia is currently experiencing dramatic changes as regards the urban sector. These changes will have wide-ranging effects over many years to come. One of the most important change is *urban shift*, namely the rapid urbanisation of the country, which is expected to nearly triple the urban population within 25 years (See Chapter 3: Population, Housing and Social Services). This shift is associated with the accelerated economic development of the country that has taken place over the last ten years, the result of progressive Government policies supported by the activities of local and foreign private sector investors.

The urbanisation of Ethiopia will create new conditions and opportunities for economic development, but also will require improvements in urban planning and management if agglomeration diseconomies are to be avoided. It should be remembered that excessively rapid urbanisation *could* tip the country into a poverty trap with many urban areas characterised by congestion, over-crowding, unemployment, slums, poverty and environmental degradation instead of inclusive economic and social development.

Excessively rapid urbanisation *could* out-strip the Country's capacity and capability to manage the process of urbanisation if appropriate actions are not taken in a timely manner. New tools will be necessary in order to deal with the challenges of the urbanisation process, which will involve the massive increase in the number residing in urban areas and the rise of new city regions in the country. Meeting these challenges will necessitate enhanced cooperation amongst different levels of government, and between urban government administrations.

As well as making sure that rapid urbanisation is managed effectively and efficiently it is also necessary to ensure that the future urbanisation of Ethiopia does not reinforce the current unbalanced nature of the urban system. The Ethiopian Government has recognised the importance of reversing this imbalance in order to achieve *equitable economic development*. Indeed, the future of the urban system of the country must be envisioned and pro-actively planned so that *balanced regional development* is achieved. More specifically, the role of Addis Ababa in the national urban system facilitating the equitable development and economic prosperity of the whole country needs to be identified and supported through appropriate policy and project interventions.

## Scope and Coverage

This report is a revised version of the draft submitted at the end of July 2014 and includes changes made in response to comments delivered to the Consultant by the Technical Advisory and Steering Committees (TAC/SC) during October 2014. The Consultant wishes to express our appreciation to the TAC/SC for their thoughtful comments, suggestions and guidance. This report is the final version of the *Existing Situation and Diagnostic Report*.

As stated above, this report is Part 1 of the final report of the National Urban Development Scheme (NUDS). The NUDS is part of the National Urban Development Spatial Project

(NUDSP). The NUDSP involves the development of Neighbourhood Development and Urban Design Plans (NDPs/UDPs) for selected urban areas in Ethiopia, and the preparation of an Urban Design Manual, applicable across the country. This work will make an important contribution to translating the vision of Ethiopia's urban sector in 2035 into concrete steps that can be taken over the coming years.

While the NUDS will provide a roadmap to the future; a scenario or vision concerning what the urban system should and could be like in order to promote national economic progress and balanced regional development, it is the NDPs, UDPs and Urban Design Manual that will provide the practical guidance on the ground needed in order to translate the vision into reality. A vision for the future in the absence of concrete implementation steps is likely to fail. For any national urban development spatial plan to success a country needs a vision for its urban future <u>and</u> a clear plan for implementing that vision. This combination of vision and associated plan is the over-arching objective of the NUDSP; making all the components of the NUDSP work together is of crucial importance.

## Organisation of the report

The report provides a huge range of information necessary in order to prepare the land use maps of Ethiopia and to understand how the urban sector of Ethiopia is changing and, importantly, how the urbanisation process supports balanced regional, economic and social development in Ethiopia and underpins the successful implementation of the Growth and Transformation Plans (I, II and III). This report will also allow the Consultant to outline the actions needed to be taken to ensure that urbanisation targets of the Government are reached and that the significant challenges that will be encountered in attaining these targets can be addressed.

Following this Introduction (Chapter One) the report is organized into a further seven chapters. Each chapter contains a SWOT analysis, and a conclusion with recommendations:

- CHAPTER 2: Natural Resources and the Environment: describes the natural resources, the environmental potential and vulnerabilities of Ethiopia and how these are likely to impact upon the future urbanisation of the country.
- CHAPTER 3: Population, Housing and Social Services: outlines the nature of the population and housing challenges facing country; presents demographic trends; describes the geographical distribution of the population; examines the impact of these changes upon the urbanisation of the country and describes the nature of key social services.
- **CHAPTER 4: Economic Development**: examines existing and potential economic activities, and describes the mega-projects being constructed and planned, and highlights the likely impact of the expected development of the economy upon the future urbanisation of the country.
- **CHAPTER 5: Infrastructure:** The existing situation as regards crucial transportation, communications and power infrastructure and services is described and planned and expected investments are outlined. Their possible impact on the future economic development and urbanisation of the country is comprehensively assessed.

- CHAPTER 6: Urban Development: presents a description of urban settlements across the country, urbanisation trends and projections, and the nature of the challenges to be addressed in managing a process of rapid urbanisation. The urbanisation process in international benchmark countries is described. The current and future role of Addis Ababa in the urban system is also examined.
- **CHAPTER 7: Institutional and Financial Framework**: this chapters highlights the importance of the administrative bodies that are charged to plan and manage urban development at the different levels (national, regional and local), and assesses financial and governance constraints on future urban development.
- CHAPTER 8: Conclusions and Next Steps. The last chapter summarises the key drivers of urban change – drivers that will be taken into account when constructing the urban development scenarios for 2035 to be presented to the MoUDHC – and outlines the actions that the Consultant plans to take to produce the required urban scenarios for 2037.

This report also contains a number of appendices, in which can be found detailed statistics, and facts and figures referred to in the main text, and a review of subjects as required and listed in the Inception Report, but not critical to the arguments and narrative of the main text.

## Data sources and maps

The report uses data provided by line ministries and national agencies. An extensive literature search was also undertaken, so utilising the experiences of many experts and researchers working on the development of national and urban policies. Indeed, the report contains a huge amount of information and diagnostic analysis which can be used as *resource material* and a *reference document* for other projects, and well as constituting the background information required in this project in order to produce the National Land Use Plan which consists of Existing Land Use maps, and the thematic maps included in this Report (e.g. topography, environmentally fragile areas, population distribution, settlement pattern, transportation networks). Maps will also be prepared for the 2035 scenarios of urban development as well as a Future Land Use Plan for 2035 based on the preferred / consolidated scenario co-developed between the Consultant and the MoUDHC. The vast majority of the maps presented in this report have been directly prepared by the Consultant Consortium led by EGIS International<sup>2</sup>.

<sup>&</sup>lt;sup>2</sup>For ease of use the client will be presented with selected maps in A3 format (as and when requested, and under separate cover). The legend and contents of some of the maps may be illegible at the scale presented in this report as the maps are illustrative only. Some of the maps are labelled NLUP as they have been produced as part of the National Land Use Plan component of the project. Also note that UK English (spelling) is used throughout the report and where a source is not recorded for a map, table or figure it is to be assumed that it was produced by EGIS International. All photos and infographics are labelled as 'figures' for consistency.

## 2 Natural Resources and the Environment



Figure 2-1 Abijata-Shalla lakes (source: IAU 2014)

## 2.1 Introduction

This chapter briefly describes the natural resources of Ethiopia, and the country's environmental assets and susceptibility to environmental hazards. The descriptions are required in order to enable the preparation of the Ethiopian land use maps (for the existing situation in 2014 and as proposed for 2035) and to clearly identify the key environmental constraints on future urban development. These constraints must be addressed if the process of urbanisation is to be managed effectively and efficiently.

## 2.2 Natural Resources

## Geological resources and landscape features

The main rock types of Ethiopia (shown in map 2-1) are:

- The Precambrian metamorphic rocks, which form the Basement Complex;
- The Late-Palaeozoic to Mesozoic marine and continental sediments;
- The Cenozoic basic and felsic volcanics and volcano-sedimentary rocks.
- Early Tertiary, Late Tertiary and Quaternary volcanic.

This geology has led to the formation of a range of valuable minerals, the extraction and use of which contributes to the economic development and urbanisation of the country.



### Map 2-1: Geological Map

Ethiopia is a country of great geographical diversity with high and rugged mountains, flat topped plateaus, deep gorges, river valleys and plains (see Map 2-2). The altitude ranges from the highest peak at Ras Dashen (4,533 meters above sea level), in Gondar, down to the Danakil depression (110 meters below sea level), one of the lowest dry land points on the earth which is located in Afar Regional State.

In Ethiopia, lands below 1500 metres are classified as lowlands while lands above 1500 meters are classified as highlands. The highlands constitute around 45% of the total area of the country. There are clear differences between the highlands and the lowlands in terms of climate, population distribution, economic activities, and life styles (these differences, and their impact on urbanisation, are explored in greater depth in subsequent chapters).

Three major physiographic regions can be identified in Ethiopia (a) The North, Central, and South-western Highlands and the associated Lowlands (b) The South-eastern Highlands and the associated Lowlands, and (c) The Ethiopian Rift Valley

The Ethiopian Rift Valley divides the Ethiopian Highlands into two separate parts. The present land forms of Ethiopia were mainly created during the Tertiary period of the Cenozoic era. Igneous, sedimentary and metamorphic rocks are all found in the country. Igneous rocks cover most of the Ethiopian Highlands<sup>3</sup>

<sup>&</sup>lt;sup>3</sup> Source: Paper presented by Initial National Communication of Ethiopia to the United Nations Framework Convention on Climate Change (UNFCCC), June 2001)



Map 2-2: Landscape Features

The Ethiopian highlands dominate the landscape almost everywhere in the country and set the landscape apart from anything else in Africa. Completely different are the extreme lowlands of the Afar region. Geologically known as the Afar Triangle or Afar Depression of Ethiopia, the region is a very active plate tectonic region (Beyene et al. 2005).

Because of the plate movements in three different directions the Afar Triangle is stretched thin and often torn resulting in a series of faults visible in the landscape as long parallel valleys. There is frequent volcanic activity occurred along the faults. The region has a large number of volcanic phenomena, like hot springs and lava flows, with the Erta Ale Volcano being the most active area in the country *(UNFCCC), June 2001*.

The existing urban system is heavily influenced by physical constraints associated with the geology, landscape and geographical position of the country. These constraints have limited human settlements in (a) the highest areas, due to the steep topography and in (b) the lower areas, due to the lack of water resources and the extreme heat that can be experienced.

## Climatic conditions of Ethiopia

The climate of Ethiopia is dominated by the Inter tropical Convergence Zone (ITCZ); and two moist wind systems blowing from the Atlantic and Indian Ocean respectively. In addition, there are climatic variations over relatively short distances in response to relief and elevation differences. As a result, the climatic conditions of Ethiopia vary from hot dry conditions in its Afar and Ogaden deserts to cold moist conditions on its mountain peaks in the Simien Mountains and Bale Mountains National Parks. The diverse climatic conditions support important biodiversity resources, with significant opportunities to agricultural development.

These conditions have also influenced the location of human settlements. The lowlands, which are very hot and lack water resources, are less attractive for human settlements. Most of the cities in Ethiopia are located in the highlands beyond the area of endemic malaria.

## Agro-Ecological Zones

Agro-ecological zones are areas where predominant physical conditions influence agricultural land use options (see Map 2-3). Elevation is the basis for traditional agro ecological divisions, which have long been used to characterize different environments in Ethiopia. The Ministry of Agriculture and Rural Development developed a system of agro ecological zonation in which 18 major zones were defined to characterize the country, based on both temperature and moisture regimes. Each of these zones has characteristic crops found within its boundaries.



## Map 2-3: Agro-Ecological Zones

## Natural land cover

Natural land cover refers to the vegetative coverage of the earth's surface. Most of Ethiopia is covered with forests, woodlands or scrub; at present, only 21 percent of the country is classified as cultivated. Much of the grass and scrubland is used for grazing, but it is either too poor for crop cultivation or supports only limited cultivation. Much of the highland woodland areas are covered with non-native Eucalyptus plantations often planted on steep slopes where it is not feasible to cultivate crops. The Woody Biomass Inventory Strategic Planning Project (WBISPP) conducted in 2005 has estimated the total forest cover to be around 4.0 million hectares or 3.56 % of the area of the country. Some 95 percent of the forest area is located in three Regions: Oromia, SNNP and Gambela regions (see Table 2-1).

REGION	Total (ha)	% of total country area
Oromia	2,547,632	63%
SNNPR	775,393	19%
Gambella	535,948	13%
Dire Dawa	0	0%
Harari	216	0%
Amhara	92,744	2%
Tigray	9,332	0.2%
Benishangul	68,495	2%
Afar	39,197	1%
Somali	4,257	0.1%
TOTAL	4,073,213	3.56%

## Table 2-1: The Extent of Ethiopia's High Forests

Source: WBISPP, study 2005

The FAO report (2010) estimates Ethiopia's forest cover is 12.2 million hectares (11%). The report shows a decline from 15.1 million hectares in 1990 to 12.2 million hectares in 2010. The current forest cover is expected to be greater than that previously estimated due to the result of more effective watershed management practices, and on-going forest tree plantation and soil conservation activities.

The WBISPP 2005 Project estimates that the total area of woodland in Ethiopia is 29.24 million hectares and that of shrub land to be 26.40 million hectares covering 25.5 and 23.1 percent of the country respectively (see Table 2-2). The three Regions with the largest area of woodland and shrub land combined are in order; Somali Region (33%), Oromia (32%) and Amhara (10%); see Table 2-2.Overall changes in the extent of forest cover are clearly observable in some of the regional states.

			•	
REGION	Area (ha) woodland	Percent of total woodland	l Area (ha) shrub land	Percent of total shrub land on country area
Oromia	9,823,163	34%	7,750,422	29%
SNNPR	1,387,759	5%	2,434,779	9%
Gambella	861,126	3%	146,103	0.6
Dire Dawa	0	0%	36,635	0%
Harari	0	0%	7,497	0%
Amhara	1,040,064	4%	4,352,672	16%
Tigray	294,455	1%	1,841,182	7%
Benishangul	2,473,064	8%	1,422,191	5%
Afar	163,657	1%	3,024,697	11%
Somali	13,199,662	45%	5,384,022	20%
TOTAL	29,242,949	25.54%	26,400,200	23.06%

Table 2-2: Extent of wood lands and shrub land cover of Ethiopia

Source: WBISPP, 2005

## 2.3 Environmental Assets

## Environmentally Sensitive Areas

Ethiopia has a wide-range of variation in landscape and climate, which underpins a high diversity of environmentally important fauna and flora. The conservation of important environmental assets has been facilitated by establishing a number of protected areas. Protected area selection, establishment and management are essential for the maintenance of biodiversity and for the effective conservation of important ecosystems (see Map 2-4 and Table 2-3).

Area	Region	Year established	Area in ha
National Parks managed by EWCA			
Abijata Shala Lakes	Oromia	1963	88,700
Alatish	Amhara	1997	266,600
Awash	Oromia & Afar	1958	75,600
Bale Mountains	Oromia	1962	247,100
Gambella	Gambella	1966	506,100
Geralle	Somali	1998	385,800
Nech Sar	SNNP	1966	51,400
Omo	SNNP	1959	406,800
Simien Mountains	Amhara	1959	41,200
Yangudi Rassa	Afar	1969	473,100
National Parks and Sanctuaries man	aged by the Regions		
Bahir Dar Blue Nile river Millennium	Amhara	2008	472,900
Arsi Mountains	Oromia		
Borena Sayent	Amhara	2009	4,400
Chebera Churchura	SNNP	2007	119,000
Dati Wolel	Oromia	2008	43,100
Denkoro Chaka	Amhara	1999	38,117
Gibe Sheleko	SNNP	2010	24,800
Kuni Muktar	Oromia		150,000
Leka	SNNP		
Loka Abaya	SNNP	2010	50,000
Mago	SNNP	1984	194,200
Maze	SNNP	2007	20,200
Yabello	Oromia	1978	250,000
Biosphere Reserves			
Kaffa-Bonga	SNNP	2010	
Yayu	Oromia	2011	
	Amhara	2011	
wildlife Sanctuaries managed by EV	ICA		
Babile Elephant Sanctuary	Oromia & Somali	1962	698,200

Table 2-3: Protected areas of Ethiopia designated for wildlife conservation

Senkele Swayne's Hartebeest Sanctuarv	Oromia & SNNP	1964	5,400
Wildlife Reserves managed by the R	egions		
Alledeghi	Afar		193,389
Awash west	Afar		415,000
Bale	Oromia		127,922
Chelbi	SNNP	-	421,200
Gewane	Afar		
Mille Serdo	Afar		650,354
Community Conservation Areas			
Abune Yoseph	Amhara		
Guassa Menz	Amhara		
Tama	SNNP	-	166,500
Simien Gibe	SNNP	2001	4,900
Garameba	SNNP	2001	2,500
Controlled hunting areas managed b	oy the Regions		
Abasheba Demero	Oromia	2004	21,000
Adaba-Dodola	Oromia	2010	73,600
Aluto	Oromia		28,000
Arba-Gugu	Oromia	2005	34,100
Besemena-Oddo Bulu	Oromia	2003	35,000
Bilen Hertalie	Afar	-	109,000
Chiffra	Afar	1998	51,000
Dembel Ayisha Adigala	Somali		91,000
Dindin	Oromia	-	28,000
Hanto	Oromia	2001	19,000
Hurufa Suma	Oromia	2000	21,500
Haro Aba Dika	Oromia	2010	20,000
Melke Sadi	Afar		
Munessa	Oromia	2003	11,100
Murulle	SNNP	-	69,000
Shedem Berbere	Oromia	1988	17,000
Shinilie Meto	Somali		48,400
Sororo Torgum	Oromia	2000	7,800
Telalk Dewe	Afar	-	72,820
Welshet Sala	SNNP	2000	35,000
Wergan Bula	Oromia	2010	7,800
Open controlled hunting areas mana	aged by the Regions		
Debre Libanos	Oromia	-	3,100
Gara Gumbi	Oromia	-	14,000
Gara Meti	Oromia	-	24,000
Gelila Duru	Afar	-	14,000
Jibat	Oromia	-	10,000
Sinana	Oromia	-	1,500

Source: MoEF



#### Map 2-4: Protected Areas of Ethiopia

## Fresh water sources

Of the 12 major watersheds of Ethiopia, 4 are endorheic basins whose rivers never make it to the sea. Their surface water ends up in lakes without an outlet from where all the water of the basin evaporates, leaving behind an accumulation of salt, whose concentration can vary from brackish to enormous solid salt deposits like in Lake Assale in the Afar Depression.

The country has some 15 major lakes, 8 of which lie in the Rift valley and have no outlet, mostly being alkaline in nature with different degrees of salinity. Lake Tana is the most prominent freshwater feature of the Ethiopian Highlands and, with its tributary, it is the source of the Blue Nile. The Blue Nile drops 40 meters down creating one of the major waterfalls of Africa and one of the most dramatic spectacles of the Ethiopian landscape.

Map 2-5 shows the potentials and limits of water resource in the different region of the country, and indicates that it is more difficult to develop human settlements due to water scarcity in East and South Somali region and North East Afar, and in the North region, which is prone to droughts. Water availability, so facilitating urban development, is divided by large water basins:

- North-West, West and South-West part of the country
- Lake Tana and the southern part of the Bahir Dar region
- Mekelle-Kombolcha corridor
- South Rift area
- Region around Bale mountain area

- Jijiga and Harar highlands
- **Rivers of Somali region**
- Some dry locations in Afar and Somali regions due to irrigation projects

The ground water potential of Ethiopia is less than that of the surface water resources. However, by many countries' standard the total exploitable groundwater potential is high. Based on the relatively small knowledge available on groundwater resources, the potential is estimated to be at least 13.2 Bm<sup>3</sup> (Billion Metric Cube), related to MoWIE, infiltrates into the groundwater system of which 50 percent could be extractable.



## Map 2-5: Water Resources

## **Biodiversity**

With about 6,000 species recorded in the country (about 10% of which is endemic), the plant diversity of Ethiopia is the highest in Northern Africa (Mutke and Barthlott 2005). The on-line database of the Ethiopian Flora Network lists 140 red-data species for Ethiopia. With about 320 species of mammals,

Ethiopia is also one of Africa's most diverse countries for mammals, which could make Ethiopia one of the top safari destinations in Africa. There are, however, a number of species that are threatened with severe decline, include 5 critically endangered and 8 endangered species (GAP Analyses of the protected area system of Ethiopia, April 2012).

Ethiopia is famous because of its avifauna; more than 860 species (some 39% percent of the total main African continent and associated Islands) of birds have been registered. There are 665 resident species in Ethiopia while the remaining 119 are migrant birds. *These numbers make Ethiopia one of the prime bird watching destinations in Africa.* 

There are some 240 reptile species in Ethiopia, and the Gap Analyses report of April 2012 indicates that 150 species of fish can be found in the country. If well managed, some of the endemic fish species can be consumed sustainably, and their unique presence in Ethiopia creates opportunities for specialized Ethiopian cuisine, particularly for the fast growing resort market of the lake shore cities.

Ethiopia's Biodiversity is important to the socio-economic growth and development of the country. It also helps to ensure on-going provision of ecosystem services such as; production of clean water through improved catchment management, soil protection and soil formation, carbon storage, keeping clean air circulation, disease pest control, invasive alien pest control, provision of wild foods, energy sources, etc. (Ethiopian Environmental outlook, June 2008).

## Bird Areas Resources of Ethiopia

The Ethiopian avifauna represents an interesting mixture of African, Palearctic and some strikingly unusual endemic components that in recent years have caught the interest of the international birding community, making *Ethiopia one of Africa's fastest growing destinations for bird watching.* 

The *Important Bird Areas* in Ethiopia (see Map 2-6) are defined using the following criteria: (a) holds significant numbers of one or more globally threatened species (b) is s one of a set of sites that together hold a suite of restricted-range species or biome-restricted species; and / or; (c) has exceptionally large numbers of migratory or congregatory birds. Important Bird Areas (IBAs) form part of a larger network of 'Key Biodiversity Areas'—the most important sites for biodiversity conservation worldwide.



Map 2-6: Important Birds Areas of Ethiopia

Source: EWCA, GAP Analyses, 2008

## 2.4 Environmental Vulnerabilities

## Environmental Degradation

Environmental resources are the foundation for social and economic development in Ethiopia. The productivity and sustainability of natural capital is heavily dependent on the way that the users utilise and manage the resources. This in turn affects the availability and quality of natural capital assets, and if their management is problematic, livelihoods can be at risk.

Environmental degradation threatens both physical and economic survival in Ethiopia. It reduces the environment's ability to produce biomass for food, animal feed and household energy. It undermines the fight against poverty, and achieving sustainable development. Apart from the pervasive impact of population growth key factors contributing to environmental degradation in Ethiopia include forest degradation and climate change impacts

## Forest Degradation

Forest resources in Ethiopia are under pressure due to the increasing need for wood products and the conversion of forest areas to agriculture. There are two types of forest resources:

- Natural forest reserves, the area of which has been significantly reduced in the past.
- Plantations: are forest-stands established on formerly non-forested or deforested lands. Their size ranges from less than a hectare (e.g. Eucalyptus woodlots) to several hundred thousand hectares. The larger sized plantations, owned by the State or by private sector companies, are often those, which are integrated with a wood processing industry (and thus associated with its large annual intake of wood).

Unfortunately, many forest resources have not been managed properly. There are a few exceptions (e.g., Oromia Forest and Wildlife Enterprise) and forests managed temporarily by NGOs in PFM. Nevertheless deforestation and forest degradation continued unabated, at an annual rate of about 2% (WBISPP, 2005). At 2% deforestation, about 700,000 ha of 'forests' will be destroyed every year, releasing nearly 110 million CO<sub>2</sub> to the atmosphere. If this rate of destruction continues a wood crisis is likely to arise (Table 2-4). The remaining forest resources of the country will be further degraded and deforested, unless large scale afforestation and alternative energy sources are pursued. Furthermore, the country will be forced to import more wood, with a significant implication on foreign currency reserves.

	· · · · · · · · · ·	······································	
SOURCE of information	ANNUAL WOOD SUPPLY	ANNUAL CONSUMPTION	DEFICIT OR SURPLUS
UNDP/World Bank, 1984	8.1 million tons (13.5 million m3)	20.34 million tons (33.9 million m3)	20.34 million tons Consumption is 2.5 annual yield
ENEC/CESEN, 1986	63 million tons	24 million tons (40 million m3)	Positive balance
EFAP, 1994	8.6 million tons (14.4 million m3)	35 million tons (58.4 million m3)	Consumption 4 times higher
UNDP/World, 1996	N/A	31.5 million tons (52. million m3)	Deficit indicated

Table 2-4: Supply- consumption pattern of fuel wood in Ethiopia

WBISPP, 2005	50.1 million tons	53.6 million tons	Deficit of 3.5
	(84.9 million m3)	(89.4 million m3)	million tons
EFAP 1994 projection for 2020	-	-	Deficit 87-121 million m3

Source: status of Ethiopian Forest Resources by Yitebitu Moges, et.al 2010

The forests resources of Ethiopia store 2.76 billion tons of carbon (about 10 billion tons of  $CO_2$ ), related to MoEF, playing a significant role in the global carbon balance<sup>4</sup>. This quantity is expected to be released into the atmosphere in 50 years *if the deforestation continues at the present rate*. The current inadequate forest management practices most likely will result in substantial ecological, social and economic costs for the country.

## Land degradation

Soil degradation results in a fall in the productivity of soil to produce food, fodder, fibre, building material, and fuel. An assessment of land degradation in Ethiopia was undertaken more than 25 years ago through the Ethiopian Highland Reclamation project (EHRS, 1985). No further comprehensive assessment has been made since 1985.

The assessment made by EHRS indicates that rill and sheet erosion are the dominant degradation processes that are affecting the land resources of the country. The study estimated annual soil erosion / soil loss rate at 1.5 billion tons from all type of land use, while the rate from highland areas was estimated at 1.9 billion tons. Soil loss from crop land was estimated at a rate of 42 tons/ha/year, of which some 10% is carried away by the highland rivers (see Table 2-5).

Table 2-5: Estimated soil loss rate by land use and cover type (1986)							
Land use/land cover	Estimated rate (%)	Estimate	d soil loss				
		Tons / ha/yr	Tons / yr				
Crop land	13.1	42	672,000,000				
Perennial crop	1.7	8	17,000,000				
Grazing land	51.0	5	312,000,000				
Currently unproductive land	3.8	70	325,000,000				
Currently un cultivable land	18.7	5	114,000,000				
Forests	3.6	1	4,000,000				
Wood and shrub lands	8.1	5	49,000,000				
Total	100	12	1,493,000,000				

Source: Ethiopia Environment Outlook, 2008 (as adopted from Huruni, 1986)

A substantial proportion of the country is characterised by moderate to very steep topography, (about 67% of the country's land area; see Table 2-6), which is thus susceptible to soil erosion. Deforestation, the removal of crop residue and dung for feed and fuel, and

<sup>&</sup>lt;sup>4</sup>Out of the estimated 2.76 billion tons of carbon, the largest store of carbon in the country is found in the woodlands (46%) and the shrub lands (34%), while the high forests store about 16%.

the continual shortening of the fallow periods between annual crops have steadily reduced organic matter content contents of the highland soils making them both less productive and highly erodible.

Table 2-6. Extent of steep slope lands in Ethiopia						
Land slope category (% slope)	Area(km2)	% of total area				
< 8	369	33				
9-29	406	37				
>30	326	30				
Total	1101	100				

Source: Environment outlook, 2008 as adopted from FAO/AGL 2003

## Water resource vulnerability

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Despite its immense importance, the groundwater sector has been given less attention until recently. However, available studies on the groundwater resources of the country are very limited but do indicate areas of vulnerability (see Map 2-8 overleaf). During the current GTP period, GSE aimed to complete hydro-geological mapping for around 84 percent of the Country and prepare detailed hydrogeological studies for 30,400km<sup>2</sup>.

Table 2-7: Basic hydrological data of lakes and reservoirs of Ethiopia							
Nomo	Loc	ation	Elevation	Drainage	Surface	Maximum	
Name	Longitude	Latitude	(m.a.s.l)	area (km²)	area (km²)	depth (m)	
Tana	37 <sup>0</sup> 23'	11 <sup>0</sup> 36'	1,788	15,319	3,000	14	
Ziway	38 <sup>0</sup> 45'	07 <sup>0</sup> 54'	1,636	7,380	440	8.9	
Langano	38 <sup>0</sup> 31'	07 <sup>0</sup> 32'	1,585	2,000	230	47.9	
Abiyata	38 <sup>0</sup> 35'	07 <sup>0</sup> 33'	1,580	10,740	180	14.2	
Shala	38 <sup>0</sup> 35'	07 <sup>0</sup> 03'	1,550	2,300	370	266	
Awassa	38 <sup>0</sup> 27'	07 <sup>0</sup> 07'	1,680	1,300	92	22	
Abaya1	37 <sup>0</sup> 50'	06 <sup>0</sup> 15'	1,169	16,342	1,140	24.2	
Chamo1	37 <sup>0</sup> 38'	05 <sup>0</sup> 50'	1,110	18,575	317	14.2	
Chew Bahir	36 <sup>0</sup> 56'	04 <sup>0</sup> 45'	500	Na	308	na	
Haik	39 <sup>0</sup> 43'	11 <sup>0</sup> 21'	1,900	83	22.5	88.2	
Ardibo	39 <sup>0</sup> 46'	11 <sup>0</sup> 14'	2,150	53.5	14.9	64	
Ashenge	39 <sup>0</sup> 31'	12 <sup>0</sup> 34'	2,440	129	20	25	
Koka2	39 <sup>0</sup> 10'	08 <sup>0</sup> 28'	1,590	11,250	236	13	
Finchaa2	37 <sup>0</sup> 23'	09 <sup>0</sup> 33'	2,219	1,391	345	7	
Beseka	39 <sup>0</sup> 53'	08 <sup>0</sup> 54'	1,900	420	30	7	
Turkana	36 <sup>0</sup> 05'	04 <sup>0</sup> 38'	375	Na	Na	Na	
Abhe	41 <sup>0</sup> 45'	11 <sup>0</sup> 10'	243	Na	320	Na	
Gamari	41 <sup>0</sup> 40'	11 <sup>0</sup> 30'	339	Na	63	Na	
Afambo	41 <sup>0</sup> 43'	11 <sup>0</sup> 24'	339	na	26	na	
O			all a fixed a fixed				

Source: MoWIE (Na means, data non available). Dates vary related to basin studies, in progress

Map 2-7: Underground water vulnerability



## Overview of Water Utilization

Though the country possesses a substantial amount of water resources little has been developed for drinking water supply, hydropower, agriculture and other purposes. The urban potable water supply coverage with 0.5km radius was 91.5 percent, and the rural potable water supply coverage within 1.5km radius was 65.8 percent in 20009/2010. It is envisaged in the current GTP that the urban potable water supply coverage with 0.5km radius will reach 100 percent by 2014/15, while the rural potable water supply coverage within 1.5km radius will reach 98 percent for the same period. The overall goal during the current GTP period is to increase the national water supply coverage from 68.5 percent to 98.5 percent and reduce the non-functional rural water supply schemes from 20 to 10 percent.

## Hydropower potential

Ethiopia is a country with considerable hydropower potential. Only a fraction of this potential has been harnessed. In 2009 and 2010 three hydro plants were commissioned that doubled the installed capacity of the country. Since then the Ethiopian Government (as outlined in the Growth and Transformation Plan (GTP I)) has signed further contracts for large dams. Once completed, Ethiopia will be a powerhouse of Africa exporting electricity to its neighbours. The installed hydropower capacity in 2013 is around 1.8GW with twelve existing plants, three plants under construction and one plant under refurbishment. When the committed projects are commissioned, the installed capacity will exceed 10GW (for more information, refer to Infrastructure chapter, on Energy in this report).

### Irrigation

Despite the huge arable land resources potential of the country (estimated at around 55 million hectares, or approximately 50% of its land mass) only 14% of the country's total land mass is being utilized for crop cultivation, referring to MoARD. The MoWIE has been undertaking a number of irrigation projects located in different regions to expand agriculture areas.

Irrigation development measures were taken during PASDEP to put in place small, medium and large scale irrigation scenes. At the start of the GTP it was planned to carry out irrigation scheme covering some 1,208.448 hectares as a total for the country in which, irrigation construction will cover 785,583 hectares, and irrigation rehabilitation some 6,570 hectares of land (source MoWIE). These projects will provide support for agriculture expansion and higher productivity in the agriculture production.

## Natural hazards

**Error! Reference source not found.** shows the areas designated in Ethiopia as 'low-high' risk in terms of natural hazards. One of the most pernicious hazards is the occurrence of drought conditions (see Map 2-8). These may be expected to intensify over the coming decades due to the adverse impacts of climate change. Increased irrigation using underground water sources is, however, technically possible and can mitigate drought damage. Ethiopia also regularly experiences flooding the improved management of which could also help to reduce the risk of drought.



Map 2-8: Map of Natural Hazards

Map 2-9: Drought Constraints on Urbanisation



## Occurrence of Landslides

Landslides are common in the highlands of Ethiopia (see map 2-9 here above locating the main landslides observed recently, based on UN-OCHA 2014). The most affected regions are the Blue Nile Basin, the Dessie area, the Simien highlands, the western Tigray, the Gelemso and Harar regions, the Sawla locality, the Bonga area, the Jimma and Gilgel Gibe region, the surroundings of Finchewa, and the Debre Libanos and Mugher locality). Potential rock fall hazards can be expected where hard and resistant rocks are underlain by soft formations that form the cliffs bounding the river valleys found in the central volcanic massifs of the country.

### Rainfall is the dominant cause of landslides in Ethiopia

Topographic conditions can predispose a landscape to slippages particularly when hard rock covers weaker and soft geologic formations. Other triggering factors that have role in causing landslides in Ethiopian are land use changes and earthquakes. The occurrences of slope instabilities is not a new phenomenon but has started to be felt more intensely as population pressures increase. Almost 60% of the total population in Ethiopia lives in the highlands with an altitude of more than 1,750 m. Landslides in these regions have been reported to have claimed more than 300 lives, and caused considerable damage in recent years.

### Seismic and earthquake hazard in Ethiopia

In Ethiopia there are three main zones of seismic weaknesses in the crustal segments: the East African rift system, the Gulf of Aden, and along the Red Sea. These three zones make up the Afar Triangle. Movement in these zones has made the region an active tectonic and volcanic zone. In Ethiopia, 90 percent of the seismicity and volcanic activity is related to the East African Rift system.

The active Great Rift Valley makes Ethiopia susceptible to two types of seismic hazard: earthquakes and volcanic eruptions. Map 2-10, overleaf, shows that from 1900 to 2010 there were a total of ten earthquakes and eruptions which affected some 11,000 people and included 93 deaths, 165 injures, 420 being made homeless. These are estimated to have an economic cost of more than US\$7 million. Data concerning the cost and damage associated with earthquakes and eruptions is often limited and is thus expected to be under-reported.

Examples of earthquakes in Ethiopia identified in the literature include (Richter scale):

- 1906 Langano earthquake intensity of 8 on the Mercalli scale, and a magnitude of 6.75. Epicentre 100-110km from Addis Ababa.
- 1961 Kara Kore earthquake intensity of 7 on the Mercalli scale. Epicentre 200-150km from Addis Ababa.
- 1969 earthquake intensity of 6.4. High levels of damage occurred to the town of Serdo 24 people were killed, 165 injured, 100 huts were destroyed (made of mud).
- 1983 Wondo Genet earthquake 300km from Addis Ababa
- 1985 Langano earthquake magnitude of 6.2. 110km from Addis Ababa
- 1987 Rift Valley Area earthquake magnitude of 6.2. 200km from Addis Ababa
- 1989 Dobi graben earthquake magnitude of 6.2. 200km from Addis Ababa.
- 1993 Nazareth earthquake; magnitude of around 6. Less than 100km from Addis Ababa.
- 1977, 1984 and 1985 earthquakes smaller magnitude
- 1997 earthquake magnitude of 4. Epicentre 22km from Addis Ababa
- 2007 earthquake 5 killed.
- 2011 earthquake magnitude of 5.

Map 2-11 shows Ethiopia's major cities in relation to seismic hazard. Notably the three most populous cities – Addis Ababa, Dire Dawa, and Mekelle – are found in the most seismically hazardous areas – marked in yellow in the centre of the country and categorized as having a "medium" risk of seismic hazard. The cities Addis Ababa, Adama, Dire Dawa and Awassa are very near main fault lines (e.g. the Wonji fault, Adama fault, Addis-Ambo-Ghedo fault, and Fil Woha fault) where many earthquakes have previously occurred.

In fact, seism can have great consequences on human life and measures ought to be taken through construction standards on buildings, identification and limitation of urban expansion on fault lines and in prone areas. There are more risks of earth movements during earthquakes regarding quality of soil. If it is better to avoid urban development in seismic areas, it is not realistic to prohibit constructions in very densely populated areas as South Rift valley or around Dire Dawa. So mitigation measures, building and urban planning standards might be fixed regarding the level of risk for each area. This requires local and specific analysis regarding quality of soil that can amplify or limit the risk.



Map 2-10: Earthquakes recorded in the Horn Africa region from 1900 to 2010

Source: MoWIE (red dots are location of seism epicentres. "RD" means Renaissance dam on the map)

## Volcanic hazards in Ethiopia

The Great Rift Valley is a seism active prone area. According to the EM-DAT database, from 1900 to 2013 in Ethiopia there were a total of three volcanic eruptions, killing 93 people, and affecting 11,000 people (See Table 2-8 overleaf). Mount Erta Ale has generated frequent lava flows in recent years, and is Ethiopia's most active volcano. Based on the same source, in 2001 the Nabro volcano (located in Eritrea) erupted following a series of earthquakes with spill over adverse impacts on Ethiopia. Eight villages in the Biddu district of Ethiopia were affected by volcanic ash, affecting at least 5,000 people and polluting water sources. Mount Dabbahu became active in 2005. Other historically active volcanoes include Alayta, Dalaffilla, Dallol, Dama Ali, Fentale, Kone, Manda Hararo, and Manda-Inakir.

Table 2-8: Number and impact of earthquakes and volcano in Ethiopia (1900-2013)							
Disaster type	Number of disasters	Number of people killed	Number of people injured	Number of people affected	Number of homeless	Total number of people affected	Total economic damage (US\$ '000)
Earthquake	7	24	165	0	420	585	7070
Volcano	3	69	0	11000	0	11000	0
Total	10	93	165	11,000	420	11,585	7,070

Source: EM-DAT database, 2014

## Pollution

The country is facing an increase of different type of pollutions that could hinder economic development if not well regulated. Urban pollution, in particular, is increasing and is related to production of residential and commercial solid waste, expanding industrial activities and the growth of vehicle numbers. Other factors contributing to urban pollution include the following:

- Slaughterhouses creating water and soil pollution
- Garment and leather factories are heavily polluting the water
- Chemical, hospitals and pharmacy production are producing specific pollutants
- Cement factories and quarries are producing air pollution and landscape degradation.
- Sugar factories affect air and water pollution

Energy produced from oil, gas and coal are heavily polluters. The storage, transportation (by trucks or pipelines) and production of power is often associated with adverse effects on soil, air and water resources. Unfortunately, Ethiopia lacks energy resources and needs to import large quantities of these resources in order to meet its economic development needs.

Hydropower is considered as clean energy, but there can be negative environmental impacts, for example, water stagnation in dam reservoirs can change the management of rivers and can create conditions for water pollution. International experience shows that after a few years downstream rivers are frequently characterised by diminished biodiversity; fish stocks can disappear, and quality of water for agriculture use is lowered. The creation of large dams, however, could be a touristic attraction, though care must be taken not to adversely affect downstream river landscapes. Specific environmental impacts of dam construction and use.

Fortunately, the exceptional position and natural condition of Ethiopia gives the country an advantage to develop clean energy. Solar and wind energy in particular can be developed but these energy sources can be associated with adverse visual effects that could have a negative impact on economic activities such as tourism. Specific landscape protection measures can be implemented through regional and urban planning to avoid or minimise the adverse visible impacts of wind and solar energy facilities. Biomass can also be developed due to the large agriculture production of the country and increasing amount of organic waste collected in the cities.

The excessive use of fertilizers and insecticides in agriculture affects surface and underground water. The freight associated with the transportation of agriculture products is producing air and soil pollutions, as are related agro industries.

The key risks associated with pollution are:

- Higher costs on health sector because pollution affects air, food and water consuming
- Higher cost of water treatment to make water potable and limit impact on soils and rivers
- Adverse impacts on agriculture (including lower economic production) by lowering of water and soil quality
- Adverse impacts on industry due to e.g. the poorer quality of inputs from water, agriculture
- Adverse impacts on tourism due to e.g. landscape degradation / poor water quality

## Climate Change Impacts

Climate change is likely to significantly affect the country. Ethiopia's Climate-Resilient Green Economy report, 2011, make an assessment of the existing situation and a modelling of the impact of GHS emission due to economic development till 2030. Most of the reasons of Climate change are coming from global GHS emission, Ethiopia is a small contributor of GHS today. The 22 different models used by IPCC shows scenarios with a main trend of increase temperature of about 1°C from now to 2035. The most important effect will be an increase in both the quantity and irregularity in precipitation (see Figure 2-2). More storms, more flooding and more droughts will directly affect agricultural activity and the population. Industrial activity that is closely linked with the agricultural activity also will be adversely affected.



## Source: IPCC, 2007

Mariaus Keller (2009) identifies the main impacts of the increase precipitation variability due to climate change in Ethiopia as the following:

- **Agriculture**: increasing year to year variability and increases in drought and heavy precipitation events lower agricultural production and compromises food security
- **Water**: availability of clean drinking water is likely to decrease due to the increasing evaporation and the increasing variability of rainfall events.
- **Health:** incidences of malaria in areas of highlands where malaria was previously not endemic. The warming is further expected to cause an increase in cardio-respiratory and infectious diseases and illness, higher expenses for health, death, reduced productivity
- **Ecosystems, biodiversity**: climate change threatens forest systems. Furthermore, a large number of plant and animal species is threatened by extinction.
- Infrastructure: heavy rainfall events and floods cause damages to roads and buildings.

## Carbon emission and sequestration

The identification of the potential sources of and sinks for Greenhouse Gases (GHG) is needed for sound policy prescriptions concerning carbon emissions and their reduction. In Ethiopia, the major sources of GHGs emission are related to the use of biomass energy (charcoal, firewood, dung, residues, etc.), and the conversion of forests to agriculture. Forest and woody vegetation can also play an important role in sequestering carbon.

Table 2-9 presents the emissions of GHGs from burning of biomass fuels and conversion of forests to agricultural lands and sequestration by forests and woody vegetation in Ethiopia. The results presented indicate that the forest resources of Ethiopia sequester 44 times the amount of  $CO_2$  that is being released by burning the woody biomass stocks as fuels and 478 times the  $CO_2$  released from clearing forests for agriculture.

Table 2-9	Table 2-9: GHG emissions from and C sequestration in Ethiopia forests ('000 tons)							
GHGs	emission by forest clearing for agriculture	emission from burning of biomass fuels (wood, dung, crop residue)	Sequestration in woody biomass stock	Balance				
С	1,203.1	12,416.8	74,496.4	• 60867.5				
CO2	4,415.4	47,490.3	2,108401.6	2056495.9				
со	0.144	1.7	68.9	- 67.1				
CH4	0.029	943.8	13.8	+930.0				
N2O	0.017	0.2	8.0	-7.8				
NOx	0.291	2.8	139.0	-135.9				

Source: Status of Forest Resources of Ethiopia (2010) as quoted from WBISPP (2005)

## Climate Change and Greenhouse Gas (GHG) Mitigation Options

At present Ethiopia is a low  $CO_2$  emission producer regarding the global data. However, the current high rate of economic growth could change this. The current GTP projects that industrial sector will grow quickly. In 2025, agriculture could contribute to 29%, industry 32% and services 39% of the GDP for a population of 116 million inhabitants and a GDP per capita of 1,271 USD, to reach the Middle income status, compared to 378 US/capita in 2010. If rapid economic growth continues scenarios indicate an increase in  $CO_2$  from 150 Mt in 2010 to over 400 Mt  $CO_2$  in 2030. In response to the challenge of climate change the Climate Resilient Green Economy (CRGE) strategy was prepared in 2011, with the support of UNDP. The main goal is to ensure that the economic target of reaching middle income status in 2025 is reached in a manner that increases the country's resilience to the adverse impacts of climate change and ability to implement mitigation measures.

The following actions can mitigate Climate Change and Greenhouse Gas (GHG) emissions:

- **Promoting the use of renewable energy**. Ethiopia could contribute to GHG mitigation by developing and exploiting the huge hydro, solar, wind, biomass and, geothermal energy resources not only for its own consumption but for neighbouring countries as well.
- Improving/promoting energy efficiency and conservation e.g. wide dissemination of improved biomass and charcoal stoves, such as *Mirt Mitad and lackech*.
- **Promoting the use of low carbon content fuels** (fuel switching) e.g. exploiting, the Ogaden natural gas reserve and use of gasohol (blending of gasoline with ethanol, a by-product of sugar factories in the country) for various purposes including transport.
- **Promoting energy efficient transportation** through tax differentiation based on engine size, expansion of public transport infrastructure, improving the efficiency of

operating vehicles by carrying out maintenance, inspections and training, improving urban traffic, promoting environmentally friendly transport modes such as bicycles.

- Improving forest management practices, protection/preservation of existing forests from loses by deforestation and other practices, initiating new afforestation and reforestation programs, rehabilitation of degraded forests, promoting agro-forestry, developing gallery forests along river banks.
- Increasing livestock productivity through improved nutrition, promoting sustainable agriculture, promoting mixed crop livestock farming practices where appropriate, promoting the use of manure-management system facilities, adopting appropriate fertilizer application, promoting conservation tillage techniques to sequester carbon in cultivated soils, rehabilitation of overgrazed watering points and long-term settlement areas and redistribution of manure that is accumulated near these settlements.
- **Integrated waste management**, composting solid waste of Addis Ababa city and landfill gas recovery from solid waste site of Addis Ababa city and in other cities and towns in Ethiopia. Recycling of solid waste reduce GHS emissions.

The Government has focused on four main initiatives to mitigate GHG emissions:

- 1. Exploiting the hydropower potential,
- 2. Promotion of advanced rural cooking technologies;
- 3. Efficiency improvements of the livestock value chain
- 4. Reducing emissions from deforestation and forest degradation.

Specific initiatives focus on improved city management including reducing industrial GHG emissions (textile, fertilizers, cement factories, leather, pulp, paper, food processing), reducing emissions from solid and liquid waste, the use of private power generators, and supporting the development of public mass transportation.

The over-arching policy focus is to ensure that Ethiopia is one of the leading countries supporting the climate change initiatives. Success may depend on the improved ability to manage energy and natural resources and control pollution and emissions as the economy continues to rapidly expand. A major problem is likely to be the management of water resources, in particular the sharing of the water resource between drinking water for the (increasingly urban) population, and agriculture, livestock, industry, forests and hydro energy.

## Threats to Biodiversity

Threats to biodiversity include natural resources degradation and climate change. When forest resources diminish as a result of unmanaged development activities and climate change, the flora, fauna and mammal communities are adversely affected. Losses in the diversity of flora and fauna could occur, leading to shortages of fodder for animals, and reduction in farm biodiversity. Key threats to the biodiversity resources include the following:

- Encroachment into protected areas by the local community in search of water
- Population growth leading to cultivation of more and more natural ecosystems
- Excessive and uncontrolled use of man-made insecticides
- Forest clearance for crop cultivation (like coffee chat)
- Drought effects, which have caused considerable soil erosion
- Overgrazing of pasture lands

- Shortage of food as a result of degradation of rangelands/grazing areas
- Artificial insemination and inter breeding
- Introduction of invasive alien species

Biodiversity loss leads to ecosystems degradation and subsequent loss of important services that affects all people especially those in the rural areas. The achievement of sustainable development and poverty reduction will be effected by efforts to ensure biodiversity and the sound environmental management of natural resources.

## 2.5 Concluding remarks and recommendations

The main environmental constraints on urbanisation include:

- Natural hazards (e.g. seismic activity; landslides; malaria infestation (Map 2-11))
- Topography (e.g. steep slopes; rugged, rocky and impenetrable landscape)
- Water availability (lack of water; and associated drought and flood risks (Map 2-9))
- Need to protect biodiversity (avoiding urban development in protected areas)
- Need to protect areas of environmental sensitivity (avoiding urban development)
- Need to build-in to the urban sector a high degree of climate change resilience



Map 2-11: Distribution of Endemic Malaria areas

## Water is a key potential constraint on urbanisation

Urban vulnerability to natural hazards is likely to increase. The significant urban population expansion expected over the next 20 years will increase the vulnerability of cities in relation to flooding, land slide and active seismic faults. But perhaps the most important vulnerability or constraint is that related to water, its availability and/or scarcity. Urban populations and water intensive industries generally require large quantities of water. Urban and industrial developments are likely to be limited in water scare areas or require significant measures to overcome the scarcity (e.g. transporting water from other areas – building an Ethiopian water-grid similar to the existing electricity-grid).

Many of these measures, however, are costly and it is likely that they could only be considered when the economy was large enough to generate the required funds. The significant opportunities for water management and distribution afforded by the construction of dams such as the Renaissance Dam, may, in certain areas, alleviate the limitation of water scarcity on urban and industrial development.

On the other hand non-urban areas with sufficient water may not necessarily be the most suitable location for urban development if demand for that water is already very high e.g. for irrigation use in agriculture. Water availability and demand must be considered together as factors in constraining and providing opportunity for urban development. The analysis of water availability and demand at present and over the coming years is in progress in MoWE and an associated management strategy is being prepared (though not completed at the time of writing). This is a crucial task as it is estimated that the country will reach the 'hydric stress threshold' in only 6 years (in 2020) due to the population increase (consultant estimation).

## Competition for land is likely to increase and may constrain urbanisation

Land availability and management can be another constraint on urbanisation. Urbanisation is competing with agriculture for land, and should not adversely affect natural, protected and environmentally sensitive areas, many of which are needed to increase the country's resilience to the adverse impacts of climate change. Desert or rocky lands are generally the less suitable areas for urbanisation due to their steep or rocky slopes, or the lack of water resources. So it seems reasonable to expect that the spread of urbanisation will mainly impact agriculture and natural areas. Compact urban densities may have to be considered in order to minimize as much as possible the 'land take' associated with urbanisation

Building cities require large amount of cement and building materials. Ethiopia is characterized by stone and limestone stocks required for building, but mining and transforming this material can create pollution, and led to landscape degradation (dramatically so in the case of quarries). Furthermore, heavy building material is costly to transport, and can be associated with vehicular air pollution.

## Protecting biodiversity and environmental assets is important

To protect the large and important biodiversity assets of Ethiopia urbanisation will have to be managed very carefully. Buffer zones might be considered around protected areas in order to avoid the adverse impacts of human settlements such as pollution, and economic development corridors might be have to be developed well beyond protected areas. The protection of bird attractive areas and forests might have to be strengthened in order to make the country more resilient in the face of climate change (producing e.g., heat waves, storms, drought, and flooding).

## 2.6 SWOT Analysis of Environmental Resources

Strengths	Weaknesses
<ul> <li>Environmental Assets:         <ul> <li>High level of biodiversity (birds, mammals, reptiles, fishes, plants)</li> <li>Well preserved natural resources (landscapes, lakes, forests)</li> <li>High level of natural resources for renewable energies (solar, wind, hydropower, geothermal)- important energy sources for urban growth</li> </ul> </li> <li>Increasingly effective policy framework:         <ul> <li>Existing policies and framework regarding natural heritage relatively strong</li> <li>Well-structured State and Regions administration – with a focus on sound environmental management</li> <li>Existing knowledge are regards natural resources natural risks reasonably comprehensive</li> <li>Major dam construction could contribute to effective water management needed for urban dowelepment</li> </ul> </li> </ul>	<ul> <li>Environmental vulnerabilities         <ul> <li>Low and decreasing coverage of forests</li> <li>Soil erosion in the highlands</li> <li>Large drought prone areas in Afar and Somali regions</li> <li>Considerable areas prone to flooding</li> <li>Salinated and polluted lakes and rivers</li> <li>Some polluting factories located inside urban areas</li> <li>Significant and rising vehicular pollution</li> <li>Poor energy efficiency in many buildings</li> </ul> </li> <li>Capacity constraints:         <ul> <li>Financial resources currently not adequate to prevent all forms of natural degradation</li> <li>Lack of finances and capacity for local bodies to invest in waste water treatment and solid waste management</li> <li>Weak capacities of local bodies to face natural events</li> <li>Few industrial areas designated in order to accommodate polluting activities</li> </ul> </li> </ul>
Opportunities	Threats
<ul> <li>Policy Initiatives:</li> <li>Existing policies and framework to manage natural resources</li> <li>The design and implementation of the Climate-Resilient Green Economy (CRGE) strategy</li> <li>Water resource strategy in preparation to manage water resource by river basin</li> <li>Increasing knowledge of biodiversity issues</li> <li>Projects and investment potential:</li> <li>Developing tourism and leisure based on landscape and natural assets</li> <li>Existing projects to preserve more natural areas</li> <li>On-going reforestation projects</li> <li>Preservation of plant diversity for medicine research and pharmaceutical production</li> </ul>	<ul> <li>Increased pollution due to rapid urbanisation and economic development</li> <li>Adverse climate change impacts including flooding, drought, and landslides</li> <li>Poorly managed urbanisation without enough control regarding pollution and emissions</li> <li>Industrial and economic development without control on pollution and emissions</li> <li>Increasing air pollution due to vehicles, industries and cooking</li> <li>Increasing CO<sub>2</sub> emission due to increase in livestock</li> <li>River pollution related to water management problems associated with the construction and use of dams for hydro power</li> <li>Hydric stress harming natural resources and biodiversity areas near urban areas</li> <li>Lower biodiversity due to higher human pressure on natural areas</li> <li>Increased water pollution due to the (increasing) use of fertilizer in agriculture</li> </ul>
# **3** Population, Housing and Social Services



Figure 3-1: In the streets of Addis Ababa, photo IAU 2014

### 3.1 Introduction

This chapter presents an assessment of demographic trends in Ethiopia, including an analysis of the likely areas in the country that will experience significant population growth and change over the coming 20 or so years. Identifying these areas is important as demographic trends drive urbanisation. At present the percentage of the total population that resides in urban areas is relatively small; estimates indicate that less than 20% of the population is urbanised. This is expected to change dramatically over the coming 20 years; by 2037 around 40% of the population could be urbanised. Existing urban areas will expand, and new towns and cities will emerge.

The chapter continues with a description of the housing market and an assessment of the nature and delivery of health and educational services. Successful urbanisation can only be achieved if adequate accommodation, and urban services and infrastructure can be provided to meet the needs of the rapidly growing population – including the expected dramatic increase in the urban population. Mis-managing the delivery of these services will increase the probability that urban areas are characterized by slums and unemployment rather than being the drivers of economic prosperity and social well-being for all.

## 3.2 Demographic Analysis

#### 3.2.1 Population Trends and Distribution

After Nigeria, Ethiopia is the second most populated country in Sub-Saharan Africa. Ethiopian population estimates, however, vary depending on the sources: according to the CSA, the population of Ethiopia is estimated at around 88 million in 2014, a level reached in 2010 according to the United Nations<sup>5</sup> (see Figure 3-2)



Figure 3-2: Population Trends since 1950 (in thousands)

Source: CSA (1991), CSA (1998), CSA (2008), CSA (2013), United Nations, World Population Prospects, Revision 2012.

#### Growth Rate of Total Population

Since 1984 the population has over doubled. The rate of growth, however, has been falling (see Table 3-1). The major reasons for the observed decline in the growth rate are the improvement in the use of contraceptive methods as well as educational status of the population in general and women in particular. The proportion of women who used contraceptives has increased from close to 36 percent in 2000 to more than 52 percent in

<sup>&</sup>lt;sup>5</sup>Ethiopian population estimates vary over time: In 2013, following the Inter-Censual Population Survey, projections has been revised to reflect these recent data. The Ethiopian population of July 2012 was revised down and estimated at 83,742,000 inhabitants. Their last publication "Population Projections for Ethiopia 2007-2037" of July 2013 were based on 2007 Population and Housing Census (PHC) for each of the regions and adjusted to the mid of the census year, 1 July 2007. The fertility input that is, Total Fertility Rate, for each of the regions were derived from the three EDHS conducted in the years 2000, 2005 and 2011; 2007 PHC; and 2012 ICPS. The mortality input which is life expectancy at birth was estimated from the 2007 PHC mortality data while the migration inputs were derived from the 2012 ICPS data. All the inputs were adjusted to the base year of the projection. These latest projections are used in this report.

2011 in the urban part. Similarly, the proportion of literate women, which was 11 % in 1984, has grown to 17% and 35% in 1994 and 2007, respectively.

Table 3-1: Population Trends and Growth Rate						
Year	Urban	GR	Rural	GR	Total	GR
1984	4,505,148	-	35,363,424		39,868,572	-
1994	7,323,207	5.0	46,154,058	2.7	53,477,265	3.0
2007	11,862,821	3.9	61,888,111	2.4	73,750,932	2.6
2012	15,246,000	5.0	68,495,000	2.0	83,742,000	2.5

Source CSA (1991), CSA (1998), CSA (2013) and Own computation. The figures for 2012 were extracted from the medium variant of CSA, Population Projections for Ethiopia 2007-2037. The calculation of the growth rate takes into account the exact date of the censuses: October the 11 th, 1994 for all regions (except Afar and Somali), July the 22 th 1996 for Afar and September the 11th 1997 for Somali. In 2007, all regions were surveyed in May, the 28th except Afar and Somali which were surveyed in November For 2012, the projections are made in July, the 1st.

The growth rate may pick up in the future. The shift of emphasis from agricultural led to industrial led development is expected to result in faster growth in urban population. Moreover the effort being made by the government (Ministry of Agriculture, and Ministry of Urban Development Housing and Construction) to enhance the development of rural kebele centres so some become urban centres, is also expected to lead to faster urbanisation.

#### National Population Policy

Population policies had low priority in Ethiopia until the early 1990s. In 1993 the Transitional Government adopted a national population policy (TGE, 1993), the primary objective of which was to harmonize the rate of population growth with socio-economic development in order to achieve a high level of welfare. The main long-term objective was to close the gap between high population growth rates and low economic productivity and to promote socioeconomic development. Other objectives include preserving the environment, reducing rural-to-urban migration, and reducing morbidity and mortality, particularly infant and child mortality. More specifically, the population policy seeks to accomplish the following:

- *Reduce the total fertility rate* (TFR) from 7.7 children per women in 1990 to 4.0 children per women in 2015;
- Increase contraceptive prevalence from 4 percent in 1990 to 66 percent in 2015 (HSDP IV);
- *Reduce maternal, infant, and child morbidity and mortality rates*, as well as promote the general welfare of the population;
- Increase female participation at all levels of the educational system;
- Remove all legal and customary practices that prevent women from the full enjoyment of economic and social rights, including property rights and access to gainful employment;
- Ensure spatially balanced population distribution patterns, with a view to maintaining environmental security and extending the scope of development activities;
- *Improve productivity in agriculture* and introduce off-farm and non-agricultural activities for the purpose of diversifying employment,
- Mount an effective countrywide population information and education programme addressing issues pertaining to small family size and its relationship with human welfare and environmental security.

Population and development are considered as a cross cutting issues in GTP I, and due emphasis is given to integrate population issues in sector development plans. The strategic pillars of the GTP I include sustaining rapid growth by promoting industrialisation, encouraging social development, investing in agriculture and infrastructure, and strengthening governance and the role of youth and women.

#### 3.2.2 Geographical Distribution of Population

Currently the majority of the population lives in the highland areas; 80 % of the country's population inhabits only 37 % of the total land areas, mostly in the highland (see Map 3-1 overleaf). The main occupation of the settled rural population is farming, while the lowland areas are mostly inhabited by a pastoral people, who depend mainly on livestock production and move from place to place in search of grass and water.

Several areas stand out as especially densely populated, including the fertile areas in and around the Rift Valley Lakes in SNNP, along major road networks through Harari and Dire Dawa in the east of the country, as well as in the Mekelle corridor in the north of the country, near Lake Tana and in specific areas of Oromia (see Map 3-1). Throughout the lowlands, population densities are low mainly because of the presence of malaria and other vector borne disease.

In 2007 largest proportion of the total population could be found in Oromia region (37%) followed by Amhara (23%). 80% of the total population lives in three regions: Oromia (37%), Amhara (23%) and SNNP (20%). Addis Ababa accounts for about 20 percent of the total urban population of the country but only 3.6% of the total population.

							_
S.N	Regions	Urban	%	Rural	%	Total	%
1	Oromia	4,221,000	27.8	26,873,000	39.3	31,094,000	37.2
2	Amhara	2,783,000	18.3	16,438,000	24.0	19,221,000*	23.0
3	Tigray	1,080,000	7.1	3,693,000	5.4	4,773,000	5.7
4	SNNP	2,419,000	15.9	14,558,000	21.3	16,977,000	20.3
5	Harari	117,000	0.8	97,000	0.1	214,000	0.3
6	Somali	716,000	4.7	4,311,000	6.3	5,027,000	6.0
7	Afar	256,000	1.7	1,334,000	1.9	1,590,000	1.9
8	Gambela	110,000	0.7	260,000	0.4	370,000	0.4
9	Benishangul	165,000	1.1	753,000	1.1	918,000	1.1
10	Dire Dawa	276,000	1.8	150,000	0.2	402,000	0.5
11	Addis A	3,046,000	20.1	-	0.0	3,046,000*	3.6
	Total	15,246,00	100.0	68,495,000	100.0	83,742,000	100.0

#### Table 3-2: Distribution of Urban and Rural Population by Region, 2012

Source: CSA (2013) and Own computation. The figures are extracted from the medium variant of CSA, Population Projections for Ethiopia 2007-2037 except for Dire Dawa. The results for Dire Dawa show errors since population in the 2007 Census is 233 000 in Dire Dawa and only 219 000 in 2008 in the CSA publication (page 58 from http://www.csa.gov.et/images/general/news/icps2012pro\_report.pdf consulted in November 2014). Therefore, our own projection is used to complete the data. \*ICPS 2012 doesn't give information by region but for two of them. It puts the population of Amhara at 19,211,000 (with a confident interval at 95 % between 18,843,000 and 19,575,000) and at 2,992,000 for AA with a confident interval at 95 % between 18,843,000. For AA, ICPS 2012 doesn't include people living in non-conventional households. They were 51 958 in 2007. Including them with the 2007 value leads to a population of 3,043,958 for AA in 2012, which is very close to the projected population for AA by CSA.



Map 3-1: Population Density of Ethiopia

#### 3.2.3 Population Characteristics

#### Age Composition

Age is an important demographic variable and provides an indispensable basis for estimating:

- Manpower potential
- Economic dependency ratio
- Potential school age population
- Age specific fertility and mortality ratio

Most demographic analysis on age structure is conducted by classifying population size by five year age groups. The area distribution for Ethiopia indicates that the population of the country in 2012 was young; some 45% of the population was 15 years or younger (see Table 3-3 overleaf) This compares with a typical developed countries of low fertility with a proportion of the population under 15 years of around 20%.

However, the proportion of the total population 15 or under is declining; the corresponding figure was about 48 percent in 1984; a decline, which is the result of a slow but significant fall in the fertility rate. It should be noted that, the stability in the proportion of people at old age is the result of the increase in numbers of those aged 15 rather than any decline in the aged population.

Egis International in association with IAU-IdF & Urba Lyon - Existing Situation and Diagnostic Final Report (March 2015)

Table 3-3: Trend in the Distribution of Population by Age Group							
Year	Under 15	15-64	65 <sup>+</sup>	Total			
1984	48.2%	-	-	-			
1994	24,132,982 (45.4%)	27,301,424	1,697,847	53,132,253			
2007	33,191,023 (45.0%)	38,226,099	2,333,810	73,750,932			
2012	44.5%	52.4 %	3.1%	100 %			

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Source: CSA (1991), CSA (1998), CSA (2008), CSA (2011) and Consultant's own computation

About 47 per cent of the female population is aged 15-49 years old, the age group considered to be reproductive ages. This is a large proportion and has a tremendous impact on the number of children born in the country. As the proportion of children below the reproductive ages is significantly high, the number of females in the reproductive age group would be increasing for several years into the future. Thus fertility reduction may not result in reduction in number of births that take place in the country, unless the fertility falls faster than the increase in the number of women in the reproductive age group.

The age structure differs between urban and rural areas. Urban areas have a smaller percentage of people less than 15 years of age than rural areas (32.3 % and 47.4 % respectively in 2007). Figure 3-3 shows the population age pyramids for Ethiopia; it is evident that the age distribution of people varies between rural and urban areas. The pyramid for the rural population has a much wider base than the urban population pyramid, which instead tends to narrow at the base and becomes broader in the middle.

This indicates that an ageing process is under way in the urban areas, albeit, not comparable to what is happening in developed countries, where a declining birth rate and slow but gradual lengthening of average life expectancy have narrowed the base of the pyramid, i.e. the age groups from zero to 14 years of age, and widened the top.



Figure 3-3: Age pyramid in the total, urban and rural population in 2012

Source:CSA (2013), Population Projections for Ethiopia 2007-2037 and Own computation

The distribution of the population by place of residence varies considerably within the country depending on the region in question. The region within the highest percentage of population living in rural areas is SNNP (88.3%). Addis Ababa, by contrast, has the lowest percentage (0%).

One would expect over-65 years old to account for a larger proportion of the population in urban areas than in the rural areas. It appears to be, generally, higher in rural areas. This contradiction is due to the fact that the 15 to 64 years-old population is proportionately smaller in rural areas than in urban ones, which are, therefore, better able to offset the proportion of old people.

Table 3-4	Table 3-4: Age Structure of the Population in 2007											
Region	Pop ۱	oulation ( years (%)	)-14	Рор	oulation 1 years (%	5-64 )	Popul an	ation 65 d more (	years %)	A	verage A	ge
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
Country total	45.0	32.3	48.2	51.8	64.7	48.2	3.2	3.0	3.6	21.6	23.6	21.3
Tigray	43.7	36.5	46.6	51.9	59.8	48.2	4.4	3.7	5.1	23.1	23.3	23.0
Afar	43.9	35.2	46.1	54.8	63.3	52.4	1.3	1.5	1.6	21.1	22.6	20.9
Amhara	42.6	30.8	44.7	53.4	65.8	50.8	4.0	3.4	4.5	22.9	23.9	22.8
Oromia	47.6	34.5	50.2	49.2	62.5	46.2	3.2	3.0	3.6	20.8	22.7	20.5
Somali	44.1	41.9	45.4	54.1	56.0	52.3	1.8	2.1	2.3	21.4	21.7	21.3
Benishan gul- Gumuz	45.3	37.7	47.5	52.2	60.6	49.5	2.4	1.7	3.0	20.8	21.2	20.7
SNNP	47.9	37.4	50.3	49.6	60.7	46.7	2.5	1.9	3.0	20.5	21.3	20.4
Gambella	42.0	36.8	45.8	56.5	62.2	52.0	1.5	1.0	2.2	21.0	20.9	21.1
Harari	37.8	28.7	49.6	58.8	67.0	48.3	3.4	4.3	2.1	23.4	26.1	20.3
Addis Ababa	24.0	24.0	-	72.6	72.6	-	3.4	3.4	-	26.3	26.3	-
Dire Dawa	36.0	30.3	48.8	60.9	66.4	48.3	3.1	3.3	2.9	23.5	24.9	20.5

Source: CSA (2008) and Consultant's own computation

#### Sex Composition

The distribution of population by sex shows that the proportion of male and female to be almost the same with slight dominance of males (male-50.6%, female- 49.4%) in the rural areas and females in the urban areas (male-49.7%, female-50.3%); see Table 3-5.

Table 3-5: Distribution of Population by Sex, Urban and Rural, 2007							
Sex	Urban	%	Rural	%	Total	%	
Male	5,895,916	49.70	31,321,214	50.61	37,217,130	50.46	
Female	5,966,905	50.30	30,566,897	49.39	36,533,802	49.54	
Both	11,862,821	100.00	61,888,111	100.00	73,750,932	100.00	
Sex Ratio	98.8		102.	5	101.9		

Source: CSA (2008) and Consultant's own computation

#### Ethnic and Religious Composition

Ethiopia is home to more than 80 ethnic groups, which vary in size from more than 25.4 million people to fewer than 100 (see table 3-6). According to the 2007 population census, the majority of the population of the country belong to Oromo (34%) ethnic group followed by Amhara (27%), The reverse is true in the urban parts of the country where the dominant ethnic group is Amhara (Amhara 37%, Oromo 25%).

Within the country, the population distribution changes according to the region considered. Some regions have a fairly homogeneous mix; in others the distribution is more varied. The population of Tigray for example, is very evenly balanced with regard to ethnic groups (96.5% of the population is Tigrayway in 2007). Generally speaking, the urban areas have the most varied ethnic structure. The Amhara ethnic group account for a fairly large proportion of the population in all urban areas of the regions. Nationally, the Amhara represent 27 % of the total population, 25 % in rural areas and 36.9 % in urban ones.

Tabl	Table 3-6: Distribution of Population by Major Ethnic groups, 2007 and 2012								
S.N	Major Ethnic	Urban +	% 2007	% 2012	Urban 2007	% 2007			
	Group	Rural 2007							
1	Amhara	19,878,199	26.95	26.2	4,374,568	36.88			
2	Oromo	25,363,756	34.39	35.3	3,008,496	25.36			
3	Tigray	4,486,513	6.08	5.9	1,060,528	8.94			
4	Somali	4,586,876	6.22	6.0	676,627	5.70			
5	Sidama	2,951,889	4.00	4.3	143,821	1.21			
6	Gurage	1,859,831	2.5	2.7	784,927	6.62			
7	Welaita	1,676,128	2.3	2.3	281,462	2.37			
8	Others	16,483,699	22.35	19.6	1,532,392	12.92			
	Total	73,750,932	100.00		11,862,821	100.00			

Source: CSA (2008) and Consultant's own computation

As to religious composition, the same census revealed that followers of Orthodox religion to be dominant, constituting about 44 percent of the total population of the country. Next to Orthodox come the Muslims, which formed about 34 percent.

Table 3-7: Distribution of Population by Major Religious and Urban and Rural location

S.N	Major Religious Group	Number 2007	% 2007	% 2012 Total	% 2012 Urban	% 2012 Rural
1	Orthodox	32,092,182	43.51	43.1	59.0	40.0
2	Muslim	25,037,646	33.95	34.1	24.4	36.0
3	Protestant	13,661,588	18.52	19.4	15.8	20.1
4	Catholic	532,187	0.72	0.9	0.5	1.0
5	Others	2,427,329	3.29	2.5	0.4	2.9
	Total	73,750,932	100.00			

Source: CSA (2008), CSA (2013) and Consultant's own computation

### 3.2.4 Population Dynamics

Population dynamics refers to the continuous process of change, which affects population size and deals largely with vital events such as birth, death and migration. Fertility is one of the most important components of demographic change. It refers to the actual reproductive performance of a population. Ethiopia has experienced one of the highest fertility rates in the world. According to the result of the Ethiopian Demographic and Health Survey, total fertility rate at national level in 2011 was 4.8 (see Table 3-8).

However, Ethiopia is undergoing demographic transition from high fertility-high mortality to a low fertility-low mortality scenario. Though the country is in the transition phase, different religions and areas show differential fertility rates. The 2000 rate for the urban and rural areas of the country was 3.3 and 6.4 respectively. In the last Ethiopian Demographic and Health Survey (2011), the fertility rate in urban area was 2.6 whereas it was 5.5 in rural areas.

In terms of the effect of urbanisation on fertility, urban fertility rates are generally lower than rural fertility rates, especially in poor countries. The urban fertility in Sub-Saharan Africa is on average almost 30 percent lower than the rural fertility. The differential in Ethiopia is much larger than the African average, and is indeed the highest of any country surveyed by the Demographic and Health Survey. [*Urbanisation and Fertility Rates in Ethiopia*, by Fanaye Tadesse and Derek Headey, IFPRI, January 2012]The rate has showed a declining trend from 5.9 in 2000 to 4.8 in 2011, according the result of the Ethiopian Demographic and Health Survey.

Table 3-8	Table 3-8: Total Fertility Rate (TFR) by Location and Year							
Year	Urban	Rural	Total					
2000	3.3	6.4	5.9					
2005	2.4	6.0	5.4					
2011	2.6	5.5	4.8					

Source: EDHS (2001), EDHS (2006) and EDH (2012)

#### Reason for the decline in fertility rate:

The Government of Ethiopia clearly recognizes the importance of reducing fertility rates. A specific objective of the National Population Policy is raising the contraceptive prevalence rate among married women from 4 percent in 1990 to 44 percent by 2015, raising the age of marriage from 15 to 18 years, and reducing the total fertility rate from 7.1 children in 1990 to 4 children in 2015. The Federal Ministry of Health has recently set an ambitious target of reaching contraceptive prevalence rate of 66 % by 2015. According to the result of the Ethiopian Demographic and Health Survey, the proportion of women who used contraceptives has increased from 36 percent in 2000 to more than 52percent in 2011 in urban areas, from 4 percent in 2000 to close to more than 23 percent in 2011 in the rural part.

Table 3-9: Distribution of Use of Contraceptives by Location and Year							
Year	Urban	Rural	Total				
2000	35.6	4.3	8.1				
2005	46.7	10.9	14.7				
2011	52.5	23.4	28.6				

Source: EDHS (2001), EDHS(2006) and EDH(2012)

The other reason for the observed decline in fertility rate is improvement in the educational status of the population in general and women in particular. As has been mentioned earlier, the proportion of literate women, which was 11 % in 1984, has grown to 17 and 35% in 1994 and 2007, respectively.

	Table 3-10. Elleracy Male - I Opulation Aged 3 years and above								
Sex	2007			1994			1984		
	All person	Literate	%	All person	Literate	%	All person	Literate	%
Both Sex	50,978,968	21,763,933	42.7	36,626,387	8,581,347	23.4	18,602,773	3,547,794	19.1
Male	25,631,130	12,997,341	50.8	18,342,330	5,485,383	29.9	9,321,551	2,518,818	27.1
Female	25,347,838	8,766,592	34.6	18,284,057	3,095,964	17.0	9,281,222	1,028,976	11.1

Table 3-10: Literacy Rate -Population Aged 5 years and above

Source: CSA(1991), CSA (1998), CSA(2011) and Consultant's own computation

Total fertility rate varies among the regions from the lowest for Addis Ababa (1.5) to the highest in case of Somali for which the rate is 7.1. Total fertility rate has showed a declining trend for each of the regions in the country. At national level, the rate was close to 4.8, which are large when compared to that of developed countries.

S.N	Regions	2000	2005	2011			
1	Oromia	6.4	6.2	5.6			
2	Amhara	5.9	5.1	4.2			
3	Tigray	5.8	5.1	4.6			
4	SNNP	5.9	5.6	4.9			
5	Harari	4.4	3.8	3.8			
6	Somali	5.7	6.0	7.1			
7	Afar	4.9	4.9	5.0			
8	Gambela	4.5	4.0	4.0			
9	Benishangul	5.4	5.2	5.2			
10	Dire Dawa	3.6	3.6	3.4			
11	Addis Ababa	1.9	1.4	1.5			
	Country	5.9	5.4	4.8			

Table 3-11: Fertility Rate by Region (Urban and Rural)

Source: EDHS (2001), EDHS (2006) and EDH (2012)

The proportion of women who use contraceptives has increased in each region of the country, e.g., Amhara (+26.4 points), Oromia (+19.6 points) and SNNP (+19.4 points). Indeed, the link is clear between Contraceptive Prevalence Rate and Fertility Rate (see Figure 3-4). In urban areas, the rate of coverage among women of family planning services is higher than in rural areas. Furthermore, school enrolment is better in urban areas. The fertility rate will tend to be lower with high level of urbanisation. While the rate of increase in the recent past, if sustained, could result in achieving a CPR of 44 % by 2015. It may be noted that the entire future reduction in total fertility rate is not going to be due to increased use of contraceptives. There are other factors like increase in marriage age, female education, and continued school enrolment that would promote fertility reduction. The depth and steepness of the decline in fertility levels will depend, *inter alia*, on the pace of urbanisation and on the coverage of family planning particularly among rural women.



Figure 3-4: Fertility Rate decreases as contraceptive use and urbanisation rates increase

Source: CSA

#### Mortality rate

Mortality refers to deaths that occur within a population. It is one of the components of population dynamics, which has an impact of reducing population size. Moreover, the incidence of death can reveal much about a population's standard of living and health care. Since mortality and health have close interactions, mortality measures can be used as an indicator of health. Therefore, in what follows attempt has been made to examine level of mortality at national level.

Among the several measures of mortality, infant mortality rate (IMR) which is the commonly used measures of mortality has been considered here to examine the level of mortality of the country. Infant mortality rate in the urban and rural part of the country in 2011 was 59 and 76, respectively. The rate is high when compared to rates for developed countries and the rate at global level, which are below 3 and 47, respectively. The rate has, however, exhibited a declining trend from 97 in 2000 to 59 in 2011 in the urban and from 115 to 76 in the rural during the same period.

Year	Urban	Rural	Total	
2000	148.6(96.5)	192.5(114.7)	187.8(112.9)	
2005	98(34)	135(58)	132(56)	
2011	83(59)	114(76)	-	

Table 3-12: Distribution of Child and Infant Mortality Rate by Location and Year (in thousands of live birth)

Source: Source: EDHS (2001), EDHS (2006) and EDH (2012), Figures in bracket=infant Mortality rates

The major reason for the observed decline in mortality rate is believed to be improvement in the health service in the country. The number of hospitals and health centres has grown significantly over the last 5 to 10 years (see Section 3.4 for details). Child mortality rate varies among the region from the lowest for Addis Ababa (53) to the highest in case of Benishangul Gumuz for which the rate was 169 (see Table 3-13). The rate has showed a declining trend for each of the regions in the country. In 2013, Ethiopia reduced its under-5 mortality by two

thirds between 1990 and 2012 – the required reduction for meeting the target of Millennium Development Goal 4. In 1990, Ethiopia's under-5 mortality rate was one of the highest in the world at 204/1,000 live births; by 2012, this rate had been slashed to 68/1,000 live births according to the 2013 Progress Report on Committing to Child Survival by UNICEF.

Table 3-13: Child Mortality by Region						
S.N	Regions	2000	2005	2011		
1	Oromia	193.8	122	112		
2	Amhara	183.4	154	108		
3	Tigray	169	106	85		
4	SNNP	191.5	142	116		
5	Harari	191	103	94		
6	Somali	184.2	93	122		
7	Afar	229	123	127		
8	Gambela	233.2	156	123		
9	Benishangul	197.7	157	169		
10	Dire Dawa	175.7	136	97		
11	Addis Ababa	113.5	72	53		
	Country	187.8	132	NA		

Source: EDHS(2001), EDHS(2006) and EDH(2012)

#### The Shift from Rural-Rural to Rural-Urban Migration

The migration of labour out of agriculture is key characteristic of the economic development process. Historically the share of labour working in agriculture within a country declines as per capita GDP increases. Many argue that if predominantly agricultural economies are to take full advantage of the geographically concentrated increasing returns to scale in industrial production, farmers must migrate to provide the urban-industrial sector with labour. Indeed, experience has shown that migration plays a fundamental role in the rapid growth of large cities in developing countries

Migration of all types is increasing in Ethiopia, in particular rural-urban migration. The share of the Ethiopian population that has migrated from outside their woreda of current residence has increased from 11.4 percent of the population (4.54 million people) in 1984 to 12.9 percent of the population in 1994 (6.92 million people) to 16.5 percent of the population (12.21 million people) in 2008 (see Table 3-13). According to the 2012 ICPS, about 15 per cent of the population is migrant, or approximately 12.4 million people.

While most of this migration is rural to rural migration, rural to urban migration has steadily risen from 1.3 million people in 1984 to 3.26 million in 2007 and is estimated at 4.1 million in 2012. The share of rural-urban migrants in the total number of migrants remained fairly stable, except during the last period (2007-2012) where it has risen from 27 % to 33 %. This share is even greater among recent migrants (39 %). Given the attractiveness of the urban sector, rural-urban migration will continue to be an important factor driving urbanisation rates in Ethiopia (see Figure 3-5).

Table 3-14: Distribution of Population by Migration Status					
Year	Migrant	%	Non-Migrant	All	
1984	4,545,000	11.4	88.6%	39,869,000	
1994	6,917,000	12.9	87.1%	53,477,000	
2007	12,219,000	16.5	61,532,000	73,751,000	
2012	12,400,000*	15.0			

Source: CSA (1991), CSA (1998), CSA(2008), CSA (2013) and Consultant's computation Note: \* Consultant estimate on the bases of 2012 ICPS



Figure 3-5: Share of internal migrants in Ethiopia over time

Source: The Rural-Urban transformation in Ethiopia, ESSP II - EDRI Report, CSA (1999), CSA (2013) and Own computation

Table 3-	Table 3-15: Distribution of Migrants by Area of Previous Residence						
Voar	All Migraphs	Area of Previous Residence					
Tear		Urban	%	Rural	%	NS	
1994	6,916,653	1,812,543	26.2	5,094,080	73.4	-	
2007	12,218,888	3,226,279	26.4	8,992,501	73.6	116	
2012			29.9		70.1		

Source: CSA (1998), CSA (2008), CSA (2013) and Consultant's own computation

Traditionally, people move from poorer and job scarce regions with worse public provision to those which are richer, prospering and better both in terms of employment prospects and the provision of public services. Table 3-16 below shows the average annual net-migration and number of net migrants by region, and reveals that migration has a negative effect on the population size of four of the regions of the country namely Tigray, Amhara, Somali and SNNP (Amhara had a net migration rate of negative 2.2 persons per thousand population meaning that the population of Amhara region has declined by about 38,000 population annually). On the other hand, the population size of the remaining regions was increasing as a result of net migration. For instance, the population size of Addis Ababa has increased by close to 25,000 populations during 2007-2008.

Table 3-16: Mid-year Population 2007 and Estimated Number of Migrants						
S N	Pagions	Net number of migrants				
<b>0.N</b>	Regions	Population (000's)	Migration rate/1000	No. of migrants ('000s		
1	Oromia	27062.4	0.2	5		
2	Amhara	17255	-2.2	-38		
3	Tigray	4327.3	-0.8	-3		
4	SNNP	14968.6	-0.6	-9		
5	Harari	183.9	6.2	1		
6	Somali	4399.1	-0.4	-2		
7	Afar	1377.4	4.2	6		
8	Gambela	308.4	14.6	4		
9	Benishangul	787.2	6.8	5		
10	Dire Dawa	343.1	16.4	6		
11	Addis A	2735.5	9	25		

Source: CSA (2012)

Data from 2012 Inter-Censual Population Survey indicate similar trends. Amhara, Tigray and SNNP regions have net out-migration, i.e., more people leave the region to other regions. Amhara region has the highest net out migration of 64 per 1000 population (see Table 3-17). Likewise, Addis Ababa, Dire Dawa, Gambella, Benishangul-Gumuz, Afar, Harari have net inmigration, i.e., more people enter the region from other regions. Addis Ababa has the highest net in-migration 430 per 1000 population, followed by Dire Dawa (289) and Gambella (209).

#### Table 3-17: In-migrants, Out-migrants and Net-migrants by region, ICPS 2012

	Rate per 1000 current population of the region						
			All migrants		Re	cent migrar	nts
S.N	Regions	In-migrants	Out- migrants	Net migrants	In- migrants	Out- migrants	Net migrants
1	Oromia	25	24	1	8	8	1
2	Amhara	7	71	-64	4	14	-11
3	Tigray	26	43	-17	8	11	-4
4	SNNP	20	47	-27	10	13	-3
5	Harari	224	181	43	76	45	31
6	Somali	17	16	1	2	4	-2
7	Afar	81	15	66	33	12	21
8	Gambella	220	12	209	82	9	73
9	Benishangul	209	31	178	44	10	34
10	Dire Dawa	334	45	289	106	24	82
11	Addis A	452	22	430	96	51	45

Source: CSA (2012)

#### Determinants of internal migration:

According to Paul Dorosh (*"The rural-urban Transformation in Ethiopia"*, July 2011), there are four important determinants of internal migration at the household level in Ethiopia:

- **Demographic factors** are positively associated with migration; households with more male members of prime working age send out more migrants.
- **Social networks** are important; households with access to social networks outside the village are more likely to send out migrants.
- **Household land** per capita is negatively associated with migration, implying negative selection on wealth.
- The severity of the drought shock at the neighbourhood level has a positive association with migration.

Others pushing or pulling factors could also completed these four important determinants of internal migration such as labour market in the destination, unemployment, poverty, crop failure, fertile land,...

In relation with the third point Derek Headey (*"Land Constraints and Agricultural Intensification in Ethiopia: A village-level analysis of high potential areas*", 2009) has remarked that farm sizes are generally very small in the Ethiopian highlands and declining over time. Intrafamily inheritance of land is legally permissible (including intrafamily donations when parents are still living), but with high rates of fertility, younger generations will generally inherit much smaller farms than their parents did, even with some out migration<sup>6</sup>. Young farmers therefore cultivate substantially less land than did previous generations, and many villages do not have enough land to meet the requirements of younger generations. Hence many chose to migrate to other areas (rural or urban). This fact further emphasizes the need for either successful agricultural intensification or more rapid migration out of agriculture<sup>7</sup>.

#### Resettlement, villagization and sedentarization:

"Resettlement" implies people moving to new locations. From the point of view of state policy, the notion of movement may serve to differentiate resettlement from two other policies: "villagization", where the basic notion is regroupment, which may or may not involve moving significant distances; and "sedentarization", which aims to settle mobile populations, usually herders, a process which need not involve moving the away from the area in which they are living.

Over the last few decades, resettlement in Ethiopia has been adopted as a strategy to alleviate socio-economic problems. The Government appears to be in favour of launching planned resettlement schemes, primarily to tackle the chronic food insecurity problem in some parts of the country. More recently, Ministry of Agriculture published a Resettlement

<sup>&</sup>lt;sup>6</sup>Average farm size is estimated at 1.15 ha in Oromia, 1.09 ha in Amhara, 0.91 ha in Tigray and only 0.49 ha in SNNP in 2011-2012.

<sup>&</sup>lt;sup>7</sup>Regional governments also guarantee access to land for all regional residents, provided they meet minimum farm-size laws. In Ethiopia, minimum farm size usually defined as a size that will enable a household to feed itself as food security is the major objective of rural development programs. However, this definition usually leads to ambiguity as the in addition to the absolute size, the quality of the land and farmers' investment on the land both through modern (usually through purchased inputs like fertilizers) and traditional methods affect the level of land productivity and hence food security.

Policy Framework (Sustainable Land Management Project Phase II – Resettlement Policy Framework, 2013). It explains that Ethiopia is experiencing low and declining agricultural productivity, persistent food insecurity, and rural poverty largely attributed to land degradation. A Sustainable Land Management Project (SLMP-II) is being implemented in the parts of the country where the environment is particularly fragile, and a Resettlement Policy Framework is prepared to guide the implementation of mitigation measures related to land acquisition concerning component one of the SLMP-II.

Many resettlement and population displacements are perhaps unavoidable. In a market led economy, urban and infrastructural development, and further environmental degradation which could force people to relocate, seem inevitable. Similarly, with the rapid annual population growth rate and considerable economic growth, it is likely that resettlement will continue in Ethiopia, both spontaneously and through state initiated programs. On the other hand resettlement needs to be considered only after all other alternatives are exhausted. Research indicates that resettlement may indeed provide improved livelihoods for those who move voluntarily, but only if it is planned and executed with proper care and support for the resettlers<sup>8</sup>.

Another form of resettlement schemes called "villagization program" aims to cluster dispersed populations into villages to enable the more efficient provision of basic services. The idea is to transform shifting agricultural practices into stable farming in the vicinity of villages and to provide people with increased access to basic services, as well as to increase agricultural productivity. The resettled households are to be given a plot for a house and a minimum three-hectare plot for farming. People are to be issued land rights in a manner that is consultative and transparent. The Ethiopian government planned to resettle 1.5 million people by 2013 in four regions: Gambela, Afar, Somali and Benishangul-Gumuz.

To cope with socio-economic problems food insecurity, the government's strategy is also to promote off-farm activities and rural industrializations. Non-farm activities have a great potential to provide employment and additional incomes during the slack season to rural households. In addition, given rising population pressure on agriculture land which results in a decline in land holding per individual, off-farm activities can provide alternative employment.

The Ethiopian land certification program was first initiated in the Tigray region in 1998. It is a variant of the land legislation programs that many African countries have been implementing. It differs from traditional land reform programs in terms of the relatively low cost at which it has been implemented and the participatory nature of the program. Between 1998 and 2007, it has been estimated that over 5 million farm households have certified their land holdings in four regions of Ethiopia. If land certification reduces the insecurity related to with being away from the farm, we thus may expect an increase in productive off-farm engagements as individuals would no longer be constrained by the repercussions of tenure insecurity.

<sup>&</sup>lt;sup>8</sup> Tadesse A, "The dynamics of Resettlement with reference to the Ethiopian Experience", 2009

### 3.2.6 Future Population Size

Three population projections were made by CSA for Ethiopian in 2013; Low, Medium and High Scenarios<sup>9</sup>. The main difference between these three scenarios is linked to fertility assumptions. Total Fertility Rate is supposed to decline from 4.6 births per woman in 2010 to:

- 2.5 births per woman in 2027-2036 (Low Scenario)
- 2.8 births per woman in 2027-2036 (Medium Scenario)
- 3.1 births per woman in 2027-2036 (High Scenario)

According to these projections, Ethiopia's population is expected to grow from 83.0 million in 2012 to a minimum of 127.5 million in 2037 (low scenario) and a maximum of 142.6 million (high scenario). Ethiopia should thus prepare to accommodate between 44.5 and 58.5 million *extra* inhabitants between 2012 and 2037. This is a significant increase which could be even greater if UN population calculations are used instead of those of the CSA, for whereas the CSA estimate the population in 2012 to be 83 million the UN believes the figure to be just below 92 million. The UN's 2012 estimate shows some 9 million over that calculated by the CSA. Given that Ethiopia's population is very young (and fertility at that age group is relatively high), one is drawn to the conclusion that the rate of population increase in the future would be greater if the UN 2012 population number is accepted (see Figure 3-6).



Sources: CSA (2013), United Nations, WPP, The 2012 Revision

<sup>&</sup>lt;sup>9</sup>CSA, ICPS 2012 Projection report <u>http://www.csa.gov.et/images/ general/news/ icps2012pro</u> report.pdf

Table 3-18 below shows the geographical distribution of population by region and under the CSA medium variant. As expected three regions (Oromia, Amhara and SNNP) with the greatest number of people in 2014 maintain their dominance in 2037. It is in these regions that one can expect the emergence of significant urban growth.

Table 3-18: Projected Population Size by Region – Total (Urban and Rural) Medium variant						
Regions	2014	2019	2024	2029	2034	2037
Oromia	32,816,000	37,267,000	41,790,000	46,257,000	50,608,000	53,121,000
Amhara	20,020,000	21,844,000	23,549,000	25,168,000	26,715,000	27,610,000
Tigray	4,960,000	5,443,000	5,937,000	6,424,000	6,892,000	7,157,000
SNNP	17,836,000	20,087,000	22,444,000	24,841,000	27,205,000	28,567,000
Harari	226,000	257,000	289,000	321,000	353,000	371,000
Somali	5,307,000	6,051,000	6,808,000	7,549,000	8,298,000	8,769,000
Afar	1,678,000	1,902,000	2,119,000	2,330,000	2,535,000	2,656,000
Gambela	396,000	463,000	540,000	620,000	702,000	753,000
Benisha ngul	976,000	1,126,000	1,282,000	1,445,000	1,607,000	1,707,000
DD	427,000	493,000	566,000	644,000	723,000	772,000
AA	3,119,000	3,604,000	4,030,000	4,447,000	4,866,000	5,132,000
Total	87,952,000	98,665,000	109,496,000	120,203,000	130,674	137,000,000

Source: CSA

#### CSA Urban Population Projection

The CSA has made three projections of the percentage of the population residing in urban area (see Figure 3-7):

- A Slow urbanisation scenario which leads to 28.5% in 2037;
- A Medium urbanisation scenario which leads to 31.0% in 2037
- A Fast urbanisation scenario which leads to 33.9% in 2037

Each urbanisation scenario (Slow, Medium, Fast) is associated with a population scenario (Low, Medium, High). Accordingly, the projections of the urban population range from:

- Slow Urbanisation Low Population projection : 35 million urban inhabitants in 2037
- Fast Urbanisation High population projection : 49 million inhabitants in 2037

The slow urbanisation hypothesis associated with the low population projection can probably be dismissed as its underlining assumption that less urbanisation increases the more the fertility declines, is counter-intuitive. Studies show that fertility and average household size declines as urbanisation increases. Furthermore, fertility and the average number of persons per housing unit decreases as literacy rate increases (See Figures 3-8 and 3-9 overleaf).

If the three urbanisation assumptions are associated with single population projection (the medium one), urban population ranges from 37.3 to 47.6 million in 2037. The urban population would then increase by 23 to 32 million between 2012 and 2037.



Source: CSA



Source: CSA



#### Figure 3-9: Average Number of Persons per Housing and Population Density

#### Source: CSA

#### CSA urban population projections by region

These projections required assumptions on fertility, mortality and migration for all regions of the country. These assumptions are explained in the CSA publication *"Population Projections for Ethiopia, 2007-2037"* (July 2013). The following is the summary of the main assumptions

- **Fertility**: the CSA took into account the phase of demographic transition. All regions in Ethiopia are not at the same phase of transition. This implies that the future changes in fertility would also not be uniform across the regions.
- **Mortality,** as the country does not have a Civil Registration System or surveys that produce regular vital statistics, the only sources of data on mortality are population censuses and occasional surveys. The data collected formed the basis for estimating mortality levels. The data could suffer from some underestimation due to errors in the reference period as well as due to the inherent difficulty in discussing about death of the dear ones with the respondents.

The completeness of the mortality data was evaluated using growth balance model. Normally the gain in life expectancy during a period depends on health programs, access to health care, etc. these have been improving in the country. Another factor that affects the quantum of the gain in life expectancy is the mortality level itself. While significantly high gains can be expected in a short period at higher levels of mortality, the rate of increase in expectation of life decreases as life expectancy increases. The United Nations has provided a model pattern of likely increase in the expectation of life under three different scenarios at various levels of life expectancy.



*Figure3-10:* Urban Population by Region in 2007 and to 2037

According to the United Nations (WPP 2012), half of all population growth is concentrated in a small number of countries. Between 2013 and 2100, eight countries are expected to account for over half of the world's projected population increase: Nigeria, India, the United Republic of Tanzania, the Democratic Republic of Congo, Niger, Uganda, Ethiopia and the United States of America, listed according to the size of their contribution to global population growth.

By 2050, five least developed countries—Bangladesh, Ethiopia, the Democratic Republic of the Congo, the United Republic of Tanzania and Uganda—will be among the twenty most populous countries in the world. By 2100, among the twenty most populous countries in the world, eight will be least developed countries—the United Republic of Tanzania, the Democratic Republic of the Congo, Ethiopia, Uganda, Niger, Bangladesh, Sudan and Mozambique

The population size of the country by regions has been projected by CSA to year 2037 using component method of population projection which involves assumptions on future course of population dynamics (fertility, mortality and migration). The urban and rural population was projected based on future course of urbanisation,

The population size is projected under three variants (High, Medium and Low) based on three alternative assumptions (High, Medium and Low) on future course of fertility and urbanisation. In case of mortality, no such scenarios have been prepared as the impact of small changes in mortality levels on the number of survivors is small. Table 3-19 presents the population projected for the next 20 years under the medium variant which is more often than not used for planning purpose.

S.N	Regions	Total	Urban	Rural	
1	Oromia	53,121,000	13,562,000	39,559,000	
2	Amhara	27,610,000	8,711,000	18,899,000	
3	Tigray	7,157,000	3,334,000	3,823,000	
4	SNNP	28,567,000	7,334,000	21,233,000	
5	Harari	371,000	228,000	143,000	
6	Somali	8,769,000	1,511,000	7,258,000	
7	Afar	2,656,000	897,000	1,759,000	
8	Gambela	753,000	392,000	361,000	
9	Benishangul	1,707,000	640,000	1,067,000	
10	Dire Dawa	772,000	533,000	238,000	
11	Addis Ababa	5,132,000	5,132,000	0	
	Total	137,000,000	42,274,000	94,404,000	

#### Table 3-19: Projected Population Size by Region – Medium Variant- 2037

Source: CSA (2013)

Table 3-20 presents the urban population projection made by CSA at five year interval during 2014 – 2037 (also see ANNEX C for a description of population projection methodologies).

Table 3-20: Projected Population Size by Region - Urban						
Regions	2014	2019	2024	2029	2034	2037
Oromia	4,647,000	5,933,000	7,595,000	9,617,000	11,994,000	13,562,000
Amhara	3,127,000	4,090,000	5,198,000	6,436,000	7,825,000	8,711,000
Tigray	1,200,000	1,547,000	1,964,000	2,447,000	2,987,000	3,334,000
SNNP	2,707,000	3,497,000	4,404,000	5,449,000	6,593,000	7,334,000
Harari	125,000	145,000	166,000	189,000	213,000	228,000
Somali	764,000	893,000	1,039,000	1,202,000	1,385,000	1,511,000
Afar	290,000	387,000	504,000	638,000	794,000	897,000
Gambela	124,000	165,000	217,000	278,000	346,000	392,000
Benishan gul	189,000	258,000	340,000	441,000	559,000	640,000
DD	268,000	313,000	366,000	427,000	492,000	533,000
AA	3,119,000	3,604,000	4,030,000	4,447,000	4,866,000	5,132,000
Total	16,734,000	20,965,000	25,960,000	31,687,000	38,163,000	42,274,000

Source: CSA

#### 3.2.7 Concluding remarks and recommendations

The population of Ethiopia continues to increase at a significant rate. Between 2013 and 2100 eight countries are expected to account for over half of the world's projected population increase; Ethiopia is one of these countries. A significant proportion of the expected increase in Ethiopia will be 'urban'. Projections indicate that the urban population of Ethiopia will more than double between 2014 and 2037, and may even treble (under the high variant scenario).

This rapid urbanisation will place great strain on Federal, regional and local governments as they seek to cope with the provision of urban services and infrastructure required by this massive increase. It is also an opportunity to guide urban development so that industrial development aims and targets given in GTP I are reached, and a more balanced geographical distribution of economic activity is achieved across the country. Realising the opportunities and mitigating the downsides will require significant government and community effort. Actions need to be taken now to prepare for the expected massive increase in national population and it the proportion that is likely to reside in urban areas.

In particular Ethiopia should consider its stance on voluntary population control. While Ethiopia has made major progress in accelerating the rate of economic growth over the past decade, present and future gains could be compromised without a slower population growth. While a draconian population policy similar to the one being pursued by China should be resisted, a combination different approach is necessary, with expanded public awareness campaigns, access to affordable medical options or a politic based on incentives or rewards linked to the number of child, should be considered by the Government.

#### SWOT Analysis

Strengths	Weaknesses
<ul> <li>The country is undergoing demographic transition from high fertility-high mortality to a low fertility-low mortality scenario:</li> <li>Decrease of the total fertility rate from 5.9 children per women in 2000 to 4.8 in 2011,</li> <li>Increase of contraceptive prevalence from 8 percent in 1990 to 29 in 2011 (respectively from 36 % to 52 % in urban areas),</li> <li>Declining population growth rate</li> <li>Young population – feeding the labour market</li> <li>Growth of literate women (17 % in 1994, 35 % in 2007 and 47 % in 2011)</li> </ul>	<ul> <li>Lack of a civil register to manage future population growth and evaluate public policies concerning population</li> <li>In 25 years (between 2014 and 2037), management of an additional 25 to 35 million urban dwellers may be problematic</li> </ul>
<ul> <li>Opportunities</li> <li>Fast growth in urban population and growth of rural-urban migration can alleviate the burden of population growth in rural areas.</li> <li>Young population (increasingly educated) can drive the development of a modern economy</li> <li>The Ministry of Agriculture has been working to create one urban centre for each three rural kebeles.</li> </ul>	<ul> <li><b>Threats</b></li> <li>Fast growth of urban population and the growth of rural-urban migration will necessitate the creation of a significant number of job opportunities and dwellings</li> <li>Rapid growth of urban population will also place great strain on Government (Federal, regional and local) as they seek to cope with the provision of urban services and infrastructure required by this massive increase in the population</li> </ul>

### **3.4 Housing Conditions**

Ethiopia, like so many countries, faces an increasing imbalance between the supply and demand for accommodation in both rural and urban areas. There is a shelter deficit. Studies indicate that this deficit is related to a number of structural weaknesses in the housing market including a lack of resources, and inappropriate institutional, legal, and regulatory frameworks. Future urbanisation is likely to be compromised if the problematic issue of 'shelter' cannot be effectively addressed. Instead of accommodation for all, slums and homelessness could, unfortunately, characterise many Ethiopian cities if ways are not found to provide affordable accommodation to the majority in a timely and effective manner.

#### 3.4.1 Current State of the Housing Sector

#### Housing needs and effective demand

Ethiopia is experiencing a dire shortage of housing. In 1994 there were 1,493 million housing units in the urban areas of the country available to 1,585 million households—which was a shortage of about 92.0 thousand houses (cf., CSA, 1994). After 13 years the 2007 census showed that there was 2.9 million housing units as compared to 3.03 million households—a backlog of some 128.3 thousand units, i.e., about 5.0% more households than reported housing units in all urban areas of the country in 2007. The results of both censuses confirm that the shortage of housing unit is a persistent problem.

The government estimates that the current housing deficit is between 900,000 and 1,000,000 units in urban areas, and that only 30 per cent of the current housing stock is in a fair condition, with the remaining 70 per cent in need of repair or in some cases total replacement. In Addis Ababa alone, 300,000 units are required to meet the deficit. The housing deficit is also acute in selected major cities of Oromia, Amhara, Tigray, SNNP and Harari Regions as well as Dire Dawa City Administrations (MoWUD, 1998 Eth. C., P.33).

The housing deficit is set to increase with the expected high population and urbanisation growth. Between 1983 and 2007, Ethiopia's population more than doubled, from 33.5 million to 81.2 million, and it is projected to more than double again by 2050. To accommodate future growth, the Urban Sector Millennium Development Goals Needs Assessment (2004) predicted that to meet the MDGs in 2015 requires a total of 2,250,831 units, which equates to 225,000 houses per annum.

#### Key players in housing

The important players in the housing market are:

• The State, manifest through its various arms such as regional governments, districts, and kebeles. In 2011 UN HABITAT stated that the Ethiopian State controls the majority of the rental accommodation. The State also influences the supply of new housing through active involvement in material production and importation, land supply, and housing finance<sup>10</sup>

<sup>&</sup>lt;sup>10</sup> Source: Condominium Housing in Ethiopia: The Integrated Housing Development Programme UN HABITAT 2011

- Private housing developers exist but are few in number. The private construction industry is very small and it is complicated and time consuming to start a company, register it, and conduct business. Those that do exist operate only for high-income groups, as there is little incentive to construct low-income housing. Private house ownership levels are low. In Addis Ababa, only 30% of houses are owner occupied.
- Housing cooperatives have also provided an avenue for home ownership. The approach is for citizens to organize themselves into small groups (between 10 and 20 people), register as a cooperative group for land allocation, develop savings capacity, prepare settlement plans, receive land and secure tenure, and largely build their housing themselves incrementally. However, in addition to its small scale, cooperative housing is challenged by the undesirable peripheral location of land allocated, low quality of allocated land making construction costly and difficult.
- **'Informal' actors:** unplanned housing constitutes a considerable proportion of the total housing supply, although estimates of the scale of urban informality vary greatly.

#### Housing conditions

Compared to other countries, the **quality** of housing in Ethiopian cities tends to be low. An estimated 70-80 per cent of the urban population in Ethiopia live in slums.<sup>11</sup>This is one of the highest levels in Sub-Saharan Africa. These housing units are old and dilapidated, so require replacement. Housing conditions in urban Ethiopia are such that the overwhelming majority of the residential units are poorly constructed. For instance, as shown in the 2007 population and housing survey, about 80 percent of all urban housing units in the country are made of wood and mud (wattle and daub), and 66 percent have earthen floors. Regarding size, the overwhelming majority of urban housing is small, with one- and two-room shelters accounting for 46percent and 26 percent respectively of all urban housing units. As many as 28 percent of urban housing units have no toilet, and 27 per cent are without kitchens.

In Ethiopia, poor quality "slum" housing is occasionally owned by government. These include "Kebele houses", which cover a sizeable proportion of housing stocks in major urban centres of the country. Kebele rental housing, which constituted 12 per cent of the total housing units in urban areas – 24 per cent of the total housing stock in Addis Ababa in 2007<sup>12</sup>, can sometimes be characterized as slums because of overcrowding and lack of key amenities such as drinking water, sanitation, cooking facilities, power supply and waste disposal.<sup>13</sup> The majority of low-income Ethiopians reside in rented kebele housing.

**Kebele rental houses** came into being with the 1975 extra house proclamation when supplementary houses which have been rented by a private or public association, to a tenant, were nationalized (NUPI, 1988). From the nationalized houses, those which were rented for less than 100 birr per month were taken over by the Kebeles who became responsible for their administration; collecting rent, maintaining the houses and paying compensation to former owners (Esayas, 2000).

<sup>&</sup>lt;sup>11</sup> Planning and Research Department Ministry of Finance and Economic Development (MOFED) « Situational Analysis of Informal Settlements in Addis Ababa" Ethiopia: The Millennium Development Goals (MDGs) Needs Assessment Synthesis Report (2005)

<sup>&</sup>lt;sup>12</sup>2007 Population and Housing Census

<sup>&</sup>lt;sup>13</sup> Tesema Tolera, « The Conditions of Kebele Managed Rental Accommodations in Addis Ababa : A comparative Study of Woredas 5 and 26 » (PhD diss., Addis Ababa University, 2003)

Studies undertaken on Kebele houses have attributed the poor housing quality to factors such as low rent revenue and its administration, poor construction materials and to problems inherent in the tenure system of public houses. Kebeles were expected to administer the public houses under them, by collecting rent, and using the revenue from rent to meet costs of maintenance of the houses, recurrent administration costs and compensation payment to former owners as well as construction of new low rental houses. However, the revenue earned from rent is small, unable to cover all the expenditures required.

**Informal land settlement** is usually referred to residential areas where a group of housing units have been constructed on land to which the occupants have no legal claim, or which they occupy illegally. They are characterized mostly by the low quality houses and the lack of inadequate infrastructure and social services.

Informal settlements occur when the current land administration and planning system fails to address the needs of the whole community. Such settlements are characterized by rapid, unstructured and unplanned development. Slum upgrading programs remain piecemeal and small scale, and do not directly construct housing units but rather upgrade urban infrastructure and services. Many officials and local professionals believe that slum upgrading 'does not work' in Ethiopia because of irreparable state of the housing units, the massive deficit that such small-scale programs cannot address, and the need to increase density on valuable inner-city land.

#### 3.4.2 Housing Policies and Strategies

After the Derg was ousted from power in 1991, the EPRDF led government launched various reforms to liberalize and modernized the economy. One important initiative was the National Plan for Accelerated and Sustainable Development to End Poverty (PASDEP) which had a defined housing component The PASDEP urban development package was developed to enable cities to provide efficient and effective public services to residents, and complement and facilitate rural development. The urban sector development package was planned to be implemented with inter-ministerial coordination. Urban Development and Construction sectors were given attention and accordingly incorporated in the PASDEP that aim to eventually eradicate poverty by ensuring accelerated and sustainable development (cf. PASDEP Vol. II, Policy matrix, 2006). The urban development component of PASDEP consists of the following four major development works:-

- Improve Supply and Delivery of Urban Land, Infrastructure and Services
- Strengthening urban-rural and urban -urban linkage
- Development of Micro- and Small-scale Enterprises and
- Integrated Housing Development Program.

These components of an urban development package aim at reduction of slums, integrated urban upgrading and regeneration, urban infill, achieving high density development, reduction of urban sprawl and reducing the cost of infrastructure provision by:

- Ensuring private sector access to land, building materials and finance.
- Developing low cost housing technologies
- Creating revolving housing finance instrument: the Housing Development Fund
- Developing a national Integrated Housing Development Program (IHDP)

### The Integrated Housing Development Program (IHDP)

According to the MDG Needs Assessment225,000 new housing units are required per annum. In response, the Government assumed the responsibility through the Integrated Housing Development Program for financing and constructing 100,000 housing units per annum in large and medium sized cities targeted at middle and low income households. Financing will involve a revolving housing fund that will receive a percentage of the house purchase price from purchasers at the point of transfer and, subsequently, long term repayment of capital and interest. Total estimated cost of the Government component, excluding repayments, is ETB 3.5 billion per annum equivalent to ETB 14.0 billion over the years 2006/07 to 2009/10 of the PASDEP period. The remaining requirement for 125,000 housing units per annum will be provided by property developers, employers, housing cooperatives and private home builders. The Government will provide serviced land, public infrastructure and services for these housing. The Government's major targets related to housing development under the urban component of PASDEP are presented in Table 3-21.

	Outcome/Output	Indicator	Planned target (cumulative of 5yrs)
1	Improvement in lives	Household with improved	From 30% at base year
	of slum dwellers	Housing, access to land and basic service (%)	to 65 %
		Number of new housing to reduce urban slum	400,000
		Investment in new and upgraded housing in urban areas(in Birr)	14 billion
		Investment in new low cost construction technologies	16 million
		Investment in new and upgraded infrastructure and service (in Birr)	2661.2million
		Land provided with service(ha)	15200
2	Increased urban development level	Reduction in urban unemployment rate in towns with 500000+ populations (%)	Reduced unemployment rate 40 %to 20%
3	Increased in number	-12000 MSE created each year	-36,0000 MSE
	and viability of micro and small construction enterprises	-300 shall emerge as small contractorsG7 and under)each year	-1200
		-30 shall emerge as middle class contractors(G4-G6) each year	-120

#### Table 3-21: Urban Development Targets under PASDEP in relation to the IHDP

Source: PASDEP Vol. II, Policy matrix, 2006

The overall objective of the IHDP was the provision of affordable houses for all income groups of the society to alleviate housing shortage, create employment and improve the livelihoods of urban dwellers. The goal was to construct 400,000 housing units by developing the capacity of the domestic construction industry. Table 3-22presents the number of housing units planed and constructed, along with housing units completed.

Egis International in association with IAU-IdF & Urba Lyon – Existing Situation and Diagnostic Final Report (March 2015)

Ser.No	Region	Number	of Housing U	nits	Transf	Transferred	
•		Construction began	Completed	Below 80%	Total	Female	
1	Oromia	22,883	20,125	2,758	16,531	3,030	
2	Amhara	20,093	20,093	-	18,895	5,313	
3	SNNP	11,135	8,829	1,077	9,969	3,083	
4	Tigray	9,637	8,619	1,018	8,465	3,612	
5	Harari	2,640	2,640	-	2,640	827	
6	Dire Dawa	2,803	2,435	-	2,435	1,106	
7	Regions' Total	69,191	62,741	4,853	58,935	16,971	
8	Addis Ababa (from 1996-2005)	175,245	108,482		100,380	59,512	
	Total	244,436	171,223		160,315	76,483	

#### Table 3-22: Regional Distribution of Targets and Achievements of the IHDP

Source: MoUDHC, Bureau of Housing Development & Government Building Construction, Dec 2013

It should be noted that the constructions of condominium houses commenced in Addis in 1996, and later in the major regions (Oromia, Amhara, Tigray and the SNNPR) as well as Dire Dawa City administration and Harar. However, the IHDP has been suspended in the regions for a variety of reasons. The condominium blocks have been described as 'an eyesore' in the smaller low-rise provincial towns and demand has been low due to considerably lower purchasing power in the regions than in Addis-Ababa. The majority of the towns' dwellers were unable to conclude the initial down payment to be entitled for the housing transfer on bank loans. Addis Ababa City Administration alone continued constructing condominium houses, while the regions are expected to modify previous approaches in order to tackle urban housing problems.

Densification is the driving concept behind condominium housing. The IHDP believes that is generally more expensive to create lateral than vertical development so high-rise housing should be encouraged, especially in valuable inner-city location. IHDP projects range in density from 175 to 300 households per hectare. Condominium blocks are 'ground floor plus four or five stories in height, therefore avoiding the need for a mechanical lift, which minimizes associated construction and maintenance costs. However, in the most recent condominium project, located in Addis Ababa's Lideta district, condominium blocks are ground floor plus seven stories (G+7). Although this model requires an internal lift which increases construction and maintenance costs, the value of the centrally located land necessitates the higher density in order to maximize the use of the inner-city land on which it is located.

One of the IHDP's main objectives was slum upgrading. However, this form of housing improvement has been limited to date. The major reason has been to avoid the social costs of slum clearance inflicted on residents. Nonetheless, inner city redevelopment is a necessity and one of the limits the Government has enforced is to restrict all house-building under the new policy to within the existing city boundary. The purpose is to encourage compact city urban planning in order to reduce the financial strain associated with infrastructure costs.

#### Overview and Issues about the IHDP

The IHDP has had a positive impact on the capacity of the construction sector, manufacturing industry, and transportation. Following its implementation in Addis Ababa, there have been a number of important results for city dwellers: the cost of rent for a dwelling has decreased; the housing shortage has been stemmed; the provision of public services for citizens has increased and increased job opportunities are available to the youth of Addis Ababa. A significant number of units have been built and the program has achieved its goal of delivering housing at low cost, with units costing around \$77 per m<sup>2</sup>, whereas if the private sector constructed them on the free market, they would cost around \$193 per m<sup>2</sup>. Although there are many positive aspects to IHDP the program, however, faces challenges that need to be acknowledged and addressed, including:

- **Inability to reach the poorest of the poor**: While the IHDP has the laudable aim of targeting the low-income sector of the population, unfortunately experience has shown that the 'poorest of the poor' are not benefiting from the IHDP due to inability to afford the initial down-payment and monthly service payments.
- The current financial approach underpinning the program is unsustainable. In order to continue the program and meet the ambitious completion targets, secure finance is necessary.
- Levels of compensation are disputed: Although the program makes explicit effort to consult widely on development plans, provide compensation in the case of relocation, and support the transition of relocated people through temporary housing, several problems have been raised. For instance, private owners have concerns regarding the low level of compensation provided for their property, which they argue is below the current market value.
- IHDP projects are often in peripheral locations: The lack of undeveloped centralcity land combined with the initial undesirability to undertake projects in occupied and slum areas has led many projects to be located on the periphery of Addis Ababa, which has proven problematic for both beneficiaries 'livelihoods and infrastructure provision. There are insufficient employment opportunities in such locations and transportation to access the city centre is costly and time consuming. Furthermore, the cost of infrastructure provision is greater on peripheral sites, which increases the overall project cost and in particular the cost to an already financially overstretched local government. To address this issue, the completion of Bole Summit marks the last peripheral project and now condominium projects focus on inner city redevelopment sites, where proposals are for eight story blocks to make them financially viable and address the density requirements.
- Targets missed due to capacity and capability constraints: The program was also unable to meet its target due to a shortage of skills in construction, project management and planning, construction design and poor logistic support and the shortage of construction materials. The shortage of qualified contractors, both big and small, considerably slowed the space of housing construction and delivery.

To improve construction efficiency and reduce costs, the government is currently investigating alternative building technologies and systems. They are concentrating their efforts on increasing the use of local construction techniques and materials, and promoting private investment in the national production of cements, glass and iron. Research is

currently being conducted on alternative materials, in particular on the greatest challenge: that of finding an alternative material to cement, for the partition walls of the buildings, to avoid the delays it currently causes and to reduce costs.

#### 3.4.3 Urban Land Lease Policy and the Land Tenure System

In Ethiopia, all land is owned by the government, but use rights of holdings are recognized: private individual; communal, in rural areas; and condominium, in urban areas. The **urban land lease policy** is one of the major policy interventions made by the government to allocate urban land for residential housing. The urban land lease policy is also intended to create a steady source of revenue for municipalities that can be used for the improvement of urban facilities. However, demand for land in urban areas has been greater in huge amount than the supply of land given by the land authorities. Besides, corruption, non-transparency and injustice have reined in the system, which created a safe haven for few urban speculators and brokers. For these reasons, the government initiated the revision and enactment of new urban land lease proclamation.

The new Urban Lands Lease Holding Proclamation N°.721/2011has two objectives: to satisfy the growing urban land demand resulted because of the fast economic growth of the country and to ensure good governance for the development of efficient land market and a transparent and accountable land administration system. According to the newly adopted urban land leasehold proclamation, residents are allowed to get land only through auction. It is only under exceptional circumstances that land may be given by allotment (without auction). Compared to the previous lease proclamation, the new one highly restricts access to urban land. The Constitution stipulates that land belongs to the people and the state, but there is no clue which shows that urban dwellers are as much owners of their land as their rural counterparts. Secondly, the different strategies included in the new proclamation restrict the free transfer of lease right. In the case of sale of unfinished properties, it is the government who shall take the profit.

Condominium holdings, which have become widespread in urban areas, are also recognized under Condominium Proclamation N°. 370/2003. This proclamation provides clear rules regarding the management of the building, but it lacks clarity regarding the rights to the land beneath the common property. Apart from condominium holdings, there is no legal recognition of communal holdings such as green areas, forestland, playing fields, and so forth in urban areas, although such holdings exist and are identified in urban plans.

Ethiopia's civil code requires all immovable properties to be registered as evidence of ownership. However, the notary public that is anticipated by the code has never been established. Instead, authentication of title documents and recording of transactions in immovable property are undertaken by municipalities and the deeds registration offices that they have established. Such records are the only legally acceptable evidence of rights over immovable property. Registration of individual holdings in urban areas is lagging rural areas; in 2006, the share of registered housing units was estimated to be 95 percent in Adama, 65 per cent in Addis Ababa, 50 per cent in Bahir Dar, 75 percent in Hawassa and 90 per cent in Mekelle. If one takes into account that a large number of holdings have not yet been formalized, only about 25 per cent of the existing individually held urban properties are estimated to be registered in these offices. (Source: Deininger K., Selod H., Burns A., "The Land Governance Assessment Framework, identifying and monitoring good practice in the land sector", 2012)

Informal settlements account for up to 30 percent of residential holdings in Addis Ababa, no policies or procedures require the systematic regularization of informal holdings. In fact, formalization projects have no basis in federal legislation, and the few sporadic initiatives to formalize existing settlements were very costly and of a discretionary nature.(Source: Deininger K., Selod H., Burns A., "The Land Governance Assessment Framework, identifying and monitoring good practice in the land sector", 2012)

#### Peri-urbanisation and urban sprawl

Peri-urban land, located in the transitional zone between fully urbanised and rural agricultural land is a mushrooming place for new informal settlement. Most often, unauthorized developments take place on privately owned peri-urban agricultural lands.

Like most Sub-Saharan countries, the illegal and unauthorized conversion of agricultural fields into urban built-up property is very common in Ethiopia (UN-Habitat 2011). One of the explanations for the growth of informal settlement in the peri-urban areas of Ethiopia is the fast rate of urbanisation, which has resulted in very high demand for residential housing. The Government has attempted to address this issue via the urban land lease policy and the condominium housing program.

However, both the lease policy and condominium housing programs have not been able to meet the housing demand of the urban poor. In order to acquire a plot of urban land through a lease contact or a condominium unit, a substantial initial/down-payment is required which many do not possess. While 'locked-out' of the formal housing market (unable to pay rent or buy), the availability of illegally subdivided plots with a relatively cheap and affordable price for the poor has created a favourable condition for the emergence of informal settlements in the peri-urban areas. Peri-urban land which has been used predominantly for agricultural activities and held by local landholders/farmers is thus becoming the preferable place for the urban poor to erect unauthorized structures for habituation. The practice of informal settlement in the peri-urban areas is made all the more precarious by the expectation of the rightful landholders that the city administration may expropriate their land for urban expansion programs (Adam, 2011: 72).

#### The challenge of providing housing for the poor

The prevailing practice of informal settlement in the peri-urban areas shows that the formal land and housing delivery system are not able to accommodate the interests of urban poor as well as the interests of local peri-urban landholders. Informal settlements are responses to the inability of the formal urban land and housing delivery system to address the needs of the poor. All housing structures built in the informal settlements are substandard and temporary shelters constructed of muddy and wooden walls and roof of iron sheet. The houses are built by the inhabitants themselves from their personal savings and mutual aid arrangements, often in spite of eviction threats from public authorities.

#### 3.4.4 Concluding remarks and recommendations

#### The housing challenge

A key challenge will be to facilitate access to affordable housing and land, especially for the urban poor. Prevailing government policies have often excluded the poor by focusing housing and land supply on:

- Condominiums that are not affordable to the poor
- Auctions of land leases, which do not satisfy demand even from the wealthiest

As a result, a large but undefined share of population looks for housing solutions in the private rental sector or informally by buying land from farmers in peri-urban areas.

Government policy to support legal housing is oriented almost exclusively toward housing ownership, which in the past several years has translated into auctioning of land lots for individual homes and allotment of land for condominium, as well as government construction of condominiums. Support for private direct delivery of affordable rental housing, a feasible way to ease the shortage of affordable housing in cities, seems to be missing from the government agenda. A healthy rental sector is important not only for affordability reasons, but also for maintaining mobility of the labour force.

#### The urban sprawl challenge

An important challenge associated with urban planning will be to limit urban sprawl. A significant proportion of the new development on the periphery of Addis Ababa and other secondary cities is informal in character. Urban services are often inadequate and sometimes entirely missing. The challenge will also be to support the development of efficient, transparent, and service-oriented land delivery mechanisms, including land leasing, transfer and registration system, efficient property taxation and effective digital records and land information management systems at national, regional and municipal levels.

#### How should Government respond?

The informal transformation of peri-urban agricultural land into urban built-up property is benefiting the lower income groups in a way the formal system cannot, since these groups have been ignored by the formal system. The attitude of the Government or the municipal authorities toward informal settlements has often been hostile and involved the demolition of informal settlements. Many have argued that there has to be a shift in thinking and policy towards viewing these settlement areas as the results of the inefficiency and inadequacy in the formal land and housing delivery system.

The government's formal housing and land delivery system should have to consider the financial ability and the needs of the urban poor. Until a solution is found to addressing the needs of the poor the ambitions of urban policy makers, urban planners, land managers and other concerned bodies to create prosperous and inclusive urban areas shall, by and large, remain wishful thinking.

#### The need for capacity and capability building

Although the housing sector has expanded in recent years, there are a number of major challenges that must be addressed including:

- Shortage of skilled manpower, particularly in construction projects managers, machinery operators and engineers and competence gaps among construction labour force.
- Lack of funds with which to provide urban infrastructure and services; especially to the urban poor;
- Shortage of development land
- Lack of legislative and working systems that can properly lead and guide the ongoing industry development

- Weak execution capacity including inadequate measures to tackle corruption and rent-seeking behaviour
- **Inadequate capacity** of contractors, consultants and Micro and Small Enterprises operating in the construction sector
- Shortage of construction materials and inefficient delivery logistics.

Physical and social planning are important tools for building inclusive cities and raising the quality of life of city residents. These characteristics are promoted when social and spatial disparities are reduced, and when all social groups are able to participate equally in the social and economic life of a city, and their safety and security is guaranteed. All efforts must be made to minimize disparities and social exclusion. To achieve this goal, improving living conditions for the poorest is critical in order to achieve social sustainability in cities

SWOT Analysis – Housing sector			
<ul> <li>Strengths</li> <li>Implementation of a housing policy and strategy by the Government via Integrated Housing Development Program and Urban Land lease Policy : <ul> <li>Building of 244 000 housing units,</li> <li>,</li> <li>Housing shortage has been stemmed,</li> <li>Provision of public services for citizens has increased,</li> <li>Greater job opportunities</li> <li>In new projects, slum houses are planned to be replaced by condominium houses gradually</li> <li>Improvement in housing construction capacity</li> </ul> </li> </ul>	<ul> <li>Weaknesses</li> <li>Low quality of existing housing</li> <li>Dire shortage of housing, especially for low-income households</li> <li>Current financial approach underpinning the housing program is unsustainable</li> <li>Additional cost because of location in the periphery of condominium (slightest opportunity of employment, high cost of transportation to city centres, time consuming)</li> <li>Shortage of skilled manpower, particularly in construction projects managers, machinery operators and engineers and competence gaps among construction labour force</li> <li>Shortage of construction materials</li> <li>Non transparent allocation of high value land through non market mechanisms</li> <li>Inefficiency and inadequacy of the formal urban land and housing delivery system to accommodate urban poor</li> <li>No support for private direct delivery of affordable rental housing</li> </ul>		
<ul> <li>Opportunities</li> <li>Increase density in inner-city to apply compact city urban planning</li> <li>Investigation in alternative building technologies systems</li> <li>Increasing the use of local construction techniques and materials</li> <li>Investigation in alternative material to cement and promotion of private investment in the national production of cements, glass and iron</li> </ul>	<ul> <li>Threats</li> <li>Proliferation of new informal settlements in the peri- urban areas</li> <li>Urban sprawl</li> <li>Disparities and social exclusion</li> <li>Lack of a formal urban registration system</li> </ul>		

### 3.5 Health Services

#### 3.5.1 National Health Policy

Following the change of government in 1991, the new Government of Ethiopia put in place many political and socio-economic transformation measures. Among these, it developed a first national health policy, which was followed by the formulation of four consecutive phases of comprehensive Health Sector Development Plan (HSDP), starting from 1996/97. The policy and the first HSDP were based on critical reviews of prevailing national health problems and a broader awareness of newly emerging health problems in the country. Improving the health status of the Ethiopian peoples and achieving the United Nations Millennium Development Goals (MDGs) is the ultimate goal of HSDP

At the core of the health policy are democratization and decentralization of the health care system; developing preventive, proactive and curative components of health care; assurance of accessibility of health care for all parts of the population; and encouraging private and NGO participation in the health sector.

During the past fifteen years, the Federal Ministry of Health has built an impressive framework for improving the health of all, including maternal and neonatal health. This has included a wide range of strategies such as Making Pregnancy Safer (2000), Reproductive Health Strategy (2006), Adolescent and Youth Reproductive Health Strategy (2006) and the Revised Abortion Law (2005).

There are also strategies on free service for key maternal and child health services (Health Care Financing Strategy), the training and deployment of new workforce of female Health Extension Workers (HEWs) for institutionalizing community health care with clean and safe delivery at Health Post (HP) level, and deployment of Health Officers (HOs) with MSc training in Integrated Emergency Obstetric and Surgery (IEOS) skills. The Ministry has also established the MDG Performance Package Fund and given priority to maternal health, which is expected to facilitate mobilizing additional funding opportunities.<sup>14</sup>

#### 3.5.2 Health Status

Health in Ethiopia has improved markedly in the last decade, despite Ethiopia remaining a low-income country, for example, in 1990 under-five mortality in Ethiopia was significantly higher than Sub-Saharan average; now it is significant lower. Ethiopia has a lower rate of child deaths than other African countries which are significantly wealthier, such as Angola, Cameroon and Zambia. Ethiopia is also on track to achieve communicable disease MDGs and is making concerted effort to reduce maternal mortality (see Table 3-23).

#### Reproductive Health

The use of contraceptive methods among married women within the age group 15-49 has increased from 8 percent in 2000 to 29 in 2011. The proportion of women who used contraceptives has increased from 36 percent in 2000 to more than 52 percent in 2011 in urban part, from 4 percent in 2000 to close to more than 23 percent in 2011 in the rural part.

<sup>&</sup>lt;sup>14</sup> Federal Democratic Republic of Ethiopia, Ministry of Health, Health Sector Development Programme IV 2010/11 – 2014/15

However, there are variations in the use of contraceptives; the use of contraceptives varies from the lowest in case of Somali (2.6%) to the highest for Addis Ababa for which the proportion is relatively large (45.2%). As a result of increased use of contraceptives, decline in total fertility rate has occurred during 2000-2011. Total fertility rate which was 5.9 in 2000 has declined to 4.8 in 2011. It has decreased respectively from 3.3 to 2.6 in urban parts and from 6.4 to 5.5 in rural parts.

#### Table 3-23: Major Indicators of Health Status **Countries Health Indicator** Ethiopia East World Africa Developed Africa 2012 2007 Contraceptive\*\* 15 29 62 31 34 72 **Total Fertility Rate** 5.4 4.8 2.4 4.7 5.1 1.6 **Infant Mortality** 77 59 41 67 59 5 Life expectancy 48(50) 57(60) 68(72) 56(59) 56(58) 78(75) Latrine coverage 37.0 84.1 N/A N/A N/A N/A Safe water coverage 59.5 68.5 N/A N/A N/A N/A **Potential health** 87 92.9 N/A N/A N/A N/A coverage

Source: Health and Health Related Indicators, MOH(2007) and MOH (2012), \*figures in bracket refer to females, \*\*% of married women within 15-49 of age who use contraceptive

#### Mortality

One of the priorities in the Health Sector Development Plan (HSDP) IV is improving child health, with a goal to reduce the under-five mortality rate to 68 per 1,000 live births and the infant mortality rate to 31 per 1,000 live births by 2015. Infant mortality declined by 39 percent over the 15-year period between the 2000 EDHS and the 2011 EDHS, from 97 deaths per 1,000 live births to 59 deaths per 1,000 live births. Under-five mortality declined by 47 percent over the same period, from 166 deaths per 1,000 live births to 88 deaths per 1,000 live births.

Mortality rates in urban areas are consistently lower than in rural areas, although the difference is quite small for neonatal mortality. Infant mortality is 29 percent higher in rural areas (76 deaths per 1,000 live births) than in urban areas (59 deaths per 1,000 live births). The urban-rural difference is even more pronounced in the case of under-five mortality. Wide regional differences in infant and under-five mortality are observed, as well (see Table 3-24)

Table 3-24: Early childhood mortality rates by socioeconomic characteristics, 2011							
Type of residence	Neonatal mortality	Post neonatal mortality	Infant mortality	Child mortality	Under-five mortality		
Residence Urban	41	19	59	25	83		
Rural	43	33	76	42	114		
Region Tigray	44	20	64	23	85		
Afar	33	30	64	67	127		
Amhara	54	23	76	34	108		
Oromia	40	32	73	42	112		
Somali	34	36	71	56	122		

Benishangul-Gumuz	62	39	101	76	169
SNNP	38	41	78	41	116
Gambela	39	36	76	51	123
Harari	35	29	64	32	94
Addis Ababa	21	19	40	14	53
Dire Dawa	30	30	60	39	97

Source: EDHS 2011

Expectation of life at birth has increased from 48 years old for males and 50 years old for females in 2007, respectively to 57 and 60 years old in 2012. Comparison of mortality rate of the country with that of developed countries and the figure at world level showed the rate for the country to be high. In case life expectancy, the figure is almost similar compared to the situation for Africa and East Africa and lower compared to the world wide figure as well as the figure of developed countries.

#### Hygiene

Ensuring adequate sanitation facilities is another Millennium Development Goal that Ethiopia shares with other countries. At the household level, adequate sanitation facilities include an improved toilet and disposal that separates waste from human contact. A household is classified as having an improved toilet if it is used only by members of one household (that is, it is not shared) and if the facility used by the household separates the waste from human contact (WHO and UNICEF, 2010).

Table 3-25below shows that 8 percent of households in Ethiopia use improved toilet facilities that are not shared with other households, 14 percent in urban areas and 7 percent in rural areas. One in ten households (32 percent in urban areas and 3 percent in rural areas) use shared toilet facilities. Overall, 38 percent of households have no toilet facility, 16 percent in urban areas and 45 percent in rural areas.

Table 3-25: Household sanitation facilities, Ethiopia 2011								
	Households			Population				
Type of tollet/latrine facilities	Urban	Rural	Total	Urban	Rural	Total		
Improved, not shared facility	14.1	6.6	8.3	18.2	6.8	8.8		
Shared facility <sup>1</sup>	32.2	2.8	9.5	26.7	2.2	6.7		
Non-improved facility	53.7	90.6	82.2	55.0	91.0	84.5		

<sup>1</sup>Facilities that would be considered improved if they were not shared by two or more households.

Source: EDHS 2011

#### 3.5.3 The Health System

A huge and rapid increase in the numbers of health facilities and health workers significantly contributed to these improvements in health outcomes and service delivery – a very deliberate decision was made to prioritize improved access to basic services in the country. There was a significant infrastructure building program between 2005 and 2011 which concentrated on rural health facilities. Over 10,000 health posts, 2,000 health centres and 73 hospitals were constructed during this period. Primary health coverage, which is the proportion of population who have access to health centres and health posts, in particular improved, from 87 percent in 2007 to 93 percent in 2012.
The recently Business Process Reengineering (BPR) of the health sector has introduced a three-tier health care delivery system (see Figure 3-11):

- First level of a Woreda/District health system comprising a primary hospital (with population coverage of 60,000-100,000 people), health centres (1/15,000-25,000 population) and their satellite Health Post (1/3,000-5,000 population) that are connected to each other by a referral system.
- Second level is a General Hospital with population coverage of 1-1.5 million people
- Third level is a Specialized Hospital that covers population of 3.5-5 million.



Figure3-11: Ethiopian Health Tier System

The Ethiopian Health Care System is augmented by the rapid expansion of the private and NGOs sector playing significant role in boosting the health service coverage and utilization thus enhancing the public/private/NGOs partnership in the delivery of health care services in the country. Offices at different levels of the health sector from the Federal Ministry of Health to Regional Health Bureaus and Woreda Health Offices share decision making processes, decision powers, duties and responsibilities. The MOH and the Regional Health Bureaus focus on policy matters and technical support while Woreda Health Offices have basic roles of managing and coordinating the operation of a district health system under their jurisdiction.

Regions and districts have Regional Health Bureaus and district health offices, respectively for the management of public health services at their levels. The devolution of power to regional governments has resulted in the shifting of decision making for public service deliveries from the centre to largely under the authority of the regions and down to the district level.<sup>15</sup>

<sup>&</sup>lt;sup>15</sup>Federal Democratic Republic of Ethiopia, Ministry of Health, Health Sector Development Program IV 2010/11-2014/15, Final Draft, October 2010

### Health Institutions

According to data obtained from MOH, there were totally 22,952 health institutions in 2012 of various levels of which the number of hospitals, health centres, clinics and health posts was 197, 2,999, 4,088 and 15,668, respectively (see Table 3-26). Data obtained from the Ministry indicates that the number of health facilities has increased The number of hospital, health centres and health posts which was 88, 690 and 8,528 in 2007 has increased to 125, 2,999 and 15,668, respectively, in 2012 (see Table 3-26). Most of the health facilities are run by the Government (See Table 3-27).

Table 3-26: Distribution of Health Institutions by Type, 2012						
Ownership	Hospital	Health Centre	Clinic	Health Post		
Governmental	125	2999	-	15668		
Non -Governmental	72	-	4088	-		
Total	197	2999	4088	15668		

Source: Health and Health Related Indicators, MOH (2012)

Table 3-27: Trend in the	Number of Health	Institutions by Type
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Year E.C	Hospital	Health Centre	Health Post
2007	88	690	8528
2008	88	732	11446
2009	100	1362	12448
2010	116	2142	14192
2011	122	2660	15095
2012	125	2999	15668

Source: Health and Health Related Indicators, MOH (2012)

The distribution of the health institution by rural and urban areas revealed the fact that all the hospital and almost all of the health centres are located in the urban parts of the country (see Table 3.28). Health posts are constructed in the rural parts of the country, since in the urban areas the residents have different alternatives (government and private health institutions).

Table 3-28: Distribution of Health Institutions by Urban and Rural, 2012					
Ownership	Hospital	Health Centre	Health Post		
Urban	197	2999	-		
Rural	-	-	15668		
Total	197	2999	15668		

Source: Health and Health Related Indicators, MOH (2012)

Improved access is also measured by changes in the population-health institution ratio. According to MOH standards, a primary hospital should serve 100,000 people where as a health centre and health post are expected to serve 25,000 and 5,000 respectively. The population-hospital ratio in 2012 was computed to be close to 1:674,568 which is significantly large than the standard recommended by the MOH (1:100,000). Although the ratio is greater than the standard, improvement has been observed during 2007-2012 during which the ratio has declined from 1:839,983 in 2007 to 1:674,568 in 2012 (see table 3-28).

Population-hospital ratios by region are given in Table 3-29 and reveal an uneven distribution of hospitals among the regions in the country. The ratios for all of the regions were above the standard while for most of the regions (especially Amhara, Oromia, SNNP and Somali) it was significantly larger than the standard set by MOH (1:100,000). Furthermore there remains a large deficit in terms of the coverage of hospital in Ethiopia whereas health centres and health posts are more common (see Tables 3-29 and 3-30).

Table 3-29: Population – Health Institution Ratio							
Year E.C	Hospital		Health	Centre	Healt	h Post	
	Number	Ratio	Number	Ratio	Number	Ratio	
2007	88	1:840,000	690	1:107,128	8528	1:8,668	
2008	88	1:860,000	732	1:103,607	11446	1:6,626	
2009	100	1:780,000	1362	1:57,130	12448	1:6,321	
2010	116	1:690,000	2142	1:37,299	14192	1:5,630	
2011	122	1:671,000	2660	1:30,794	15095	1:5,426	
2012	125	1:675,000	2999	1:28,116	15668	1:5,382	
2013	127	1:675,000	3100	1:27,700	16048	1:5,350	
Standard		1:100,000		1:25,000		1:5,000	

Source: Health and Health Related Indicators, MOH (2013)

C N	Derion	2	000	20	12
5.N	Region	Hospital	Health Centre	Hospital	Health Centre
1	Tigray	1:307,888	1:127,402	1:352,143	1:23,255
2	Afar	1:607,905	1:243,162	1:320,599	1:26,279
3	Amhara	1:1163,965	1:243,217	1:992,947	1:23,701
4	Oromia	1:1241,861	1:240,360	1:763,292	1:28,843
5	SNNP	1:1,251,560	1:116968	1:826,619	1:28, 980
6	Benishangul	1:268,310	1:76,660	1:491,002	1:31,675
7	Gambela	1:211,312	1:42,262	1:385,997	1:13,786
8	Somali	1:616,357	1:205,452	1:643,624	1:45,566
9	Harari	1:53,411	1:80,117	1:105,000	1:26,250
10	Addis	1:226,894	1:118,849	1:276,455	1:60,820
11	Dire Dawa	1:317,484	1:158,742	1:387,000	1:24,188
	National			1:674,568	1:28,116
	Standard	1:100,000	1:25,000	1:100,000	1:25,000

#### Table 3-30: Population – Health Institution Ratio by Region

Source: Health and Health Related Indicators, MOH (2012)andMOH (2000),

Table 3-31: Number of Health Institutions by Type							
Health Institution	Existing 2000	Existing 2012	Needs grid	Needs 2012	Missing 2012		
Number of hospitals	103	197 (including 125 public hospitals)	One hospital is required to serve 100,000 people	837	640		
Number of health Centres	356	2,999	One health centre is required to serve 25,000 people	3,350	351		

Egis International in association with IAU-IdF & Urba Lyon – Existing Situation and Diagnostic Final Report (March 2015)

Number of Health Posts	4,049 in 1999	15,668	One Health Post is required to serve 3- 5,000 people	16,748	1,080

Source: Health and Health Related Indicators, MOH (2012), Consultant's own Computation

Table 3-32: Number of Hospitals by Region, Needs and Lacks						
	Existing Hospital in 2000	Existing Hospital in 2012	Hospital Needs in 2012	Hospital missing in 2012	Population rate not covered in hospital in 2012	
Oromia	27	52	311	259	83.3%	
Amhara	16	28	192	164	85.4%	
Tigray	12	16	48	32	66.5%	
SNNP	12	25	170	145	85.3%	
Harari	5	7	2	0	0.0%	
Somali	6	8	50	42	84.1%	
Afar	2	6	16	10	62.5%	
Gambella	1	1	4	3	73.0%	
Benishangul	2	2	9	7	78.2%	
Dire Dawa	2	4	4	0	0.5%	
Addis Ababa	18	48	30	0	0.0%	
Ethiopia	103	197	836	639	76.4%	

Source: Health and Health Related Indicators, MOH (2012), Own Computation

Rural households are underserved compared to urban households. According to Welfare Monitoring Survey 2011/2012 from CSA, over 80 % of rural households have to travel more than 20 kilometres to reach the nearest hospital compared with 34 % for urban household (see Figure 3-12). There are important differences among region: In Addis Ababa, Dire Dawa and Harar, households are better served in hospital whereas in Amhara or Afar, even in urban areas, more than 60 % or urban households have to travel more than 20 kilometres to reach the nearest hospital.



Source: CSA, Welfare Monitoring Survey 2011-2012

### Health Personnel

Training centres for health workers expanded from 2004 onwards, resulting in significant increases in health workers numbers. Again, a priority was the provision of basic services, particularly in rural areas. In 2012 there were totally 46,530 health personnel who were providing treatment service to the population of the country of which 584 were specialists, 2,339 general practitioners, 4,923 health officers and 36,672 nurse of all type. With the exception of specialist, the number of health personnel (general practitioners, health officers, nurses) has exhibited significant increase during 5 year period between 2007 and 2012. The reason for the decline in the number of specialist is believed to be the involvement of the specialist in the private sector (see Table 3-33 below)

Table 3-33: Number of Health Personnel						
Year E.C	Specialist	General P	Health Officer	Nurse	Total	
2007	974	832	792	18146	22751	
2012	584	2,339	4923	36,672	46,530	

Source: Health and Health Related Indicators, MOH (2012), \*Only those who work in health institution

The population-health personnel ratio is one of the indicators of the availability or not of adequate number of health personnel. According to the standard set by the MOH, a physician (Specialist and general practitioner) and a nurse is expected to serve 10,000 and 5,000 population, respectively. In 2012, 16,750 nurses and 8,375 physicians would be expected to heal 83,742,000 Ethiopians according to the standard set by the MOH. They were respectively 36,672 nurses and 2,923 physicians in 2012. The number of nurses is adequate but the number of physicians is too low: 5,450 additional physicians would be necessary to correspond to MOH standard.

Table 3-34: Trend in the Population-Health Personnel Ratio					
Year	Physicians	Health officer	Nurses		
2007	1:40,929	1:64,221	1:4,074		
2008	1:36,374	1:61,063	1:4,524		
2009	1:36.175	1:48,451	1:3,870		
2010	1:56,013	1:25,709	1:3,012		
2011	1:53,452	1:22,387	1:2,762		
2012	1:28,847	1:17,128	1:2,299		
Standard	1:10,000		1:5,000		

Source: Health and Health Related Indicators, MOH (2012)

### 3.5.4 The Health Budget

Per capita health expenditure in Ethiopia has more than quadrupled since 1995. Observation on the trend of capital health budget allocated at national since 1996 by 5 year interval reveals the fact that it was generally on the increase. The budget which was 55 million in 1996 has grown to 518 million in 2011 with slight decline to 386 million in 2012. The share of health budget out of the total budget allocated for all sectors was generally increasing during

1996 – 2012 although the figure has declined to 6 percent in 2012. Regarding utilization of the budget allocated for the health sector, the data presented in the Table 3-35 given below indicated not only under-utilization but also fluctuation in budgets.

Table 3-35: National Capital Health Budget Allocation and Expenditure, in million (in ETB)					
S.N	Year	Allocation	% Expenditure	% National	
1	1996	55	68	2.4	
2	2001	68	98	4.6	
3	2006	354	78	6.6	
4	2011	518	56	7.2	
5	2012	386	67	6.0	

Source: Health and Health Related Indicators, MOH(2000) and MOH(2012)

#### Level of progress to be achieved

Despite major strides to improve the health of the population, Ethiopia's population still face a high rate of morbidity and mortality and the health status remains relatively poor. The major health problems of the country are largely preventable communicable diseases and nutritional disorders. More than 90 % of child deaths are due to pneumonia, diarrhoea, malaria, neonatal problems, malnutrition and HIV/AIDS, and often as a combination of these conditions. (Source: Ministry of Health, Health Sector Development Program IV 2010/11-2014/15, October 2010)

The major supply side constraints affecting maternal deaths were attributable to complications from abortion. The major supply side constraints affecting maternal health are shortages of skilled midwives, weak referral system at health centre levels, lack of inadequate availability of BEmONC and CEmONC equipment, and under-financing service. On the demand side, cultural and societal norms, distances to functioning health centres and financial barriers were the major constraints. Many factors can prevent women from getting medical advice or treatment for themselves when they are sick. Information on such factors is particularly important in understanding and addressing the barriers women may face in seeking care during pregnancy and at the time of delivery.

There are many factors—social, cultural, and economic— that cause women not to use the services, particularly when the health concern is related to sexual or reproductive matters. The 2011 EDHS asked women whether each of the following factors would be a big problem or not a big problem in seeking health care for themselves: getting permission to go for treatment, getting money for treatment, distance to health facility, not wanting to go alone, having to take transport, concern there may not be a female provider or any health provider, concern that drugs may not be available, and workload inside and outside the house.

Ninety-four percent of women reported that they have at least one of the specified problems when accessing health care for themselves. The most important barrier to women's access to health services is taking transport to a facility (71 percent), followed by lack of money (68 percent), and distance to a health facility (66 percent). More than six women in every ten (61 percent) were concerned about their workload inside and outside the home. Also, about six in every ten (58 percent) were concerned that drugs may not be available at the facility or said that they did not want to go alone to a health facility. More than half of women were

concerned that there may not be a health provider at the health facility (56 percent) or that there may not be a female health provider (53 percent). Twenty-nine percent expressed concern about getting permission to go for treatment.

Rural women reported the most problems with access to health care. Among the regions, women in Somali (98 percent) and Gambela (97 percent) were most likely to report at least one problem when accessing health care, while women in Addis Ababa were the least likely (74 percent). Women with more than secondary education (72 percent) and women in the highest wealth quintile (84 percent) were least likely to report at least one problem when accessing health care. (Source: EDHS, 2011)

#### Health in urban areas

In recognition of Ethiopia's demographic differences, the MOH has developed 3 distinct models of the HEP (urban, agrarian and pastoral) to better suit the needs of these communities. While these different HEP models reflect the diverse environmental, social, and cultural contexts, all 3 of them face challenges in meeting the perceived needs and demands of the populations they serve. This is especially the case for the more recently developed pastoral and urban models.

Ethiopia's Urban Health Extension (UHEP) is an MDG-oriented national program that aims to create demand for basic health care services in urban settings. It aims to do this through government salaried Health Extension Workers (HEWs) for the urban poor. In order to address the differences between the agrarian and urban context, the urban HEP (UHEP) has been tailored to address the needs of urban communities. A key difference between the Urban Health Extension Program and the Rural one is that the health extension workers in the Urban Program are trained nurses and are referred to as urban health professionals. These urban health professionals have developed strategies aimed at dealing with the challenges of a city—focusing on initiatives like public latrine construction and community mapping efforts to identify high-risk populations, that is, groups of people whose life styles put them at risk of HIV/AIDS.

In general, the followings characteristics of urban areas are more pronounced for the poor:

- the reliance on a cash economy
- overcrowded living conditions (slums);
- environmental hazards (stemming from density and hazardous location of settlements, as well as exposure to multiple pollutants);
- social fragmentation (lack of community and inter-household mechanisms for health security)
- crime and violence

The 2004-2009 HSDP III intensified sanitation programs in the urban sector. The finding that 62% of people living with HIV/AIDS (PLHIV) were in urban settings and that only 25% of the inhabitants of the capital city Addis Ababa had access to toilets, despite increasing government efforts, further justified the government's urban focus. Under the HSDP IV (2009-2014), the government explicitly supported urban health with its scale-up of the UHEP. The UHEP was modelled on the rural extension program and is designed to focus on behaviour change through the delivery of preventive and promotive health messages. There will be more than 5,400 UHE-Ps in Ethiopia, and JSI has trained 2,100 professionals, which is almost half of those currently serving. In announcing the program in 2009, the minister said

they would be deployed in urban areas of all the states. They are currently deployed in 216 urban and peri-urban areas in all regions except Afar, Benishangul Gumuz, and Somali regions. Further expansion will happen as the program solidifies.

The goal of the UHEP is to improve access and equity in the distribution of basic health services and help mitigate urban issues such as HIV and poor sanitation. The government grouped services into four categories: Hygiene and Environmental Sanitation, Family Health Care, Prevention and Control of Communicable and Non-Communicable Diseases, and Injury Prevention, Control, First Aid, Referral and Linkages. There are 15 packages of interventions under these four categories. In 2011, the Minister of Health supported the development of an "army" to be change agents in the community and to push community-based services deeper. The HDA is designed to reach every household in order to create demand for health services and promote health. The HDA is to create a network of up to five households under the leadership of one that is recognized as an innovator/front liner in practicing healthy behaviour and that is referred to as a "model family." The model family is expected to lead the group of households and gradually influence them with positive attitudes and skills toward healthy behaviours.

#### Assessment of UHEP

Urban settings faced by UHE-Ps range from small towns (sometimes very small) to pockets of people within urban areas who are distant from population centres and who are still living rural lifestyles, including raising livestock. In Amhara, for example, some of the city administrators supervise both rural and urban health extension workers because of this duality. Other urban configurations include densely settled, rapidly growing peri-urban areas on the outskirts of cities, more established slums within larger cities, and affluent neighbourhoods. For example, the health bureau staff in Shashamene could not emphasize enough that their challenges were related to the fact that every day more than 30,000 people come through the city, due to its location on five roads.

A program for Addis Ababa will be different from other urban programs because of the nature of Addis as a primary city. In such diverse settings, the UHE-Ps felt inadequately prepared to meet the needs of the residents and to identify those most vulnerable. In particular, they felt that many of the more privileged residents were dismissive of what the UHEP had to offer; UHE-Ps felt the program better fit the needs of the poor. MOH staff at various levels had assumed that all residents in urban areas have access to health facilities. Physical access, measured as distance from a health facility, is better in urban than in rural areas, but it still remains a barrier to health service utilization along with the availability and cost of transportation.

The latest DHS bears this out, with 31% of respondents reporting that the distance to the facility is why they had trouble accessing services. Urban residents face other barriers as well: financial constraints outside of transportation costs, language barriers, waiting time at health facilities, and the demeanour of health facility staff. There is, therefore, demand for UHE-Ps to deliver services in homes when they visit. The construction, management, and use of latrines exemplify the complexity of working in the urban setting. The GOE considers the construction of latrines to be an individual's responsibility, and having a private latrine is one of the criteria for becoming a model household. UHE-Ps encountered many households who understood the importance of latrines but would not or could not meet the criterion for adequate space; in crowded areas, households often did not have enough space to put in a

latrine. In households consisting of a number of renters, absentee landlords were impossible to reach and, therefore, did not take responsibility for latrine construction.

In some regions such as Amhara and Tigray, rapidly growing peri-urban areas where basic public services and infrastructure such as schools and health centres did not exist, residents felt they were at risk of displacement from their homes at any time, and thus households were unwilling to invest in latrines. Many UHE-Ps felt that their credibility was undermined because solving problems related to environmental sanitation was well beyond their capacity. For example, in parts of Addis Ababa, households have private latrines but the number of municipal suction trucks that come to collect and dump the contents of pit latrines or septic tanks that fill up after years of use is inadequate. UHE-Ps feel powerless; "the community feels like they are wasting their breath;" "they indirectly blame the UHE-P" for the delay. In some areas of Addis Ababa, UHE-Ps try to organize the community to keep septic tanks or latrines from overflowing and collect money to make whatever repairs are needed.

This adaptation of the HEP has not fully met people's demands. For example, UHEPs focus on preventative rather than curative, and their main visiting hours are during the day when most urban dwellers are not at home. Additionally, certain prevention methods might not be adequately tailored for urban environments given issues with space and land ownership (e.g., building latrines and seepage pits for food waste). Despite many modifications to the HEP model, the urban HEP is still primarily based on agrarian experience and not on urban needs.

### 3.5.5 Concluding remarks and recommendations

Access to health care in urban area is far from being universal and affordable. But the demand and need is significant, and *will* increase. Urban areas contain the largest populations and high concentrations of "most at risk populations" including commercial sex workers, migrant labourers and other poor and marginalized populations. Even if physical access to health facilities, measured as distance from a health facility, is better in urban areas than in rural areas, it still remains a barrier to health service utilization because of the problematic availability and cost of transportation. Urban residents face other barriers including financial constraints, language barriers and waiting time at health facilities.

It has to be asked whether the public sector can provide adequate health care for all urban dwellers and perhaps for middle and upper income groups the private provision of health-care should be encourage so 'releasing' funds to expand access to those who are poorer. It should also be stressed that improving health in urban areas is not a function of the MOH alone. Without support from the different government departments and from stakeholders outside the government, it will be difficult to realize the desired improvements, particularly in relation to environmental health, sanitation, and hygiene.

Construction, management, and use of latrines exemplify the complexity of working in an (expanding) urban setting: crowded areas, rapidly growing peri-urban areas without basic public services and infrastructure, the lack of municipal suction trucks that come to collect and dump the contents of pit latrines or septic tanks that fill up after years of use is inadequate,...these are just some of the many problems that beset public health practitioners and policy makers operating in cities.

SWOT Analysis – Health Services

<ul> <li>Strengths</li> <li>Implementation of a health policy by the government via Health Sector Development Program, which result in significant progress in access and equity of basic primary health care services: <ul> <li>Increase of primary health coverage,</li> <li>Increase in the number of hospitals, health centres and health posts.</li> <li>Increase in the number of health personal and health budget</li> </ul> </li> <li>Implementation of an Urban Health Extension Program (UHEP) that aims to create demand for basic health care services in urban settings.</li> <li>Trained nurses in UHEP and urban health professionals.</li> </ul>	<ul> <li>Weaknesses</li> <li>Large variation across urban configurations.</li> <li>Higher level of risk behaviour in urban areas (multiple sexual partners, higher risk of HIV transmission,)</li> <li>Overcrowded living conditions (slums).</li> <li>Limited space or too costly costs for the construction of latrines.</li> <li>The availability and cost of transportation, financial constraints, language barriers and waiting time at health facilities are multiple barriers to health service utilization in urban areas.</li> <li>Improving urban health is not a function of the MOH alone. Without support from the different government departments and from allies outside the government, it will be difficult to realize the desired improvements, particularly in environmental health, sanitation, and hygiene.</li> </ul>
Opportunities	Threats
<ul> <li>Availability of coherent and pro-poor development policy including health.</li> <li>Increasing education of girls.</li> <li>International support</li> </ul>	<ul> <li>Urban areas contain the largest populations and high concentrations of "most-at-risk-populations" (including commercial sex workers, migrant labourers, and other marginalized populations, are the drivers of the HIV/AIDS epidemic in Ethiopia).</li> <li>Social fragmentation (lack of community and inter-household mechanisms for health security)</li> <li>Exposure to multiple pollutants</li> <li>In some rapidly growing peri-urban areas, basic public services and infrastructure such as schools and health centres does not evide</li> </ul>

# 3.6 Educational Services

### 3.6.1 National Policies on Education

Prior to the inception of modern education in the early 1900s formal education in Ethiopia was confined to religious instructions. The first public school was opened in Addis Ababa in October 1908 and the first universities built during 1960s, including Haile Selassie I University in Addis Ababa (which later renamed to Addis Ababa University). The number primary and secondary public schools reached some 1,300 with about 3,000 teachers in 1971, however, the system consistently suffered from shortage of qualified personnel, lack of funds, and increasing pressure of students on limited facilities

Following the ascent to power of EPRDF in 1991 the New Education and Training Policy (ETP) was finalized in 1994. The ETP contained five years Education Sector Development Programs (ESPs). The third ESDP commenced in September 2006. Under ESDP III, Ethiopia made significant progress in the delivery of education. Access at all levels of the education system increased at a rapid rate in line with a sharp increase in the number of teachers, schools and institutions. There were important improvements in the availability of trained teachers and some other inputs which are indispensable for a high quality education system. Disparities decreased through a more than average improvement of the situation of the disadvantaged and deprived groups and of the emerging regions.

Efforts were made to make the content and the organisation of education more relevant to the needs of the population, for instance through the introduction of alternative basic education and the development of innovative models such as mobile schools. Wereda education offices and communities have strengthened their involvement in education planning, management and delivery. Increased attention was given to the need to strengthen science and technology education. The development of the university system involved the expansion of the existing eight universities, and construction of additional 13 universities. A significant improvement of enrolments have been observed in all universities, including in the new ones, but enrolment targets could not be reached due to the delay of the construction of the buildings.

The basic philosophy of the higher education component of ESDP IV is to expand the system more equitably across the country while seeking to improve quality. For this reason, the enrolment capacity of the existing 22 public universities has been enhanced, with particular focus on access to programs related to Science and Technology/ S&T, and nine new universities have been constructed and equipped, with special emphasis on programs in Science and Technology. To increase the capacity of the universities special attention has been given to finalise the construction on time and on the provision of equipment and furniture. These new universities have an enrolment capacity of 121.500 students in 2014/2015. In 2014, there are 31 public universities and four will soon be administered also via Ministry of Education (Source: www.moe.gov.et)"

### 3.6.2 Educational Services at the National and Regional Levels

Pre-school and Kindergarten education is part of the general education system in Ethiopia to prepare children of ages 4-6 to formal schooling—which conventionally begins when the children are at the age of 7. Generally, in Ethiopia kindergartens are run by non-government organisations (NGOs), local communities, missionaries, private individuals, foreign communities, religious institutions, etc., Although existing data on Kindergarten in Ethiopia

show that the number of schools and corresponding children's enrolment has been growing over the years, there are still long way to go to bring about the real changes. For instance, data from the ministry of Education (MoE) indicates that in the year 2001 only about 109,358 children were enrolled in the 964 schools existing at the time. During this time, however, it was estimated that there were about 5,490,418 children of the relevant 4-6 age group. This figure compared to the number of enrolment at the time indicates only about 2.0% gross enrolment ratio (GER)—which implies about 98.0% of the children at this age were out of school (MoE, 2001). This figure has, however, grew to 2,893 kindergarten schools in 2009 and even to 3,688 in 2013, with corresponding children enrolments rising to 292.6 thousand and 2.01 million, respectively (see Table 3-36 and Figure 3-13.)

Table 3-36: Population of Kindergarten Age, Number of Schools, Enrolment and GER								
Year	Age 4-6 Population	Pre-Primary Enrolment	Number of School	GER				
2001 E.C (2008/09)	6,956,741	292,641	2,893	4.21				
2002 E.C (200/10)	7,127,883	341,314	3,318	4.79				
2003 E.C (2010/11)	7,313,062	382,741	3,418	5.23				
2004 E.C (2011/12)	7,508,998	1,622,762	3,580	21.61				
2005 E.C (2012/13)	7,714,956	2,013,214	3,688	26.09				

Source: Compiled from MoE, Education Statistics Annual Abstract, November 2005 E. C. (2012/2013 G.C.)

The improvements in kindergarten education appear significant, managing to push the GER from 2.0% in 2001, to 4.2% in 2009 and 26.1% in 2003. One of the explanations for such an increase in the pre-school enrolment has been because government introduced "O" class and child to child programs in the pre-primary education system. Had it not been for additional enrolment from "O" class and child to child program, the gross enrolment in 2005 E.C. (2012/13) for pre-primary education would have been 6.2%.



Source: MOE

There are also regional disparities; Addis Ababa has the highest GER (122.2%), followed by Dire Dawa with 28.9 %, while Somali, Afar and Amhara regions are reported to have the lowest GER (see Table 3-37 and Figure 3-14 below).

Table 3-37: Pre-primary Population, Enrolment, and GER by Region 2005 E.C. (2012/13)										
Region	Schoo	ol Age Popu (4-6)	llation	E	nrolment			GER		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	
Tigray	217,452	211,935	429,387	9,766	9,351	19,117	4.5	4.4	4.5	
Afar	68,374	55,361	123,735	1,518	1,327	2,845	2.2	2.4	2.3	
Amhara	808,433	796,132	1,604,565	20,803	19,776	40,579	2.6	2.5	2.5	
Oromia	1,593,568	1,550,249	3,143,818	74,915	71,616	146,531	4.7	4.6	4.7	
Somali	217,719	173,331	391,050	2,613	2,446	5,059	1.2	1.4	1.3	
Ben. Gumuz	37,953	36,479	74,432	1,648	1,522	3,170	4.3	4.2	4.3	
SNNP	872,071	858,269	1,730,340	41,010	35,264	76,274	4.7	4.1	4.4	
Gambella	17,262	15,365	32,627	1,068	980	2,048	6.2	6.4	6.3	
Harari	8,400	8,082	16,482	2,405	2,014	4,419	28.6	24.9	26.8	
Addis Ababa	68,579	70,991	139,571	87,150	83,409	170,559	127.1	117.5	122.2	
Dire Dawa	14,728	14,222	28,949	4,288	4,088	8,376	29.1	28.7	28.9	
National	3,924,540	3,790,416	7,714,956	247,184	231,793	478,977	6.3	6.1	6.2	

Source: Compiled from Education Statistics Annual Abstract, November 2005 E. C. (2012/2013 G.C.).





Source: MOE

### Primary School Education

Data obtained from the Ministry of Education shows that there were 30,534 primary schools in the whole country in 2013 or 2005 E.C., in which about 17.4 million students were enrolled. Of this total enrolment 52.4% were males as compared to 47.6% female. The data also shows there were about 335.21 thousand teachers during the year. Comparison of current enrolment, number of teachers and number of schools to the previous year's data show that there has been growth by 3.0%, 6.7% and 4.9%, respectively, during the last five years on the average.

### Comparisons of GER, and NERat National and Regional Levels

The GER is a crude measure of school coverage, since it considers underage and overage students who join school either late of before. The GER for primary schools at the national level was 95.3% in 2005 E.C; 98.2% for males as compared to 92.4% for females.

The GER at regional levels, on the other, indicate that regions like Addis Ababa, Amhara, Benishangul Gumuz, Gambella and SNNPR show well above 100%, for the 2005 E.C. academic year, while regions like Afar are trailing behind. Conversely, the NER, which is the ratio of the number of official age enrolled students (disregarding of underage and overages) to the potential age group within the expected school age category for the nation as a whole was 85.9% in the 2005 E.C. (87.7% and 84.1% for the boys and girls respectively). The regional disparities in NER, demonstrates that Afar region has been at lowest level of 41.5%, as compared to Gambella (98.0%), Amhara (91.7%), Tigray (92.1%) and Benishangul Gumuz (91.6%). The NER for Addis Ababa also appears to be low at 69.4% (see table 3-37)

Table	Table 3-38: Enrolments for All Levels of Education (2003 E.C (2008/09-2005 E.C (2012/13))								
Year	2003 E.C (2010/11)			2004 E.C (2011/12)			2005 E.C (2012/13)		
Enrolment	Male	Female	Total	Male	Female	Total	Male	Female	Total
Pre-Primary	197,671	185,070	382,741	844,901	777,861	1,622,762	1,046,177	967,037	2,013,214
Primary	8,779,088	7,939,023	16,718,111	8,865,491	8,124,293	16,989,784	9,133,374	8,296,920	17,430,294
Secondary	976,822	773,312	1,750,134	960,353	805,658	1,766,011	1,010,406	888,432	1,900,735
Teachers' Education	97,086	67,415	164,501	124,585	48,932	173,517	104,802	70,340	175,142
TVET	197,463	169,150	366,613	167,423	152,832	320,225	115,879	121,998	237,877
Higher Education	338,607	121,444	460,051	353,163	138,708	491,871	411,785	172,185	583,970
Total	10,586,737	9,255,414	19,842,151	11,315,917	10,048,283	21,364,170	11,822,423	10,516,912	22,341,232

Source: MoE, Education Statistics Annual Abstract, November 2005 E. C. (2012/2013 G.C.)

### Level of Secondary Education

Available data indicate that there were about 1912 secondary schools in Ethiopia in 2012/2013, with the reported enrolment of 1.9 million students for the year. Enrolment in secondary education has been growing by an average rate of 4.6 % annually for the last five years. From these 1.9 million students enrolled at secondary schools, over 1.5 million were in the first cycle (grades 9-10), while 358.5 thousand were in the second cycle (11-12)—which is also a preparatory school for the next level.

The GER for the secondary school compares the number of enrolments in the first cycle (9-10) and second cycle (11-12) secondary schools with the potential population age group of 15-16 and 17-18, respectively. TGER for the first cycle and second cycle secondary schools were 38.4% and 9.5%, in that order, for the 2012/13 academic year. The GER for female was lower at 36.9% and 8.5% for the first cycle and second cycle secondary school at national level (see Table 3-39)

Table 3-39: Educational Institutions for All Levels (2001 E. C2005 E. C. or 2008-2012)									
Year Schools	2001 E.C (2008/09)	2002 E.C. (2009/10)	2003 E. C. (2010/11)	2004 E.C. (2011/12)	2005 E.C. (2012/13)	Average Annual Growth Rate			
Kindergarten	2,893	3,318	3,418	3,580	3,688	6.30%			
Primary	25,212	26,951	28,349	29,643	30,534	4.90%			
Secondary	1,197	1,335	1,517	1,710	1,912	12.40%			
Teachers Education	26	29	32	32	34	6.90%			
TVET	458	460	505	505	437	-1.20%			
Higher Education	72	70	74	91	99	8.30%			
Total	29,858	32,163	33,895	35,561	36,704	5.30%			

Source: Compiled from Education Statistics Annual Abstract, November 2005 E. C. (2012/2013 G.C.)

The total number of educational institutions was 29,858 in 2009, which was reported to have increased to some 36,704 institutions in 2013. This is an average increase of 5.30%. The number of educational institutions is also shown in Figure 3-15 below.



Figure 3-15: Distributions of Educational Institutions at National Level (2008-2012)

Source: MOE

### Technical and Vocational Education and Training (TVET)

The aim of Technical Vocational Education and Training (TVET) is to develop the entrepreneurial skills in the country. TVET provides training based on demands from industry for various target groups including: graduates of grade 10, school leavers, people who are in employment, school drop outs, and groups marginalized in the labour market due to a number of reasons. The country has about 437 TVET centres in 2012/13 (2005 E.C.), with about 237.9 thousand enrolled students during the same year (See Table 3-40).

	No of 1	IVET	Enrolment			Number of Teachers (Trainers)					
Region	Institut	tions	Male		Female		Total		Male	Female	Total
	Nos	%	Nos	%	Nos	%	Nos	%			
Tigray	40	9.15	6,376	50.58	6,229	49.42	12,605	5.28	1,226	254	1,480
Afar	2	0.46	817	58.86	571	41.14	1,388	0.58	26	5	31
Amhara	74	16.93	22,174	40.56	32,500	59.44	54,674	22.9	2,113	432	2,545
Oromia	212	48.51	42,011	50.79	40,703	49.21	82,714	34.6	4,512	783	5,295
Somali		0.00						0.00			
Beni. Gum		0.00						0.00			
SNNP	65	14.87	26,918	52.10	24,744	47.90	51,662	21.6	1,496	276	1,772
Gambella	3	0.69	257	52.02	237	47.98	494	0.21	44	3	47
Harari		0.00						0.00			
Addis Ababa	33	7.55	15,726	50.43	15,460	49.57	31,186	13.1	964	322	1,286
Dire Dawa	8	1.83	2,178	52.34	1,983	47.66	4,161	1.74	297	26	323
Total	437	100.0	116,457	48.75	122,427	51.25	238,884	100.	10,678	2,101	12,779

Table 2.40: Number of TVET Institutions by Pagion (2005 E. C. or 2012/12)

Source: Compiled from MoE, Education Statistics Annual Abstract, November 2005 E. C. (2012/2013 G.C) (different tables)

### Higher Education

An important strategic objective of GTP I and II is to increase the intake of universities especially in science and technology disciplines. Total undergraduate participation in higher education has increased from 420,387 in 2009/10 to 553,848 in 2012/13 indicating that the 467,445 target of GTP I for the end of the plan period has already been achieved. In all undergraduate sub-programs, the participation of female students increased from 27 percent in 2009/10 to 30 percent in 2012/13. This participation, however, is lower than the target of 34.4 percent for 2012/13 and 40 percent for 2014/15.

Regarding the post graduate programs of both public and private institutions, the intake in 2012/13 reached 31,304 students. In 2009/10, the share of female students in post graduate programs was 11.9. In 2012/13 this figure has increased to 19.5 percent, which is higher than the target of 16.8 percent set for the fiscal year. The measures have to be consolidated to increase the share of female post graduates to 25 percent by 2014/15.

In 2012/13 a total number of 79,073 and 6,353 undergraduate and post graduate students have graduated at national level, respectively. Besides increasing higher education enrolments, maximum effort has been exerted to improve the relevance, quality and equity of higher education in accordance with the programs developed to achieve these objectives. Public universities have already started admitting students in line with the 70:30 strategies between science and technology on one hand and social science on the other.

GTP I performance in the first two years indicates that efficiency and quality of education at all levels are still critical. Thus the effectiveness of the implementation of the programs designed to ensure quality, relevance and efficiency of the education systems have to improve. In terms of access to general education, greater focus is required on improving the situation in Somali and Afar regions as well as other emerging areas. In terms of results of improving enrolments in TVET and higher education, it is important to fully work on quality programs drafted to bring about fundamental change.

In addition, progress in participation rate of functional adult education is not as expected and so a coordinated effort is important in this regard. In general, the tendency of stagnation in primary school net enrolment rate, a continuous increase in first grade dropout rate particularly in populous regions, low number of TVET enrolment and the youth joining the labour force without TVET training are key challenges to be addressed in the remaining GTP I period.

### 3.6.3 Concluding remarks and recommendations

The lack of educational attainment is one of the most important constraints hindering the development of a modern and innovative economy. Although Ethiopia has spearheaded a massive drive in the expansion of universities in each region over the past decade, it is many years away from producing large numbers of highly qualified graduates to meet the demands of existing and future employers. In the short-to-medium targeted training programs are required to retool currently unemployed school graduates in order to meet the demand in selected sectors and in order to produce a critical mass of future business entrepreneurs and innovators.

Industrial policy cannot move forward in the absence of skilled people in science and technology and a strong research and development platform. In a highly-competitive and knowledge-based global economy, investment in research and development in science and technology is critical for boosting production, enhancing human capacity and reinforcing the capacity of the state to guide development effectively. This is, of course, part and parcel of the broader challenge of reorienting African higher education towards applied science and technology, and entrepreneurial activities.

In the next phase of the GTP (GTP II) greater effort must be made by the Government towards improving quality and move away from quantitative expansion. Quality research and training is science technology is the foundation for successful industrialization. Moreover, the research centres and universities should have a strong link with the private sector and the state and they should be required to market their ideas and innovations in the market place actively.

SWOT Analysis – Educational Services

Strengths	Weaknesses
<ul> <li>Implementation of an education policy by the government via Education Sector Development Program</li> <li>Increase in the number of teachers, school and institutions in the sector</li> <li>Improvement of the university system through expansion of the existing universities and construction of additional universities.</li> </ul>	<ul> <li>Too many under-skilled and under qualified members of the labour force:</li> <li>Low number of qualified graduates to meet the demand in the labour market and future business innovators.</li> <li>Shortage of highly skilled people in science and technology.</li> <li>Regional and gender disparities in educational attainment</li> <li>Targeted training programs for retooling currently unemployed school graduates in order to meet demand in selected and critical sectors are underdeveloped and few in number</li> <li>Absence of a strong research and development platform for innovation.</li> <li>Slow reorienting higher education towards science and technology and entrepreneurship education.</li> </ul>
<ul> <li>Opportunities</li> <li>Use of IT to deliver innovative educational services over vast distances</li> <li>Young population – potentially large pool of skilled workers</li> </ul>	<ul> <li>Threats</li> <li>Risk of mismatches between trained population and market needs.</li> <li>Labour shortages for new / emerging urban-industrial economy</li> <li>Brain drain</li> </ul>

# 4 Economic Development



Figure 4-1: Cut Flower Greenhouses near Ziway. ©IAU 2014

### 4.1 Introduction

Ethiopia is one of the most agrarian countries in the world: the agricultural sector employs 73% of the employed population and contributes 43% to GDP and more than 80% of exports. The rural economy (encompassing most of the jobs in agriculture, but also a large fraction of the jobs in services and in industry) is even more important: it employs 85% of the 42.4 million employed persons in Ethiopia. Conversely, the urban areas only account for 15% of the Ethiopian employed population. The expected rapid urbanisation of the country over the coming 20 years will depend on the economic resources, potential and developments that are located in the urban centres. Urbanisation will also be driven by the effective exploitation of economic development opportunities in areas currently classified as rural and agrarian.

An overview of Ethiopia's economic development trends and policies is presented in this Chapter, followed by an analysis of the spatial and sectorial distribution of employment at a regional level and between the rural and the urban areas. A focus will be made on Addis Ababa. Subsequent sections present a review of the major economic resources, potentials and planned developments, and their potential effects on urbanisation.

### 4.2 Overview of Ethiopia's Economic Development

### 4.2.1 The National Economic Development Policy

Since the early 1990s Ethiopia has pursued a "developmental state" model with the objective of reducing poverty. The approach envisages a strong role for the Government of Ethiopia in many aspects of the economy and high levels of public investment to encourage growth and improve access to basic services. The model has been one of Agricultural Development-Led Industrialization in which growth in agriculture is emphasized in order to lead transformation of the economy.

Ethiopia's development approach has been informed by the recent successful transformations in East Asia between the 1960s and 1980s. A number of countries and jurisdictions—including China, Singapore, South Korea, Thailand, Taiwan, and Vietnam— underwent rapid economic growth and socio-economic change over a period of 30 years. With supportive public policies, these countries went from being poor agrarian societies in the 1960s to producers of high technology and high value-added goods by the 1990s.

Ethiopia's development strategy is implemented through a succession of five-year national plans. The current plan—The Growth and Transformation Plan (GTP)—spans 2010/11–2014/15 and is aimed at sustaining rapid, broad and equitable economic growth, and achieving the Millennium Development Goal (MDG). The longer-term objective is to eradicate poverty, bring about structural transformation of the economy and reach middle-income status by 2025. The plan seeks to ensure sustainability of growth by pursuing its objectives within a stable macroeconomic framework. Among its strategic pillars are:

- sustaining rapid and equitable economic growth;
- maintaining agriculture as a major source of economic growth;
- creating conditions for industry to play a key role in the economy;
- enhancing expansion and quality of infrastructure and social development;
- building capacity and deepening good governance;
- and promoting gender and youth empowerment and equity.

The structural transformation of the country is pursued through scaled-up public investments, such as in roads, railroads, hydro-electric generation plants, sugar factories, housing, and other projects. The strategy also assumes maintaining high share of fiscal spending to support human capital development, including through education, and technical and vocational trainings.

### 4.2.2 GDP & Economic Growth: Structure and Trends

Ethiopia is one of the ten poorest countries in the world in terms of GDP per capita, but it is also one of the 10 fastest growing economies, with more than 10% annual GDP growth in average since 2004. Growth was induced through a mix of factors, including agricultural

modernization, the development of new export sectors, strong global commodity demand, and government-led development investments.<sup>16</sup>The main features of the structure of the Ethiopian economy are as follows:

- The high share of the agricultural sector in GDP. According to MoFED, in 2012/2013 agriculture accounted for 42.9% of GDP, which is one of the highest levels in the world. On average in low income countries, agriculture accounts for 28% of national GDP and industry for 24%. In Kenya for instance, agriculture accounts for 30% and industry for 17% of GDP (see Figure 4-2 overleaf).
- The low share of the industrial sector in GDP. In 2012/2013, industry accounted for 12.4% of GDP (and the manufacturing sub-sector for only 4% of GDP).
- The relatively high share of the service sector, which accounted for 45.2% of GDP in 2012/2013, making it the most important sector in the Ethiopian economy.



Figure 4-2: GDP Breakdown (%) in 2012 for Ethiopia, Kenya, Tanzania, South Africa & SSA

Source: MoFED 2013; World Bank, World Development Indicators 2013

### A Slow Evolution of the Economic Structure

Figure 4-3 below, shows that the structure of the economy is evolving rather slowly, with a slow decrease of the share of agriculture from 49% in 2000 to 43% of GDP in 2013, and a quasi-stagnation of industry at around 12%, while the services sector has just taken over agriculture as the major contributor to Ethiopia's economic growth (45% of GDP in 2013).

<sup>&</sup>lt;sup>16</sup> The World Bank, *Ethiopia Economic Update II*, June 2013.



The stagnation of the share of the industry over the long run is particularly marked, especially when compared with other sub-Saharan or low income countries. For instance, in Tanzania the share of industry in GDP has increased from 15% in 1997 to 25% in 2011, whereas in 2011 the share of industry in Ethiopia's GDP was still as low as in 1997 (around 10%). Within the industrial sector, the weight of manufacturing has remained low, around 4% of total GDP.

The industrial sector in Ethiopia has huge potential but it is largely unrealised at present. This is particularly true of light manufacturing. According to the World Bank, *"Ethiopia has the potential to become globally competitive in large segments of light manufacturing (apparel, leather products, and agribusiness) and, if successful, could create millions of productive jobs in the process."*<sup>17</sup> However, as has already been highlighted, manufacturing currently accounts for only 4% of GDP and 3% of employment. It also currently has a limited export capacity (see Figure 4-4).

According to the IMF, factors hampering industrial progress include: limited capacity and inadequate leveraging of the private sector, weak business climate, including higher trade barriers, insufficient incentives for, and sensitivity of, domestic savings—characterized by negative real rates of interest, limited range of financial instruments, and an underdeveloped financial system.

### Ethiopia's major industrial assets are:

- Labour cost advantages (low wages),
- A large supply of potential and trainable workforce,
- Comparative advantages in the natural resource industries (agriculture, livestock, low cost energy),
- Access to a state-of-the-art container port in Djibouti,
- Proximity to large export markets (Europe, the Middle-East, Africa),
- Duty-free, quota-free access to the EU & US markets (AGOA, EBA).

<sup>&</sup>lt;sup>17</sup> The World Bank, *Light Manufacturing in Africa*, 2012

### The major constraints explaining why this potential is still being largely untapped are:

- Poor trade logistics and transport infrastructure (see Infrastructure Chapter),
- Constraints in key input industries (such as lack of quality leather or cotton),
- Overall low labour productivity in the manufacturing sector,
- Poor access to industrial land, finance, and skills, particularly affecting smaller firms in the private sector.<sup>18</sup>



Figure 4-4: Light Manufacturing Exports in African Countries

Ethiopia being endowed with many agricultural assets, the most promising manufacturing potentials lie in those industries which are closely dependent on agricultural input:

- The Textile and Garment Industry (using cotton as input),
- The Leather and Footwear Industry (using leather as input),
- Agro processing (food products, beverages, wood & paper products, etc.)

These three sectors are among the priority sectors identified by the Government in the **GTP I** (2010-2015) and in the **Industry Development Strategic Plan (2013-2025)**.

### 4.2.3 Employment: Structure and Trends

73% of the employed population works in agriculture. Even though the service sector is now the dominant sector in Ethiopia in terms of GDP, Ethiopia is still very much an agrarian economy in terms of the employed population:

Source: GRIPS 2014; UNCTAD 2013.

<sup>&</sup>lt;sup>18</sup> The World Bank, Light Manufacturing in Africa, 2012, and IMF, Ethiopia Country Report 14/303, October 2014

- The agricultural sector accounted for 73% of the more than 42 million employed persons in 2013.
- The service sector (trade, transport & communication, other services) accounts for 20% of the employed population,
- And industry (manufacturing and other industries) employs only 7.4% of the Ethiopian population. Source: CSA's 2013 National Labour Force Survey. See Table 4-1 below.

Sectors	Employed	%				
Agriculture	30 817 068	73%				
Manufacturing	1 902 194	4%				
Non-Manuf. Industry	1 231 761	3%				
Services	8 452 856	20%				
Total	42 403 879	100%				

Table 4-1: Employment by Sector in 2013

Source: CSA 2013 National Labour Force Survey

Figure 4-5 and the accompanying table below sum up the respective contribution of each sector to employment and GDP in 2013, showing great discrepancies in agriculture and in services. Only for manufacturing is the contribution to jobs and GDP similar (about 4% in both cases). These figures point to important discrepancies in labour productivities:

- **Productive Service Sector**: Labour productivity is almost 4 times higher in the service sector than in agriculture and almost 5 times higher in non-manufacturing industry.
- Less Productive Manufacturing Sector: Labour productivity is only 1.5 times higher in manufacturing than in agriculture, which points to the overall poor efficiency of the Ethiopian manufacturing sector.



Source: CSA 2013 National Labour Force Survey; MoFED

	Employed Pop.	GDP	Labour Productivity (birr)
Agriculture	73%	43%	8 585
Manufacturing	4%	4%	13 293
Other Industry	3%	8%	41 557
Services	20%	45%	32 978

Source: CSA 2013 National Labour Force Survey; MoFED

Agriculture accounted for half of the 11 Million jobs created between 2005 and 2013. In 2013, agriculture employed 5.6 million more people than in 2005. This represents 51% of the 11 million jobs created in Ethiopia between 2005 and 2013. During the same period, the industrial sector created 1 million jobs (mostly in non-manufacturing industry), and the service sector created 4.3 million jobs (40% of total job creation). Non-manufacturing industry and services were the most dynamic sectors. Between 2005 and 2013, the compound average annual growth rates of the employed population for each sector were:

- 2.5% for the agricultural sector,
- 2.8% for the manufacturing industry,
- 10.3% for the non-manufacturing industry,
- 9.3% for the services.

These figures show that non-manufacturing industry (mostly construction) and services are the most dynamic sectors in terms of job creation and their growth resulted in a decrease in the share of agriculture in total employment. Between 2005 and 2013, the share of agriculture in total employment has decreased from 80% to 73%, in favour of non-manufacturing industry (from 2% to 3%) and of services (from 13% to 20%). The share of the manufacturing sector has slightly decreased from 4.9% to 4.5% (see Figure 4-6 and the accompanying table).



Source: CSA, 2005 & 2013 National Labour Force Surveys.

	2005	2013	Evolution 05-13	CAGR
Total Employed Pop	31 435 108	42 403 879	10 968 771	3.8%
Agriculture	25 208 165	30 817 068	5 608 903	2.5%
Manufacturing	1 529 376	1 902 194	372 818	2.8%
Non-Manuf. Industry	560 588	1 231 761	671 173	10.3%
Services	4 136 979	8 452 856	4 315 877	9.3%

Source: CSA, 2005 & 2013 National Labour Force Surveys.

## 4.3 The Spatial Distribution of Jobs across Ethiopia

### 4.3.1 The Regional Distribution of Employment

The three largest and most populous regions, namely Oromia, Amhara and SNNP, account together for 85% of Ethiopia's 42.4 million employed persons. The smaller and less densely populated regional states of Benishangul-Gumuz and Gambella account for only 1% and 0.4% of the employed population of Ethiopia, respectively. The 1.3 million people working in Addis Ababa represent only 3% of the total employed population of the country (see Figure 4-7 below).



Source: Consultant's calculations based on CSA 2013 National Labour Force Survey

Aside from the two Chartered Cities of Addis Ababa and Dire Dawa and the 50%-urbanised regional state of Harari, agriculture is the sector that employs the most people in almost all the regional states: from 58% of total employed population in Afar to 80% in Benishangul-Gumuz. Agriculture is followed by the services sector, which employs between 14% (in Benishangul-Gumuz) and 36% (in Afar) of the employed population. Only in Addis Ababa, Dire Dawa and Harari is the service sector the major employer. In the capital city, up to 68% of the employed population works in the service sector (see Figure 4-8 below).



Figure 4-8: Sectorial Breakdown of Employment at the Regional Level

Source: Consultant's calculations based on CSA 2013 National Labour Force Survey

### 4.3.2 Rural and Urban Employment: Structure and Trends

### Urban Employment Accounts for 15% of Total Employment Nationwide.

Employment in Ethiopia remains overwhelmingly rural: 85% of the country's jobs are found in rural areas in 2013, as opposed to 15% jobs found in urban areas. This is only a modest shift from the 2005 situation, when up to 89% of the employed population was rural and only 11% of jobs were urban jobs (see Figure 4-9 below).



Source: Consultant's calculations based on CSA 2005 & 2013 National Labour Force Survey

### Urban Employment is Growing Faster than Rural Employment

Urban employment has been growing more than twice faster than rural employment between 2005 and 2013 (average annual growth rate of 8% for urban employment versus 3% for rural employment). However, given the overarching dominance of rural employment, most jobs are still being created in rural areas. Rural employment has gained 8 million net jobs between 2005 and 2013, which represents 73% of total net job creation over this 8-year period (see Table 4-2 below). This is more than the total stock of urban jobs found in Ethiopia in 2013 (there were 6.4 million urban jobs in 2013 according to CSA).

*Table 4-2:* The Employed Population in Rural & Urban Areas in 2005 and in 2013

	2005	2013	Net Job Creation 2005-2013	CAGR 2005- 2013
Total	31 435 108	42 403 879	10 968 771	4%
Urban	3 446 092	6 382 858	2 936 766	8%
Rural	27 989 016	36 021 021	8 032 005	3%

Source: Consultant's calculations based on CSA 2005 & 2013 National Labour Force Surveys

### 80% of Ethiopia's Urban Employment is Found Outside of Addis Ababa

Although only 3% of total employment is found in Addis Ababa, the capital city accounts for 20% of Ethiopia's urban employment – a share that has been slightly decreasing in the recent period, down from 23% in 2005. This also means that 80% of Ethiopia's urban jobs are found outside of the capital city, in the rest of the country's urban areas (see Figure 4-10 below).



Source: Consultant's calculations based on CSA 2013 National Labour Force Survey

#### 62% of Urban Jobs are in the Service Sector

While in rural areas agriculture accounts for 83% of jobs, in urban areas it is the service sector which is the major source of employment, accounting for 62% of total urban jobs. The industrial sector comes next with 24% of urban jobs, of which 14% are in the manufacturing sub-sector (see Figure 4-11 below).



Source: CSA 2013 National Labour Force Survey

#### The Economic Primacy of Addis Ababa

How is Addis Ababa's economic primacy over Ethiopia's secondary urban centres evolving according to the CSA 2005 and 2013 National Labour Force Surveys?

- On one hand, the share of Addis Ababa in urban employment has slightly decreased in the recent period. Between 2005 and 2013, the proportion of Ethiopia's urban employment that is located in the capital city has decreased from 23% to 20%. Conversely, the share of the 25 other "Major towns" identified by CSA in total urban employment has increased from 21% to 22% between 2005 and 2013.
- On the other hand, Addis Ababa concentrates a large fraction of the nation's urban jobs in most of the high value-added service sub-sectors which are typical of a modern and globalized metropolitan economy. As such, while 20% of the country's urban labour force works in Addis Ababa, the capital city is home to 68% of the country's urban jobs in real estate, 40% in information and communication, 36% in financial activities, and 34% in transportation and storage (see Figure 4-12).
- For most export industries, Addis Ababa is where the majority of the firms' headquarters and logistical services are located. For instance, in the cut flower industry all the farms have either head or liaison offices in Addis Ababa in order to access vital services such as air freight services, customs, banking, export facilitation and communication. Service providers to the cut flower industry are also almost

exclusively in or around Addis Ababa. It is estimated that 100% of the forwarding and clearing service, and 100% of the refrigerated truck service (except for Bahir Dar) and 79% of the trucking service for supply of inputs are obtained from Addis Ababa.<sup>19</sup> Likewise, the ECX Centre in Addis Ababa is the national trading platform before export for all the coffee coming from the 8 ECX delivery centres that are entitled to collect beans in the country's major coffee areas.



Source: Author's Calculations based on CSA 2013 National Labour Force Survey

The economic weight of Addis Ababa is not restricted to the economic activities that are located within the capital city's administrative boundaries stricto sensu. As industrial land within Addis becomes scarcer and more expensive, many industrial developments are establishing on the outskirts of the capital. Recent examples are the Ethio-Turkish IZ in Legetafo, 15 km north-east of Addis Ababa, Ayka Addis' textile factory in Alem Gena, about 20km South-West of Addis Ababa, or the Eastern Industrial Zone in Dukem, 32km south-east of Addis Ababa. In this regard, the economic primacy of the capital city seen as a "greater Addis" expanding towards localities such as Sululta, Legetafo or Sebeta, is increasing rather than decreasing.

### 4.4 Major Economic Resources and Potential in Ethiopia

### 4.4.1 The Agriculture

Agriculture is the mainstay of the Ethiopian economy and a major source of employment for about 72% of the population. The sector is also the most important foreign currency earner: agricultural products make up more than 80% of the country's total exports.

<sup>&</sup>lt;sup>19</sup> Global Development Solutions, *Towards a Globally Competitive Ethiopian Economy: The Role of Services and* Urbanisation. Case Studies - Rose & Polo Shirt Value Chains, 2011.

With altitudes ranging from 148 metres below sea level to 4,620 metres above it, the country has 18 major and 49 sub agro-ecological zones, each with its own agricultural and biological potential (MoA). Ethiopia has the soils and climate required for the production of a variety of food crops. Ethiopia covers an area of 111.5 million ha, of which 74.3 million ha are suitable for agriculture (according to official figures from MoA) but only 14.6 million ha are being used by smallholders (CSA 2013 Agricultural Sample Survey). Over all irrigation development potential is estimated at 3.7 million hectares of land while only 5-6% of this area is currently utilised. Irrigable large scale farms such as in the Rift Valley have big potential for the expansion of cash crops such as sugar, oil seeds and horticulture.

The major food crops grown are cereals, pulses and oil seeds. The country is endowed with vast resources of livestock, fishery and apiculture. A broad range of fruits, vegetables and cut flowers are fast-growing exports. Coffee, oil seeds, cotton, tobacco, sugar cane, tea and spices are the main commercial cash crops grown in Ethiopia.

#### 4.4.1.1 The National Policy for Agricultural Development

The second strategic pillar of the Growth and Transformation Plan (GTP) is "maintaining agriculture as a major source of economic growth". The objectives are "to meet the food security needs of the country, to curb inflationary pressures on agricultural products, and broaden the export base of the country." The sector is also expected to supply inputs necessary for industrial growth.

Fundamentals of the strategy include:

- The scaling up of best practices of model smallholder farmers and pastoralists, in order to increase agricultural productivity and the commercialisation of smallholder farming,
- A shift to the production of high value crops with a special focus on potential high productivity areas and support for the development of large-scale commercial agriculture, where feasible.

This strategy is being implemented through a number of large-scale public and private investments with significant potential for urbanization. These mega-projects include:

- The State-owned sugar factories,
- The State-owned fertilizer complexes,
- The large-scale commercial farms,
- The irrigation projects,
- The cut flower and horticulture industry,
- The development of Integrated Agro-Industrial Parks (IAIPs).

#### 4.4.1.2 The State-Owned Sugar Factories

#### The Three Existing Sugar Factories

Sugar production in Ethiopia started in 1954/55 at the Wonji Sugar Factory near Adama (about 100km SE of Addis Ababa). Currently, there are three large-scale sugar establishments in the country, all under the responsibility of the state-owned Sugar Corporation (See Table 4-3). Given the irrigation requirements for sugarcane growing, these three sugar factories were established near rivers: two of them in the Awash Basin

(Wonji/Shoa and Metehara) and one (Fincha) in the Blue Nile Basin (Horo Guduru Zone in Oromia Regional State). They are currently the major large-scale irrigation schemes in Ethiopia.

Table 4-	Table 4-3: The Three Existing Sugar Factories										
Name	Regional State	Zone	Woreda	Nbr of Workers	Current Sugar Production Capacity (t/yr)	Post-Expansion Sugar Production Capacity (t/yr)	Current Sugarcane Cultivated Land (ha)	Post-Expansion Sugarcane Cultivated Land (ha)			
Fincha	Oromia	Horo Guduru	Abay Chomen	2,300	110,000	270,000 by the end of GTP	12,170	21,000			
Metehara	Oromia	Misraq Shewa	Fentale	2,200	130,000		10,231				
Wonji/Shoa	Oromia	Misraq Shewa	Adama	3,600	75,000	220,000	7,022 ha, out of which 1,000 are cultivated by out growers	16,000			

Source: Sugar Corporation, 2014

The three sugar factories have a production capacity of about 300,000 tons of sugar annually. This production capacity is not sufficient to cover the domestic demand. In 2011 Ethiopia imported 150,000 tons of sugar.

#### The Ten New Sugar Factories

Following various studies highlighting the high potential of irrigated sugarcane production in Ethiopia, the government has identified the sugar industry as one of the priority sectors to be developed under GTP I. With a sugar production target of 2.25 Mt by 2014/2015, Ethiopia intends to not only become self-sufficient in sugar production but also to leave a surplus for export of 1.25 Mt by 2015, and ultimately to become one of the world's ten biggest sugar exporters. To this end, the Sugar Corporation has started the building of ten large-scale additional factories, to be constructed within the GTP period (see Table 4-4 below). Private investment is also encouraged to acquire land to extensively grow sugarcane.

Table 4-4: The Ten New Sugar Factories												
Name of Factory	Regional State	Planned Launch Year	Planned Housing & Services	Expected Jobs	Planned Sugarcane Cultivated Land (ha)	Planned Sugar Production Capacity (t/yr)						
Tendaho	Afar	2014 (1st phase)	17,233 residential 308 non residential blocks	50,000 2	18,000 then 50,000 (50% by cane out growers)	600,000 (50% for export)						
Tana-Beles (3 factories)	Amhara Benishangul-Gumuz	2015 (Beles 1 & 2), 2016 (Beles 3)	6,884 residential houses 240 non residential houses	50,000	50,000 then 75,000 with the 3rd factory in B-G	726,000						
Wolkaiyt	Tigray	2016	3,442 residential 120 non residential houses	100,000	50,000	484,000						
Kuraz (5 factories)	SNNPR	2015 (Kuraz 1), 2016 (Kuraz 2 & 3)	20,652 residential 720 non residential houses	117,131	175,000	1,946,000						
Kessem	Afar	2015	3,442 residential 149 non residential houses.		20,000 (50% by out growers)	260,000						
Arjo Dediessa	Oromia	2015			28,000							

Source: Sugar Corporation, 2014

### The Likely Impacts of the Sugar Factories on Urbanization

The historical experience of the three existing sugar factories shows that their creation has triggered the development of urban settlements in their immediate vicinity:

- Wonji Town (more than 20,000 inhabitants) next to the Wonji/Shoa Factory
- Finicha (more than 10,000 inhabitants) next to Fincha Factory
- Metehara (more than 20,000 inhabitants) next to Metehara Factory (see Figure 4-13 below).

The smaller size of Finicha Town could probably be explained by a remote location as well as by the relatively recent establishment of the factory (1999), as opposed to the older Wonji and Metehara factories, which date back to the 1960's and have a more favourable location: Wonji is 10km south of Adama, and Metehara is located between Adama and Awash, along the Addis-Djibouti corridor.



Figure 4-13: Metehara Sugar Factory and the nearby Metehara Town

Source: Google 2014; Consultant.

The new sugar projects are therefore expected to stimulate the development of new urban settlements in the vicinity of the sugarcane plantations (see Table 4-4 above for the exact numbers of houses that the Sugar Corporation plans to build in each of the new sugar factories.) The Planning and Monitoring and Evaluation Department of the Ethiopian Sugar Corporation provided rates of job formation per project. In the case of sugar plantations, it was assumed that one job would be generated per 2.5 ha of project land, meaning 0.4 job per

ha. Furthermore, each new job would result in 3.7 new residents in total (the average household size in 2012), and all of the new residents would live in urban areas. <sup>20</sup> See Table 4-5 below for the projected additional urban residents in sugar plantations.

Table T 6. T Tojeelea Taallonar enban Neelaonie fer Eugar Taallane												
<b>Residents Added</b>	2013	2014	2015	2016	2017	2018	2019	2020	2021			
Tigray					25,900	37,000	11,100					
Afar		25,900	57,720	19,980								
Amhara		51,800	22,200					25,900	11,100			
Oromia	21,238	25,678	27,824	8,880								
SNNP			25,900	62,900	22,200			103,600	44,400			

Table 4-5: Projected Additional Urban Residents for Sugar Plantations

Source: Sugar Corporation 2014; The World Bank 2014

However, in the short-to middle term the size of these urban settlements might remain more limited than these official projections. Indeed, most of the new sugar factories are being established in remote and not densely populated rural areas. This means that during the first years of operation they will probably attract mostly male single workers living on-site within the plantations. The exceptions could be Tendaho and Kessem, which have a more favourable location next to major roads leading to Djibouti. Furthermore, delays are reported in the construction of most of the new sugar factories except for three of them, due to various technical and financial issues. The new sugar projects are also a strong incentive to developing high-quality transportation and storage infrastructure in order to improve the country's export capacities. Furthermore, the sugar factories are to contribute more than 300 MW of electric power produced through co-generation to the national grid.

#### 4.4.1.3 The State-owned Fertilizer Complexes

In Ethiopia, most highland soils are deficient in important nutrients and require fertilizer to sustain crop yields. Research has indicated that Ethiopian soils are generally low in available nitrogen and phosphorus and cannot produce high crop yields unless these are supplied.<sup>21</sup>

However, fertilizer use in the country is low: only 30-40% of Ethiopian smallholders use fertilizer. While Ethiopia is the biggest chemical fertilizer importer in Sub-Saharan Africa, fertilizer use per unit of land (50 kg/ha on average) is only one-fourth of the level recommended by the Ministry of Agriculture (about 200 kg/ha).<sup>22</sup> In 2012/2013, Ethiopia imported almost 1,000,000 tons of chemical fertilizer.<sup>23</sup>

### The Yayu Fertilizer Complex

In order to increase the domestic production of fertilizer and to minimize the import of fertilizer to the country, the GTP has targeted the building of one fertilizer industry complex by 2014/2015. Its production capacity will be 300,000 tons of fertilizer Urea. This is almost one fifth of the total chemical fertilizer supply targeted by GTP by 2014/2015 (1,66 Mt).

<sup>&</sup>lt;sup>20</sup> The World Bank, Ethiopia Urbanization Review, Preliminary Draft, May 2014, p.65.

<sup>&</sup>lt;sup>21</sup> FAO, Ethiopia Country Pasture/Forage Resource Profiles, 2006.

<sup>&</sup>lt;sup>22</sup> Minten et al, The Last Mile(s) in Modern Input Distribution, EDRI/IFRPI, ESSP WP 51, April 2013.

<sup>&</sup>lt;sup>23</sup> MoFED, GTP Annual Progress Report for F.Y. 2012/2013, February 2014.

To this end, The Metal and Engineering Corporation (METEC), a state-owned engineering complex, is currently building the first chemical fertilizer complex in Ethiopia. As per the feasibility study conducted, two Urea fertilizer factories and one DAP fertilizer factory are being erected in Yayu woreda of the Illubabor zone, in the Oromia Regional State, where the mineral resource has been found abundant. The feasibility study reported that around 100 million tons of coal was found in the Yayo area. It is estimated that the coal deposit in the area has the potential to produce 300,000 tons of Urea, 250,000 tons of DAP, 20,000 tons of ethanol and 90MW of electric power annually for decades. The factory was expected to be completed by the end of the current fiscal year of 2014/15. However due to technical delays, only 20% was reportedly completed as of January, 2015.<sup>24</sup>

#### The Bale Melka Arba Fertilizer Complex

Another future Fertilizer Mega-Project will be the Melka Arba Complex in Bale area, Oromia Regional State. Once completed, it will have one single phosphate fertilizer factory and one triple super phosphate manufacturing factory. No information could be obtained on planned completion schedule.

#### The Likely Impacts of the Fertilizer Complexes on Urbanization

According to information gathered from electronic media, part one of the projects of Urea manufacturing plant at the Yayu Fertilizer Complex is expected to generate job opportunities for 35,000 workers.<sup>25</sup> Although this figure could not be verified from official sources, it appears to be a very ambitious figure. For instance, the larger fertilizer project which is planned in Tanzania (1.3 million tonnes of fertilizer per year) is expected to create 5,000 direct and indirect jobs during the construction and operating period.<sup>26</sup>

Applying the same ratio to the Yayu Complex (which is expected to produce 550,000 tons of fertilizer per year) would lead to the creation of a little more than 2,000 direct and indirect jobs. In a best-case scenario of each new job resulting in 3.7 new residents (the average household size in 2012), the Yayu Fertilizer Complex could thus lead to the creation of an urban settlement of around 7,500 inhabitants in its immediate vicinity. In order to best connect the Yayu fertilizer complex to agricultural zones across the country, it is also recommended that the rail line that is currently planned between Jimma and Bedele be extended to Yayu.

#### 4.4.1.4 Large-Scale Commercial Agriculture

Large-scale commercial agriculture is an important part of the Ethiopian Government's strategy for the development of the country. It is perceived by the Government as having a number of clear benefits, including promoting food security, industry inputs, creating jobs and transferring technology.

<sup>&</sup>lt;sup>24</sup> F. Tadesse, « Fertilizer Factory Construction Resumes after 10 Months", *Addis Fortune*, Jan.26, 2015. http://addisfortune.net/articles/fertilizer-factory-construction-resumes-after-10-months/

<sup>&</sup>lt;sup>25</sup> http://www.ethioconstruction.net/?q=news/yayo-fertilizer-factory-well-progress

 <sup>&</sup>lt;sup>26</sup> Ferrostaal Press Release, "Development of world-scale fertilizer complex to boost economy in Tanzania", Feb. 3, 2015.

http://www.ferrostaal.com/en/group-ferrostaal/media-and-publications-ferrostaal/news-ferrostaal/development-of-world-scale-fertilizer-complex-to-boost-economy-in-tanzania/?tx\_editfiltersystem\_pi1[cmd]=detail

### The Potential Investment Land: Federal Land Bank for the Concessions over 5,000 ha

In 2009, the federal government decided to more actively encourage large-scale land investment. In an upward delegation of a regional mandate, the Council of Ministers issued a proclamation (Proclamation 29/2001 EC) stating that plots of over 5,000 ha were to be administered by federal authorities and included in a land bank to be managed by the Agricultural Investment Agency.<sup>27</sup> On the other hand, agricultural investment land smaller than 5,000 ha should be administered and provided to investors directly by the regional governments.

Following the 2009 Proclamation, five key regions for land deals were chosen and asked to identify parcels of land of 5,000 ha and above, that would be suitable for large-scale commercial agriculture. According to the GTP, large-scale farming is to be undertaken in lowland areas where abundant extensive land exists.



Source: AIA, July 2014

By July 2014, a total of 3.482 million hectare was identified, mostly in the lowland areas of Oromia, Gambela, Benishangul-Gumuz, SNNPR, Amhara and Somali to be transferred to the federal land bank (see figure 4-14, and Map 4-1 overleaf). The investment lands are reported to be suitable for different agricultural productions which may include food crops (rice and wheat), oil crops (sesame and soya bean), stimulants (coffee and tea), cotton, oil palm, biofuel plants and livestock husbandry.

According to GIS data provided by the Agricultural Investment Agency (AIA), of the 3.482 million ha identified for the federal land bank, 487,580 hectares has already been transferred (leased) to 42 foreign and local investors by the federal government.<sup>28</sup> More than half of the transferred area is in Gambella Region, followed by Benishangul-Gumuz (27%) and SNNPR (16%). See Figure 4-15 below.

<sup>&</sup>lt;sup>27</sup>The Agricultural Investment Agency is the newly established wing of MoARD which is responsible to provide land, comprehensive technical and administrative support to the users.

<sup>&</sup>lt;sup>28</sup> Interview with AIA official, March 2014.


Source: AIA, July 2014.

## **Employment Opportunities**

Large-scale commercial agriculture has the potential to create significant employment on farms, whether preparing land, planting, weeding, harvesting crops, managing facilities, or providing security or other services. Some of the major farm investments in Ethiopia claim to have created large numbers of jobs. One major investor, with a 10,000 hectare lease in Gambella, claims that at present they are employing 2,000 people. When the 10,000 hectares are fully operational, they expect that 7,500 people will be employed, excluding processing.<sup>29</sup> This would amount to 0.75 job per hectare.

Another land investment company claims to be currently employing 1,000 people but that this will increase to 25,000 when their 100,000 hectare concession is fully operational. This would amount to 0.25 job per hectare However, because it is often highly mechanized, historical experience shows that large-scale commercial agriculture is generally not labour-intensive. For instance, in 1988 South-Africa, large-scale commercial farms over 300 hectares employed on average less than 0.1 worker per hectare (see Table 4-6 below).

<sup>&</sup>lt;sup>29</sup> IIED (2014)

Farming Unit Size Groups (ha)	Employees (/ha)	Number of Farms
< 2	2,78	142
4	1,08	1 058
9	0,67	1 525
19	0,38	1 815
49	0,34	4 837
99	0,17	4 404
199	0,13	5 690
299	0,08	4 502
499	0,05	7 044
999	0,03	10 926
1 999	0,02	9 230
4 999	0,01	7 588
9 999	0,003	2 573
10 000+	0,001	1 067
Total	0,01	62 401

Table 4-6: Labour Intensity in South African Farms, 1988

Figure 4-16 below shows the total number of projected jobs per 1,000 ha for 53 different agricultural investments in Ethiopia. <sup>30</sup> Only 7 of 53 cases predict over one job per hectare. The 46 other cases predict less than one job per hectare. For instance, the third bar from the left shows that 14 large-scale farm investments project between 200 and 500 jobs created per 1,000 hectare, i.e. between 0.2 and 0.5 jobs per hectare.



Figure 4-16: Projected Jobs per 1,000 ha in Large-Scale Farm Investments

Source: South African 1988 Census of Agricultural Data

Source: IIED, 2014

<sup>&</sup>lt;sup>30</sup> James Keeley, Wondwosen Michago Seide, Abdurehman Eid and Admasu Lokaley Kidewa (2014) *Large-scale land deals in Ethiopia: Scale, trends, features and outcomes to date*. London: IDRC and IIED.

Map 4-1: Agricultural Investment Potential Land



Source: AIA 2014

#### Likely Impacts of the Large-Scale Commercial Farms on Urbanisation

Large scale commercial farms are likely to contribute to creating employment opportunities in trade and agro-processing industries in emerging and existing urban centres located within or in the vicinity of the agricultural investment areas. Jobs may also be created in transport, hotel, restaurant and other service sectors as a result of agricultural investments. In particular, the development of large-scale farming should boost the economic activity and urban development in the capital cities of the two Regions where most of the large-scale agricultural developments are expected to take place: namely Assosa for Benishangul-Gumuz Region and Gambella for Gambella Region.

#### 4.4.1.5 The Irrigation Projects

An estimated 5.3 million Hectares of Irrigation Potential in Ethiopia According to sources, between 640,000 ha (IWMI 2010) and 980,000 ha (GTP, MoFED) of land were irrigated in 2010 in Ethiopia. However, IWMI estimates that over the next two decades, Ethiopia could irrigate 5.3 million ha with existing water sources and technologies.<sup>31</sup> This includes 3.7 million ha from surface water, 1.1 million ha from groundwater and 0.5 Mha from rainwater harvesting. This would represent one third of the 15 million ha of land currently under cultivation, and would ensure food security for up to six million households (around 30 million direct beneficiaries).<sup>32</sup> Map 4-2 overleaf shows the location of the surface water irrigation potential, which represents 70% of total irrigation potential, while Map 4-3 shows the groundwater potential, which represents 20% of total irrigation potential. As of today, the three existing state-owned sugar factories represent the major large-scale irrigation schemes in Ethiopia. Other large-scale irrigation projects are planned by the Ministry of Water and Irrigation in some of the major river basins (see Table 4-7 below).

Table 4-7: Major Irrigation Projects						
River Basin	Irrigation Projects	Irrigation Potentials (ha)				
	Ardjo-Dediessa	14,300				
	Gumara	14,000				
	Lake Tana Sub-	62 /157				
Abay	Basin	02,437				
Abay	Кода	7,000				
	Humera	43,000				
	Lake Abbaya Sub-	21 020				
	Basin	51,920				
Tekeze	Wolkyte	40,000				
Rift Valley	Ziway	15,500				
	Kessem &	00,000				
Awash	Tendaho	90,000				
Awash	Kobo-Girana	17 000				
	Valley	17,000				
Wahi	Gololcha ,Errer,					
vvabi- Shoholo	Iliyon and	52,920				
Snebele	Buldaho					
Danakil	Raya Valley	18,000				

Table 4-7: Major Imgation Projects				
<b>River Basin</b>	Irrigation Projects	Irrigation Potentia		
	Ardjo-Dediessa	14,300		

Source: Ministry of Water & Energy, 2014

<sup>&</sup>lt;sup>31</sup> MoARD (2009) estimates the irrigation potential to be 4.3 million ha.

<sup>&</sup>lt;sup>32</sup> International Water Management Institute (IWMI), *Irrigation Potential in Ethiopia*, July 2010.





Source: IWMI, Irrigation Potential in Ethiopia, 2010



Map 4-3: Groundwater Potential

Source: IWMI, based on data from EIGS, British Geological Survey, 2001.

# The Large-Scale Irrigation Projects - Impacts on Urbanisation

The World Bank's Ethiopia Urbanization Review draft report contains an estimate of the number of new urban residents generated by the irrigation projects.<sup>33</sup> Although project data were not available beyond 2020, the Ministry of Water and Irrigation estimates that irrigation project sites will increase by 50,000 ha per year during this period. For the projection, this land area was allocated across the regions according to their total share of planned projects. It was assumed that one job would be generated per 0.5 ha of irrigation project land. Each job would result in 3.7 residents in total, but only half would live in urban areas. According to the World Bank's Ethiopia Urbanization Review draft report: "This assumption is based on the fact that the agglomeration of population residing in such irrigation areas does not only comprise those who directly engage in farming activities but also those who engage in provision of technical support as well as business transaction. About half of the population living in irrigation sites in Ghana are urban residents." (See Table 4-8)

Table 4-8: Additional Urban Residents for Irrigation Projects									
Urban Residents Added	2014	2015	2016	2017	2018	2019	2020	2021	2022–30
Afar		28,708	12,303					14,768	21,097
Amhara	36,260	28,490	39,220	24,894	4,484			48,019	68,598
Oromia		35,258	15,110				51,140	66,362	63,493
BG							25,900	24,424	19,034
SNNP		17,387	7,451					8,944	12,777

Source: The World Bank, Ethiopia Urbanization Review, Preliminary Draft, May 2014, p.66

# 4.4.1.6 The Cut Flower & Horticulture Industry

Despite its late entry into the Ethiopian economy, the flower industry is an example of a quick transition into a successful non-traditional export product. From almost non-existent in 2004, the cut flower industry has rapidly grown over the last ten years, and Ethiopia is now the second largest exporter in Africa next to Kenya, overtaking Tanzania, Uganda and Zimbabwe. It is also the fifth largest non-EU exporter supplying the EU cut flower market<sup>34</sup>.The cut flower sector is now regarded as one of the top five foreign exchange earners, accounting for 7.3% of total exports in 2010/2011.

# The Growing Competitiveness of the Ethiopian Cut Flower Industry

The attractiveness of Ethiopia for FDI in floriculture derives from several factors. The natural resource endowment makes the country attractive for growing high-quality flowers at altitudes ranging from 1,500 to 2,600 meters, with sufficient sunlight and rainfall, and cool nights. In addition, abundant labour supply, abundant water, land and proximity to the EU market, with lower transport costs than Kenya, give Ethiopia basic competitive advantages. Furthermore, the exemption of EU tariffs on flower exports from Kenya expired in January 2008, whereas Ethiopia is still exempt from the tariffs.<sup>35</sup>

<sup>&</sup>lt;sup>33</sup> The World Bank, Ethiopia Urbanization Review, Preliminary Draft, May 2014, p.65.

<sup>&</sup>lt;sup>34</sup> http://addisfortune.net/columns/poor-export-revenue-demands-diversification/

<sup>&</sup>lt;sup>35</sup> MELESE, A. T., "Endogenisation or enclave formation? The development of the Ethiopian cut flower industry", *Journal of Modern African Studies*, 48, I, 2010.

State farms started to export cut flowers to Europe in 1980, but the scale of the cut flower industry expanded in the mid-2000s with the introduction of privately owned farms. The first foreign investor, Golden Rose, arrived in 1999 from the United Kingdom and showed Ethiopia's potential to grow quality roses. Since then, FDI has increased rapidly, especially from the Netherlands. There are currently about 90 flower farms in Ethiopia, cultivating a total of at least 2,000 ha of land and employing around 50,000 workers.<sup>36</sup> About 80% of the workers in the cut flower industry are young women. Most of the flower producers are either foreign owned or are joint ventures with foreign firms. Of the 84 investors listed by the Ethiopian Horticulture Producer Exporters Association (EHPEA), 26 are local investors, 52 are FDI and 6 are joint ventures.<sup>37</sup> Foreign investors are from the Netherlands, Germany, Israel, India, the UK, USA, Saudi Arabia and Italy.

## Proximity to Addis International Airport is Crucial

Being a perishable product, cut flowers are air-freighted. Proximity to the Addis Ababa International Airport - the only cargo outlet to export markets - is therefore crucial, and is undoubtedly the determining factor for flower producers to locate within a distance of a few hours of driving to Addis Ababa International Airport. 78% of the flower farms and postharvest handling facilities are located within a radius of 50 kilometres from Addis Ababa, in all directions along the five main highways connecting the capital city to the rest of the country. A limited number of farms (17%) are located 130 or more kilometres away from Addis Ababa.<sup>38</sup> Concentrations of farms are found in the vicinity of the towns of Holeta, Ziway, Sebeta, Debre Zeit and Addis Alem (see Table 4-9 below and Map 4-4 overleaf)). Other farms are more dispersed and geographically isolated.

Common Cluster Name	Type of Flower	Number of Farms by Flower Types	Total Number of Farms by Common Cluster	% of Farms	Mean Distance from Addis Ababa (km)	Mean Altitude (m)	
Holeta / Addis Alem	Rose	26	27	30%	50	2 289	
Holeta / Addis Alein	Summer	1	21	3070	50	2,209	
	Rose	15					
Sebeta / Alemgena	Summer	3	19	21%	22	2,082	
	Cutting	1					
Debre Zeit	Rose	13	16	18%	50	1,870	
	Summer	3	16				
Ziway	Rose	10	10	11%	163	1,644	
Bahir Dar	Rose	5	5	6%	563	1,554	
Koka	Cutting	4	4	4%	98	1,617	
Condofo	Rose	1	2	20/	20	2 229	
Sendara	Summer	2	3	3%0	39	2,228	
C11+-	Rose	1	2				
Sululta	Summer	2	3	3%	25	2,228	
Debre Birhan	Rose	1	1	1%	130	2,230	
Awash	Cutting	1	1	1%	116	1,442	
Total		89	89	100%	88	1,969	

Table 4-9: Geographic Distribution	of Cut Flower in Ethiopia in 2010
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Agency

Source: Ethiopian Horticulture Development Agency, 2010

<sup>&</sup>lt;sup>36</sup> EHPEA, Increasing Value Retention in Ethiopian Horticulture, Global Commodities Forum, UNCTAD, April 2014 37 Ibid.

<sup>&</sup>lt;sup>38</sup> Global Development Solutions, *Towards a Globally Competitive Ethiopian Economy: The Role of Services and* Urbanisation. Case Studies - Rose & Polo Shirt Value Chains, 2011.

#### Bahir Dar: a New Cut Flower Hub

Bahir Dar, almost 600 kilometres North-West of Addis Ababa, is home to five cut flower farms. This represents six per cent of the total cut flower farms in Ethiopia. These farms are logistically independent from Addis Ababa because they can obtain vital customs clearance, transport (overland and airfreight) and cold chain services in Bahir Dar. The existence of the Bahir Dar international airport, which can cater for direct flights to North-western Europe, is undoubtedly one of the most vital parts of the trade infrastructure that has enabled the emergence of the cut flower cluster in the region. Furthermore, Bahir Dar also meets the other critical conditions for such a cluster to emerge:

- The existence of functioning public service providers in proximity to the location of the cluster, and most notably services such as customs and other official clearances and supporting public utility services.
- The existence of service providers that support the supply chain from farm-to-market in proximity to the location of the cluster, including suppliers of inputs, transport/freight services, etc.
- The ability of firms to access water, land, and other resources<sup>39</sup>.



Map 4-4: The Major Cut Flower Areas

#### Source EHDEA 2014

<sup>&</sup>lt;sup>39</sup> Global Development Solutions, *op. cit.* 

# The Development of Horticulture Corridors

The newly establishing cut flower hub around Bahir Dar is an illustration that with sufficient infrastructure and support services in place, cut flower and other export-oriented agribusiness clusters could also emerge outside Addis Ababa. According to GTP I: "*Commercial horticulture will involve intensive farming and high value commodity production. It will extensively use labour and hence is likely to concentrate in highland areas and closer to the major cities of the country.*" The government has thus identified five corridors consisting of 50,000 hectares of land to be leased for horticulture development<sup>40</sup>. These corridors are the following (see Figure 4-17 below):

- Oromia and Addis Ababa Corridor,
- Bahir Dar, Abay Valley & South Gondar Corridor in Amhara region,
- Mekele-Raya & Kobo Alamata Corridor in Tigray region,
- Awash, Dire Dawa & Harar Corridor in Oromia region,
- Hawassa & Arba Minch Corridor in SNNPR.

The first four corridors are to be located near one of the four international airports currently in operation in Ethiopia (Addis Ababa, Bahir Dar, Mekele, Dire Dawa). A new airport mainly dedicated to freight is under construction in Hawassa.



Source: Ethiopian Horticulture Development Agency (EHDA), 2012.

<sup>&</sup>lt;sup>40</sup>http://ethiopianflowerexport.com/ethiopia-prepares-50000-hct-of-land-for-horticulture-devt/

## 4.4.1.7 The Integrated Agro-Industrial Parks

## 17 Potential Agro-Processing Zones

The Ministry of Industry is currently conducting a study to establish in the near future "Integrated Agro-Industrial Parks" (IAIPs) that will add value to agricultural products destined for export. The parks will incorporate companies engaged in exporting value-added agricultural products to the world market. Industries, through the establishment of the parks, will add value to exported products and thereby boost foreign currency of the country. The integrated agro industry parks are set to be established at coffee, sugar, sesame seed, fruit and vegetable production sites.



Map 4-5: The 17 Potential Agro-Processing Zones

Source: Ministry of Industry, February, 2015.

The commodities prioritized are: Coffee, Livestock, Cereals (maize, wheat, barley, etc.), Oilseeds (sesame), Pulses, Fruits & Vegetables, Honey. Most of the commodities are aligned with ATA (2013) & UNIDO/FAO (2009) studies. The Integrated Agro-Industrial Parks will also link smallholder farmers to the food industries and integrate them to the commercial food supply chain and agro-value chain.Based on a scientific methodology & criteria set, 17 agro-potential areas (Agro Industrial Growth Corridors) have been identified across the country (see Map 4-5 above).

Among these 17 Zones, four "Pilot Agro-Industrial Growth Corridors" have then been selected:

- 1. Central Eastern Oromia
- 2. Southwest Amhara

- 3. Eastern SNNP
- 4. Western Tigray

The rationale for the selection was to address the agro ecological diversity of the country: as well as to expedite the industrialization process - as each pilot would require a longer period for its complete development (see Box below for more details).

Why the four piloting AIGCs?
<ol> <li>Central Eastern Oromia</li> <li>Two operational sugar plantations,</li> <li>Concentration of medium and large agro-processing industries</li> <li>Proximity to biggest airport terminal, dry port &amp; Djibouti port</li> <li>High population, proximity to Addis Ababa</li> <li>Connectivity to other corridors</li> <li>Fishery potential, Koka dam, rift valley lakes (Zeway, Langano,)</li> </ol>
<ul> <li>2. Southwest Amhara</li> <li>Presence of sugar plantation and potential in agro products and irrigation</li> <li>Experiences learn thereof can be scaled up to central part of Ethiopia</li> </ul>
<ul> <li>3. Eastern SNNP</li> <li>Due to its coffee and fruits potential</li> <li>Experiences learn thereof can be scaled up to southern part of Ethiopia</li> </ul>
<ul> <li>4. Western Tigray</li> <li>Presence of sugar plantation and major producer of sesame</li> <li>Experience learn thereof can be scaled up to western lowland of Ethiopia</li> </ul>

#### Source: Ministry of Industry, February, 2015

The ongoing process is the identification of potential sites for the establishment of one Integrated Agro-Industrial Park within each of the four pilot AIGCs (see Map 4-6 overleaf).

#### Likely Impacts of AIGCs and IAIPs on Urbanisation

- Urban marketplaces for rural produce likely to expand: At the local level, the development of agro-processing industries will contribute to the expansion of a network of small-to medium sized urban centres in these areas such as Metema and Humera for sesame or Gimbi and Dilla for coffee. These urban centres will work as intermediate marketplaces along the trade routes from the production areas to the major export centres.
- Agro-processing opportunities will accelerate urbanisation: Small urban marketplaces are also favourable locations for the establishment of agro-processing industries. Currently, a very small fraction of Ethiopian cash crops is processed in Ethiopia, leading to low value-added exports. The integrated agro-industrial parks will accelerate the development of companies engaged in exporting value-added agricultural products.
- Export crop production will also accelerate urbanisation and provide finance to fund urban development: At the national level, the export-oriented cash crops being major foreign exchange earners, they will have an indirect impact on urbanisation through helping improve the country's capacity of financing urbanisation. They are also a strong incentive to developing high-quality transportation and storage infrastructure in order to improve the country's export capacity.



Map 4-6: Potential Sites for Pilot IAIPs

Source: Ministry of Industry, February, 2015

# 4.4.2 The Industry

Major projects in the industry include:

- The Industrial Zones and Special Economic Zones,
- The projects in the mining sector,
- The mega-projects in the energy sector.

## 4.4.2.1 The Industrial Zones (IZs) and Special Economic Zones (SEZs)

## There are currently two export-oriented Industrial Zones in operation in Ethiopia

- **Eastern Industrial Zone** (Phase 1, 233 ha) in Dukem, Oromia, about 37km south of Addis Ababa center. Developed by Jiang Su Qi Yuan Group (private investor from China). Construction of phase 2 on remaining 260 hectare is reported to have started.
- Bole Lemi I (156 ha), developed by GoE in Bole Sub-city, about 15km south-east of Addis Ababa center. The 20 sheds are now fully occupied by 12 tenants from Taiwan (George Shoe), Korea, India, China and Pakistan; of which 10 are in garment, and one each in footwear and gloves. 5 sheds are already in operation.
- Although not established as an IZ, the Ayka Addis factory, located in Alem Gena (15km SO of Addis Ababa center) is worth noting, as it is currently the biggest and most modern textile-garment factory in Ethiopia, employing about 8,000 workers and accounting for more than 50% of the country's total export revenue in the textile-

garment sector for the 2013-2014 season. The Ayka Addis factory is owned by Ayka, a Turkish group.

## Two other Industrial Zones are currently being developed by the GoE

- **Bole Lemi II**: located next to Bole Lemi I, it will be developed on 186 ha of land. The feasibility study is done. 15 sheds are planned.
- Kilinto IZ: located in Akaki-Kality Sub-city about 20km South of Addis Ababa center, it will be developed on a total of 308 ha of land. The feasibility study is done and the design preparation stage is underway. First development phase will be on 75 ha. Kilinto will be dedicated to a large array of industrial sectors, including agroprocessing, electronics, furniture, construction, etc.

Three other Industrial Zones are planned by the GoE but are currently at an earlier development stage

- **Dire-Dawa IZ**: 1,050 ha, part of the larger Dire Dawa SEZ project. The feasibility study was done by China Association of Development Zones.
- Kombolcha IZ (1,000 ha).
- Hawassa IZ (270 ha).<sup>41</sup>

In the longer term, the GoE also plans to develop industrial zones in the following urban centers

- Bahir Dar
- Gonder
- Mekele
- Jimma

The Consultant could not access details on these prospective IZs, e.g. about their planned areas (in ha).

## The Special Economic Zones (SEZs)

The Ministry of Industry is currently working to expand the planned industry zones in Dire Dawa, Kombolcha, Hawassa and Addis Ababa into full-fledged Special Economy Zones (SEZs). These SEZs would include free-trade zones, export processing zones, industrial parks, simplified customs procedures, in order to attract FDI and boost employment and production in export-oriented manufacturing sectors. In May 2014, Ethiopia signed a memorandum of understanding with the China Civil Engineering Construction Corporation, China Railway Engineering Corporation, China Communications Construction Company, and China to Overseas Construction Group Company to develop these four SEZs.

Due to its favorable position close to Djibouti port, **Dire Dawa would be the first SEZ** being implemented. In September, 2013, The Ministry of Industry signed an agreement with the

<sup>&</sup>lt;sup>41</sup> Source : the Ethiopian Investment Commission, http://www.investethiopia.gov.et/investment-opportunities/strategic-sectors/industry-zone-development

Chinese Association of Industry Zones for the SEZ in Dire Dawa. Pursuant to the agreement, the Association is currently drafting a feasibility study as well as a master plan for the future Dire Dawa SEZ. According to this master plan, the short-term construction of the SEZ would cover an area of 47 km<sup>2</sup> by 2030, and the medium-term construction would cover an area of 107 km<sup>2</sup> by 2045. The SEZ would extend to the West and North-West of Dire Dawa from Melka Jebdu to Shinile area along the railway corridor to Djibouti.<sup>42</sup> The government is currently drafting a special law for the SEZs.

A number of industrial zones are also planned/developed by private investors

- Ethio-China Light Manufacturing SEZ ("Huajian Shoe City"): to be developed on 138 ha in Jemo area, south end of Addis Ababa (Lebu Lafto). Land is already procured, designing stage underway.
- **Kingdom Linen Textile IZ**: would be developed on 30 ha in Bole Sub-city. The investor is Kingdom Group (Hong Kong) and is currently negotiating land & designing with the authorities.
- **Gaizo (Garment Industrial Zone)** is a Joint Venture between Ayka Group (Turkey) and the GoE. Area is not known. The IZ is to be developed in Jemo & Gulale areas South of Addis Ababa. Construction is to start in 2015. Ayka Group plans to establish about 50 Turkish export-oriented textile companies.
- Ethio-Turkish IZ. Developed by Akgun Group (Turkey) on a total of 1,300 ha (100 ha for Phase 1) in Sendafa, 35km NE of Addis Ababa. However, since September, 2014 the construction is currently suspended for environmental impact assessment. This is due to potential threat posed at the Legedadi Dam & Water Treatment Plant: the site is located in the catchment area of the Legedadi Dam which supplies clean drinking water to 50% of the AA residents.
- **George Shoe City**. This IZ is to be developed by George Shoe (Taiwan) on 50- 100 ha of land in Mojo.

# Likely Impacts of the IZs and SEZs on Urbanisation

International benchmark points to an **average job density of 200 jobs/ha** in labor-intensive, light-manufacturing industrial zones in developing or emerging countries.

- According to a recent Japanese study on a SEZ project in Myanmar, data available in Thailand show that the average number of employees in a labor-intensive factory in an industrial zone in Thailand is 200 people/ha.<sup>43</sup>
- Other examples of successful and fully-occupied industrial parks in developing countries such as Vietnam or Morocco show comparable job densities of around 200 workers per ha (see Table 4-10 below).

 <sup>&</sup>lt;sup>42</sup> Chinese Association of Industry Zones, *Spatial Plan on Dire Dawa Special Economic Zone*, December, 2013
 <sup>43</sup> " Japan Development Institute, *Study on the Myawaddy - Hpa-an SEZ PPP Project in the union of Myanmar*, Feb2014, p.S-3: According to data available in Thailand, the average number of employees in a labor-intensive factory in an industrial zone is 200 people/ha." http://www.meti.go.jp/meti\_lib/report/2014fy/E003820.pdf

Country	IZ	Area (ha)	Workforce	Job Density	Remarks
Morocco	Moghogha	120	22 000	183	This IZ is one of Northern Morocco' s major IZs and is specialized in Textile.
Vietnam	Bac Thang Long (Thang Long 1) Industrial Park	274	58 000	212	Located between Hanoi and Noibai International Airport, TLIP is one of Northern Vietnam's major IZs. It is home to 100 enterprises, including 94 Japanese companises such as Canon, Mitsubishi, Sumitomo.
Vietnam	Nomura Industrial Park	153	26 000	170	Date of operation: 1997 Nomura is the first foreign-invested industrial park and also the first industrial park invested by Japanese capital in Haiphong with high standardized infrastructure and advanced technology. The industrial park is mainly engaged in machinery manufacturing, precision engineering, component manufacturing, automobile and motorcycle spare parts, electric and electronic components, etc. By now, the industrial park has been fully occupied with 55 enterprises including 48 Japanese companies.

Sources: Consultant Research, 2015.

The World Bank provides similar figures in its analysis of the financial and economic impacts of the Bole Lemi Phase 2 and Kilinto Phase 1:

"Employment per factory: Investors set up in Bole Lemi I provide an accurate picture of the potential employment generation in the two zones supported by the project. We assume that employment per m2 of factory is about 0.2 employees per m2 (about 2,000 workers for an 11,000 sqm shed)."<sup>44</sup>

The total factory floor space of the 20 sheds in Bole Lemi I is 165,000 m<sup>2</sup>. Applying this ratio of 0.2 employees per m<sup>2</sup> gives a total employment generation potential of 30,000 workers in Bole Lemi I. This in turns implies a job density of 192 workers per hectare once the 156 ha of Bole Lemi I are fully occupied.

We will therefore assume an **average job density of 200 workers per hectare** in Ethiopia's export-oriented industrial zones once they are completed, operational and fully occupied.

## Likely Impacts on Urbanisation

In the short-to medium term, most of the industrial development will very likely occur within a 50km radius around Addis Ababa, as well as in a few secondary industrial centers, especially Dire Dawa, Hawassa and Kombolcha. As was highlighted in this section, the majority of the large-scale Industrial Zones that are currently being developed, whether private or government-owned, are located in the outskirts of the capital city, in places like Bole, Akaki, Legetafo, Alem Gena and Dukem. This is largely due to the fact that investors favour locations that are close to Ethiopia's major economic and political centre, with easy access to key logistics links and to a large labour pool.

<sup>&</sup>lt;sup>44</sup> World Bank, *Competitiveness and Job Creation Project Appraisal Document*, Report n° PAD615, April 18, 2014, p.93.

• When fully operational, these major industrial developments should have the capacity to create several hundreds of thousands of direct jobs. For instance, five of the largest planned IZs could create together up to 370 000 direct jobs (see Table 4-11). These figures are projections based on the total planned areas of these industrial zones, and on an average ratio of 200 jobs per hectare in the industrial zones once they are fully occupied. As a matter of comparison, there are currently an estimated 2.2 million workers in industrial parks in Vietnam, a country similar to Ethiopia in population size.<sup>45</sup>

IZ	Region	Locality	Total Planned Area (ha)	Projected Number of Workers	Major Sectors		
Bole Lemi I & II	Addis Ababa	Bole Sub-City (15-20km E of AA)	342	68 400	Leather & Footwear, Garment for export		
Kilinto	Addis Ababa	Akaki Kality Sub-City (about 20km SE of AA)	243	48 600	Pharmaceuticals, Food Processing, Construction, for both local & export		
Ethio-Turkish	Oromia	Legetafo (about 15km NE of AA)	640	128 000	Pharmaceuticals, Garment & Footwear, for export		
Eastern Industry Zone	Oromia	Dukem (32km SE of AA)	500	100 000	Garment, Footwear Food Processing, Steel, Construction, for both local & export		
Huajian "Shoe City"	Addis Ababa	Lafto Sub-City	138	27 600	Footwear for export		
Total			1 863	372 600			

Table 4-11: Projected Number of Workers in Five Major Industrial Developments

Source: MOI, 2015; Consultant; Other.

• These industrial developments will therefore generate new housing, transportation and urban service needs for the workers and their families. It is particularly important that most workers be able to find accommodation solutions close to their workplace, as well as collective means of transportation for commuting. Some private companies like Ayka or Huajian already operate their own bus fleets to transport employees between home and work, but local authorities should also anticipate and plan the creation of new bus lines connecting the industrial zones to the nearby densely populated areas

<sup>&</sup>lt;sup>45</sup> http://english.vietnamnet.vn/fms/society/119965/industrial-park-development-requires-housing-for-workers.html



Figure 4-18: Buses waiting outside the Ayka Addis factory in Alem Gena.

Source: Zacharias Abubeker, 2014

#### 4.4.2.2 The Mining Sector

Ethiopia's geological diversity means that the country has a wide range of minerals including base, precious and rare metals, gemstones, and industrial, construction and energy minerals. Exploration activities carried out so far have indicated many prospective occurrences of gold, platinum, base metals and rare metals in the greenstone belts. Deposits of industrial and construction minerals are also found throughout the country (e.g., potash, phosphate, soda ash, silica sand, feldspar, dolomite, marble, limestone, gypsum, graphite and mica).

The potential of mining extraction is not completely identified yet. The objective of GTP I and II is to cover 100% of the country's geological survey and develop mapping of main mineral potentials. As of 2010, 34 minerals areas had been identified.

Ethiopia aims to build and develop an essentially new economic sector--- the large-scale mineral sector. The current policy framework envisions the mineral sector to be the "backbone" of the industry by 2020-2023, with an increase in the contribution to the GDP from the current 1.1% to 10%, and a 10-fold increase in its contribution to foreign currency earnings.

In 2012/2013, the export of gold has become Ethiopia's second largest foreign currency earner next to coffee, contributing 23% to overall export earnings. Export of gold made up the largest proportion of minerals export, generating \$600 million, followed by gemstones and tantalum earning \$9.3 million and \$1.6 million (MoM).

#### The Metallic Minerals Potential

The regional distribution of metallic mineral resources can be divided into three distinct domains (see Map 4-7):

**DOMAIN 1: The Southern Domain (Guji & Borena Zones, Oromia).** The Southern Domain is found mainly in the **Guji and Borena Zones of Oromia region**, and includes the major Adola/Kenticha belt. The Adola Belt hosts various mineral resources:

- Major primary gold deposits in the Guji Zone of Oromia (Lega Dembi mine near Shakiso).
- The main Ethiopian gold placer deposits in Adola (Guji Zone, Oromia),
- The Kenticha tantalum mine and secondary nickel deposits (Guji Zone, Oromia),
- And the Hagere Mariam and the Arero greenstone regions in the Borena Zone of Oromia (gold, chrome, nickel, copper).

**DOMAIN 2: The Western Domain (Benishangul-Gumuz & Western Oromia).** Spreading across vast areas of Benishangul-Gumuz and western Oromia, this domain can be subdivided into four belts:

- The Asosa belt in Benishangul-Gumuz hosting primary gold deposits (e.g. Dul, Oda-Godere);
- The Yubdo platinum deposit (West Wellega, Oromia) and Meti-Tuludimtu platinum occurrences;
- The iron deposits of Bilikal, Chago, Gadma in West Wellega (Oromia), and base metals prospects (Abetselo, Kator);
- The Akobo greenstone regions (Gambela) are potential areas for platinum, gold, copper and nickel.



Map 4-7: The Three Major Domains for Metallic Minerals

Source: S. Tadesse, "Geology and mineral potential of Ethiopia", Journal of African Earth Sciences 36 (2003).

**DOMAIN 3:** The Northern Domain (Tigray). The northern domain is found in Tigray (extending northwards in Eritrea). It is composed of several meta-volcano sedimentary belts and sub-belts, hosting gold and base-metal occurrences (e.g., Adi Zeresenay, Au; Werri, cu; and Mariam Adi Destra, lead-zinc).

Significant metallic mineral sites located outside of these domains are scarce; they include the Melka Arba iron deposit (West Shewa, Oromia), the Chercher copper occurrence and the Enkafala manganese deposit in the Danakil depression. Other isolated gold deposits in Southern Ethiopia under investigation are known in Moyale greenstone regions, 200 km southwards & close to Moyale and the Kenyan border (e.g. Haramsam, Hasamte). The Haramsam and Hasamte area is located 50 km east of the town of Moyale.

#### Non-Metallic Minerals

Non-metallic minerals include soda ash extracted from lake Abijata & surrounding lakes, potash and salt in Dallol, Kaolin in southern Ethiopia, silica sand, quartz, feldspar, cement raw materials, dimension stones, gemstones and a large amount of construction minerals including marble, sand, gravel, scoria and aggregates for the construction industry. Mineral water, highland water and hot springs are also important non-metallic mineral resources in Ethiopia.

#### **Current Mining Activity in Ethiopia**

**Large-scale mining** is still virtually non-existent in Ethiopia. Currently there is only one operating large-scale mine: Midroc's Lega Dembi gold mine near Shakiso in the Guji Zone of Oromia Regional State. Lega Dembi opened in 1998 and has at an average produced some 4.5t:yr. In some two years' time, the operation will continue underground and also include the Sakaro deposit located right next to the mine. Nearby, there is also the state-owned Adola mine where alluvial gold has been mined for over half a century.

The state-owned Kenticha tantalum mine located in the Guji Zone of Oromia Regional State has been producing tantalum in the recent past. The production is currently on hold due to attempts to privatize the operation. Production is expected to continue in 2015.

Although not in operation yet, the potash mining project by Allana Potash is at an advanced stage of development. Located near the Dallol volcano in the Danakil depression (Afar Regional State), the current mine plan is for 1Mt/yr over 24 years. Allana Potash is planning to commence construction during the first half of 2015 and start-up production in the latter half of 2017.

Artisanal mining is extensive and primarily focused on gold. The gold is mined mostly from alluvial deposits in the south, west and north of the country, and is being mined by numerous artisanal and small-scale miners. Rock salt has also been mined for a long time in the Danakil depression through non-mechanised artisanal mining. In the recent past, there have been attempts to commence larger scale industrial production of salt in the area. Kaolin, silica sand, soda ash quartz and feldspar, are or have been mined through artisanal and small-scale mining.

The MoM estimates that up to 1 million people may to some extent be involved in artisanal mining activities. Artisanal and small-scale mining constitutes therefore a sizeable source of employment and may be an important livelihood for rural communities. It is also a significant economic sector and a possible vehicle for industrial development. However, its exact size

and characteristics remain poorly understood. The priority should therefore be to provide a better understanding of the sector, and to tailor measures that enable the sector to be better managed and controlled.<sup>46</sup>

## **Current Exploration Activities**

The issuing of mineral exploration licenses in Ethiopia has increased, in particular over the last 2-3 years (see Figure 4-19 below). There are currently about 200 issued exploration licenses registered at the Ministry of Mines, and the majority of these are for precious base metals.



Source: The World Bank Group & MoM, Strategic Assessment of the Ethiopian Mineral Sector, Final Report, July 2014

Besides Allana Potash's Dallol potash project (see above), only one exploration project has reached an advanced stage: namely KEFI Minerals Tulu Kapi gold project in Western Wollega, Oromia Regional State.<sup>47</sup> The project has been on hold during the second part of 2013 but new financing has recently provided for a continuation of exploration activities.<sup>48</sup>

As of mid-2014, nineteen companies were undertaking more or less advanced exploration across a total of twenty-eight licenses, but none of these projects have progressed far enough for mineral resources or reserves estimates to be established, apart from Tulu Kapi. The majority are exploring for gold and base metals in the northern, western and southern domains, one for iron ore in the Amhara region and two (part from Allana) for potash in the Danakil depression.<sup>49</sup>

<sup>&</sup>lt;sup>46</sup> The World Bank Group & MoM, *Strategic Assessment of the Ethiopian Mineral Sector*, Final Report, July 2014, p.5.

<sup>&</sup>lt;sup>47</sup> Ibid., p.23.

<sup>&</sup>lt;sup>48</sup> K. Bekele, "Nyota Minerals Farms Out Its Stake On Tulu Kapi Mine", The Reporter, 27 September 2014.

<sup>&</sup>lt;sup>49</sup> The World Bank Group & MoM, *Strategic Assessment of the Ethiopian Mineral Sector*, Final Report, July 2014, p.23.

# Likely Impacts of Mining Projects on Urbanisation

According to the recent Assessment of the Ethiopian Mineral Sector (a joint effort by the Ethiopia Ministry of Mines and the World Bank Group), **the Ethiopian mineral mining sector is unlikely to have yet developed into a large-scale industrial sector by 2035**, given that:

- There is currently only one operating large-scale mine in Ethiopia (Midroc's Lega Dembi gold mine),
- There are "very few advanced projects and relatively few serious greenfields projects in Ethiopia today" (p.28),
- "Few exploration projects actually lead to mine development". For example, over a recent 2-year period, 3.7% greenfield discoveries in Canada reached feasibility stage. Far fewer projects would survive all the way to the mine construction stage (p.28).
- "Mineral project development, from early exploration to the start of industrial-scale production usually takes 10-15 years or more, and it may even take some 5-10 years from the initial estimation of mineral resources undertaken during the exploration phase before a mine is commissioned." (p.17).

Furthermore, "mining is not labour intensive, compared to for example the manufacturing industry" (p.5). Thus, the report's most favourable scenario estimates that no more than 10,000 direct jobs could be created throughout Ethiopia in the mining sector by 2035 (see Table 4-12 below).

Table i. Estimation of economic impact (corporate tax and royalties) and employment based on development scenarios for gold, copper, tantalum and potash mining.					
Economic Impact (USD million)	2013	2018	2024	2030	2035
Conservative	54	99	104	64	64
Probable	54	201	322	282	372
Possible	54	201	480	440	738
Direct Employment Potential (Number)					
Conservative	<1300	<1400	<1400	<400	<400
Probable	<1301	<3000	<4300	<3400	<5900
Possible	<1302	<3001	<8000	<7000	<10,000

Table 4-12: Estimation of economic impact and employment in the mining sector

Source: The World Bank Group & MoM, Strategic Assessment of the Ethiopian Mineral Sector, Final Report, July 2014

The likely overall small impact of mineral mining on Ethiopian urbanisation during the next two decades is corroborated by the Lega Dembi gold mine case. Located in a low-density, sparsely populated area, the mine has been in operation since 1998 and is the only large-scale mine in Ethiopia. It employs around 1,200 persons, and about 2km south of the mine is the small town of Reji (1,740 inhabitants in 2007). See figure 4-20.



Figure 4-20: The Lega Dembi gold Mine and the small Reji town to the south

#### Source: Wikimapia, 2015

Details of the "Possible" scenario (the most favourable one) in the World Bank Assessment Report are as follows:

Figure 4-21: The	Possible scenario for mineral production over the next 20 years
	• Midroc operations (Lega Dembi) continue to produce gold at about 120,000 oz/yr for 2 years. After going underground Lega Dembi-Sakaro, with some resource extensions considered likely, produce 90,000 oz/yr for another 15 years.
	Artisanal gold production continues at current levels, about 8 t/yr.
	• Tulu Kapi, or another small gold deposit identified, starts producing 100,000 oz/a in 2018.
Possible	One other small gold deposit is identified, starts producing 100,000 oz/a each from 2023.
Will require	• A larger gold deposit is identified, starts producing 200,000 oz/a by 2023.
very strong	• Two small gold deposits are identified, start producing 100,000 oz/a each from 2033.
intensification of exploration activities.	• Tantalite ore production re-starts in 2015, about 75t/yr (in accordance with governmental plans) and remains at this level as the deposit is depleted and new deposits are identified.
	• Allana starts producing and exporting potash as planned, at 1 Mt/yr by mid to late 2017.
	• Another smaller potash operation starts producing in 2023 at 0.5 Mt/yr and increases production to 1 Mt/yr in 2033.
	• A VMS deposit is identified, starts producing gold (150,000 oz/yr) from 2023 and copper (80 kt/yr) from 2033.

Source: The World Bank Group & MoM, Strategic Assessment of the Ethiopian Mineral Sector, Final Report, July 2014

## 4.4.2.3 The Cement Industry

## **Existing Situation and Potential**

Ethiopia is well set up geologically for cement production and has large limestone reserves, estimated at 171 million tons - about 10% of the total volume of all sedimentary rocks in the country. Most of the cement plants are located in three areas, each corresponding to a major limestone deposit Basin (see Map 4-8 below):

- Dire Dawa (Hararghe and Ogaden Basin). The city of Dire Dawa is the historical centre of the Ethiopian cement industry and remains very important for the sector.
- A large area in North Shewa and West Shewa Zones of Oromia Region and in East Gojam Zone of Amhara region including Sululta, Mulo, Adda Berga, Kuyu, Wara Jarso and Dejen woredas. This area corresponds to the Abay/Blue Nile Basin (Derba-Muger Valley deposit, Dejen deposit), and is particularly attractive due to its relative proximity to Addis Ababa (between 70km to 200km).
- Mekelle in Tigray Region.

High quality limestone is also exposed in other parts of the Country, but these occurrences require further assessment of their potential utilization in various industries.



Map 4-8: Major Limestone Basins of Ethiopia

Source: Investment Opportunities in Limestone Resources Development In Ethiopia, Ministry of Mines & Energy, Geological Survey of Ethiopia, 2009

The three major cement producing areas are close to important urban and industrial centres (namely Addis Ababa, Dire Dawa and Mekele), which is an asset in terms of cement supply and transportation costs, but is also challenging in terms of large population exposure to pollution risks and environmental externalities. This is particularly true for Mekelle and Dire Dawa where major cement plants are located only a few kilometres away from the city centre (see Figure 4-22 below).



Figure 4-22: The three major cement plants in and around Dire Dawa

Source: Wikimapia, 2014

#### **On-going and Planned Developments**

Ethiopia has historically had low cement consumption, as low as 35kg/capita/yr. in recent years – very far behind the global average of 390kg/capita/yr<sup>50</sup>. Until recently, Ethiopia had only three major cement plants, and poor infrastructure had previously prevented the large limestone resources from being exploited more efficiently. However, the rapid economic growth that Ethiopia has enjoyed since 2004 is allowing the country to implement ambitious projects of new roads, dams, low-cost housing and public buildings that consume important quantities of cement.

In order to meet this growing demand for cement, the Government of Ethiopia has set very ambitious targets. The GTP I objectives for the cement industry are to fully satisfy local demand and to create capacity to supply cement to the export market (mainly neighbouring countries such as Djibouti, Sudan and South Sudan). To this end, the GTP I targets an increase in the country's total cement production capacity by a factor of ten in just 5 years, from 2.7 Mt in 2009/2010 to 27 Mt by 2014/2015. In 2012, the Government also issued a ban on cement imports as a measure to protect new and forthcoming domestic cement capacity. In 2011 Ethiopia imported around 1Mt of cement<sup>51</sup>.

<sup>&</sup>lt;sup>50</sup>The GTP I targets a very ambitious cement consumption of 300kg/capita/yr. by 2015.

<sup>&</sup>lt;sup>51</sup>http://www.bloomberg.com/news/2011-05-20/ethiopian-cement-plants-to-double-capacity-amid-construction-industry-boom.html

Consequently, there has been a very significant increase in cement capacity since the early 2000s. In 2013, the national cement production capacity reached 12.6 Mt up from 2.3 Mt in 2009, even exceeding domestic demand estimated at just 6 Mt in 2013.<sup>52</sup> This has been made possible through a number of upgrade projects in the existing plants, but also thanks to the construction of new private cement plants between 2007 and 2014.

								Installed		
				Name of			Production	Canacity	Domestic	Export
Name of Plant	Region	Locality	Location	Company	Nationality	Ownership	Launch vear	(Mt/vr)	Market	Markets
Dire Dawa Cement Plant	Dire Dawa	Dire Dawa	DD	National Cement Share Company	Ethiopia	Private	1938	0.2		
National Cement	Dire Dawa	Bajatu	South of DD	National Cement Share Company	Ethiopia	Private	2013	1.275		Djibouti, Somalia
Ture Dire Dawa Cement Plant	Dire Dawa	Melka Jebdu	8km W of DD	TURE PVT. LTD. CO	Ethiopia	Private	2013	0.5 / 1.5 ?	Eastern Ethiopia	Djibouti, Somalia
Derba MIDROC Cement (Main Plant)	Oromia	Derba	75km from AA	MIDROC Ethiopia Investment Group	Ethiopia	Private	2012	2.5		
Derba Mini Cement Plant	Oromia	Derba	75km from AA; next to Main Plant	MIDROC Ethiopia Investment Group	Ethiopia	Private		0.1	Yes	No
Dejen Mini Cement Plant	Amhara	Dejen	230km NW of AA, Eastern Gojjam Zone	MIDROC Ethiopia Investment Group	Ethiopia	Private		0.1	Yes	No
Messebo Cement Factory	Tigray	Mekele	7km N of Mekele	Endowment Fund for the Rehabilitation of Tigray (EFFORT)	Ethiopia	TPLF- affiliated endowed business conglomera te	2000	2.2		Sudan, Djibouti
Mugher Cement	Oromia	Mugher	40km W of AA	Mugher Cement Enterprise	Ethiopia	GoE	2007	2.3	The plant is targeting the state sector and real-estate projects	
Ethiopia East Cement	Oromia	Dukem	Eastern Industrial Zone	Ethiopia East Cement Share Company	China	Private	2011	0,5		
Huangshan Cement Plc	Oromia	Мојо	73km SE of AA, 4km from Mojo	Guangdong Chuanhui Technology Development Group Co. Ltd.	China	Private	2010	0,45		

Table 4-13: The Major Cement Plants in Ethiopia

#### Source: MOI 2014, Other

In 2014 there were an estimated 24 operating cement plants in Ethiopia<sup>53</sup> and more are expected to start production in the coming years. A recent trend is the arrival of multinational companies. This includes the cement giant Holcim, which is expected to build a plant in Gebre Guracha in the North Shoa Zone of Oromia Region, to exploit what is believed to be a large deposit of limestone. Other foreign companies planning to build cement plants are South Africa's PPC (Habesha Cement Plant near Holeta, expected to start production by the

<sup>&</sup>lt;sup>52</sup> Ecobank, *Middle Africa's cement sector: explosive growth*, 24 July 2014

<sup>&</sup>lt;sup>53</sup> M. Merhatsidk, "Market Uncertainties Pose Challenge to Cement Producers", Addis Fortune, 14 May 2014

end of 2015) and Nigeria's Dangote Group which plans to complete its plant in Mugher area (Adda Berga woreda, West Shewa zone, Oromia Region) by 2015.

As a result of all these recent developments, Ethiopia is now producing more cement than the domestic demand can absorb, even with the development of major projects like the Millennium Renaissance Dam, major city and road-building projects and a rapidly growing population. According to figures from Ecobank in Nigeria, Ethiopia now stands third after Nigeria and South Africa as sub-Saharan Africa's leading cement producer.<sup>54</sup> The current construction of new high-capacity cement plants by foreign companies is expected to further increase the cement production capacity of Ethiopia. Part of this surplus production could be exported to neighbouring countries.

#### Likely Impacts on Urbanisation

- At the national level, the recent increase in cement production will have very positive impacts on the country's capacity to meet the growing needs in housing and infrastructure that are associated with urbanisation.
- Ethiopia is expected to export surplus production to neighbouring countries, thereby generating new revenue sources that might help financing the high urbanisation costs.
- At the more local level, attention should be given to promoting measures aiming at mitigating the **pollution risks** and **environmental externalities** generated by the cement plants, particularly for those plants that are located in densely populated areas such as Dire Dawa and Mekelle.

#### 4.4.2.4 The Energy Sector

## The Major Projects in the Energy Sector

Several large-scale projects are currently being developed in the energy sector, particularly in the hydro-electricity sector (e.g. the Renaissance Dam). There is significant potential to develop other renewable energies such as geothermal and wind energy, and the Calub and Hilala gas fields in Somali Region are expected to go into production in 2018 (see Table 4-6 below).

#### Likely Impacts on Urbanisation

• At the local level, it is unlikely that most of these projects could have by themselves the capacity to trigger the development of significant urban settlements. For instance, once the construction of the Renaissance Dam is completed, the thousands of workers who are currently working on the construction site will most probably leave this very remote area to find work elsewhere. Only about 400 employees are expected to live permanently on-site in a village that will be built for them and their families. Besides, as the Dam will become a tourist attraction, a certain number of shops, cafes or small restaurants are expected to be established in the vicinity.

<sup>&</sup>lt;sup>54</sup> Ecobank, *Middle Africa's cement sector: explosive growth*, 24 July 2014

• At the national level, these mega-projects will most likely have positive impacts on urbanisation as they will tremendously increase the level of power supply to the urban areas. For instance, when completed the Renaissance Dam is expected to double the generation capacity of Ethiopia. This will greatly help develop the industrial sector whose current underdevelopment is partly explained by the numerous power shortages that it faces.

Project	Туре	Region	Expected Opening/	Ownership	Planned
			Commissioning Date		Production
					/Installed
					Capacity
Grand Ethiopian Banaissansa Dam	Dam + Hydroalactric Dowor Plant	Ponichangul	luly 2017 (Dom)		6,000 MW
		Gumuz	July 2017 (Dalli),	GoE	(max.
(GERD)	on Blue Nile River		2018 (power station)		planned)
		SNNPR	June 2015		
Gilgel Gibe III Dam	Dam + Hydroelectric Power Plant		Fully operational	GoE	1,870 MW
	on Omo River		2016		
Gilgel Gibe IV + Halele Werabesa	Dam + Hydroelectric Power Plant				
Hydroelectric Dams	on Omo River	SNNPR	?	GOE	2,000 MW
	Dam + Hydroelectric Power Plant	Oromia	Described (CTD	GoE	
Genale Dawa III Dam	on Genale River		By end of GTP		254 IVIW
					100 MW by
		Oromia	2016 (1st Phase)	PPA between	2016
	Geothermal Energy			Reykjavik	500 MW by
Corbetti Geothermal Power				Geothermal &	2020
				EEPCO	1,000 MW
					by 2028
					2.0.41
Calub and Hilala Natural Gas &	Gas & Oil Reserves Exploration & Exploitation	Somali	2010	Chinese firm Poly	3 IVITONS
Oil Fields + Pipelines			2018	GCL Petroleum	LNG per
				Investment Ltd	year

Table 4-14: Major Projects in the Energy Sector

Source: MoWE, 2014

# 4.4.3 The Tourism Sector

## **Existing Situation and Potential**

Ethiopia is well-positioned to leverage its vast tourism potential through integrated tourism development.<sup>55</sup>The potential for job creation, economic development and poverty reduction is promising. According to the World Travel & Tourism Council,<sup>56</sup> Ethiopia's travel & tourism industry generated 985,500 jobs directly in 2013 (3.8% of total employment). This includes employment by hotels, travel agents, airlines and other passenger transportation services (excluding commuter services). It also includes, for example, the activities of the restaurant and leisure industries directly supported by tourists.

Ethiopia's comparative advantage as a tourism destination is based on offering a safe, unspoiled and relatively unexplored "Africa in one country" experience, with Addis Ababa serving as a diplomatic capital and regional hub for air transport, while the country itself offers attractive complementarities with neighbouring and well-marketed destinations such as

<sup>&</sup>lt;sup>55</sup> The World Bank, Ethiopia's Tourism Sector: Strategic Paths to Competitiveness and Job Creation, Oct 2012.

<sup>&</sup>lt;sup>56</sup> World Travel & Tourism Council, *Travel & Tourism, Economic Impact 2014, Ethiopia*.

Kenya and Tanzania. Ethiopia's tourism sector is growing from a low base of a minimal 1% share of Africa's tourism market,<sup>57</sup> but it continues to underperform despite its potential.

Ethiopia's National Growth and Transformation Plan (GTP I) 2010-2015 has set ambitious targets for the tourism sector, such as a two-fold increase in tourism arrivals from about 500,000 in 2010 to 1 million, and a twelve-fold increase in tourists' expenditures, from US\$250 million in 2010 to US\$3 billion by 2015. If GTP I targets are met, the tourism sector could generate employment for about 1.8 million people by 2015.58



Source: MoCT: 2014

#### **Tourism Policies**

Ethiopia has established solid institutional bases for the development of the tourism sector. This work has been built on Prime Minister Zenawi's guiding statement to transform the tourism sector into a "pivotal component of [Ethiopia's] economic development." The Ministry of Tourism was established in 2005 and the National Tourism Development Policy (NTDP) was approved in 2009. However, it still lacks a National Tourism Strategy that can guide the implementation of the NTDP.

The new Tourism Development Policy adopted by the Council of Ministers in August 2009 establishes the legal framework for the development of the tourism sector in Ethiopia and will be the main legal document that will guide its growth trajectory, alongside the GTP I. Complementary policies-for example, the Cultural Policy (1995) and the Wildlife Development Conservation and Utilization Policy and Strategy (2005) —will additionally need to be taken into account. Though these legal instruments integrate tourism in a very limited way, if at all, they must nonetheless be considered when developing specific sub-sectors, such as eco-tourism and cultural tourism.

<sup>&</sup>lt;sup>57</sup> Close competitors such as Kenya and Tanzania claim 4% and 2% of the same share respectively. By contrast, South Africa has a 32% share.

The World Bank, Ethiopia's Tourism Sector: Strategic Paths to Competitiveness and Job Creation, Oct 2012.

The vision of Ethiopia's National Tourism Development Policy is "To see Ethiopia's tourism development led responsibly and sustainably and contributing its share to the development of the country by aligning itself with poverty elimination." The new Policy sets the sector's general objectives, placing an emphasis on tourism's potential in terms of growth, employment generation (particularly for women and youth), foreign exchange earnings, and image building for the country. It also stresses the importance of achieving tourism growth sustainably, in alignment with other national development policies, and with broad participation by the different stakeholders.

In order to align the development of the sector with the GTP, MoCT has recently developed a five-year Culture and Tourism Growth and Transformation Tourism Plan (2010-2015). This document is a commendable planning effort, not only because it tries to integrate culture and tourism into one common plan for the first time, but also because it integrates GTP I targets into the national sector plan. In addition to this, MoCT is currently working on the integration and alignment of regional tourism plans with its national plan.

#### Ethiopia's Major Tourism Assets

One of the clear comparative advantages of Ethiopia as a tourism destination is its **interesting mix of cultural and nature-based tourism resources** (see Map 4-9). This highlights the potential for Ethiopia to build its tourism sector to offer a diversified set of products and to capitalize on the complementarities between cultural and nature-based resources, a critical factor for differentiating itself from competitors.

The defining characteristics of Ethiopia's main tourism offerings are:

- Heritage tourism: Ethiopia's cultural heritage tourism resources contribute to the uniqueness of Ethiopia as a tourism destination. Ethiopia has ten World Heritage Sites (including both natural and cultural sites), which is more than any other country in Africa (e.g. the town of Aksum, the centre of the 1st-7th century AD Aksumite Empire, and the medieval capital of Lalibela, with its monolithic rock-hewn churches carved below ground level). Ethiopia's cultural heritage resources are concentrated in the northern areas of the country. All the main tourism sites are accessible by air and are served by Ethiopian Airlines.
- Cultural tourism: Ethiopian ethnic groups are rich and varied, with approximately 80 different languages. Ethiopia is also rich in intangible cultural and religious heritage (e.g. Christian Orthodox festivals such as Timkat (Epiphany) in Gondar, Meskel, and Fasika (Easter) in Lalibela, and Muslim pilgirmages such as Sheikh Hussein, attract Ethiopians, pilgrims, and tourists alike). Many cultural tourism assets remain unexplored avenues for tourism development.
- **Nature-based tourism**: Ethiopia's size and location imply a rich variety of geography and climate. Nature-based tourism offerings and opportunities are dispersed throughout the country (e.g. there are mountains for trekking (in particular Simien and Bale Mountains), lakes of the Rift Valley for resort-like accommodations and waterbased activities or bird watching, deserts to explore in the East, and the wetlands and floodplains of Gambella National Park).
- **Conference and business tourism**: Ethiopia's position as a regional air transport hub and as a centre for regional development and diplomatic institutions such as the United Nations Economic Commission for Africa (UNECA) and the African Union (AU)

offers opportunities to capitalize on Addis Ababa as a site for meetings, incentives, conventions and exhibitions, or MICE-related travel. In the same way, Addis offers opportunities to develop high-quality ancillary services, such as spas and entertaining facilities, creative industry products, crafts, and one- to two-day excursions to nearby satellite sites. Despite this potential, Addis was ranked only 14<sup>th</sup> among Africa's cities in 2013 when it comes to attracting MICE tourism (source: ICCA 2013 Statistics Report, Country & City Rankings.). This is down from 6<sup>th</sup> in 2011. Future mega-conference events should offer important opportunities to further develop and adequately plan this tourism segment.

Besides these, other promising niche products include core cultural-heritage tourism, community-based tourism, sports tourism (marathon), paleontological tourism, bird watching tourism, agro-tourism, and religious tourism, among others, most of them still unexplored.

## Tourism Infrastructure

Ethiopia is considered one of the Sub-Saharan African countries with an attractive system of incentives for the hospitality industry. The country, however, lacks bed capacity. In most of Ethiopia's tourist sites, there is a wide gap between the poor lodging capacity and the huge tourism potential. According to the 2014 report of the Ministry of Culture and Tourism, there are only 595 hotels in Ethiopia with a lodging capacity of 25,000 beds. In particular there is limited lodging capacity in protected areas; Omo National Park can provide only around 175 beds with camping facilities, while only three of the country's national parks (Awash, Simien, and Bale) have lodging capacity. It is also worth noting that 54% of the investment on hotels and restaurants are concentrated in the capital city of Addis Ababa (see Table 4-15).

One of the major assets of the Ethiopian tourism sector is that all the main tourist sites are accessible by air and are served by Ethiopian Airlines. It has a good safety record and was voted as the best airlines in Africa. Several international air carriers like Egypt Air, Emirates, Dubai, Gulf Air, Lufthansa, Turkish, Kenya, Qatar, Saudi, Sudan and Yemen airways are operating in Ethiopia.

Region	No of hotels	No. rooms	No. Beds		
Addis Ababa	128	5,987	7,778		
Amahara	97	3,189	4,23		
Afar	16	226	256		
Benshangul Gumuz	17	277	285		
Diredawa	22	652	793		
Gambella	4	61	85		
Harari	46	838	892		
SNNPR	94	2,862	3,277		
Oromiya	105	3,94	5,071		
Somale	14	302	346		
Tigray	52	1,664	1,969		
Total	595	19,998	24,982		

Table 4-15: Tourism Accommodation

Source: MoCT, 2014

Map 4-9: Major Tourist Sites and Potentials



Source: Ministry of Culture & Tourism, 2014

## Likely Impacts on Urbanisation

**Tourism is already an important job provider in urban areas**. According to CSA data, tourism employment (hotels and restaurants) contributes to 8% of urban employment. This is much more than other labour-intensive and export-oriented economic sectors such as leather or floriculture which account for 0.4% and 0.8% of urban employment, respectively. However, the potential for job creation in the tourism industry is still largely untapped.



Figure 4-24: Urban Employment in Hotels & Restaurants, Leather and Floriculture, 2011

Source: CSA for hotels & restaurants and leather sectors, and WB for floriculture, 2011

One of the major reasons why the Ethiopian tourism sector is so underdeveloped despite its huge potential is the overall low level of tourism infrastructure. As long as this issue of underinvestment in tourism infrastructure is not taken seriously, the impact of the tourism sector on urbanisation is likely to remain modest. The international context is particularly attractive for tourism development in light of the global increase in tourism activity (about 7% per year). African countries have only a 3% share of the global tourism market but can attract quickly large tourism development if stability, security, quality of infrastructure and services are in place.

In order to cope with the rapid growth of tourism activity in Ethiopia, related to both foreign and local tourism, it is necessary to upgrade the facilities and capacities (hotels, guesthouses, lodges, restaurants etc.), the quality of services (tourism agencies, international marketing) and of the infrastructures (road system, airports). This will have a positive effect on areas in the Northern part of the country (Amhara and Tigray) and offer other economic development opportunities for workers and investments. New sites can be identified (e.g. monuments; new natural parks etc.). Buffer zones and protection policies for landscape, biodiversity, archaeology, historical heritage, and urban heritage have to be devised and implemented.

# 4.5 Map of Ethiopia's Major Economic Resources and Potential

Map 4-10 is a synthetic map of Ethiopia's major economic resources and potentials. The background layer shows the fundamental distinction between Ethiopia's two major agro ecological areas/ livelihood systems:

- The pastoral and agro pastoral areas (in orange) which cover the greatest parts of the east and far south of the country : namely almost all of the Afar and Somali Regions, and parts of Oromia, SNNP and Gambella Regions,
- The cropping areas (in light green), which cover the entirety of the Amhara, Tigray and Benishangul-Gumuz Regions, and the majority of Oromia, SNNP and Gambella Regions.

It is a faithful though slightly simplified version of the map entitled "Livelihood Zone Types" as shown in page 8 of USAID's "An Atlas of Ethiopian Livelihoods" (2011).

The cropping areas with high potential and/or surplus production are in darker green. They cover the Arsi-Bale wheat belt as well as large parts of West Shewa and East Shewa in Central Oromia; the northern part of Guji Zone in Southern Oromia; the greatest parts of Western Oromia, Western SNNP, Benishangul-Gumuz and Gambella; large parts of Agew Awi, Gojam and Lake Tana area in Amhara Region; the Raya Valley in Southern Tigray; and Wabi Shebele in Somali Region.

This work was made by using data on soil types, rainfall patterns, agro ecological zones, irrigation potential, rural densities, average size of landholdings, and information related to the Productive Safety Nets Programme. This data was also cross-checked with the work undertaken by the USAID funded Livelihoods Integration Unit (LIU) within MoA, which has identified 175 livelihood zones in rural Ethiopia and has conducted extensive fieldwork to gather information on each of these livelihood zones.

The map also contains data on other economic resources, potentials and projects:

- The major cash crop areas (coffee, sesame, chat, cut flower),
- The Agricultural Investment Land (for large-scale commercial farming),
- The Sugar Factories (existing and under development)
- The major mining potentials,
- The major tourism sites,
- The major cement plants,

:

• The urban areas with existing or planned Industrial Zones/SEZs.

# 4.6 Concluding Remarks and Findings

Ethiopia is still very much an agrarian economy. Agriculture accounts for more than 40% of GDP and 73% of the employed population. 85% of the country's jobs are found in rural areas in 2013. Urban employment accounts for only 15% of total employment nationwide, but it has been growing more than twice faster than rural employment between 2005 and 2013. However, given the overarching dominance of rural employment, most jobs are still being created in rural areas.

Map 4-10: Map of Major Economic Resources & Potentials in Ethiopia



Sources: MoA 2014; MoI 2015; Sugar Corporation 2014; AIA 2015; ECX 2014; USAID 2011; MoM 2014; MoCT 2014; Others.

# SWOT Analysis of the Economy

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A large supply of potential and trainable workforce for manufacturing industries Rising level of education Access to a state-of-the-art container port in Djibouti,	eaknesses Overall low productivity of smallholder agriculture Chronic food insecurity in large areas of the country (Afar & Somali pastoral lowlands, Northern Amhara & Central Tigray, Wolaita) Narrow industrial base Low productivity in the manufacturing sector Lack of raw materials for textile & leather industries leading to heavy reliance on import Reliance on a small number of commodities
Middle-East, Africa), Duty-free, quota-free access to the EU & US markets (AGOA, EBA) Political stability Addis-Ababa, diplomatic capital of Africa A strong political will to foster rapid economic development	A high dependency on the single port of Djibouti and high port tariffs Poor trade logistics & transport infrastructure Landlocked country Poor access to industrial land, finance, and skills, particularly affecting smaller firms in the private sector.
<ul> <li>pportunities</li> <li>Rising industrial wages in China &amp; SEA, leading to migration of labour-intensive production from China &amp; SE Asia to low-wage countries such as Ethiopia</li> <li>Improvement of trade logistics through the ongoing transport infrastructure projects</li> <li>Comparative advantages in the natural resource industries (agriculture, livestock, low cost energy), still largely untapped</li> <li>Vast potential for developing strong domestic input-supplying sectors such as cotton &amp; leather for the textile/garment &amp; footwear industries.</li> <li>Vast array of tourism resources (nature-based, cultural, business)</li> <li>Increasing FDI inflows in manufacturing, agro industry, mining, energy</li> </ul>	Increased vulnerability to Climate Change (changes in rainfall patterns, droughts) Loss of soil fertility and increased soil erosion in many agricultural areas These could lead to persistence of food insecurity & decreasing water availability in large areas of the country (rural & urban) This could also lead to uncontrolled rural- urban migrations Persistence of political insecurity in neighbouring countries(South Sudan, Somalia Mismanaged developments in large-scale commercial agriculture & extractive industries could lead to poor trade-offs between short- terms economic gains and long-term socio- environmental losses.
Input-supplying sectors such as cotton & leather for the textile/garment & footwear industries. Vast array of tourism resources (nature-based, cultural, business) Increasing FDI inflows in manufacturing, agro industry, mining, energy	Mismanaged developments in larg commercial agriculture & extractiv could lead to poor trade-offs betwe terms economic gains and long-te environmental losses.

In urban areas, the service sector is the major source of employment, accounting for 62% of total urban jobs. The industrial sector comes next with 24% of urban jobs, of which 14% are in the manufacturing sub-sector.

Among the major developments that are expected to have a significant impact on Ethiopia's urbanisation process are

The developments that will occur in already urbanized areas such as the large-scale, export-oriented industrial zones and special economic zones which are currently in development or being planned in the short-to-middle term. In a first phase (up to 2025), these industrial developments are expected to concentrate in a limited number of urban areas located along the major logistics corridors, namely: the Greater Addis, Dire Dawa, Kombolcha, Hawassa and Mekele. They will have the potential to create several hundreds of thousands of new urban jobs, mainly in light manufacturing such as textile and garment, for an increasingly well-trained young workforce. After 2025, new industrial developments could expand to other urban areas throughout the country as transport infrastructure and education improve.

The mega-projects that are under development or planned in rural areas, such as: the sugar factories, the commercial farms, the agro-industrial parks, the hydropower projects, the mining projects. The impact of these projects on urbanization is generally more difficult to assess. Where labour-intensive activities are involved (as with the sugar factories), the potential to create new urban settlements is significant. However, other factors such as geographical remoteness can constrain these potentials. Besides, there can be a huge gap between the contribution of mega-projects to economic growth and their potential of job creation. For instance, the Grand Renaissance Dam is expected to double the generation capacity of Ethiopia. This will greatly help develop the country's industrial sector, but will only create a limited number of direct jobs on site.
# 5 Infrastructure



*Figure5-1: Infrastructures in Ethiopia* (Source: FDRE Ministry of Transport)

# 5.1 Introduction

The development of transport infrastructure and services is essential to economic growth, human development and welfare. The presence of adequate, reliable and efficient transportation systems helps reduce travel time and costs associated with the movement of goods and people, thereby facilitating the access to basic needs and services. On the contrary, inadequate transportation systems hinder a country's ability to optimally utilize its resource, supply basic services, participate in trading activities (both nationally and internationally), support and integrate the various sectors of its economy and facilitates the

urbanisation process. It also plays a key role in the integration of various regions within the country, thus making it a key input for a balanced territorial development.

At present, the transport sector in the country comprises:

- A limited although expanding road network;
- One of Africa's top international air-carriers, Ethiopia Airlines
- A wide network of domestic and international airports including one regional hub (i.e. Addis Ababa Bole International Airport);
- A national merchant marine;
- Emerging dry ports strategically located on the major import-export corridors.

Rail transport is virtually non-existent but the sub-sector is currently being revitalised. Pipeline infrastructure is also lacking and water transportation is limited to traditional transportation modes on lakes and on the sole navigable river of the country, i.e. Baro River. The development of various transport solutions is thus crucial but at the same extremely challenging due to the country's size, topographic constraints and dispersed nature of human settlement. The following sections present a review of the current status as well as the identified challenges and opportunities in the various transport sub-sectors of the country.

Energy and ICT infrastructure are also included in this chapter. Both are critical to the basic functioning of cities and offer the opportunity to address the urbanisation challenges. For instance, ICT have the potential to improve the efficiency in the delivery of services and urban productivity, access to healthcare, education and other services. The demand for energy is likely to increase as a result of growing urbanisation

# 5.2 Transport sector

## 5.2.1 Current status of the Ethiopia's transport sector

## 5.2.1.1 Airports and air transport

Air transport plays a crucial role in the context of a landlocked and topographically constrained country such as Ethiopia. Air transport facilitates access to remote areas and significantly reduces transit journeys, particularly in the case of Ethiopia where the road network is sparse and road condition remains a major challenge.

Airports and air transport play a crucial role in supporting the country's economic growth: For instance, they have been instrumental in supporting the growing tourism industry in the northern part of Ethiopia, along the historic tourism route. Air cargo is also critical to Ethiopia's key export trades such as perishables (e.g. meat products and flowers) as well as goods of high unit value (e.g. gold).

Also significant is the sector's contribution to tax revenues and job creation supported mainly by the activities of the national flag carrier, i.e. Ethiopian Airlines. Over the years, the company, which has developed an extensive network across the continent and has a good safety record, has become one of Africa's top international carriers, thus making Ethiopia a regional leader in air transportation. Moreover, the Airline is a good example of an efficientlyrun and profitable state-owned company. Note that the Ethiopian aviation industry is highly regulated: Ethiopian Airlines is the sole operator authorised to provide scheduled domestic passenger flights and private operators only provide non-schedule (or chartered) flights.

#### International and domestic airports

At present, there are 18 airports operating in the country, out of which 4 are international airports: Addis Ababa Bole International Airport as well as Dire Dawa, Mekele and Bahir Dar Airports. The domestic airports include Arba Minch, Asosa, Axum, Gambella, Gondar, Gode, Humera, Jijiga, Jimma, Kebri Dehar, Lalibela, Semera, Shire and Shilavo. They are all managed by Ethiopian Airports Enterprise (EAE). In addition to this large network, the country is said to have over 30 grass or gravel surfaced feeder airports which could potentially be upgraded.

The international airports are all equipped with adequate customs and immigration facilities as well as standardized cargo terminals and cooling systems for handling perishable goods. However, only airports at Addis Ababa and Dire Dawa have scheduled international flights; international flights from and to Dire Dawa are limited to Djibouti. Some of the newly developed airports include Shire, Semera (linked with the mining sector, i.e. potash, and tourism), Robe (linked with tourism in the Bale Mountains) and Kebri Dar (linked with pilgrimage tourism in Somali region) airports.

The success of Ethiopian Airlines, which serves 83 international destinations, has contributed to the emergence of Addis Ababa's Bole International Airport as a regional air transport hub. The airport is located 8km south-east of the city, at an elevation of 2,325 m, making it one of the highest airports in the world. There is also a second airport located in the south-west of the city, i.e. Lideta Airport, but it is currently out of use.

Bole airport's infrastructure includes a runway of 3,800 meter long by 45 m wide and with 7.5 m shoulders and 5 taxiways. It is indisputably Ethiopia's busiest airport and ranks among the three major hubs in Sub-Saharan Africa (with Nairobi and Johannesburg) on which intercontinental traffic heavily relies. The airport has experienced appreciable growth in traffic over the years, with traffic growing by22% per annum. In order to accommodate this increase, several expansion projects have been carried out in the last decades. The airport first underwent an expansion in 2003, with the construction of a new international passenger terminal. As a result, capacity was increased by twelve-fold from 500,000 to 6.5 million passengers annually in the current situation. The original terminal, built in 1962, is now entirely dedicated to domestic operations

In December 2010, the EAE announced another expansion project which included:

- Upgrading the runway and expanding the taxiway;
- Expanding the aircraft parking capacity from 19 to 44 in order to accommodate heavier aircraft such as Boeing 747 and Boeing 777;
- Construction of a new state-of-the-art cargo terminal with a total cargo-handling capacity of 1.2 million tons annually;
- A cold storage which has the capacity of handling 4 cargo flights at one time has been inaugurated, contributing significantly to the growing exports of perishable goods.

The 2003 expansion project was undertaken with the assumption that the airport would be able to accommodate the anticipated traffic increases until 2017. However, the airport

reached its maximum capacity as early as 2010 and plans for the construction of a new airport outside of the city boundaries has become necessary.

## Airport traffic trends

Table 5-1 presents data on commercial passenger traffic handled across all Ethiopian airports.

Air traffic*	2011	2012	2012 2013		<b>2013/2012</b> (% change)
Aircraft movements	65278	64 768	72 170	-0.8%	11.43%
Passengers (No)	5 725 670	6 389 766	7 088 418	11.6%	10.9%
Domestic traffic	1 161 759	1 335 964	1 236 952	15.0%	-7.4%
International traffic	4 563 911	5 053 802	5 851 466	10.7%	15.8%
Total cargo carried (in tonnes)	135 313	146 540	136 042	8.3%	-7.2%
Domestic traffic	1 386	2 348	2 623	69.4%	11.7%
International traffic	133 927	144 192	133 419	7.7%	-7.5%
Total mail (in kg)	598 799	254 625	184 346	-57.5%	-27.6%
Domestic traffic	34 934	45 625	109 943	30.6%	141.0%
International traffic	563 865	209 000	74 402	-62.9%	-64.4%

Table 5-1: Total movement of aircraft, passenger, freight and mail. Years 2011-2013

Source: Ethiopian Airports Enterprise (EAE) 2014

In 2013, aircraft movements across all Ethiopian airports reached 72,170, registering an 11.43% increase over the previous year. Ethiopian airports handled over 7.1 million passengers, compared with 6.4 million passengers in the previous year, reflecting an annual increase of 10.9%. The overall increase is due to international traffic (+15.8%), while the domestic market, which accounted for 17.5% of total air passenger traffic, dropped by 7.4%. Total cargo traffic recorded was 136,000 tons; a 7.2% reduction in comparison with 2012.

The Table 5-2 overleaf presents data on commercial air passenger traffic handled by domestic and international airports. Bole International airport handled the lion share of passenger traffic (88%), with passenger volume exceeding 6.2 million in 2013. Moreover, air traffic at other airports in the country is found to be very low. This is consistent with the fact that, according to EAE, many domestic airports operate on a deficit. The low traffic levels could be explained by various reasons such as low per capita income, high tariffs as well as limited private sector participation. Statistics on the volume of air cargo handled by all domestic and international airports in 2012 are shown in the Table 5-3.

Over the last decade, aircraft traffic has been steadily increasing at Bole International Airport, as shown in the table below. Overall, commercial aircraft movements increased by 11.7% on average between 2002 and 2013. In 2013, the number of aircraft movements reached 60,526, which represents a 12.6% increase over the previous year (see Figure 5-2).

Aireant		<u> </u>	Passenger (No.)	,
Airport	A/C -	Disembarked	Embarked	Total
Addis Ababa	60 526	2 993 991	3 258 384	6 252 375
Mekele	3 162	93 422	93 004	186 426
Bahir Dar	2 163	68 927	66 062	134 989
Dire Dawa	4 003	51 636	51 055	102 691
Gondar	2 268	46 560	47 006	93 566
Axum	1 786	40 004	39 366	79 370
Lalibella	1 914	30 648	33 410	64 058
Jijiga	1 604	21 258	22 630	43 888
Gode	1 452	14 487	14 263	28 750
Gambella	462	12 001	12 212	24 213
Asosa	700	10 740	11 096	21 836
Jimma	460	13 148	7 356	20 504
Arba Minch	364	10 133	5 771	15 904
Shire	386	7 126	7 101	14 227
Humera**	222	2 567	2 987	5 554
Robe (Goba)*	26	39	28	67
Total	81 498	3 416 687	3 671 731	7 088 418

Table 5-2: Passenger traffic (international and domestic) across all airports, 2013.

Source: Ethiopian Airports Enterprise (EAE) 2014



# Figure 5-2: Ethiopian Airlines domestic route network

Source: Ethiopian Airlines, 2015

Airport	A/C Mov't	Freight (tons)	Mail (tons)				
Addis Ababa	53 730	144 154	209				
Mekele	2 640	4	12				
Bahir Dar	1 676	2	6				
Dire Dawa	806	38	0.05				
Gondar	2 234	-	-				
Axum	1 652	0.84	4.31				
Lalibella	1 856	0.01	0.33				
Jijiga	1 778	5.32	7.03				
Gode	1 368	858.21	-				
Gambella	440	1.28	-				
Asosa	432	58.50	2.10				
Jimma	324	0.81	1.42				
Arba Minch	334	-	-				
Shire	386	-	-				
Humera**	196	-	-				
Robe(Goba)*	38	-	-				
Total	69 890	145 123	243				

Table 5-3: Cargo traffic handled across Ethiopian airports. 2012

Source: Ethiopian Airports Enterprise (EAE)2014



Figure 5-3: Commercial aircraft movements at Addis Ababa Bole International Airport.

Overall, passenger volumes recorded a positive trend over the last decade: the total number of passenger increased on average by 15.9% annually between 2002 and 2013. International passenger traffic is the fastest growing sector (17.5% p.a. on average during the same period) while the domestic market grew by 4.6% on average per year during the same period. The number of passengers exceeded the 1 million and 2 million threshold in 2002 and 2006 respectively. Passenger volumes reached a new high in 2013, with the numbers exceeding 6.2 million for the first time at Bole International Airport, representing a 10.6 % increase when compared with 5.6 million passengers recorded the previous year. The increase was mainly due to international passenger traffic (+15.8%), whereas domestic passenger traffic declined sharply (- 32.7%).



Source: Ethiopian Airports Enterprise 2014

Overall, cargo traffic at Bole International airport has been growing at about 18 % per year between 2002 and 2013. A sharp increase (+52%) was recorded in 2006. In 2013, the total air cargo recorded was 133 thousand tons of cargo, which is 7.4% down from the previous year. The rise is mainly driven by international cargo, which accounted for all cargo traffic handled by the airport in 2013. Indeed, domestic freight has dropped over the last few years, going from 28.5 million tons in 2009 to 2.2 million and 450 thousand tons in 2010 and 2011 respectively (there is no data on 2012 and 2013).

Source: Ethiopian Airports Enterprise 2014

Figure 5-5: Cargo traffic at Addis Ababa Bole International Airport. Years 2002-2013.



Source: Ethiopian Airports Enterprise 2014

Ethiopian Cargo currently operates dedicated freighter services to 26 cargo destinations in Africa, the Middle East, Asia and Europe.





Source: Ethiopian Airlines, 2015

## 5.2.1.2 Road infrastructure and transport

The significance of road development for economic growth and poverty alleviation has long been recognized. A road network providing a broad and permanent coverage of the territory not only has direct benefits linked with reduced travel times and vehicle operating costs but also various indirect and induced benefits. Road development opens up new areas of economic activities, increases agricultural production and revitalizes trading activities. Compared with other modes, it has the unique opportunity of providing door-to-door services for both passengers and freight. In Ethiopia, road is crucial as it is the dominant mode of transport, accounting for over 90% of freight and passengers movements.

## Current status of the road network

The organisation of the road sector in Ethiopia reflects the decentralized structure of government. The Ethiopian Roads Authority (ERA) is charged for planning and programming the Federal network whereas Regional/ Rural Road Authorities and Woredas are responsible for the rest of the network. The Federal Network represents nearly 40% of the total network.

Launched in 1997, the Road Sector Development Program (RSDP) sets the general framework for road investments as well as sector and institutional reforms. The RSDP is formulated in consistency with the country's overall economic development policies. It is important to note that the general objectives of the RSDP are in line with the objective of a balanced development of the Country: "Provide better road infrastructure to connect people to better opportunities and places and support the socio-economic development of the country" (<sup>59</sup>). The specific objectives of the RSDP are:

- Improving transport operating efficiency and reducing road transport costs for both freight and passengers so as to encourage production, distribution and export.
- Providing access to rural, other neglected and food deficit areas to:
  - $\circ$   $\;$  Support efficient production, exchange and distribution throughout the country.
  - Exploit the vast natural resources of Ethiopia, which are unexploited.
- Developing institutional capacity of the road sub-sector at central and regional levels.

The RSDP is implemented by various administrative bodies: Ethiopian Road Authority, Regional / Rural Road Authority, Woreda road desks and Municipalities. The RSDP is now an element of the GTP I. As shown below, the programme has been carried out in four successive phases since its launch in 1997 and the current programme, i.e. RSDP IV, covers the July 2010 - June 2015 period:

Table 5-4: RSDP realization: new roads, rehabilitation and periodic maintenance (km)						
Period Planned Realize						
RSDP I	July 1997 – June 2002	8908	8709			
RSDP II	July 2002 –	8486	12006			

<sup>&</sup>lt;sup>59</sup> - ERA, 2009, Towards Sustainable Road Sector: ERA-Strategic Plan, p.34

Egis International in association with IAU-IdF & Urba Lyon – Existing Situation and Diagnostic Final Report (March 2015)

	June 2007		
RSDP III	July 2007 – June 2010	20686	19250
RSDP IV (on going, 3 years elapsed)	July 2010 – June 2015	54747	41664

Source: ERA

The primary focus of RSDP 1 was the rehabilitation of the trunk network. RSDP 2 aimed to further expand the network and enhance overall road quality. In addition, construction of non-trunk roads, particularly in rural areas, was given clear priority. A regular road maintenance programme was also set up. RSDP 3 consolidated these efforts through various road development projects. Institutional reforms were also conducted with the aim to strengthen the sub-sector's capacity including the domestic construction industry. A funding mechanism for road management and maintenance was established.

Building on these achievements, the 4<sup>th</sup> and current phase of the RSDP was prepared as part of GTP I and incorporates new orientations in consistency with the economic objectives and orientations stated in the strategic five-year plan. The general objectives of RSDP IV are "to expand the road network so as to improve access to rural areas, improve the quantity and quality of the road network overall, and develop the organisational capacity of the road agencies to effective management of road networks".

More specifically, the programme aims to connect all major cities. It also brought forth a renewed focus on rural roads through the formulation of the Universal Rural Road Program (URRAP) aimed at connecting all kebeles to an all-weather road, and addresses the issue of rural accessible, which still remains low. Under the URRAP, 71,523 km of woreda roads are planned to be constructed during the 5 year GTP 1 period. This is expected to bring the average time required to reach all-weather roads to 1.4 hours by 2014/2015. If fully implemented, the program is expected to ensure close to 80% of total rural population year round access to road.

According to the latest GTP Annual Progress report for the fiscal year 2012/2013, a total of 20,645 km of woreda roads were constructed under the URRAP, raising the length of total woreda road network from 854 km in 2010/2011 to 6,983 km in 2011/2012 and further 27,628 km in 2012/2013. As a result, road density per 1000 km<sup>2</sup> has increased from 57.4 km in 2010/2012 to 78.2 km in 2012/2013. Average time required to reach all-weather roads has declined from 3.7 hours in 2009/2010, to 2.9 hours in 2011/2012 to 2.1 hours in 2012/2013.

However, only 39 percent of the five years target of the GTP has been accomplished during the 2009/2010 - 2012/2013 period. During the report period, the implementation of the URRAP was found to be underway in all but two regions in the country, i.e. Somale and Afar regions. One of the reasons behind the overall delay in the implementation of the URRAP is the lack of capacity of domestic contractors as well as consultants. *Evolution of the road network* 

The historical development of the road network in Ethiopia can be traced to the era of Haile Selassie I. It is during this period that the trunk road network with its radial configuration

centred on Addis Ababa was established and latter reinforced under the Italian Occupation. Over the years, the road network was gradually extended and modernized. It is worth noting that road development in the country went hand in hand with the increasing rate of urbanisation. As displayed in Map 5-1 there is a clear overlap between the urban system dominated by the capital city and the radial road network:





According to Tamiru (2013)<sup>60</sup>, the development of the road network has been a key driver of the urbanisation process of the country by contributing to the selective development of urban settlements connected to the trunk roads into leading central places of the urban system. She further argues that since most cities connected to the trunk network are located close to Addis Ababa, the radial road network has largely contributed to the urban configuration in Ethiopia, namely the urban macrocephaly.

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Source: ERA & CSA

<sup>&</sup>lt;sup>60</sup> Bezunesh Tamru, Villes et Territoires en Ethiopie, 2013.

<sup>&</sup>lt;sup>61</sup> Bezunesh Tamru, *Villes et Territoires en Ethiopie*, 2013.

Addis Ababa, the radial road network has largely contributed to the urban configuration in Ethiopia, namely the urban macrocephaly.

Since its early development, the road network has gradually expanded maintaining its radial configuration. The most significant growth however has occurred since the launch of the RSDP. Over this period, rural roads particularly have been extended, as displayed in the graph below. Between 1997 and 2012, the mileage of Federal roads and Rural roads (Regional and Woredas network) were respectively multiplied by 1.5 and 3.6. In 2012, the total length of the classified road network reached 63 083 km, which comprises 24 550 km of Federal roads and 38 533 of Regional and Rural roads.



Source: ERA

As a result, road density (road km / 1000 sq. km) has increased from 24 in 1997 to 78 in 2013. It is important however to point out that the road density still remains low. It is below the average figure for low-income countries (110) and far below the standard for middle-income countries (260).

## Quality (surface and condition) of the road network

Similarly, significant progress has been made over the RSDP period in terms of enhancing

the quality of the road. As displayed in the following graph, the length of paved roads was multiplied by 2.7 between 1997 and 2012.



#### Source: ERA

Despite these significant improvements, the ratio of mileage of paved roads/1,000km<sup>2</sup> is set at 8. This figure is relatively low even compared with low-income and less populated countries such as Cameroon, as displayed in the table below.

	Paved road / 1 000 km <sup>2</sup>
Nigeria	31
Cameroon	9
Vietnam	423
Madagascar	10
Kenya	19
Cambodia	13
Algeria	36
Ethiopia	8

Table 5-5: Ratio paved roads / area - International comparison

Source: ERA

Because unpaved roads can only support limited traffic (about 200 to 300 vehicles per day), further expansion of the paved road network is necessary to accommodate growing traffic demand driven by increased economic growth coupled with greater mobility demands. The latter is a reflection of rising per capita income but is also consistent with the fast urbanisation of the country since urban populations tend to be more mobile than rural populations. Another key characteristic of the network is linked to its spatial distribution. The table below compares two ratios by region, i.e. Total road network (km) / 1000 km<sup>2</sup> and Paved road network (km) /

1000 km<sup>2</sup>. As displayed, there are important disparities between regions, indicating an uneven distribution of the road network, compared to the population or the area of each region.

Table 5-6: Road km / population & road km / area indicators per region							
Region	Total / 1000	Paved / 1000	Total / 100000	Paved / 100000			
	km <sup>2</sup>	km <sup>2</sup>	hab.	hab.			
Afar	12	11	83	75			
Amhara	35	11	32	11			
Benishangul	17	1	124	6			
Gambela	16	1	131	11			
Oromia	23	9	30	12			
Somali	9	3	55	18			
SNNPR	33	8	25	6			
Tigray	32	12	37	14			
Country	21	8	34	12			

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Source: ERA - Consultant estimate

Moreover, the condition of the trunk road network has also considerably improved through the implementation of the RSDP. At present, 86% of the paved network is considered in good or fair condition (out of which nearly 70% is considered in good condition), which is higher than the low income country benchmark (i.e. 85.1%), according to G. William et al. (2008).





## Source: ERA

Another key issue with regards to the sub-sector is road asset preservation. Compliance with regulations on the axle load is essential for the preservation of roads. According to the

statistics of 9 weighbridges installed in Ethiopia (including Semera, Awash, Mojo, Jijiga), 9% of the trucks are overloaded (2012/2014). This percentage was 30% in 2008/2009, thus showing a clear improvement (<sup>62</sup>).



Map 5-2: Quality (surface type and condition) of the main road network

Overall, the RSDP investment strategy has been successful at restoring, expanding and improving the quality of the road network. Despite this progress, the country's road network still has limited reach, particularly in rural areas.

## Road traffic levels

Over the last decades, the volume of motorized traffic on the main roads has registered a steady increase, as shown in the graph below. The volume of motorized traffic rose from 3.8 million in 1997 to 14.6 million in 2012, which represents an average annual increase of 9.7%. This trend is a reflection of increased accessibility made possible by the expansion of roads. It is also driven by growth in economic activity as well as rapid urbanisation.

Yet, the overall level of traffic on the road network remains relatively low. In 2012, Average Annual Daily Traffic (AADT) on the paved road is far below the low incoming benchmark (1,049.6). With about 23 to 17,000 vehicles per day, the road between Addis Ababa and Adama is by far the busiest one in Ethiopia, as displayed in Map 5-3. The high volume of traffic on this axis is linked to the fact that it is a segment of the main import/export corridor of

Source: ERA, 2012

<sup>&</sup>lt;sup>62</sup> - In Côte d'Ivoire, the percentage of overloaded trucks is 66% at present. Source: Egis Study

the country (i.e. Addis Ababa – Djibouti Corridor). Furthermore, economic activity and particularly industrial activity is highly concentrated along this road. It also connects the capital city to populated cities and various tourist attraction areas (i.e. Bishoftu). With traffic continuously rising over the years, the road has become severally congested, posing serious problems from rising travel time and costs, particularly for freight transport, to increased accidents.



Source: ERA 16 Years RSDP Assessment Report

In order to address this problem, the corridor has been recently strengthened by the construction of an expressway alongside it. This flagship project – the first of its kind in the country - opened for traffic on September 2014. This section is part of the Trans African Highway 4, TAH 4: from Cairo to Cape Town. Map 5-4 shows the location of the expressway. Connection with each city is provided. The expressway will not only bring them closer to each other, thus reinforcing the south-eastern urban corridor between Addis Ababa and Adama, but will also significantly improve road access to the country's primary maritime gateway as well as to the main dry port of Mojo. Other medium trafficked roads include the Mojo – Hawassa, Addis Ababa – Gondar axis, Addis Ababa – Jimma axis.

Map 5-5 shows heavy trucks and trailer traffic (bandwidth). It is indicative of national and international trade flows. Heavy trucks traffic is found to be highly concentrated on the southeastern corridor (stretching from Addis Ababa all the way to Djibouti via Adama, Awash and Mille); illustrating both, the economic importance of this corridor and prevalence of import flows in heavy trucks traffic. Traffic between Dire Dawa and Djibouti is limited, reflecting the poor condition of this section, previously used to access the port of Djibouti. The Mojo - Hawassa, Addis Ababa - Jimma and Addis - Gondar axes are found to support medium HGV traffic. Overall, the similarly with the previous map is striking, thus suggesting that truck traffic accounts for a significant share of total traffic across the road network.

Map 5-6 shows small and medium truck traffic, which is mainly related to regional and local freight movements. The traffic flows are mainly concentrated around Addis Ababa. Important traffic is also found around clusters of cities (i.e. Adigrat – Mekele, Harar – Dire Dawa – Jijiga and Debre Tabor – Bahir Dar – Gondar), which represent secondary distribution centres of freight. Map 5-7 shows bus traffic along the main roads. It represents the long distance passengers' trips, i.e. the interurban mobility. Interurban bus flows are found to be less concentrated on a few axes than truck flows. However, these flows are clearly polarized on the National Capital, showing its attractiveness.

Map 5-3: Total AADT by Road section



Source: ERA 2012 Traffic count





Source: Overview of the Addis Ababa – Adama Design and Build Toll Motorway Project, ERA (2013)

Map 5-5: Heavy & Trailer Trucks AADT by Road section



Source: ERA 2012 Traffic count

Map 5-6: Small and Medium Trucks AADT by Road Section



Source: ERA 2012 Traffic count

# Map 5-7: Bus AADT by Road Section



Source: ERA 2012 Traffic count

## Current status of road transport services

At present, adequate and efficient transport services for the movement of goods and people is identified as a major mobility constraint in both urban and rural settings throughout the country. Although road sector interventions tend to focus more on physical infrastructure improvements, providing safe, affordable and efficient transport services for both freight and passengers is equally important as they are key elements of both urban and agricultural productivity.

The Federal Transport Authority (TA), under the umbrella of the FDRE Ministry of Transport, is the main authority in Ethiopia responsible for planning and regulating road transports services together with regions (through Regional Transport Bureaus) and cities performing such tasks (i.e. Addis Ababa and Dire Dawa). According to the National Transport Master Plan study, the FTA as well as Regional Transport Bureaus are rarely engaged in transport planning and programming and tend to focus on operational activities (i.e. vehicle registration, licensing, etc.). In addition, the study suggests that there are various actors intervening in the sub-sector with insufficient coordination, leading to a fragmented and weak institutional context. Financial, technical and administrative capacities are far from adequate.

## Rural road transport challenges

In rural areas, access to motorized transportation services is severely constrained by the limited coverage of all-weather roads. According to a report by the World Bank<sup>63</sup>, only 10 percent of the rural population in Ethiopia lives within two kilometres of an all-weather road, which is only half of the benchmark level for low-income countries in Sub-Saharan Africa. Other factors such as the limited stock of vehicles and diffused patterns of settlement and economic activities also impede the development of transportation services in rural areas.

With very limited choices in both motorized and non-motorized transports, rural communities predominantly rely on walking and pack animals for their trips. As a result, they are often left isolated for significant periods of the year, namely during the rainy seasons. This has various social and economic implications. Access to basic health and education services is found to be severely constrained. For instance, in 2008, it was estimated that about 77% of rural families needed to travel more than 20km in order to access health and other basic facilities.

Reliance on traditional means of transport also poses a barrier to the development of commercial agriculture and the diversification of rural economies. This is particularly true in areas with high agricultural activity and potential where demand for road transport services, particularly for freight, is said to be increasing although data supporting this trend is not readily available. Both ERA and the Ministry of Transport have identified this as a major challenge which needs to be given clear priority. Providing adequate and affordable rural transport services will not only improve access to basic needs and services, but will also improve the marketability of perishable foods through timely and cheaper transport, provide an incentive for more market-oriented agriculture, diversify rural economies and increase rural incomes.

<sup>&</sup>lt;sup>63</sup> Forster, Vivien, Morella, Elvira. 2011. « Ethiopia's infrastructure. A continental perspective ». AICD Working Paper n° 5595, Africa Region, World Bank, Washington, DC.

## Urban road transport challenges

Similarly, access to transport services is severally restricted in the urban context. Urban public transportation which consists entirely of bus services is primarily constrained by the low coverage of the paved road network and low fleet capacity. As a result, the transportation needs of a great proportion of urban dwellers are met entirely by foot. In Addis Ababa, according to AASSOID, the modal split of the city in 2015 was 55% pedestrian, 16% buses, 24% taxis (which include private minibus taxis) and 5% private modes.

In response to these shortcomings of the public transport system, the private sector has stepped in. Collective private minibuses have become a dominant mode of transport in many cities, playing a vital role not only in urban but also sub regional mobility. In Addis Ababa, it is estimated that there are over 10,000 minibus taxis vehicles. Operators are free to choose their routes but fares are controlled by the city administration. While these services have increased capacity, they pose various challenges associated with poor services (overcrowding, erratic scheduling) and wider social problems (congestion, road accidents). In addition to collective private minibus, there is also an increasing use of auto-rickshaws (also known as bajaj) in secondary cities.

The mobility challenge is particularly accentuated is Addis Ababa. The capital city currently faces a range of serious transportation problems. One of the most notable challenges is the lack of mass public transportation in the city (though a LTR system is in the process of construction). Currently, public transportation is provided by the state owned Anbessa bus company. The company operates a limited bus fleet. According to the city's Transport policy, service is characterized by insufficient routes, lack of dedicated bus lanes to give public transport priority and lack of coordination with other transport services.

Longer commuting is of growing concern with the potential to undermine the development of the urban region. Although not quantitatively substantiated, commuting between neighbouring cities and Addis Ababa is found to be a growing phenomenon, according to various actors interviewed. An important factor behind this trend is related to urban expansion (both formal and informal) and housing affordability. This has several social implications, such as growing spatial mismatch between the location of jobs and housing but also isolation, spatial segregation in a city long known for being spatially and socially mixed.

Moreover, rising motor vehicle activity in Addis Ababa is causing high levels of congestion in the city and parking difficulties are increasing thus hindering urban productivity. With regards to parking difficulties, the main issue is the lack of off street parking facilities and over utilization of road space by parked vehicles, as underlined in the Addis Ababa Transport Policy. This is a result of the failure to integrate land use and transport planning.

Difficulties for non-motorized transport, namely pedestrian constitutes another major challenge. This is due to intense road traffic but also reflects the insufficient consideration for pedestrians in the physical design of road infrastructure. This has significant social implications, in terms of road accidents and fatalities.

According to the city Transportation policy, freight distribution is also becoming increasingly problematic due the old vehicle fleet and lack of terminals with adequate facilities, thus calling for the implementation of city logistics strategies to solve this problem. This is particularly important as the city is the main centre for distribution of freight in the country.

# 5.2.1.3 Railway sector

# Current status of railway infrastructure

After operating for half a century, the Djibouti-Ethiopia Railway or CDE (metric gauge, 780 km), which was the country's sole railway line, began deteriorating in the mid-1970's due to inadequate maintenance of infrastructure and rolling stock as well as increasing competition from road haulage. Eventually, the railway stopped operating in 2009 leading to the collapse of the rail sector altogether.





Source: The paradox of the Djibouti-Ethiopia Railway concession failure, A. Foch

# CDE past rail traffic

**Error! Reference source not found.** presents data on passenger and freight traffic handled by the CDE line between the years 1987/1988 and 2008/2009. Domestic passenger traffic for 1994/1995 was not incoherent with the rest of the data and was thus not included. Overall, passenger traffic decreased from 1.3 million passengers in 1987/1988 to 55,000 passengers in 2008/2009. The share of international passenger traffic ranged between 9 to 17% of all traffic during this period. It was set at 15,1% in 1987/1988 and 12,7 in 2008/2009.

Freight traffic declined from 245,509 tons in 1987/1988 to 168,000 tons in 2001/2002. Data from other sources indicate that the decline accelerated after 2001/2002 and that total freight traffic handled by the CDE railway was set at 20,000 tons in 2008/2009.



Figure 5-11: Passenger traffic handled by the CDE railway. Years 1987 – 2008

Source: Final Report Transport Planning for BFS of Addis Ababa-Djibouti Railway



Figure 5-12: International freight traffic handled by the CDE railway (tons). Years 1987 - 2002

Source : Statistical bulletin, Trade, Transport, Industry and Tourism Office of DDAC, July 2002

Despite its short period of operation, the CDE line has had a long lasting impact on the urban system of the country. It has contributed to the emergence of cities such as Adama, Bishoftu, Awash and Dire Dawa, which were railway stations that eventually developed into diversified urban settlements. Today, they constitute some of the leading cities of the urban systems and

main industrial centres. It is also thought to be the main force behind the emergence of the country's first modern urbanisation corridor of Ethiopia stretching between Addis Ababa and Dire Dawa.

The lack of a functioning railway line has taking its toll on the country's trade competitiveness as rail is a key element for resolving problems of economies of scale, congestion as well as lack of reliability and safety of the logistics chain. Moreover, the collapse of the sector has weakened the local economy of cities such as Dire Dawa.

#### 5.2.1.4 Seaports and inland connections

Maritime transport handles 80% of global trade by volume and 70% by value, thus making it the backbone of international trade. Over the last decades, the sector has experienced profound changes: the volume of global seaborne trade has grown substantially, particularly container traffic. Another major trend has been the use of ever-larger vessels, giving rise to substantially economies of scale and lower freight rate. Vessel size is increasingly leading to the development of hub ports. Smaller ports that cannot accommodate deep-draught, post-panamax vessels, which is the case of most African ports, will continue to be feeder ports supporting hubs on the main east-west routes.

In this context, the access to deep-water ports and the development of a modern logistic chain will become increasingly central to economic development, particularly for landlocked countries such as Ethiopia. According to the World Bank, being landlocked adds four days to exports and nine days to imports for land distribution of equivalent distances within a seaport country. Landlocked developing countries thus face freight transport costs which account for 15 to 20 percent of imports value; against 6 per cent on average in the rest of the world. Higher freight transport costs undermine Ethiopia's trade competitiveness and ultimately the country's economy as a whole.

## Main and alternative ports status

Catering for 93% of Ethiopian seaborne trade, Djibouti has become its neighbour's primary maritime gateway. The country also uses the ports of Berbera (5%) in Somaliland and Port Sudan (2%). Such a dependency implies higher port tariffs, thus hindering the country's trade competitiveness and weakens its economic situation. Moreover, because seaports are likely to play an increasing role in structuring Ethiopian trade flows, it is becoming an absolute priority to diversify its access to seaports, and preferably, regional maritime hubs which will be connected to major maritime routes and thus offer the lowest cost of transit. The need to diversify sea outlets is recognized in the GTP I which aims to reach the following regional ports utilization: 60% of seaborne trade through Djibouti, 30% through Berbera and 10% through Port Sudan by 2014/2015 targeted.

## Port Djibouti, Ethiopia's primary maritime gateway

At present, Djibouti's port infrastructure includes: the Autonomous Port of Djibouti (PAID), which is the country's historic port, the Doraleh Container Terminal (DCT) operational since February 2009, and a modern oil terminal operational since 2005. The Autonomous Port of Djibouti provides 15 berths with alongside depth varying between 7 to 12 meters: 8 general cargo berths (with an annual capacity of 12 million tons), 2 dry bulk berths (2 million tons) and 2 container berths (350,000 TEU). Overall, the PAID handled over 3.8 million tons of break and dry bulk, 2.9 million tons of liquid bulk and 50,938 TEUs of container traffic in 2013.

Located 12 km from the PAID, the Doraleh Container Terminal has 1,050 m of berth with 18 meters draught, allowing it to accommodate the latest generation of vessels (i.e. Super Post Panamax). Its current container-handling capacity is 1.5 million TEUs per annum, which will be increased to 3 million TEUs by 2016. In 2013, it handled 743,793 TEUs. The oil terminal consists of 2 berths with alongside depth of 18 meters. It has a pumping capacity of 2,000 tonnes per hour per line and an annual storage capacity of over 3 million tons.

Despite high port tariffs and some congestion issues at port which impeding the smooth operations of transit flows, Djibouti is overall endowed with adequate and modern port facilities, which are well suited for Ethiopian transit. Currently, Ethiopia can access the Port of Djibouti through two road corridors:

- A northern corridor (910 km) stretching between Awash, Mille and the border town of Gelafi. Although it is not the shortest route, the road has been rehabilitated and is in good condition, making it the main corridor currently being used.
- A southern corridor (781 km) running through Dire Dawa and the border town of Dewele, which is in dire need of maintenance and currently has little to no traffic. This corridor previously handled heavy traffic, approximately about 250 trucks per day in each direction.

The single-track and 780 km long CDE railway previously provided a vital connection between Addis Ababa and the Port of Djibouti but operations were suspended in 2009 due to the obsolescence of the network. The absence of a functioning rail link between landlocked Ethiopia and its main sea outlet Djibouti has presented a major challenge for the country's imports and exports. The new National Railways Network envisioned as part of the GTP I which gives priority to the Addis Ababa – Djibouti railway will tackle this problem and offer the country a multimodal corridor in the short run (see section **Error! Reference source not found.**).

## Ethiopia's secondary ports: Berbera and Port Sudan

Located 250 km East of Djibouti and 937 km of Addis Ababa, Berbera is Somaliland's main seaport and Ethiopia's secondary port. It is currently being used as a relief port for food aid imports and livestock exports destined to Saudi Arabia, UAE and Qatar. Overall, Berbera is characterized by poor and inadequate port facilities. Ethiopia can access the Port of Berbera through the Jijiga – Togochale – Hargeisa corridor. The road is in good condition within Ethiopian territory but the section within Somaliland requires major rehabilitation. In order to catch an increasing share of Ethiopia's maritime trade flows, Berbera Port is rehabilitating the section within Somaliland. Works have begun on the 245 km section between Togochale and Hargeisa. Located on the Red Sea, Port Sudan currently handles 2% of Ethiopia's seaborne trade and essentially caters for the northern part of the country. Ethiopia mainly uses it for its sesame and cereals export as well as 80% of the country's oil imports from the El Gelily refinery (oil imports from Djibouti are mainly destined to the eastern parts of Ethiopia). The port is currently operating at over 80% of its planned capacity and thus facing congestion problems. Ethiopia can access Sudan via Metema, Asosa and Humera. The main corridor (via Metema) is 1,700 km long. All road corridors are in asphalt and in good condition

## Alternative ports: Kenyan and Eritrean ports

Alternative ports in the region include the Eritrean ports of Assab and Massawa as well as Mombasa in Kenya. Assab, once the long-standing rival of Port Djibouti and the closest port to Addis Ababa, used to handle 75% of Ethiopia's seaborne trade through duty-free but has

lost its total traffic following the border dispute between Ethiopia and Eritrea. These two Eritrean ports have limited infrastructure capacity and it seems that Assab's port is no longer operating. In 2009, Massawa handled 654,000 million tons of cargo. Despite some maintenance worked need on the road to Assab, which carried most of Ethiopian trade and was rehabilitated prior to the border conflict, the roads to the Eritrean ports are overall in relatively good state. As for Mombasa, traffic originating or destined to southern Ethiopia would normally be attracted by the Kenyan port, which has this region of Ethiopia as its natural catchment area via Moyale. However, the poor condition of the corridor forces the totality of the traffic to transit through more distant ports, i.e. Djibouti. The port also faces congestion issues driven by rising seaborne trade from neighbouring East African countries.

## Dry ports and Inland Container Terminals (ICT)

Connectivity to hinterland is becoming ever more important and fundamental to international freight trade. In addition to rail connectivity, dry ports and inland distribution centres constitute a crucial link in the global logistics chain, particularly for landlocked countries such as Ethiopia. Dry ports provide extra hinterland space for port operations, thus avoiding the need to perform logistics function directly at the harbour front and serve as a centre for the consolidation and distribution of goods to and from the hinterland. Normally dry ports are container-oriented and supply all required logistics facilities.

Following major congestion issues at Djibouti's Port, Ethiopian Maritime Authority was prompted to boost the development of dry ports in its territory. As a result, five dry ports have been established and are currently operating in the country. These include Mojo, Semera, Dire Dawa, Kombolcha and Mekele (see characteristics in the table below). Several inland container terminals are also being used in addition to these dry ports: Comet Yard at Kality, Gelan (operational since February 2013) in Akaki and the Bekelcha Transport Compound in Adama.

Dry port terminal	Container terminal surface (ha)	Total surface (ha)	Existing capacity (TEU)	Total cargo handled (effective October 31, 2013, TEU)	Future additional capacity (TEU)			
Мојо	8.86	61.33	5 000	9 324	2 335			
Comet Yard (Kality)	2.2	2.2	n/a	1613	1523			
Bekelcha (Adama)	1.5	42	2 500	n/a	n/a			
Semera	2	160	1 752	37	943			
Mekele	1.5	42	n/a	158	709			
Dire Dawa	1	27	n/a	225	n/a			
Kombolcha	1	15.3	n/a	52	1072			
Gelan (Akaki)	4	20.9	3 000	1 206	666			
Total	22.06	370.73	12 252	12 615	7 248			

#### Table 5-7: Characteristics of existing dry ports.

Source: Ethiopian Shipping and Logistics Services Enterprise (ESLSE)

With over 60% of all container traffic handled, Mojo is the central dry port of the country. At present, the dry port has a container-handling capacity of 5000 TEU. Faced with recurrent congestion problems, the facilities at Bekelcha transport Compound in Adama are currently

being used as a complement to Mojo Dry Port. The problems related to congestion at Mojo include: limited capacity of the dry port, custom clearance delays (also a challenge facing Semera Dry Port), and the delayed collection of containers by importers.

The Dry Ports and ICT located at Mojo (with Bekelcha), Comet Yard and Gelan primarily serve Addis Ababa and the central region of the country. Mekele dry port serves the northern part of the country. It is used for the export of sesame from Tigray to Djibouti as well as imports destined for the construction industry in the region. Dire Dawa serves the south-eastern part of the country. Linked to the development of the dry ports, the Ethiopian Government introduced in 2010 a Multimodal Transport Scheme under the mandate of the Ethiopian Shipping and Logistic Service Enterprise (ESLSE), which handles all the operation associated with forwarding and shipment of goods imported through the dry ports.

# 5.2.2 Major ongoing and planned transport projects

# 5.2.2.1 Airport development projects

In order to promote economic growth, the Government has given priority to the improvement of transport infrastructure, particularly air transport. The EAE aims to extend the existing network to 22 airports in the short term. Ongoing and planned projects include:

- Construction of a new airport in Kombolcha (now operational at the time of writing)
- Construction of a new airport in Hawassa, which will be mainly cargo oriented.
- Construction of a new airport serving the city of Jinka<sup>64</sup>
- Expansion at Kebri Dar and Semera
- Expansion of Bole cargo terminal
- Construction of a new international passenger terminal outside of the city boundaries of Addis Ababa, which will be able to serve 22 million passengers annually<sup>65</sup>.

In addition to these projects, the National Transport Master Plan has made proposals for airports at Dembidollo, Mizan Teferi, Tepi and Beica. Overall, the country has a good coverage in terms of both domestic and international airports. Ethiopian airports do not have face "pure" infrastructure constraints. The existing air transport infrastructure can meet Ethiopia's current air traffic and foreseeable growth, with the exception of Addis Ababa Bole International airport. The sensible recommendation would thus be to concentrate investment in existing infrastructure and improvement of facilities.

Moreover, the limited development of domestic air transport compared with international air transport, both for passenger and cargo, is striking. Opportunities exist for Ethiopia to increase domestic passenger and freight volumes through the promotion and investment in the tourism sector as well as the export of perishable goods.

<sup>&</sup>lt;sup>64</sup>The new airport is located 4 km out of the city. It will serve the Southern Omo valley and is intended to support the expected growth in the area, supported by the sugar plantation projects

<sup>&</sup>lt;sup>65</sup>Studies are currently underway to identify the ideal location for the future hub, within a range of 100 km around Addis Ababa. Potential sites previously suggested include Tefki and Alem Gena both southwest from Addis Ababa as well as Mojo (75 km). The new airport will primarily accommodate long-haul international flights and Bole International Airport will be used for regional and domestic, and VIP flights.

<ul> <li>SWOT Analysis – Air transport sub-sector Helpful</li> <li>In achieving progress</li> <li>Strengths <ul> <li>A good coverage of the territory with various international and domestic airports.</li> <li>Bole International airport is positioned as one of the main African hubs, equipped with modern cargo facilities.</li> <li>Increasing passenger and freight over the last years.</li> <li>Medium to long term transport policies and strategies exist</li> <li>Strong Government support for the development of the aviation sub-sector</li> <li>Good connectivity to the air cargo terminal at Bole International Airport provided by the ring road</li> </ul> </li> </ul>	<ul> <li>Harmful In achieving progress </li> <li>Weaknesses <ul> <li>High costs associated with operating and maintaining such an extensive network Lack of private operators for domestic routes and high costs.</li> <li>Capacity constraints at Bole International Airport and the current localization in a densely build and populated area.</li> <li>Domestic services' tariffs are still expensive by international standards.</li> </ul> </li> </ul>
<ul> <li>Opportunities</li> <li>A highly relevant transport mode given the country's constraints (land-locked, long distance, rough terrain)</li> <li>Positioning Ethiopia in major global markets, particularly for perishable goods (flowers, meat products) and high value added products (gold, coffee).</li> <li>An increasing demand as a result of economic growth, continued export growth and higher touristic activity;</li> <li>Growth of the sub-sector can create employment opportunities</li> </ul>	<ul> <li>Threats</li> <li>Topographic constraints which make it difficult to find a new site for the future Addis Ababa International Airport in relative proximity to the centre.</li> <li>Growing competition from Gulf Airlines (e.g. Emirates) which could compromise the future of Ethiopian Airlines, and thus promote his withdrawal of EA from less profitable routes.</li> </ul>

## Map 5-9: Airports network and tourism



Source: Ethiopian Airports Enterprise (2013), ERA, Ministry of Tourism

Map 5-10: Airports network and economic development



Source: Ethiopian Airports Enterprise

# 5.2.2.2 Airport development projects

## The National Railway Network of Ethiopia (NRNE)

Ethiopia has recently launched a project to revitalize the rail sector as part of the GTP I. The National Railway Network of Ethiopia (NRNE) will have a total length of 2,395 km. It will be a standard-gauge network, thus resulting in increase in speed and capacity compared with the previous CDE line. The network will serve the country's main transit and economic corridors. The overarching aim of the project is *to "connect Ethiopia to all its neighbouring countries and different ports"* (GTP I). The railway will be used for both passenger and freight services. It is expected to significantly reduce transport costs and increase the competitiveness of Ethiopia's industry.

In addition to significantly reducing travel times and costs along the corridor as well as providing more reliable freight services, the construction of the Addis Ababa – Djibouti railway will also have a significant impact on the urban system, similarly to the CDE line which contributed to the emergence of the country's first urbanisation corridor. The new railway will thus reinforce this major urbanisation corridor as well as the cities served by it. The project is also expected to support the country's "civil engineering construction companies and metal and electro-mechanical industries". The envisioned National Railway Network of Ethiopia (NRNE) comprises 8 routes detailed below:

Table 5-8: NRNR routes						

Source: ERC

Phase I (which coincides with GTP 1 period, i.e. 2009/2010 until 2015/2016) is composed of 5 railway projects, with priority given to the Sebeta- Dire Dawa – Dewele railway. Phase II (GTP 2 period, i.e. 2015/2016 until 2020/2021) includes six projects: Jimma-Guraferda-Dima directed to Boma, Ijaji-Nekemet-Asosa-Kumuruk, Mekele-Shire, Fenoteselam-Bahirdar-Woreta-Woldia, Woreta Azezo-Metema and Adama-Indeto-Gassera-Ginir. Due to major delays in the construction of the priority corridor, the implementation schedule has been modified. The only corridor which will be completed by 2015 is the Sebeta-Dire Dawa-Dewele railway. The northern route is expected to reach advanced staged under phase 1 but completion is expected under phase II. A revised implementation phase, based on input from interviews with the ERC, is provided in the following map.

Map 5-11: Ethiopian National Railway Construction Phase (AGRANDIR)



Source: ERC





Source: ERC The priority corridor: Sebeta – Dewele railway

The new railway stretching from Sebeta to Djibouti via Dire Dawa and Dewele is part of a proposed African transportation corridor linking Djibouti to Libreville in Gabon. It will take a different route than the previous CDE line. The 107 km between Sebeta and Adama will be double track while the remaining 549 km will be a single-track rail. The priority railway will serve the Oromia, Afar and Somali regions. The major urban centres served are Addis Ababa, Dire Dawa, Adama, Bishoftu, Metehara, Awash, Chiro, Harar and Haromaya. The main freight stations are Djibouti, Dire Dawa, Awash, Adama, Mojo and the Indode station at Akaki. Major passenger stations include: Sebeta, Lebu, Bishoftu, Adama, Metehara, Awash, Mieso, Dire Dawa, Shinile, Adigala, Dewele, Ali Sabeh and Djibouti. The forecasted passenger traffic along the priority corridor is presented below.

Table 5-9: Average Daily Passenger Forecast for the Sebeta – Djibouti Railway							
	Year						
	2010	2015	2020	2025	2030		
Domestic	214 128	344 745	555 040	893 615	1 438 721		
International	32 119	57 712	83 256	134 042	215 808		
Total	246 247	396 457	638 296	1 027 657	1 654 529		

Source: Final Report Transport Planning for BFS of Addis Ababa-Djibouti Railway

Freight traffic for 2015 is estimated at 7.2 million tons, including 799,000 tons of exports and 6.4 million tons of imports. Domestic railway freight traffic is expected to be about 20%. The railway is expected to handle 40% of exports and imports of the country, which is a very ambitious modal share.

*Table 5-10:* 30 year projection of the Ethiopian Foreign Trade flows and AA- Djibouti Railway Traffic (000 MT)

Total Forecast Traffic						Rai	ilways Tra	ffic	
		Export			Import			Import	Total
Year	12%	14%	16%	10%	12%	14%			
2009	910	910	910	8,133	8,133	8,133			
2015	1,796	1,997	2,217	14,408	16,053	17,852	799	6,421	7,220
2020	3,165	3,846	4,657	23,204	28,291	34,372	1,538	11,316	12,855
2025	5,098	6,778	8,966	34,095	45,563	60,575	2,711	18,225	20,936
2030	8,210	11,945	17,263	50,097	73,380	106,754	4,778	29,352	34,130
2035	12,064	19,237	30,424	73,608	118,179	188,137	7,695	47,271	54,966
2040	17,726	30,981	53,618	108,155	190,328	331,562	12,393	76,131	88,524

Source: Final Report Transport Planning for BFS of Addis Ababa-Djibouti Railway
### Table 5-11: Annual Container Traffic Forecast for the Sebeta- Djibouti Railway

		2015			2020		-	2030			2040	
	Import	Export	Empty									
TEU (60%)	148	23	125	168	42	126	371	109	262	826	257	569
FEU (40%)	39	9	30	45	17	28	99	43	55	220	103	117
Total TEU	187	32	155	213	59	154	470	152	318	1046	360	686

Source: Final Report Transport Planning for BFS of Addis Ababa-Djibouti Railway

# Remaining railway corridors

Construction is underway on the northern route (Awash–Kombolcha-Mekele) and the Woldiya-Semera- Elidar section of route 6. These corridors will provide the country with a second rail connection to neighbouring Djibouti. The development of these corridors is linked with productive sector investments (e.g. mining in the Afar region) and the construction of a port at Tadjourah, in Djibouti. Both routes are expected to be at an advanced stage by 2015 and completion is expected under the next GTP period (2015/16 – 2020/21). The development of other railways will depend largely on the growth in freight and passenger traffic along the various corridors and most importantly funding opportunities.

# Addis-Ababa Light Rail Transit Projects

In addition to the NRNE, the rail revitalization strategy involves the construction of a 34 km long Light Rail Transit (LRT) network in the capital, Addis Ababa, along two corridors (16.9 km long along the north-south corridor and 17.35 km long along the east-west corridor). It is the largest present mass public transportation project in the country and completion of the lines is scheduled for 2015. The planned capacity of the network is 60,000 passengers per hour in the four directions. The ERC plans to extend the two LRT lines in a second phase as illustrated in Map 5-12. The planned extensions between Tor Hailoch and Lebu as well as between Kality and Gelan will constitute a key element of the integration of the LRT lines with the national railway network. Moreover, the possibility of using the old CDE rail tracks between Akaki and Legehar is being discussed.

# Regional rail projects

Currently, there is a lack of integration of the regional rail networks due to missing links and mixed gauges. Railways are disconnected and many are in poor condition. Railways are also operating at only 30km/h commercial speeds. Various railway projects are currently underway in the sub-region. One major project is the redevelopment of the Nairobi – Mombassa line. Kenya has launched the construction of a new railway line linking Mombasa to Nairobi in the first phase. The line will then be extended to Kigali (Rwanda) and Juba (South Sudan) through Kampala (Uganda). The first phase (450 km section between Mombasa and Nairobi) will cost an estimated 10 billion euros and completion is expected by 2017. It will travel at a speed of 80 km/hour. Another proposed project is the railway planned as part of the LAPSSET corridor, linking the future port of Lamu to Moyale and Juba via Isiolo. The line will be 1,500 km long and will connect Lamu to Isiolo (530 km), then Moyale (450 km) and Juba via Nakodok (420 km).



Map 5-13: LRT lines in Addis Ababa and future connections to the national railway network

Source: Transportation challenges in a booming city, AACPPO & Lyon Town Planning Agency

SWOT Analysis – Rail sub-sector Helpful	Harmful
In achieving progress	In achieving progress
<ul> <li>Strengths</li> <li>A strong political will to develop the sector, with a special emphasis on both freight and passenger transport.</li> <li>Viability of projects ensured through the capacity to attract foreign investment, at least for the priority corridors.</li> <li>The possibility to use the old CDE line.</li> </ul>	<ul> <li>Weaknesses</li> <li>Lack of integrated rail network at the regional level</li> <li>Insufficient integration between the urban network and the rail network.</li> <li>Lack of skilled manpower in the sector</li> </ul>
<ul> <li>The possibility to use the old CDE line between Kality and La Gare in Addis Ababa for a commuter rail service.</li> <li>The construction of several dry ports at strategic locations along the rail corridors.</li> </ul>	

Opportunities	Threats
<ul> <li>The construction of national standard gauge railway network</li> <li>Port authorities' strategy to develop rail linkages to access their respective hinterlands (i.e. Djibouti, Mombassa).</li> <li>Localization of existing and planned dry ports along the main railway corridors (e.g. Kombolcha, Mekele, Dire Dawa, Moyale, Woreta)</li> <li>Major savings would be realized through road maintenance and rehabilitation.</li> <li>Growing passenger and freight volumes Enhancing regional connectivity and potential to unlock intraregional trade</li> </ul>	<ul> <li>The cost of developing the remaining routes is high compared to the existing traffic volumes</li> <li>Unbalanced trade flows and the resulting difficulty to find returning cargo can compromise the economic viability of such a capital intensive project.</li> <li>Competition from the road sub-sector, namely road haulage, could have an adverse impact on rail demand</li> </ul>

# 5.2.2.3 Road development projects

As part of the ongoing formulation of GTP II, road development projects are currently being reviewed. Ethiopia aims to join the middle-income countries by 2028. The development of the road network must support this goal. The objective of the ERA is to develop the Ethiopian road network to reach a length of more than 200,000 km 2025. A study on the Transport Plan was conducted by COWI and GOPA in 2008. It was a comprehensive study, which included a transport model in order to assess various transport scenarios. Map 5-13 shows the configuration according to the recommended long-term scenario. It seems however that this transportation plan has not been approved.

In addition to the recently opened Addis Ababa – Adama expressway, other projects are currently underway including the construction of an expressway between Mojo and Hawassa which has recently been launched. Following the completion of the Environmental and Social Impact Assessment (ESIA) and Resettlement Action Plan (RAP), study and design of the road is currently underway. Preparations are underway to begin construction. Note that the African Development Bank (AfDB) has agreed to partially finance this expressway (section Mojo-Meki) that will be constructed with additional funding from the Ethiopian government and the South Korea Exim Bank. This road is also part of the TAH 4, Cairo – Cape Town. The Adama-Awash section, part of the Addis – Djibouti itinerary, is also planned but this project seems less advanced. Other major projects include the construction of two bypass projects for Dire Dawa and Harar are also envisaged.

# Regional integration of the road network

The 12th Assembly of Heads of State and Government adopted the Declaration requesting the African Union Commission (AUC) to formulate the Programme for Infrastructure Development in Africa (PIDA) in July 2010. The objective of PIDA is to promote the integration process in Africa by investing in transport, energy, water and ICT. In the transport sector, the PIDA program includes 24 projects or group of projects, some of which involve Ethiopia (see Maps 5-14 and 5-15)





Source: National Transport Master Plan Study



Map 5-15: Trans African Highways

Map 5-16 PIDA Transport networks 2020 & 2040



Three Trans African Highways cross Ethiopia (a) TAH 4 : from Cairo to Cape Town; (b) TAH 6 : from N'Djamena to Djibouti and (c) TAH 10 : from Djibouti to Libreville and Bata (Equatorial Guinea) For the moment, Trans African highways remain a distant reality because of various missing links and poor maintenance on key segments at the continental level (i.e. between Isiolo and Moyale, N'djamena and Khartoum, for instance).

### Road transport services

In addition to the ongoing LRT project in Addis Ababa, the introduction of Bus Rapid transit (BRT) is also being planned. A 12 km pilot corridor (B2) which connects Gofa Gabriel to General Winget School is envisaged. Following the realization of a pre-feasibility, detailed design and implementation components of the projects are currently underway. The corridor will provide a north-south access running through Kera, Teklehaimanot, Anwar mosque, Merkato, thus connecting three districts in the city (Addis Ketema, Gulele and Nifas Silk Lafto districts). The B2 line will be part of a larger BRT network and other corridors are being studied (9 routes are already identified). The BRT network will complement the LRT lines, thus constituting a multimodal integrated transport network.

In conclusion, Ethiopia has made significant progress both in terms of expanding the size and enhancing the quality of its classified road network. The road network now branches out into previously inaccessible areas, with significant political, economic and social implications for both the population and the country (i.e. territorial cohesion). Moreover, the RSDP has brought forth institutional reforms aimed at decentralization road management, reinforcing the technical capacity of the sub-sector and funding road maintenance, which is crucial in the long run.

However, in a country of 1.1 million square kilometre area, the overall accessibility to the network remains low. Inaccessibility, particularly in rural areas, is posing serious challenges to agricultural development and rural livelihoods. The Universal Rural Road Program launched in 2010 offers the possibility to address this issue. However, the program has been underperforming due to various constraints (budgetary constraints, poor follow-up, capacity limitations of contractors, to name but a few).

As a result of the overall low road network in both urban and rural contexts, road transportation services are found to be severely constrained. In rural areas, the transportation challenge may be succinctly described as the absence of a "middle solution" between motorised transport systems and walking which constitutes the dominant mode of transport for the vast majority of the rural population. There is thus a need to promote the development of Intermediate Means of Transport (IMTs), which are more affordable and suitable to rural operating conditions.

In urban areas, the challenge is one of providing affordable and improved mass public transport services as well as non-motorized transport solutions to cater to the mobility demands of the overwhelming majority of low-income urban dwellers. Major steps have been made in this direction with the implementation of the LRT corridors and the planned BRT projects which are likely to improve mobility and access in the city. Greater attention should also be given to the improvement of public transport services the country's secondary cities so that they can fully play their role as regional engines of growth.

Map 5-17: Pilot B2 BRT corridor



Source: AACPPO & Lyon Town Planning Agency, 2012

#### SWOT Analysis - Road sub-sector

Helpful In achieving progress	Harmful In achieving progress
<ul> <li>Strengths</li> <li>A steadily increasing network (63,083 km in 2012) including major paved cross-boundary highways.</li> <li>The network condition improved considerably since RSDP I</li> <li>Improved axle load control favourable to the preservation of road assets</li> <li>An old and structured road administration, with increasing institutional and technical capacity</li> <li>A solid funding mechanism for road maintenance</li> </ul>	<ul> <li>Weaknesses</li> <li>Weak domestic road construction sector, which generates higher construction costs</li> <li>The network of paved roads is not sufficiently fine-meshed</li> <li>A policy for feeder roads whose effects needs to be confirmed</li> <li>Further need for decentralisation in order to be closer to users' needs</li> <li>Inadequate road transport services, both in urban and rural areas</li> </ul>
<ul> <li>Opportunities</li> <li>Development of rail network which could limit the road deterioration</li> <li>A National Land Use Plan that will help to anticipate the future needs (must be in pace with a road master plan) and strategically inform road priorities through a spatial lens</li> <li>A road program that could help to develop non-agricultural jobs</li> <li>The Trans-African Highway program of the African Union includes roads crossing Ethiopia. It will help to build the missing links of the roads included in the TAH corridors</li> </ul>	<ul> <li>Threats</li> <li>Inconsistency between road projects and the National Land Use Plan</li> <li>The mobilization of funds for roads construction could be difficult to achieve.</li> <li>The development of the road network will generate increasing financial needs for an adequate maintenance</li> </ul>

# 5.2.2.4 Ongoing sea and dry port projects

# Major regional port developments

In order to address the identified infrastructural challenges and other bottlenecks to ports performance, transit countries have launched major port development projects. These projects, which are currently at different stages of construction, are also part of a regional race between Djibouti, Kenyan and Tanzania to gain dominance as East Africa's preferred sea transport hub. These initiatives clearly constitute an opportunity for hinterland markets, and particularly Ethiopia, to diversify its access to deep-water ports.

# Djibouti port development

In Djibouti, the extension of the Doraleh Container Terminal is underway. Upon completion, it will bring the current capacity from 1.5 million TEU to 3 million TEU per annum. In addition to this project, the construction of a new livestock port at Damerjog is also underway. Also

significant is the construction of a new port located in Tadjourah. The port which is expected to be completed by 2017 will have a total cargo handling capacity of 8 million tons. A total of 4 million tons per annum of Ethiopian potash originating from Afar mines is expected to be exported via the new port at Tadjourah. Inland connections between Ethiopia and the future port include:

- A road going through Tadjourah Randa Dorra Balho. The construction of the section between Tajourah and Balho (114 km) on Djibouti's side is currently underway. On the Ethiopian side, the Semera Elidar (134 km) section of the Mille-Assab road corridor was rehabilitated in 2001 and according to the 2012 ERA road condition survey, the paved section is good condition.
- A future railway in linking the town of Mekele in northern Ethiopia to Tadjourah, via Woldiya and Elidar.



Map 5-18: Ongoing and planned port developments in Djibouti

Source: O.Hadi, Aboubakar. "Infrastructure and Investment of Ports and Free Zones" PowerPoint Presentation. IGAD Conference, March 2012.

# Kenyan port developments

A major port project in Kenya is the construction of a second container terminal at Mombasa Port. The terminal will have 3 berths that measure 230, 320 and 350 meters, with 15 m draught. The terminal will add a capacity of 15 million tons to the Port and increase the port's container-handling capacity to 450,000 TEU in 2016 and 1.2 million TEUS in 2019.

In addition to this significant expansion of Mombasa Port, the country is planning to build a second port at Lamu, a city located in the northern part of Kenya and closer to Ethiopia. The deep-water port at Lamu will have 30 berths with 18 meters alongside depth, as well as a tanker terminal. Upon completion, which is expected in 2018, it will be almost three times the size of Mombasa, making it the largest port in Africa.

The port is expected to serve the hinterland markets of South Sudan and Ethiopia. It is expected to handle a total cargo volume of approximately 23.8 million tons in 2030, out of which 10.5 million tons will be destined to Ethiopia. Construction of the first 3 berths, which will handle some 13.5 million tons per year by 2020, is expected to begin in July 2014. The construction of the port is part of the development of a new transport corridor linking the port of Lamu with Ethiopia and South Sudan called the "Lamu Southern Sudan-Ethiopia Transport Corridor" (LAPSSET). The new and modern transport corridor includes a crude oil pipeline and over 1,700 km of highway and railways.



Map 5-19: Transport Routes and Future Port Cargo Demand of the LAPSSET project

Source: Kasuku, Silvester. "Lamu Port – South Sudan – Ethiopia Transport (LAPSSET) corridor project". PowerPoint presentation. March 2, 2012

The pipeline will deliver oil from South Sudan to an oil refinery at Lamu Port. The refinery is expected to open by 2015 and will have a capacity of 120,000 barrels per day. The 2,240 km pipeline will run from Lamu to South Sudan and Addis Ababa through Isiolo. Its expected capacity will be 500 000 barrels of oil per day.

The highway component is part of the Great Equatorial Land Bridge Lamu- Juba – Bambari – Bangui – Yaoundé – Douala. It will have two branches: (a) a southern branch from Lamu to South Sudan (1,256 km): Lamu, Hola, Bura Garissa, Isiolo, Kisima, Nginyang then Lokichar and (b) a northern branch of the corridor will connect the town Isiolo to Ethiopia via Moyale (470 km) then Hawassa

Construction has commenced on both the Lamu – Juba road and the link to Ethiopia. The rail component involves the construction of a 1,500 km standard-gauge railway. By 2030, the railway line is expected to handle 30 daily trains to Juba and 52 to Addis Ababa. In addition to

these major port development projects, the concession deal with French group Bolloré for the operation of Berbera port is finally underway. This concession offers the opportunity to enhance port capacity, terminal facilities and improve port efficiency. The port could thus attract a larger share of Ethiopia's transit market and assert itself as an alternative secondary port, particularly for the south-eastern part of the country.

# Dry port projects

In order to ease congestion, Mojo Dry Port is currently undergoing an 8-hectare expansion which is expected to increase the dry port's total capacity to 15,000 TEU. Expansions at Semera, Mekelle and Dire Dawa Dry Ports have also been reported. In addition to the currently operating dry ports in the country, studies have been conducted for the construction of additional dry ports at Moyale, Woyito, Hawassa and Jimma.



# Map 5-20: Existing and Planned Dry ports

Following the review of Ethiopia's existing and alternative seaports, inland connections and various projects underway, it can be concluded that Ethiopia faces various challenges with regards to maritime transport. The first challenge relates to port infrastructure. At present, Ethiopia's secondary and alternative ports are characterized by insufficient capacity, poor state of port facilities and inadequate terminals equipment. Only Djibouti is endowed with the necessary port capacity and adequate facilities to handle Ethiopia's rapidly expanding seaborne trade. The issue at Djibouti Port is mainly related to port performance, which is well below neighbouring Mombasa and international standards.

Source: ESLS

Overall, it seems difficult to achieve the diversification targets stated in the GTP I in the short to medium run. At present, Ethiopia's access to surrounding ports entirely relies on road transport. Poor infrastructure and missing road links along the Berbera and Mombasa corridor limits the utilization of these alternative ports. However, various national and regional rail projects are underway and should provide Ethiopia with enhanced access to the country's main ports as well as the opportunity to diversify its sea outlets.

SWOT Analysis – Maritime sub-sector	
Strengths	Weaknesses
<ul> <li>Access to Djibouti, a deep-water port, with modern cargo facilities and specialized terminals adapted to Ethiopia's seaborne trade demands.</li> <li>Good relations with Djibouti</li> </ul>	<ul> <li>A high dependency on the single port of Djibouti and high port tariffs</li> <li>Insufficient capacity, poor state of port facilities, inadequate terminals equipment, port inefficiencies at alternative ports (e.g. Berbera)</li> <li>Lack of multimodal transport corridors</li> <li>Poor road condition along the main transit corridors and crucial missing links</li> <li>Poor logistics chain (lack of IT supported Tracking systems).</li> <li>Various non-tariffs barriers (such as road blocks and weighbridges) substantially increase travel times along all corridors and impose higher additional economic costs.</li> <li>Insufficient facilities at dry ports as well as recurring congestion problems.</li> </ul>
<ul> <li>Opportunities</li> <li>The emergence of East Africa as an increasingly attractive area for global trade and maritime traffic</li> <li>Several major port developments (e.g. Tadjourah, LAPSSET), including multimodal transport corridors, which can provide alternative sea outlets for the country.</li> <li>Construction of two railways linking central, northern and eastern Ethiopia to Djibouti's existing and future ports</li> <li>Opportunity for increased intraregional trade, stronger social and economic integration with Ethiopia's neighbours</li> <li>Transit countries are investing in crucial linkages (both road and rail transport infrastructure) in order to provide efficient hinterland connections</li> </ul>	<ul> <li>Threats</li> <li>Potential threat linked with piracy in the Gulf of Aden.</li> <li>The failure to attract adequate funding for the modernization of port as well as transport infrastructure along the main trade corridors</li> <li>Failure to enhance management and efficiency of regional ports given the already high costs of transhipment</li> <li>Failure to develop multimodal transport corridors to all ports (main and alternative ports)</li> </ul>

# 5.2.3 Potential impacts of transport infrastructure development on urbanisation

# Potential impacts of airport projects

A key issue for the sub-sector is the construction of the future passenger terminal of Addis Ababa airport. The location of the new terminal is going to have a huge impact on the urbanisation pattern of the urban region of Addis Ababa currently in formation. Sites such as Teji and Alem Gena which have been previously identified as potential sites for the future hub are located along the south-western corridor going out of Addis Ababa.

This corridor has the advantage of being less heavily trafficked than the south-eastern corridor. It is also the preferred site for the AASSOID team which sees an opportunity to develop a new urbanisation and economic corridor, thus balancing the development of the urban region. This could create the opportunity to a cluster of airport-related activities (i.e. hotels, convention centres, retail, high-tech firms, etc.) along this new south-western corridor to the future airport.

Moreover, the potential site of Mojo which has also been previously identified is not only much further away (75 km) but it is also located along the south-eastern corridor which is heavily trafficked and is characterized by major industrial activity. However, accessibility, namely through mass transit public transport, will be determinant for the future airport to be able to conveniently service the metropolitan area of Addis Ababa. With this regard, the south-eastern corridor which will be served by both an expressway and a double-track railway between Addis Ababa and Adama by 2015 with have a strong advantage.

Other airport projects such as the construction of a new airport outside of the city of Kombolcha for instance could also provide the opportunity for new town development.

Overall, the construction of new airports at various locations is expected to contribute to the enhancement of accessibility at the national level, support the growing tourism activity as well as Ethiopian exports of perishable products, and provide significant opportunities for direct employment in the aviation industry as well as indirect job opportunities in annex sector (logistics, services, etc.). *Potential impacts of road development projects* 

The recent expressway constructed between Addis Ababa and Adama is likely to result in a number of positive impacts as acknowledged in the EIA:

- Reduced congestion: The infrastructure will contribute to the relief of traffic congestion along the road and this will result in time savings and reduced travel costs for motorist. Reducing congestion along the main import-export corridor of the country is likely to slash freight costs, thus facilitating international trade and increasing the country's competitiveness on global markets.
- **Improved quality of life**: It will also contribute to the improved quality of life for people who use this major road and who live and work close to it, thus making the cities along the road more attractive.
- Improved connections / helping Addis Ababa: The infrastructure will also provide an easier and faster connection between some of the country's most populated cities, i.e. Addis Ababa of course, but also Adama, Bishoftu. It will thus reinforce the functional urban region of Addis Ababa.

• **Opportunities for economic development**: The expressway also provides an opportunity to develop a strong industrial corridor, which tomorrow could extend all the way to Awash, once the Adama – Awash section is prolonged.

# Potential impacts of URRAP

If fully implemented, the URRAP will help reduce travel times and vehicle running and maintenance costs in rural areas and facilitate the provision of rural transport services. This in turn will contribute to reducing the costs of delivering inputs and provide easier access to basic education and health services. Beyond transport costs reduction, it will contribute to strengthening rural-urban linkages.

This could enable isolated rural communities to move into commercial agriculture, thereby increasing their income. Indeed, proximity to cities is critical to commercial agriculture. Empirical evidence suggests that there is a strong positive correlation between feeder roads and agricultural productivity. Farmers closer to cities tend to use more and higher-quality fertilizers and pesticides as well as better equipment, resulting in clear improvements in productivity.

Similarly, rural areas within 2 hours travel times of cities of 100,000 inhabitants are found to have more diversified economies (Dorosh and al. 2008). In Ethiopia, previous studies (Croppenstedt and Demeke, 1996) have shown that farmers in rural areas with access to an all-weather road increased their probability of using fertilizers by 10 to 20 percent due to cheaper transport costs. Moreover, stronger inter-linkages between urban and rural areas with provide larger market for rural products, thus generating higher income flows that go back to rural areas.

# Potential impacts of the road network development on urbanisation

Other potential economic impacts include access to a larger pool of skilled labour, a boost to tourism industry, growth of export-oriented industries which could benefit the various cities of the country. Road development is also a determinant of urban growth and spatial development patterns. The organisation of the road network can also have an impact of the spatial development patterns in the following ways (see Figure 5-13):

- An underdeveloped road network will lead to a more fragmented territory with under developed trade and transport flows
- A road network focused on the national capital will foster the development of this capital (macrocephaly).
- A fine-meshed network will promote a balanced development of the territory.



#### Figure 5-13: Example of road network development and implications on the urban system

Source: The Consultant

Two configurations of the territory and must be avoided:

- a territory characterized by a juxtaposition of local territories operating on their own logic with low exchanges between them,
- A territory where the capital concentrates most of the economic and demographic growth.

The organization of transport networks, promoting and guiding the exchanges between cities is a key element of the urban structure and its dynamics

However, none of these impacts are certain and evidence accumulated in other contexts suggests that one needs to take a cautious view of these wider economic and spatial impacts of road development. Whether transportation improvements and road development particularly lead to spatial development, or simply follow, remains largely debated. This applied to other modes as well. Indeed, if the expansion and improvement of the road network is a factor of urbanisation, it is just one determinant among others. Moreover, at a local level, the construction of a new road (or paving an existing earth road) can have ambivalent impacts. It can promote the growth of an urban centre while also leading to the stagnation or decline of small, underserved towns near the project.

# Potential impacts of railway projects

The implementation of the Ethiopian National Railway Network project is likely to generate significant benefits:

 Transport efficiency impacts: Empirical evidence suggests that such a project can directly achieve time savings due to higher operating speeds, namely compared with other modes (i.e. road) and enhance the transportation capacity of the various corridors, particularly the main import-export corridor of the country. In the short run, it will provide faster and more reliable access to the port of Djibouti, thus significantly reducing freight transport costs, and enhancing Ethiopia's trade competitiveness. In addition, accessibility to the main nodes along the railway will be significantly enhanced. The railway will also improve inter-modal connection in many hub cities (Mojo) and contribute to the growth of other nodes (Woldiya, Awash).

- Socio-economic impacts: The railway has the potential to deliver significant agglomeration benefits. However, empirical evidence from countries such as France or Japan which have extensive railway networks suggests that generally speaking the nodes of the network are likely going to benefit from such effects. For example, nodes like Awash which will be served by both the priority Sebeta Djibouti corridor and the Awash Woldiya Mekele/Tadjourah corridor could reap particularly high benefits.
- **Urban development impacts:** By decreasing the travel times and thus placing cities in the country within easier reach of each other, the railway makes it easier for companies to relocate or spread out their facilities into locations that are most suitable for each type of activity, i.e. *emerging cities*. This means that while companies may need to keep offices in Addis Ababa for proximity to customers and other reasons, it can easily set up production units in areas where it can enjoy lower wages and land costs and which will be easily accessible. In general railway infrastructure investments tend to reinforce already strong urban centres. They often do not stimulate economic growth and rarely have significant impacts on development patterns as transport investments generally act as a complement to other more important underlying factors (such as investment factors). Due attention should thus be given to meet these fundamental conditions in the different regions and cities served by the network in order to reap the full benefits of the new infrastructure and for further economic development to take place. In this regard, a city such as Dire Dawa which will be a key node and the site of an industrial zone, will require particular attention in order to enhance the conditions promoting development (the availability of skilled labour for example) and thus fully benefit from the railway.

One key lesson from experiences in other countries is that the various induced economic and spatial benefits are not always evenly distributed. While increasing the overall economic development levels of the country, the future rail network could aggravate disparities across cities and regions. For instance in Europe, high speed railways are found to bring peripheral regions closer to the central ones, but also tend to increase the imbalances between the main cities and their hinterlands. In the case of Ethiopia, the railway network is likely to:

- Reinforce the country's eastern urbanisation corridor.
- Consolidate the importance of the urban region of Addis Ababa, which will stretch all the way to Adama.
- Core metropolitan areas in formation are likely going to benefit from the infrastructure and attract both people and economic activities whereas other small cities nearby remain left behind. In the short run, in light of the priority given to the Sebeta – Djibouti as well as Awash – Woldiya – Mekele/Tadjourah corridors, it seems likely that the central eastern and north-eastern part of the country would reap the highest benefits.

Another key issue with regards to the spatial impact of the project is related to station location. In some cases, the stations of the future railways have been built on out-of-town sites. Notable examples cited by experts include Mekele and Kombolcha. There are various impacts both positive and negative associated with such a decision. If the stations are located too far, this could negate the advantage of city centre access which is crucial. In the short

run, locating a station out of the centre could result in lower rail ridership and connectivity due to difficult transfers to other modes and longer access times. However, this impact could be not only mitigated but also provides an opportunity for new urban development around the new out-of-town stations.

If urbanisation in Ethiopia continues at the current pace, it is probably possible to accommodate new development outside the existing urban core and in the vicinity of the stations. However, this will require implementing supportive planning and integrating the railway network both with urban development plans and with other transport modes. Lastly, it must be noted that the various economic and spatial impacts will likely occur over decades, not years. Yet, in order to ensure that the stations maximize their potential benefits, active policy initiatives should be pursued as soon as possible, through for instance the integration of the railway network into local transport and urban planning.

#### Potential impacts of the Addis Ababa LRT projects

Ambitious claims have been made on behalf of the LRT project in terms of its capacity to reduce road traffic and congestion. Although the project is likely to have a positive impact on the mobility conditions of the city, whether the project will significantly alleviate the current road congestion and/or provide a viable and affordable alternative for the significant proportion of the city dwellers remains uncertain and will dependent on factors such as the fare policy adopted.

Experience in other low-income countries which have invested in rail-based mass transit systems suggests that the capacity of such systems to reduce road congestion and to meet the needs of the majority of the low income groups is often limited. The financial viability of such projects is also uncertain. Hence the need to develop a multimodal transport system including BRT corridors and other more efficiently regulated private bus services. Lastly, the project will have significant spatial impacts. The ERC plans on using Transit-Oriented Development (TOD) along the main stations of the corridor as a means to fund the initial capital investment, thus resulting in higher urban density and significant impacts on land use and land prices in the vicinity of the stations.

#### Potential impacts of regional port developments

The various regional port initiatives described in previous sections clearly constitute an opportunity for Ethiopia to diversify its access to deep-water ports, thus resulting in the diversification of trade corridors in the country's trade.

The construction of a new Port at Tadjourah in Djibouti linked with the development of two railways in Ethiopia (Woldiya-Semera-Elidar and Mekelle and Awash-Kombolcha-Mekele) will reinforce the urbanisation corridor stretching between Awash to Mekele, via the industrial city of Kombolcha but also Dessie and Woldiya. As for the LAPSSET project, if fully implemented, it is likely to have a strong impact on the urban structure by reinforcing the southern urbanisation corridor of the country going through Mojo, Shashemene, Hawassa all the way to Moyale. If the overall performance of Port Berbera is enhanced through the new concession deal, the corridor between Dire Dawa – Jijiga – Togochale could be reinforced.

# 5.2.4 Conclusion

At present, Ethiopia's transportation systems are lagging behind those of low-income peer countries and are not seen as adequate to meet the current let alone growing demand driven

by economic growth and urbanisation. Access to rural areas remains low and constrains the diversification of rural economies towards more commercial agriculture. This is a serious challenge given that the vast majority of the population lives in rural areas.

Moreover, the combination of low access and limited affordability for services seriously constraints the movement of urban residents and goods, which in turns hinders agglomeration, urban productivity and prevents cities from realizing their full potential as engine of economic growth. One of the most flagrant inefficiencies is in the fret transportation and logistics services, resulting in high freight transport costs. It is also found to be one of the major constraints to the country's industrialization.

Despite these shortcomings, the country has made significant progress in recent years. The country has implemented an ambitious investment program to rehabilitate, upgrade and expand its major roads network. It has enhanced the technical capacity of the road sub-sector and put in place a funding mechanism to maintain road assets. In addition, the country has developed Ethiopian Airlines, one of the three top international carriers in Africa, a large network of domestic airport dominated by a regional hub at Addis Ababa Bole International Airport. Moreover, the development of dry ports along the major import-export corridors of the country seeks to enhance the freight logistics and transportation facilities of the country.

As part of the GTP I, massive investments are in process and are expected to substantially enhance the transport situation in the country. These include the construction of a 5,000 kmlong modern railway network, with a first line connecting Addis Ababa to the port of Djibouti expected to open by the end of 2015 as well as Light Rail Transit (LRT) initiatives in Addis Ababa. In addition, major airport expansion and construction are currently underway in Addis Ababa, secondary and middle-size cities. These projected are expected to improve accessibility to these cities, as well as contribute to the growing tourism and export sector (particularly perishables).

Meeting Ethiopia's transport needs will call for continued efforts to expand the road coverage, particularly in rural areas. In this regards, areas with high agricultural potential deserve to be prioritized because of the high return they usually bring. In addition to building new infrastructure, the country will also have to significantly enhance rural, urban and interurban transportation services. Efficiency-related investments such as the development of ICT services and enhanced institutional arrangement could contribute to significantly reduce freight costs and thus need to be prioritized.

A more consistent integration between transport planning and urban planning is also essential in order to optimize the returns of transport infrastructure investments. At this stage of the study, the main recommendation is to ensure consistency between the long term vision of the National Land Use Plan and the Transport Infrastructures Policy so that transportation plans can be prioritized using a spatial lens.

The process relating to transport planning and its relationship with the land planning policy has been presented below. It is important to note that the Authorities in charge of land planning must be involved in the formulation of the transport policy. Indeed, transport planning aims to ensure the adequacy between the transport demand and transport infrastructures (and services). The transport demand is determined by the land use

The spatial distribution of housing, jobs, retail, leisure and other activities shapes the demand for travel. For instance, the dispersion of urban functions and a sprawling settlement pattern are likely to increase trip lengths. Moreover, the dispersion of travel demand resulting from the low levels of population densities renders public transport inefficient. It thus leads to a higher share of automobile trips.

Conversely, dense urban areas with mixed-use settlement patterns will maintain low distances between origin and destination of trips and help to keep environmentally-friendly solutions such public transport but also walking and cycling more attractive. Transportation plans (global, sectorial, and regional) are the logical continuation of a National Land Use Plan. Today, this medium to long term approach is missing in Ethiopia.



*Figure 5-14:* Integration of Land Use Policy and Transport Plans and programmes

The Land Use Policy will guide the economic development of the territory and thus determine the future transport demand.

On this basis a National Transport Plan will determine the necessary transport investments in the medium and long term.

This National Plan that covers all transport modes must be supplemented by :

- Transport sector specific documents (roads, railways, airports)
- Regional transportation planning documents

While a National Transport Plan primarily deals with national infrastructures, a Regional Transport Plan supplements a National Transport Plan with the selection of specific transport investments in the region (related to the regional transport demand).

# 5.3 Energy

Ethiopia is a country endowed with large hydropower potential. According to studies made in river basins, the hydropower resource is estimated to have a potential of about 161,000 Gwh/year. So far, however, only a fraction of this tremendous potential has been harnessed for any meaningful contribution to the socio-economic development of the country. In 2009 and 2010 three hydro plants were commissioned that doubled the installed capacity of the country. Since then the Ethiopian Government has devised the GTP I to boost the country's economy and contracts for more large dams have been signed. Ethiopia's physiographical nature and endowment in water resources are natural assets, which facilitate the generation of power associated with relatively lower production cost. The energy to be generated will not only caters for the increasingly growing demand for energy in the country but will have surplus production which can be marketed to neighbouring countries. This is likely to earn the Ethiopia substantial foreign exchange perhaps, perhaps equally that earned from the more traditional exportable commodities. It is with these overall objectives that due emphasis has been provided to the sector and the hydropower policy has been formulated accordingly.

# 5.3.1 Hydropower

The overall objective of the policy is to enhance the efficient and sustainable development of the water resources and meet the national energy demands as well as catering to external markets in order to earn foreign exchange. The objectives are:

- Ensuring that small, medium and large hydropower candidate projects are studied and designed to a stage ready for immediate implementation once the go-ahead has been given.
- Ensuring that a short, medium and long-term hydropower generation programme is worked out well ahead of time.
- Ensuring that hydropower development projects are studied, designed, constructed, operated and utilised on economically viable basis to an acceptable technical, environmental and safety standards.
- Ensuring that any identified negative environmental impacts of hydropower are mitigated to the extent possible and that the positive environmental impacts are exploited as far as possible.
- Strengthening human capacity and capabilities related to hydropower development, project study and design, and construction and operation.
- Ensuring that hydropower development on trans-regional rivers is undertaken on the basis of mutual understanding and co-operation amongst the Federal and Regional concerned parties.
- Encouraging the involvement of the private sector in the development of hydropower.

The installed hydropower capacity in 2013 is around 1.8GW with twelve existing plants, three plants under construction and one plant under refurbishment. When the committed projects are commissioned, the installed capacity will exceed 10GW.

Table 5-13 summarizes the main characteristics of the existing and committed hydro plants, including capacity, type of dam and number of turbines. The location of all the existing, committed and candidate hydro plants and the river systems is shown on Map 5-20.

There have been many hydroelectric schemes proposed over the years. Some schemes are at the stage of inception study or reconnaissance study but for most of them there was a pre-feasibility or feasibility study available. The characteristics of the candidate hydro plants are given in Table 5-14.



Map 5-21: Map of existing and potential energy plants

Table 5-12: Characteristics of existing and under	construction hydro plants
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						DAM	CHANNEL S	POWER HOUSE
Localization	Status	Year started	Capacity (MW)	Rated Flow (m <sup>3</sup> /s)	Rated Head (m)	Туре	Height (m)	Crest (m)
Turbine Awash II	Existing	1966	32			Syphon Weir	10	88
Awash III	Existing	1971	32			Syphon Weir	20	125
Beles	Existing	2010	460	160	330	Natural reservoir		
Fincha	Existing	1973	128	27.8	550	Earth and Rockfill	22.2	340

Egis International in association with IAU-IdF & Urba Lyon – Existing Situation and Diagnostic Final Report (March 2015)

Genale 3	Under construction	2015	254	115.7	255	Roller Compacted Concrete Dam	110	
Gibe I	Existing	2004	184	97	212	Asphalt faced rock fill	41	1700
Gibe II	Existing	2010	420	98	485	Diversion Weir	46.5	171.13
Gibe III	Under construction	2014/2015	1870	1020	263	RCC	246	
Koka	Existing	1960	42.9	1000		Concrete Gravity	23.8	458
Maleka Wakana	Refurbished	1988/2014	153			Earth and Rockfill	42	2000
Neshe	Existing	2013	98	18.72	588	Earthfill embankment	40	1000
Renaissance	Under construction	2015/ 2018	6000	4704	123	Main Dam RCC Saddle Dam Embankment	150 50	1800 5200
Sor	Existing	2014	5	15	210			
Tekeze I	Existing	2009	300	220	155	Arch gravity		
Tis Abay I	Existing	1964/2000	11.4	29	46	\\/_:-	188	420
Tis Abay II	Existing	2001	68	150	55	vveir	3	635

Source: MoWIE

# Table 5-13: Characteristics of candidate hydro plants

Plant Earliest		ow	Туре	DAM			
	commissi oning year	Capacity (MW)	Rated Fl (m <sup>3</sup> /5)		Height (m)	Crest (M)	Headrace (m)
Abu Samuel	2020	6	95	Rubble-masonry gravity dam	26.5	327	
Aleltu East	2020	189	892	Rockfill/dam impervious core Rockfill/dam impervious core	38.5 32.5	455 3605	3215
				Rockfill/dam impervious core	56.5	2325	
Aleltu West	2020	264.6	999	Rockfill/dam impervious core	58	1875	7500 and 14200
				Rockfill/dam impervious core	44.5	485	
				Rockfill/dam impervious core	16	1270	
Baro 1	2020	113	166	Concrete faced rockfill dam (CFRD)	85	750	2440
Baro 2	2020	113	479	Rockfill dam with clay core	35	850	6140
Beko Abo Low	2020	908	110	RCC	120	1080	4x358
BirBir R	2020	160	351	Rockfill Dam/ Central Core	180	740	6600
Geba1	2020	50	465	Rockfill Dam/ Clay Core	45	810	6676
Geba 2	2020	65	263	Concrete faced rock fill	70	210	1192
Genale 5	2020	167	91	RCC	58	920	4680
Genale 6	2020	120	228	Rockfill Dam/ Asphalt concrete Core	60	650	4700
Genji	2020	31.5	380	Concrete Gravity Weir with free over fall, chute and stilling basin	22	135	
Gibe IV	2020	1146	139	RCC	165		2x500
Gibe V	2020	1631	42	RCC	66		
Gojeb	2020	160	106	Rockfill Dam/ Concrete faced	126		125
Halele	2020	124	89	Rockfill Dam/ Impervious Core	85	580	318
Karadobi	2020	800	215	RCC	250	684	
Lower Dabus	2020	183.4 2	44	RCC	4.4	84	
Lower	2020	271	133	RCC	165	800	491

Didessa							
Sor2	2017	15	91	Rockfill Dam/ Central Core	35	282	
Tams	2020	548	246	Suitable for Concrete gravity, RCC and rock fill	up to 270m		2x815
Tekeze 2	2020	277.5	180	Rockfill Embankment	180	1000	100
Upper Dabus	2023	183.8 7	163	RCC	5	84	290
Upper Mondaya	2020	1282	172	RCC	170	800	
Wabi Shebele	2020	99.58	99		105	1105	
Warabesa	2020	128	296	RCC	45.5	420	4260
				Embankment	27.5	1640	
Yeda1	2020	24.6	761	Rockfill Dam/ Central Earth Core	27.5	550	2630
				Earth fill dam	29	595	
Yeda 2	2020	24.6	561	Regulated flows discharging from the Yeda 1 powerhouse			5510

Source: MoWIE

# 5.3.2 Thermal Generation

The existing diesel generator plants connected to the grid are given in Table 5-16

Table 3-14.									
	Capacity MW		Fuel	Assume back in service in generation					
Location	Installed	Extensions							
Dire Dawa	40	38	HFO/LFO	2014					
Awash 7 killo	35	30	LFO	2014					
Kality	12	10	LFO	2014					
Adwa	2	1	LFO	2014					

Table 5-14. Existing diesel generation nower plants

Source: MoWE

The existing diesel generation power plant capacity is very low regarding the existing needs for both population and economic development. This kind of energy plant are very quick to implement and are necessary to face short term high demand of energy. The projected extensions will quasi double the capacity. But other types of power generation with much more capacities are projected in the near future.

# 5.3.3 Geothermal

The only existing geothermal plant in Ethiopia is at Aluto Langano. The plant is a 7.2 MW pilot plant that was commissioned in 1999, but was in operation for barely 18 months before shutting down when leaks developed in the heat exchanger tubes. Geothermal Development Associates (GDA) rehabilitated it in 2007 and currently it is generating about 5MW. EEPCO has included geothermal power generation in its Master Plan. The sites considered for development are shown on the Map 5-21:



Map 5-22: Map showing the geothermal sites in Ethiopia

# (Source: Epees)

Annex A gives a summary of the current development updates of the priority geothermal sites, generation capacities, and timing of project phases. This summary is up to date as of March 2013, but needs to be updated. As an example, it was announced on September 29<sup>th</sup> 2013 that the Government of Ethiopia and Reykjavik Geothermal (RG) have agreed that RG will build and operate up to 1,000 MW at Corbetti. A power purchase agreement has been signed, and the initial agreement is for 500 MW, stated to be fully operational by 2018.

A study to review the Ethiopian geothermal potential will be financed by the Japan International Cooperation Agency (JICA). We were also advised that the geothermal lifetime considered for the projects is 35 to 40 years, and directional drilling is planned, aiming at 5 MW output per well. Availability of the geothermal plants is said to be up to 98%.

The 70 MW Aluto Langano 2 project has a planned Commercial Operation Date in 2017. The exploration and field appraisal phase has already been completed. Drilling will take place first and be followed by an EPC contract of US\$ 230 million. The World Bank and a Japanese technical grant will finance the project.

An overall country capacity of 5,000 MW can be found in recent publications by the Geological Survey of Ethiopia. The Geothermal Power Development Plan for Ethiopia showed cumulative new developments of 450 MW by 2018 at six sites including Alulto Langano 2 and 1,000 MW by 2030. Such plans are subject to change with time, as illustrated by the recent agreement with Reykjavik Geothermal, but serve to give an indication of anticipated field development.

Table 5-15: Geothermal medium term plan					
Geothermal field	New Capacity MW				
Tendaho	100				
Corbetti	75				
Abaya	100				
Tulu Moye	40				
Dofan Fantale	60				
Total	375				

Source: EEPCO

In the light of the reviews that have been carried for EEPCO 's generation planning along with analysis of typical project timeline, a maximum rate of geothermal development has been proposed to summarize the tempered views of timings for realistic commercial operation, both optimistic in the long run and more conservative in the near future. This rate of development has been used in the generation planning to indicate the maximum amount that can be developed by each year. Table 5-17 summarises this plan assuming that developments are based on a nominal 100MW.

Year	Units Installed	Total Capacity MW
2018	2	200
2019	3	300
2020	5	500
2021	7	700
2022	9	900
2023	11	1100
2024	13	1300
2025	15	1500
2026	17	1700
2027	19	1900
2028	21	2100
2029	23	2300
2030	25	2500
2031	28	2800
2032	31	3100
2033	34	3400
2034	38	3800
2035	42	4200
2036	46	4600
2037	50	5000

Table 5-16.	Proposed	neothermal	develo	nment	nlan
	Floposeu	yeomennai	nevelo	pinent	piari

# 5.3.4 Wind

The Adama Phase 1 wind farm, completed in 2009, was the first wind-farm to be constructed in Ethiopia. The site, near Adama consists of thirty four 1.5 MW wind turbines, giving a maximum capacity of 51 MW. Phase 1 of the Ashegoda wind farm (c 2,428m) was completed in 2013, and consists of 31 MW turbines. Phase 2 was also completed by the end of 2013, and consists of fifty-four 1.67 MW. The total installed capacity is 120 MW. A further committed plant at the Adama site is the Adama Phase 2 with a 153 MW capacity consisting of 102 x 1.5 MW turbines.

A map of the distribution of average wind speeds for Ethiopia taken from the Master Plan

Report of Wind and Solar Energy, which identified 51 candidate wind plant sites as listed in Annex A. The location of the 51 wind farm candidate plants is plotted onto Map 5-21. The sites are principally located on a central north-south axis corresponding to high terrains of Ethiopia.

There are high average wind-speeds in the Ogaden region (south-eastern Ethiopia). This region is also at lower altitude, which leads to higher wind power density than at higher altitudes. However, the Ogaden has relatively low population density and is generally remote from the transmission grid. There are also high wind speeds in the far south, but these are remote from the grid and in areas of lower population density.

When analysing the 51 sites, the Master Plan Report of Wind and Solar Energy has only considered the average annual wind speed. The availability of more accurate wind speed data is very limited in Ethiopia, with most regions only having standard meteorological wind masts. These wind masts are not suitable for accurately predicting the wind speed for energy yield assessments.

The principal areas that are suggested for wind power development are shown in map 5-22. Based on advice from EEPCO, we are aware that up to 1,500 MW of wind capacity is planned for both the Adama and Aysha regions. The Aysha region, which is near to the Djibouti border, is particularly attractive for wind development. Its altitude is also close to sea level meaning that more power may be extracted from the wind. The 300 MW Aysha 1 wind-farm comprising three 100 MW projects is a likely development. Both the Aysha and Adama areas are well served by the transmission network. The northern area of Woldiya/Messebo Harena, the Debre Birhan area and the area to the south of the town of Assela appear to have good wind speed profiles and are also well served by the transmission network.



Map 5-23: Wind capacities and selection of potential sites

Source: EEPCO



Map 5-24: Suggested main areas for wind farms

Source: Master Plan Report of Wind and Solar Energy

# 5.3.5 Solar

The technology of harnessing the sun's energy with solar photovoltaic (PV) is becoming increasingly attractive as the PV module price reduces - the price of solar PV panels has fallen 75 per cent since 2008.Solar radiation resource is influenced by solar elevation angle, altitude and surface layer weather conditions. Ethiopia is in a low latitude region with approximately perpendicular incidence of sunshine so that, in general, it is very rich in solar radiation resource.

Current deployment of PV in Ethiopia extends only to off-grid systems, predominantly to support telecommunications equipment in remote areas. Some off-grid rural electrification schemes also exist; however there are currently no grid-connected schemes. No plants have been committed. The Energy Ventures & Global Trade and Development Corporation report considers three candidate sites for 100 MW solar PV plants at:

- Awash Kilo,
- Semera
- Hurso<sup>66</sup>

Five sites analysed by Parsons Brinkerhoff have been selected to be representative of sites covering the vast majority of Ethiopia. This gives a good overview of the differences in solar

<sup>&</sup>lt;sup>66</sup>The technical part of the feasibility study states that the Huros site is the most favorable in terms of topography and proximity to the national grid system.

irradiation across the country impacting electricity production. Map 5-25 shows the location of the five sites, and the global horizontal solar radiation levels. The sites are: (a) Mekele (b) Jijiga (c) Addis Ababa (d) Ethiopia/Kenya border and (e) Ethiopia/Somalia border

# 5.3.6 Biomass

Traditionally biomass has been used for basic human energy needs in Ethiopia, largely owing to the lack of access to electricity. The use of biomass for fuel wood in Ethiopia is thought to be particularly unsustainable, considering environmental and economic impacts, with consumption outstripping supply. Ethiopia's biomass resource includes:

- residues from agriculture;
- harvests from forests;
- crop residue;
- energy crops;
- animal manure; and
- Residues from agro-industrial and food processes.

The use of agricultural residues as a feedstock in Ethiopia is particularly appropriate as this will not deplete the stock of fuel wood. Electricity generation from bagasse is becoming increasingly important around the world and particularly so to the rural populations of sugar cane producing countries such as Ethiopia. Bagasse is a fibrous residue remaining after sugar cane or sorghum stalks are crushed. There are also two operating bagasse-fired cogeneration plants at state owned sugar factories. However these facilities at present are mostly for self-supply.



Map 5-25: Awash Kilo, Semera and Hurso candidate solar plant location

Source: Master Plan Report of Wind and Solar Energy





Source: Master Plan Report of Wind and Solar Energy

The Ethiopian Sugar Corporation has a committed programme for sugar factories. Ethiopia has one crop per year from mid-October to June, and during this period bagasse burning cogeneration plants produce steam and electricity. The electricity is used for factory, irrigation and village use around the factory and the surplus is exported to the grid. This supply of electricity to the grid has been included in the planning studies as a generation source from October to May. During the off-crop season from June till September the village loads are supplied from the grid, and have been included in the load forecast. This pattern of generation is complementary to the hydro generation, and has been modelled monthly in the generation planning studies.

Location	Year	Capacity Installed MW	Export MW	Annual energy exported Gwh	
Wenji	2013	30	16	77	
Fincha	2013	31	10	48	
Tendaue /Ende	2015	120	70	337	
Beles 1	2015	30	20	96	
Beles 2	2015	30	20	96	
Wolkayit	2015	133	82	395	

# Table 5-17: Sugar factories exports to grid

Egis International in association with IAU-IdF & Urba Lyon – Existing Situation and Diagnostic Final Report (March 2015)

Omo Kuraz 1	2015	60	20	96
Kessem	2016	26	16	77
Omo Kuraz 2	2016	30	20	96
Omo Kuraz 3	2016	60	40	193
Omo Kuraz 4	2017	60	40	193
Omo Kuraz 5	2017	60	40	193
Omo Kuraz 6	2019	60	40	193

Source: EEPCO

EEPCO have conducted feasibility studies for two-biomass plants- the Grand Renaissance Thermal Power Plant (now known as Bamza) and the Kesem Thermal Power Plant (now known as Meikasedi). Bamza will initially burn the wood cut down in the deluge area of the Grand Renaissance hydro power reservoir and then, after about eight years, will burn bagasse from local sugar plantations. Meikasedi will burn bagasse from the adjacent sugar mill in the crop season, and at other times will burn prosopsis, and possibly other residues such as crop residue from cotton farms.

There is currently only one committed waste to energy plant for Ethiopia – Addis Ababa Waste to Energy Plant, being developed by Cambridge Industries Energy. Cambridge Industries Energy are also conducting feasibility studies to assess the suitability of similar plants in other cities around Ethiopia, for Dire Dawa, Adama, Mekelle, Bahir Dar, Jijiga, Harari and Jimma.

Ethiopian cities have a large potential for waste to energy plants with their rapidly expanding populations and a current lack of good waste management schemes.:-The Addis Ababa Sanitation, Beautification and Parks Development Agency (SBPDA) estimates that the daily waste generation of the city is 0.252 kg per capita per day which will equate to a total daily waste generation of about 1,500 tons per day in 2033, based on population projections.

Repi is the largest landfill site in Addis covering an area of 37 hectares, with waste estimated to be as deep as 40 m. The proposed site for the plant is a compact area of 7 hectares. The site is brown field and has previously been used for open, unmonitored incineration of waste. EEPCO finalized a turnkey contract with Cambridge Industries Limited on 4 January 2013 to design and construct a 50 MW Waste to Energy (WtE) plant in the Repi (Koshe) area of the city. The plant will be the first of its kind in Sub-Saharan Africa and is to be financed by the Ethiopian Government. A summary of the plant details is provided in Table 5-19.

Description	Unit			
Rated Output	MW	50		
Nominal Output	MW	20		
Annual Energy	MWh/year	185,684		
Capacity factor	%	86%		
Heat Rate	kJ/kWh	16,000		
First Year of Operation	Year	2015		
Plant Life	Years	30		
Fuel Type		Municipal Solid Waste & Selected Industrial Waste		
LHV	MJ/kg	9.5		
Thermal Efficiency	%	22.5%		

Table 5-18: Addis Ababa, waste to energy plant project details

Heat Rate	kcal/kWh	16,000
Forced Outage Rate	%	7%
Average Forced Outage	Days per Year	27%
Days Scheduled Maintenance	Days per year	27

Source: EEPCO

Feasibility studies are being conducted for Dire Dawa, Adama, Mekelle, Bahir Dar, Jijiga, Harari and Jimma. These areas have been selected as they have available waste streams and because there is currently no generation in these areas. Details of these plants are yet to be released although it is indicated that they will be of a similar nature to the Addis Ababa Waste to Energy plant. The table below provides PB's estimate of the size and details of the candidate plants.

Table 5-19: Indicative project details for candidate waste to energy plant						
Priority as provided by EEPCO	Location	Approx. Current Population from Welfare Monitoring Survey 2011	MW per person per day (tons)	Total Annual Waste (tons)	Proposed Plant Installed Capacity (MW)	First Year Online
1	Dire Dawa	115,028	0.00025	10,496	7	2019
2	Mekelle	273,584	0.00025	24,965	7	2021
3	Adama	258,872	0.00025	23,622	7	2023
4	Bahir Dar	167,896	0.00025	15,321	7	2025
5	Jimma	153,940	0.00025	14,047	7	2027
6	Harari	99,979	0.00025	9,123	7	2029
7	Jijiga	150,941	0.00025	13,773	7	2031

Source: EEPCO

Based on advice from EEPCO, no further EfW plants will be committed until it is evident that the Addis plant is operating successfully. The generation planning studies have therefore not included any additional EfW plants in the planning studies. It should also be noted that EfW plants are essentially a solution to disposing of waste, and electricity generation. The plants are also comparatively small compared to that of Addis Ababa, and would only produce about 7 MW each.

# Thermal generation

A Chinese company together with Jiangxi Electric Power Design Institute has studied a minemouth fluidized bed combustion coal-fired plant at Yayu, 540 km west south west of Addis Ababa. The report recommended a 2x50 MW fluidized bed combustion steam mine-mouth power station with a dedicated coalmine.

The development period would be about four years from contract signature, and the price of the coal is estimated to be about 16.6 \$/ton in 2012 with a relatively low calorific value of 13.4 GJ/ton. Using the investment, production and operation costs quoted in the report and escalated to 2012 prices the levelled economic cost of production as a base loaded plant appears competitive with geothermal energy in Ethiopia because of the low price estimated

for the coal production.

However, given the environmental impacts, principally of carbon dioxide production, the development of renewable energy would be preferred. Coal-fired plant using indigenous coal has therefore not been considered in the generation planning given the alternative renewable sources of energy in Ethiopia e.g. hydro, geothermal, wind, solar, and also potential gas production or import.

Coal could be imported and would have to be brought by ship to Djibouti and then transported by rail into Ethiopia. Coal-fired generation using imported coal; would be relatively expensive. The principal areas that are initially suggested for development of non-hydro plant are shown in the following tables. These locations are indicative for the purposes of transmission planning based on the Reference plan, and are by no means exhaustive (see Annex A for the location of candidate sites for renewable energy).

# 5.3.7 Oil, Natural Gas & Coal

Tenneco discovered the Calub and Hilala Gas fields in 1973, and 1974 respectively. The Soviet Petroleum Exploration Expedition (SPEE) drilled nine development wells at Calub and three wells at Hilala during the period 1986 to 1991. The fields lie in the remote Ogaden region of south eastern Ethiopia some 1,200km from Addis Ababa. A 230 kV transmission line is being constructed to Gode, which is about 45 km to the south east of Hilala. Calub contains initial gas-in-place of 2.7 trillion cubic feet (TCF) equal to 76.5 billion cubic meters - and initial recoverable condensate reserves are about 128 million barrels, according to the original estimates from SPEE. Hilala contains gas-in-place volumes of 1.3 TCF (36.8 bcm), giving a total of 4 TCF. Security considerations and remoteness appear to have been some of the main reasons that the field has not been exploited so far.

A gas study was carried out in 1998 by French consultants, and considered various options for using the gas based on transfer by gas pipeline. The uses included electricity production, urea production (for fertilizer), synfuel, use in industry, and also mentioned export by pipeline or by ship after conversion to liquefied natural gas (LNG).

4 TCF is sufficient gas to run about 3,200 MW of base loaded combined cycle plant (85% plant load factor) for twenty five years. A large diameter pipeline capable of transferring about (4.5 BCM) per year would be needed with compressor stations on route for such large distances. The pipeline lengths estimated in the 1998 study are given in Table 5-21

Table 5-20: Pipeline lengths				
Route	Length km			
Calub - Gode	150			
Calub – Dire Dawa (Route A or B)	650 - 674			
Calub – Awash (via Dire Dawa)	950			
Calub - Assela	800			

Source: MoWIE

If some or all of the gas were to be exported as LNG, an additional pipeline of about 283 km would be needed from Dire Dawa to Djibouti, together with an LNG plant at Djibouti. However, the low cost of LNG at terminal in the USA means that LNG exports abroad from the Calub field are very unlikely to be economic, taking into account the distance from Calub to Djibouti and the cost of liquefaction. An alternative to producing gas in Ethiopia would be to import LNG at Djibouti, re-gassify it there and send it by pipeline to Dire Dawa or Awash.

Refined oil products are transported by lorry from Djibouti, though in the future it is anticipated that the new railway will be used. Ethiopia's oil consumption was 1.09 million tons in the 2012/13 Fiscal Year, and 85% was imported from neighbouring Sudan via Djibouti. Ethiopia saves at least \$10 million in transit related costs per year by using Sudanese oil sources rather than importing from markets further a field, such as the Middle East.

Major discoveries of oil in Sudan, Uganda and Yemen, which have similar geology to Ethiopia, mean that there are good grounds to believe that oil production can be developed in the country. Key sites for exploration include (also see map 5-26 overleaf):

- Ethiopia's South Omo Block, an area which includes the Tertiary rift
- The Adigala Block in the northeast of Ethiopia, where surveys have also provided evidence that all the elements of a working petroleum system exist
- At El Kuran and Hilala in the Ogaden Basin Area in the south-east of Ethiopia, where data indicates that there is a wide range of oil of types and volumes
- Gambella area is also a potential area for oil discovery

To complete hydro carbure production analysis, Ethiopia has located coal reserves in three separate areas in Ethiopia, and a total of about 297 Mt of coal reserve (lignite and high volatile bituminous coal) has been registered in the country, mainly in the west. The various basins include Chilga, Delbi-Moye, Yayu, Lake Sapo and Gojeb-Chida.

Emphasis is placed in GTP I on strategic petroleum reserve facility development and operation. Ethiopia being a petroleum importing country, the reliable and consistent supply of petroleum is essential for country's economic development. Ethiopia's strategic petroleum reserve capacity was 369,800m<sup>3</sup> in 2009/10, which was about a two months' supply. During the GTP period, development of the strategic petroleum reserve facility will cover all areas associated with development and operations, including the construction of storage capacity, oil acquisition and transfer to storage and operational readiness activities such as distribution of the stock to local commercial distribution systems.



Map 5-27: Oil & Gas exploration blocks

Source: MoWIE, 2010

# 5.3.8 Electric Transmission

A transmission expansion plan was developed for EEPCO's transmission network covering the period from 2013 to 2037. The transmission expansion plan is based on the load forecast and generation expansion plan. The proposed expansion plan was developed in two stages: the short-term plan covering the period from 2013-2020 and the long-term plan covering 2021-2037.

The Interconnected System (ICS) links the major generation to load centres via transmission lines at 400 kV, 230 kV and 132 kV and sub-transmission lines at 66 kV and 45 kV. The system frequency is 50 Hz. There are a total of 150 substations across the system; 12 hydro, 4 thermal, 3 small hydro stations and 131 transmission substations. The total circuit lengths on the existing system are shown in Table 5-22. EEPCO plans to phase out 45 kV in favour of 66 kV and also to replace some 66 kV lines with 132 kV. Map 2-25 shows the existing system and the planned transmission projects up to 2015

Reactive compensation is installed at various locations across the network on the system and includes shunt capacitors with a total capacity of approximately 200 MVAr and shunt reactors (both line and busbar connected), with a total capacity of approximately 700 MVAr. The

power stations connected to the ICS had a total installed capacity in 2012 of 2,124 MW and available capacity of 1,871 MW.

Table 5-21: Total circuit length (km)				
Voltage level (kV) S	ingle circuit	Double circuit	Total	
400 kV Transmission Line	621	63	684	
230 kV Transmission Line	3,376	1,607	4,983	
132 kV Transmission Line	4,509	133	4,642	
66 kV Transmission Line	1,902		1,902	
45 kV Transmission Line	243	9	252	
TOTAL	10,651	1,812	12,463	

Source: EEPCO



# Map 5-28: Electricity network

# Source: EEPCO

There are a number of 'off-grid' areas, which are supplied by small-scale diesel or hydro generation feeding isolated distribution networks. These supplies are collectively known as the Self Contained System (SCS). The total installed generation capacity of the SCS is 34 MW of which 6.2 MW represents the small hydro contribution. The ICS is being progressively extended to include these areas.

Very little generation capacity is planned for the Addis Ababa region, and the deficit in Addis Ababa is expected to grow from approximately 950 MW in 2015 to 5,700 MW by 2037. This will be met primarily from the Western and North Western regions, necessitating major transmission corridors from these regions into Addis Ababa. Dynamic reactive compensation

will also be required in Addis Ababa, in the form of Static Var Compensators (SVCs).

The deficit in the Southern region is expected to reach 2,000 MW by 2037, and will be met primarily from surplus generation in the Western region. The deficit in the North Eastern region is expected to reach 1,300 MW by 2037, and will be met primarily from surplus generation in the North Western and Semera regions.

The transmission expansion plan was considered in two stages: short-term and long-term. The short-term plan covers the period up to 2020, while the long-term plan covers the period from 2021-2037. The expansion plan includes the transmission projects required to meet the forecast demand and associated generation expansion, whilst complying with the planning criteria that are identified in the Ethiopian Power System Expansion Master Plan Study report.



*Figure 5-15:* 2015 Surplus/deficit of generation capacity (MW)

Source: MoWIE

The short-term plan includes 114 new transmission substations, 63 substation reinforcements and 13,560 km of new 500 kV to 66 kV transmission lines required at various stages up to 2020 as indicated in Table 5-23. The transmission system will create conditions to deserve all region despite of high difference in the capacity to generate energy. The advantage of a National transmission integrated grid is the support for the economic development in all regions. Some regions have higher potential for generation, other very few, but can generate high added value. For example, Addis Ababa which is one of the main economic pole in Ethiopia, generating 28% of the GDP (see Urbanization review of the World Bank, 2014) has very few energy generation capacity. Its industrial and urban development is dependant from other regions.
Table 5-22: Short-term project summary							
Year	New substations	Substation reinforcements	Transmission lines (km)				
2013	11	9	2343				
2014	9	3	1167				
2015	45	30	4071				
2017	27	5	2352				
2020	22	16	3627				
Total	114	63	13,560				

Source: EEPCO

The major 500 kV, 400 kV and 230 kV developments included in the short-term expansion plan are illustrated in Table 5-32 overleaf. The plan includes extensive expansion of both the 230 kV and 400 kV systems. The 500 kV developments are limited to the GERD-Addis Ababa corridor and the international interconnection with Sudan.

The long-term plan is based on further extension and reinforcement of the network at 400 kV, 230 kV and 132 kV. The proposed 2037 network comprises a 400 kV super-grid, which interconnects the main load centres with the major power plants. By 2037 there will also be the need for extensive reinforcement and extension of the 230 kV grids. The long-term plan includes 78 new transmission substations, 41 substation reinforcements and 9,257 km of new 400 kV to 132 kV transmission lines required at various stages up to 2037 as indicated in Table 5-24.

Table 5-23: Long-term project summary						
Year	New substations	Substation reinforcements	Transmission lines (km)			
2025	25	7	2,769			
2030	22	14	2,333			
2037	31	20	4,155			
Total	78	41	9,257			

Source: EEPCO

## 5.4 Telecommunications

The Telecommunications sector is crucial infrastructure for the modern industrial and urbanised economy. In 2010 the implementation of the CDMA wireless network covers 90% of the country. Fixed lines were reaching 1 million subscribers and in 2010 there were 187,000 mobile phone subscribers. Ethio-Telecom considered at this time that 25 million users have access to the network and 6.5 million customers are regularly using the lines. The access to rural population was 62.14%. Moreover, 10,000 km of optic fibre cables were implemented increase capacities for data exchange. It will be extended through the neighbouring countries to international marine cables. This investment constitutes the country's global digital gateway.

The telecommunication network, however, needs to be improved in order to provide better coverage and better quality of communication particularly as 4G to be implemented in the next few months. All telecommunication networks will be digitalized. Internet service will be expanded to all city governments, woreda cities, academic institutions, research institutes, social organisations and the private sector.

Targets are the following (2010-2015):

- Fix lines from 1 million to 3.05 million subscribers
- Fixed line density (%) : from 1.36% to 3.4%
- Number of mobile telephone subscribers: from 6.52 to 40 million
- Mobile phone coverage: from 8.7% to 45%
- Number of Internet service subscribers: from 187.000 to 3.69 million
- Rural telecom access with 5 km radius of services: from 64.14% to 90%
- Global link capacity: from 3.255 Gb/s. to 20 Gb/s



Map 5-29: Telecommunication network

The main objective of GTP and on Telecom development strategy is to ensure a competitive and secure telecom services. The network will be extend both in rural and urban areas and services as fixed lines, mobile, internet and data service provision will be enhanced. The Telecom Expansion Program (TEP) has been completed to increase network capacity and quality of services.

The performance of Ethio-Telecom in the year 2012-2013is the following:

- Fix lines: 0.9 million subscribers (40.52% of the objective)
- Fixed line density (%): 0.9% (37.5% of the objective)
- Mobile telephone subscribers: 23.76 million (104.9% of the objective)
- Mobile phone coverage: 27.6% (119.5% of the objective)
- Internet service subscribers: 4.43 million (395.5% of the objective)

- Wireless telephone service coverage: 73% (102.8% of the objective)
- Rural telecom access within 5km radius: 84% (96.6% of the objective)
- Global link capacity: 8.686 Gb/s (89.78% of the objective).

The program is going well for mobile and Internet coverage, with increasing demand. The reverse is true for fixed lines which last year suffered a decline in the number of subscribers from 805,000 to 790,000. Poor quality of service and slow implementation of the fixed line network makes fixed line connections less attractive to customers.

Ethio-Telecom has prepared a strategy to develop the Telecom sub-sector in medium term, but the document was not available at the time of writing. The Consultant has been lead to believe that the strategy involves strengthening its capacity to deliver high quality and competitive services to meet international standards. The strategy will also concern the establishment and effective enforcement of comprehensive policy and regulatory frameworks.

#### 5.5 The Postal Service

The postal sector plays an important role in national socio-economic development:

- facilitating communication within the country and with the rest of the world, facilitating trade and commerce, through the movement of goods
- contributing to rural development and poverty alleviation, through employment.

In 2007 national coverage was good except in low dense and desert (See Map 5-27 below). The sector does face, however, major challenges including the lack of skilled manpower; difficulties providing a universal service in such a large country, non-reliability of agency services running many rural post offices, and the lack of postcode and national addressing system. The strategy to expand the postal service is based on the demand creation principle, universal access through Worldwide Postal Network, improvement in quality service delivery as per internationally established standards. There is a clear focus on new service development as well as expanding of existing services.

Domestic mail traffic has decreased from more than 24 million domestic mails in 1988 to less than 7 million domestic mails in 2012. It is due to some replacement of postal mailing to electronic mailing as observed in all countries around the globe. But recent actions taken to improve the service have reversed this decline providing better service to the population in remote areas; there were 9.6 million domestic mails last year (2013). International mailing is maintaining its level around 5 to 6 million incoming mails, except last year that reach 8 million, but outgoing mails have regularly fallen (from 7.3 million in 2003 to 2.4 million last year).

Map 5-30: Postal service coverage



Source: MoTT, CAS

# 6 Urban Development



Figure 6-1: Future urban Ethiopia (Source: ethiopia.newsscale.com/sites/default/files/news/a\_152547.jpg)

## 6.1 Introduction

Ethiopia is urbanising fast. The ramifications will be immense; the challenges associated with the management of rapid urbanisation will be considerable and, at times, may be overwhelming. Presently, 19% of the population reside in urban areas; by 2035 that figure could be as high as 40%<sup>67</sup>. From an urban population of around 15 million today as many as more than 50 million could be urban residents in less than 25 years' time. This is a threefold increase, and means that up to an extra 35 million people are likely to be living in urban settlements.

The Federal Government of Ethiopia supports the 'rapid urbanisation' of the country. There is a recognition that urbanisation and economic growth go hand-in-hand, and that the former facilitates and underpins and latter. Indeed, experience demonstrates that the success of nation is directly related to the success of that nation's cities. Urbanisation *should* be encouraged in Ethiopia. But significant challenges will have to be address if rapid

<sup>&</sup>lt;sup>67</sup> According to the Urbanization Review Report prepared by the World Bank in 2014

urbanisation is to be successfully managed. Some countries are facing rapid urbanisation without a corresponding dramatic improvement in their economies. This is case for Nigeria and Cameroun where urbanisation is not generating sufficient employment opportunities to absorb many of those wishing to enter the workforce. Ethiopia's future may be similar; at present the country is experiencing increasing unemployment in urban areas which may indicate that economic development and urbanisation are not proceeding in harmony.

Furthermore, the Government wants to avoid unbalanced urban development and to guide urbanisation so that equitable regional development is promoted. Stakeholders recognise that the task of managing this urban expansion will be immense, one which will require new management tools and financing arrangements to provide appropriate and adequate urban infrastructure and services (including housing and the full range of social services).

In order to ensure that rapid urbanisation can support the balanced development of the economy a vision of what type of national urban spatial pattern is desirable and feasible is required (and this is the main reason why the 'urban scenarios' are being prepared – the consolidated scenario will act as a roadmap to the future). In order to ensure that rapid urbanisation can be successfully managed it is necessary efficient urban planning tools for use at the different scales, and required for financing and operating urban service (and this is one reason why NDP and UDPs [neighbourhood and urban design plans] and being prepared for 12 'model' cities by the project).

This chapter provides important background information that is required to prepare the urban scenarios. It begins with a short description as to how the urban sector is defined in Ethiopia. It continues with a brief characterisation of the uniqueness of the urban sector in such a populous country as Ethiopia. The geographical distribution (or 'pattern') of urban settlements is then presented followed by an analysis of urbanisation trends and the prevailing Government strategy for the sector. The drivers of change in the urban sector are described and challenges and opportunities outlined. The chapter concludes with a SWOT analysis.

## 6.2 Definition of Urban Settlements in Ethiopia

International organisations such as the United Nations or the World Bank refer to countries' national censuses to classify urban population. There is no international definition or standard that distinguishes urban from rural areas that would be applicable to all countries. Thus countries must establish their own definitions in accordance with their own needs. Accordingly, CSA has used the following definition reflecting the situation in the country in the 1994 Census and all its other data collection activities:

*"Urban centre was defined as a locality with 2,000 or more inhabitants. Moreover, all administrative capitals (Region, Zone and Wereda), and localities in which urban dwellers' associations were established were considered as urban centres, irrespective of the population size".*<sup>68</sup>

According to the CSA definition, there were 7.3 million people resided in urban areas in 1994; 11.9 million in 2007; and some 14.5 million in 2012.

<sup>&</sup>lt;sup>68</sup>Central Statistical Authority, 2007 Population and Housing Census of Ethiopia, Administrative Report, April 2012

# 6.3 The Uniqueness of Ethiopia's Urban Sector

Ethiopia is the thirteenth most populous country in the world and the second in Africa (behind Nigeria and just before Egypt)<sup>69</sup>. Very few countries in the world are as populous as Ethiopia. But at the same time no country of more than 80 million inhabitants is less urbanised than Ethiopia (17% as compared to 28% in Bangladesh, 30% in Vietnam, 31% in India, 36% in Pakistan, around 50% in China, Indonesia and Nigeria, around 75% in Germany and in the Russian Federation, around 80% in Mexico, Brazil and the United States of America and up to 91% in Japan). With a per capita income of \$410 in 2012 and some 18% of urban population, Ethiopia certainly appears to be the least urbanised amongst those countries with over 80 million inhabitants. It is also the least developed among them, using Gross National Income (GNI) per capita or the Human Development Index to measure development (see Figure 6.2).



Ethiopia is not only the less urbanised country amongst those with over 80 million inhabitants, but also the only one with only one agglomeration over 750,000 inhabitants, which appears to be quite small as compared with other countries of this size: Addis Ababa (3,040,740 in 2012). The Index of Primacy (P1/P2) in Ethiopia is 11 in 2013. Key benchmarks related to urban agglomerations in other countries include the following (also see Figures 6.3 and 6.4):

<sup>&</sup>lt;sup>69</sup><u>http://www.census.gov/population/international/data/countryrank/rank.php</u>or <u>https://data.undp.org/dataset/Table-14-Population-trends/e6xu-b22v</u> or <u>http://en.wikipedia.org/wiki/List\_of\_countries\_by\_population accessed April 14, 2014</u>

- Vietnam has five agglomerations over 750,000 inhabitants. The biggest, its economic engine, is Ho Chi Minh City with 6.2 million (UN, WUP 2011), followed by Hanoi, its capital (2.8), and three cities between 800,000 and 900,000 inhabitants. The Index of Primacy (P1/P2) in Vietnam is 2.2 in 2012, and decreased from 4.7 in 1950<sup>70</sup>
- **Philippines** have four agglomerations over 750,000 inhabitants. The biggest, its capital, is Manila with 11.7 million (UN, WUP 2011), followed by Davao. The Index of Primacy (P1/P2) in Philippines is 7.7 in 2012 and decreased from 12.4 in 1950.
- **Egypt** has two agglomerations over 750,000 inhabitants. The biggest, its capital, is Al-Qahirah (Cairo) with 11.0 million (UN, WUP 2011), followed by Al-Iskandariyah (Alexandria) with 4.4 million. The Index of Primacy (P1/P2) in Egypt is 2.5 in 2012 and is stable over time (2.4 in 1950).
- **Turkey** has eight agglomerations over 750,000 inhabitants. The biggest is Istanbul with 11.0 million (UN, WUP 2011), followed by Ankara, its capital. The Index of Primacy (P1/P2) in Turkey is 2.7 in 2012, and decreased from 3.4 in 1950.

Figure 6.3 Shows population living in Urban agglomerations of more than 750,000 in 2010 regarding the total population of the country. Ethiopia is unique regarding large countries with a very low level of population living in large agglomerations. Figure 6.4 shows Ethiopia is in the category of countries with only one large urban agglomeration





<sup>&</sup>lt;sup>70</sup>Index of Primacy (IP, defined here as P1/P2 where P1 is the population of the largest agglomeration and P2 the second largest). The higher the figure the greater is the population of the largest city compared to the second largest



Figure 6-4: Percentage of Urban Population Living in Agglomerations of 750 000+ Inhabitants

## 6.4 Existing Urbanisation Pattern

Ethiopia is largely under-urbanised, even considering Africa standards. Furthermore, the modest country's urbanisation is a recent phenomenon. According to estimates of the United Nations Population Division (2011), in 1950 the proportion of urban population was only 4.6 percent of total population, and most the urban population lived in one city: Addis Ababa. The urban pattern was definitely one of spatial concentration.

By 2007, the urban population had expanded; now some 17% of the population lived in urban areas mostly in the highlands (which comprise only 35% of Ethiopia's territory; see Map 6-1). Most of these urban inhabitants lived in small cities; the overwhelming dominance of Addis was reduced and out of around 950 cities and towns identified by the Central Statistical Agency, only 10 cities had more than 100,000 people (CSA, 2007).

Nevertheless urbanisation remains a spatially concentrated phenomenon in Ethiopia (and a spatially 'unbalanced' phenomenon). Table 6-1 shows the regions in which most of the urban population (marked in red) can be found, and Table 6-2 shows in detail the main urban centres by region. The proportion of the population that resides in urban areas is generally small and only significant in few large cities like Mekelle, Dire Dawa, Adama, Gondar, Bahir Dar and Hawasa.

The existing urbanization pattern of the country is shown on Map 6.1. The Demography and Housing chapter of this report already explained the urbanization pattern.





Source: CSA 2007

Table 6-1:	Urban	Population	by	Region,	2012
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S.N	Regions	Urban	Rural	Total	Urban %
1	Oromia	4,221,000	26,873,000	31,094,000	13.6
2	Amhara	2,783,000	16,438,000	19,221,000	14.5
3	Tigray	1,080,000	3,693,000	4,773,000	22.6
4	SNNP	2,419,000	14,558,000	16,977,000	14.2
5	Harari	117,000	97,000	214,000	54.7
6	Somali	716,000	4,311,000	5,027,000	14.2
7	Afar	256,000	1,344,000	1,590,000	16.1
8	Gambela	110,000	260,000	370,000	29.7
9	Benishangul	165,000	753,000	918,000	18.0
10	Dire Dawa	252,000	150,000	402,000	62.7
11	Addis Ababa	3,046,000	-	3,046,000	100.0
	Total	15,165,000	68,495,000	83,742,000	18.2

Source: CSA (2013) and Consultant's own computation (*The figures are extracted from the medium variant of CSA, Population Projections for Ethiopia 2007-2037 except for Dire Dawa. The results for Dire Dawa show errors since population in the 2007 Census is 233 000 in Dire Dawa and only 219 000 in 2008 in the relevant CSA publication*). Therefore, the Consultant's own projection is used to complete the data for 2008 and after).

The existing urban pattern of urban settlements is illustrated in Map 6-2, namely

- Primate Capital City Addis Ababa
- Regional capital cities (black diamonds)
- Medium size cities (black circles)
- Connectivity through the road connections (purple lines)
- City clusters (large red circles)

This map shows the density of cities on the highlands and city clusters in economically important areas. In general the urban settlement pattern is concentrated; a few cities dominate. It is also unbalanced; some regions are mostly rural and lack any major urban settlements. Most regions except, Addis Ababa, Dire Dawa and Harari, are predominantly rural. Furthermore, many settlements are too small to function as key economic service centres for a modern industrial economy as envisaged by the Government.

The urban settlement pattern must be balanced in order to achieve the goal of equitable regional development and must expand in order to achieve the goal of continuing economic growth and transition to middle income country status. The fastest way to reach MIC status is to promote economic development associated with low population increase. Urbanisation reduce the population growth rate and urban economy is more productive than rural economy.

#### Addis Ababa's continuing primacy

Clearly the urban settlement pattern of the country remains dominated by its capital city. The primacy of Addis Ababa is based on a very strong attractiveness for all (individuals, companies, services, and foreigners). The Urbanisation Review (2014) prepared by the World Bank shows that 28% of the national GDP is generated in and by the capital and it is here that you find on-going large public investments (e.g. Mass transit (LRT), the centre of national rail system for freight and passengers, the project for a new international airport, and on-going international industrial investments mostly locating no more than 80-100 kms around Addis.

Indeed, Addis Ababa concentrates a large fraction of the nation's urban jobs in most of the high value-added service sub-sectors which are typical of a modern and globalized metropolitan economy. As such, while 20% of the country's urban labour force works in Addis Ababa, the capital city is home to 68% of the country's urban jobs in real estate, 40% in information and communication, and 36% in financial services (See Chapter 4, The Economy, for a fuller discussion of the primacy of Addis Ababa).

Map 6-2 shows the urban hierarchy regarding population size and administrative status of the main cities. It shows also the existing city clusters based on their daily connectivity (here it's the bus passengers that is used as an indicator). In fact, there are differences between axis around Addis Ababa: Adama axis is very strong and accommodate large industrial areas. Other axis are more balanced in different directions towards Debre Birhan, Jimma, Nekemte, Debre Markos, Hosaena and Hawasa.

Map 6-2: Present-day Geographical Distribution of Urban Settlements



## 6.5 Urban Population Trends and Projections

Recent trends (over the last two decades) show a steady increase in the numbers that reside in urban areas and an increase in the number and size of the smaller urban settlements; from 1994 to 2012 the number of towns increased from 794 to 973. For example:

- In the north, small towns adjacent to Mekele (a major administrative and business/commercial centre) and tourist centres like Axum rapidly expanded. Towns such as Dangela, Enjibara and Bure along the major road to Bahir Dar and Gondar have also expanded significantly.
- Small towns in southern parts of the country along the road to Hawassa and Adama have registered higher growth rate over the last decade.
- Between 1994 and 2007, small towns around Addis Ababa have recorded tremendous growth rate, e.g., Sululta to the north of the city grew at the decennial rate of 192 percent, Burayu in the west and Sebeta in south west registered a decennial growth rate of 387 and 299 percent, respectively, between 1994 and 2007.

In general the expansion of small towns has occurred (a) around big cities, (b) along major commercial roads and (c) near tourist centres. (See Figure 6-5, Table 6-2, and Maps 6-3 and 6-4all of which show various aspects of the nature of the increase in the urban population).



Figure 6-5: Increase in the number of small town in Ethiopia, 1984 - 2007

Source: CSA, 1984, 1994 and 2007 Census Results and 2011 Annual Statistical Abstract

Recent trends are expected to be amplified in the future; the urban population will significantly increase (up to threefold over the coming 25 years) and the primacy of Addis will be reduced (primarily because of the increase beyond Addis not because of any contraction of the people in the capital city). Table 6-3 shows the increase in the population residing in urban as expected by CSA (2014-2037), and Table 6-4 shows the estimates calculated by the Consultant for roughly the same time period (2012-2037). Both projections indicate a massive increase though the Consultant's estimate is higher (by around 7 million people).

Pogione	Major	-	Census Year			Average Annual Growth		
Regions	City/Town	1984 <u>1994</u> 2007				199 <u>4-2007</u>		
	Adwa	13 823	2/ 519	40 502	1984-1994	1334-2007		
Tigray	Adigrat	16 262	37 417	57 572	6.9	3.6		
	Axum	17,753	27,148	44.629	3.5	4.1		
	Mekele	62.668	96.938	215.914	3.6	6.7		
	Shire Edna Silesia		25,269	46,382		5.1		
Afar	Asaita		14,392	16,048		0.9		
	Bahir Dar	54,773	96,140	155,355	4.7	4.0		
	Debre Birhan	25,637	38,717	65,214	3.4	4.3		
	Kombolcha	18,583	39,466	58,642	6.3	3.3		
Amhara	Dessie	71,537	97,314	120,029	2.6	1.7		
Allinara	Woldiya	15,690	24,533	46,126	3.7	5.3		
	Gondar	80,675	112,249	206,987	2.8	5.1		
	Debre Markos	41,138	49,297	62,469	1.5	2.0		
	Adama	77,256	127,842	222,035	4.2	4.6		
	Jimma	60,218	88,867	120,600	3.2	2.5		
	Assela	32,954	47,391	67,250	3.0	2.9		
	Arsi Negele	13,096	23,512	48,092	4.9	6.0		
	Burayu		10,027	48,864		13.2		
Oromia	Robe Town	11,293	21,516	47,296	5.4	6.6		
oronna	Nekemte	28,703	47,258	76,817	4.2	4.0		
	Bishoftu	55,657	73,372	100,114	2.3	2.6		
	Ambo		27,636	50,267		5.0		
	Sebeta	10,030	14,076	56,131	2.8	11.5		
	Shashemene	31,884	52,080	102,062	4.1	5.6		
	Zeway	6,585	20,056	43,610	9.3	6.5		
Somali	Gode		45,755	43,234		-0.5		
	Jijiga	24,716	65,795	125,584	8.2	5.4		
Benishangul Gumuz	Asosa	4,159	11,749	22,725	8.7	5.5		
	Arba Minch	20,280	40,020	74,843	5.7	5.2		
	Hawassa	36,367	69,169	158,273	5.4	6.9		
SNNP	Dilla	22,864	33,734	81,644	3.2	7.4		
	Hosana	15,167	31,701	69,957	6.1	6.6		
	Sodo	24,278	36,587	76,780	3.4	6.2		
Gambella	Gambella		18,263	38,994		6.3		
Harari	Harar	63,070	76,378	99,321	1.6	2.2		
Dire Dawa	Dire Dawa	99,980	173,188	232,854	4.6	2.5		
Addis	Addis Ababa	1,423,182	2,084,588	2,738,248	3.2	2.3		
Ethiopia	URBAN	4,465,280	7,433,340	11,862,821	4.2	3.90		

#### Table 6-2: Urban Population Numbers and growth (1984-2007)

Source: Adapted from Jonse and Tekie, 2012, based on CSA.

Map 6-3: City Population and Growth Rates (1994-2007)



Source: CAS (map produced by IAU)

Map 6-4: Population Growth of Cities (1994-1997)



Source CSA (map produced by IAU)

Regions	2014	2019	2024	2029	2037	% increase 2014-2037
Oromia	4,647,000	5,933,000	7,595,000	9,617,000	13,562,000	+191.8
Amhara	3,127,000	4,090,000	5,198,000	6,436,000	8,711,000	+178.6
Tigray	1,200,000	1,547,000	1,964,000	2,447,000	3,334,000	+177.8
SNNP	2,707,000	3,497,000	4,404,000	5,449,000	7,334,000	+1709
Harari	125,000	145,000	166,000	189,000	228,000	+82.4
Somali	764,000	893,000	1,039,000	1,202,000	1,511,000	+97.8
Afar	290,000	387,000	504,000	638,000	897,000	+209.3
Gambela	124,000	165,000	217,000	278,000	392,000	+216.1
Benishangul	189,000	258,000	340,000	441,000	640,000	+238.6
DD	268,000	313,000	366,000	427,000	533,000	+98.9
Addis Ababa	3,119,000	3,604,000	4,030,000	4,447,000	5,132,000	+64.5
Total	16,734,000	20,965,000	25,960,000	31,687,000	42,274,000	+152.6

#### Table 6-3: Projected Urban Population by Region

Source: CSA and Consultant's own calculations. The figures are extracted from the medium variant of Population Projections CSA including Dire Dawa, for Ethiopia 2007-2037 from http://www.csa.gov.et/images/general/news/icps2012pro\_report.pdf consulted in November 2014.

Table 6-4: Trend in Urban Population under the Consultant's current Fast Urbanisation scenario									
		2012			2037	7		2012	-2037
								Urban	Addition of
				2037 Total		% urban	2037 Urban	population	urban
				Population	2037 Urban	population	population	variation	population by
			% urban	(based on CSA	Population	by region	distribution	2012-2037	region 2012-
	2012 Total	2012 Urban	population	Low fertility	(higher	2037 (Higher	(Higher	(Higher	2037 (Higher
	Population	Population	by region	scenario at	urbanization	Urbanization	Urbanization	Urbanization	Urbanization
Region	(estimation)	(estimation)	2012	national scale)	scenario)	scenario)	scenario %)	scenario)	scenario)
Tigray	4,773,000	1,080,000	23%	7,479,000	3,841,000	51%	7.6%	2,761,000	2.56
Afar	1,590,000	256,000	16%	2,820,000	1,369,000	49%	2.7%	1,113,000	4.35
Amhara	19,221,000	2,783,000	14%	25,440,000	9,186,000	36%	18.2%	6,403,000	2.30
Oromiya	31,094,000	4,221,000	14%	47,348,000	16,645,000	35%	32.9%	12,424,000	2.94
Somali	5,027,000	716,000	14%	8,268,000	2,719,000	33%	5.4%	2,003,000	2.80
Benishangul Gumuz	918,000	165,000	18%	1,566,000	694,000	44%	1.4%	529,000	3.21
SNNP	16,977,000	2,419,000	14%	25,320,000	7,769,000	31%	15.4%	5,350,000	2.21
Gambella	370,000	110,000	30%	907,000	511,000	56%	1.0%	401,000	3.65
Harari	214,000	117,000	55%	419,000	321,000	77%	0.6%	204,000	1.74
Addis Ababa	3,046,000	3,046,000	100%	6,648,000	6,648,000	100%	13.1%	3,602,000	1.18
Dire Dawa	402,000	252,000	63%	988,000	855,000	87%	1.7%	603,000	2.39
Total	83,632,000	15,165,000	18%	127,203,000	50,558,000	40%	100.0%	35,393,000	2.33

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Source: CSA (2013) and Consultant's computation and urbanisation scenarios (as of November 2014).

The Consultant's estimate of the numbers residing in urban areas in 2037 (some 50 million) is higher than that of the CSA (some 43 million) as account has been taken of the 'acceleration' of the rate of urbanisation due to the structural changes of the economy and the related product composition of national output. These change both facilitate and require the rapid development of urban functions, and have been implemented through major industrial investments (e.g. SEZs; sugar factories; new manufacturing plants); significant transportation improvements and a policy focus on developing urban centres and functions (See Annex C for a detailed discussion of the methodology employed in order to arrive at the figure of some 50 million urban inhabitants in 2037)

## 6.6 Urbanisation Drivers

The main factors that are driving urbanisation are illustrated in Map 6-5 and are as follows:

- **Proximity to existing cities**: an important trigger of new urban development due to agglomeration and metropolisation effects that integrate small villages in short distance from cities in future urban extensions: this inclusion increases the urbanization rate.
- **Population density and growth rates**: Populous areas facilitate the emergence of towns
- Administrative status of the urban settlement: whether a regional or zonal capital or a chartered city
- Surplus agriculture production: which can attract workers and stimulate urbanisation
- **Presence of new and large commercial farms**: that attract new workers to remote regions and could over time encourage the formation of urban settlements
- **Presence of non-agricultural economic assets**: such as minerals (and their extraction) and industrial areas that attract job seekers and encourage urbanisation
- **Mega investment projects**: such as irrigation projects, sugar factories, fertilizer factories etc...that concentrate workers in specific areas and so encourage urbanisation
- Large infrastructure investments: such as airports, major transportation investments (e.g. the highway to Djibouti and Hawassa), dry ports that attract investments and create jobs
- **Major Universities** that create knowledge and train people, and potentially support entrepreneurial activity and innovation in their local economies
- **Important Tourism assets**: both natural, and cultural that offer opportunities of jobs in their surroundings (natural parks and heritage cities like Harar, Gondar, Axum)

It should be remembered that most important driver of the immediate future is the present. The existing pattern of urban settlements will determine, to a large extent, the future pattern of the urban system, particularly in the short to medium term. There is a 'path-dependency' to urban development, namely what is likely to happen in the future is directly influenced and constrained by the present.

Indeed, it is within the current urban network that we can identify possible and potential growth nodes that are likely to drive the future expansion of the whole urban system. The potential of many of these growth nodes will depend on their exact location. If they are located within areas with more or less favourable agricultural potential they are more likely to follow a "virtuous" urbanisation path based on food security, the development of agro-industries and agriculture-related services, and manageable levels of rural to urban migration.

Conversely, potential growth nodes which are located within less favourable rural hinterlands are more likely to be threatened by issues of food insecurity or higher food supply and transportation costs, as well as by high inflows of large numbers of rural migrants from poor rural areas. The potential of these nodes may be completely compromised and as a consequence their growth minimal. All these factors will be addressed in detail in the forthcoming 'Urban Scenarios report'. More specific aspects of the drivers of urbanisation are described below, and the natural hazard constraints on the drivers are illustrated in map 6-6.

Map 6-5: Current drivers of urbanisation



Map 6-6: Natural hazard constraints on urbanisation



Source: Consultant's Assessment

#### Expanding existing towns and cities, and the rise of new urban settlements

Expanding existing urban settlements *and* news towns and cities will drive the future increases in urban population. Some of the new towns and cities are relatively easy to identify at present and will related to establishment of major investments, public and private sector, commercial and utility (e.g. the commercial sugar factors scheduled to be built. One factory alone land is expected to employ about 50,000 skilled and unskilled workers for eight months a year for its 24 hours operation. In turn, these 50,000 employees are expected to look after 5 members of their family each calculated on the average Ethiopian household size – which thus gives a population of 250,000 in one site. This assumption doesn't take into consideration those migrants who possibly come to the area as service providers

#### Expanding urban settlements due to job creation

Expanding existing urban settlements *and* new towns and cities will drive the future increases in urban population. Some of the new towns and cities are relatively easy to identify at present and will related to establishment of major investments, public and private sector, commercial and utility (e.g. the commercial sugar factors scheduled to be built. One factory alone land is expected to employ about 50,000 skilled and unskilled workers for eight months a year for its 24 hours operation. In turn, these 50,000 employees are expected to look after 5 members of their family each calculated on the average Ethiopian household size – which thus gives a population of 250,000 in one site. This assumption doesn't take into consideration those migrants who possibly come to the area as service providers.

#### Encouraging the development of one urban settlement per Kebele

Other new towns and cities may be more difficult to identify. However, the Ministry of Agriculture has been working to create one urban centre for each three rural Kebele. There is a plan to provide one service cooperative and one primary market along with other services in a place favourably selected and adjacent to three rural Kebeles. This 'place' will plausibly become an urban centre in the future. It was further indicated that in some regions, particularly, in the western parts of the country—where cash crop like coffee is available – that these market centres are already being created through the Ethiopian Commodity Exchange<sup>71</sup>. Most of these expected rural centers will have population lower than 2,000 inhabitants. It can be considered as urban only if it takes the status of urban centre by administrative decision. Their low population will not generate a very high increase in the urbanization rate. Nevertheless, these rural centers will provide services to rural areas and could become the node for future urban centers. MoUDHC will take into consideration only one part of these rural centers to avoid too much dispersion of the effort to be done on urban centers.

#### The emergence of city clusters

Currently, there are encouraging signs of the emergence 'city clusters', namely towns developing around the regional capitals and the two chartered cities: Addis Ababa and Dire

<sup>&</sup>lt;sup>71</sup>The Ethiopia Commodity Exchange (ECX) is a new initiative for Ethiopia and the first of its kind in Africa. The vision of ECX is to revolutionize Ethiopia's tradition bound agriculture through creating a new marketplace that serves all market actors, from farmers to traders to processors to exporters to consumers (cf., <u>http://www.ecx.com.et/</u>)

Dawa. However the emergence of regional urban subsystems is slow. It appears that there are few functional linkages amongst the city clusters as each city is performing largely similar activities. Neither is the economy of most of the towns in the cluster organized to promote and facilitate strong productive links with its surrounding rural areas. Regional urban subsystems, at present, are underdeveloped. (See Solomon et.al. 2003).

## 6.7 Urban Development Strategy and Options

The Ethiopian Government wants to reverse the current unbalanced urban system by supporting the emergence of a more 'balanced' polycentric urban system with key regional cities as central to city clusters (see Annex D for a description of current urban policies). At the same time the Government wants to encourage the development of a system of urban settlements that functions in a way that facilitates and encourages the development of a more modern and industrialised economy; the urban system is to underpin GTP I and II.

#### Drivers of future urbanisation –The Growth Poles

There is a range of policy and programme instruments that the Government can marshal and deploy in order to achieve its goals. One such instrument is the designation and subsequent support for a number of 'growth poles' chosen at strategic locations across the country.

Growth Poles can be key engines of growth and balanced development, but only if the underlining economic fundamentals are favourable. Fortunately these fundamentals (economic growth and structural change) presently are benign in Ethiopia. At present a number of emergent centres of economic activity can be clearly identified in the country. These are centres whose populations are rapidly growing (in excess of the national average), where industrial activities are located; and to which FDI often gravitates. They are usually located on main transportation and communication routes so facilitating the development of channels to domestic and foreign markets. Many are administrative centres (regional or zonal capitals) and characterised by significant cultural and social assets (e.g. heritage sites and universities). They are centres where a workforce that is required by a modern service-industrial economy can be found and socially reproduced.

Apart from the Addis Ababa, seven secondary cities have been identified by Government as urban growth poles. All are located on main transportation and communications corridors and/or in areas of high economic potential. Indeed, they have been chosen precisely because of the economic development potential in and adjacent to the growth centre (see Table 6-4, overleaf, which outlines the key defining characteristics of each growth poles).

Their potential to be engines of growth can be fully realised if support from the Government is forthcoming, particularly in terms of:

- Assisting domestic and foreign private sectors to invest in or near the Growth Pole,
- Assisting the local administration accelerate the provision of urban infrastructure and services and so improve the business and living environment and attractiveness of the Growth Pole
- Through the implementation of important transportation, energy, water supply and telecommunication infrastructures in order to connect the Growth Poles together, and with their domestic hinterlands and international markets.

Growth Poles	Administrative and Population Significance	Economic Significance and Economic Development Potential	Connectivity Strength
Mekele	<ul> <li>Regional capital city</li> <li>Major existing population centre</li> <li>2013 pop 287,000</li> <li>2005-2013 pop growth rate of 9% (source employment surveys)</li> </ul>	<ul> <li>Significant economic development potential (Large scale industries located in and nearby [e.g. textiles; metal; engineering; cement, pharmaceuticals]. Availability of minerals nearby. Site of Dry Port</li> <li>Site of higher education institutions (e.g. Universities with important engineering / IT focus)</li> <li>Availability of skilled labour needed to power industrial development</li> </ul>	<ul> <li>Significant connectivity (on major Addis to Mekele to Axum corridor; has an airport; planned freight rail along this corridor; Potential access to Eritrean ports)</li> </ul>
Kombolcha – Dessie	<ul> <li>Major existing population centre</li> <li>2013 pop 229,000</li> <li>2005-2013 pop growth rate of 8%</li> </ul>	<ul> <li>Significant industrial development potential (Large scale industries located in and nearby [e.g. textiles]. Has an industrial Zone (IZ) to be a future SEZ and is the site of a Dry Port)</li> <li>University in Dessie</li> </ul>	<ul> <li>Significant connectivity (on Addis to Mekele corridor; has excellent links with Djibouti; a new airport operating; feeding North Western region for import / export)</li> </ul>
Bahir Dar	<ul> <li>Regional capital city</li> <li>Major existing population centre</li> <li>2013 pop 199,000</li> <li>2005-2013 pop growth rate of 9%</li> </ul>	<ul> <li>Significant agro-processing and industrial potential (Market centre for agricultural produce (cereals, fish, livestock) and centre of agricultural 'surplus' areas. Noted tourism potential – near to lake Tana; noted biodiversity and points of historical and cultural interest)</li> <li>Has a public university</li> </ul>	• Significant connectivity (Located on the Pan- African road. Has an airport)
Hawassa	<ul> <li>Regional capital city</li> <li>Major existing population centre</li> <li>2013 pop 226,00</li> <li>2005-2013 pop growth rate of 11%</li> </ul>	<ul> <li>Significant economic development potential: (Minerals deposits nearby and in middle of world class coffee growing region; Industrial Zone (IZ) planned for nearby; could act as a transportation and logistics hub for freight movements to and from Kenya)</li> <li>Has a public university</li> </ul>	• Important Connectivity (Existing and planned road and rail links to Addis Ababa and the South [Addis Expressway].
Dire Dawa	<ul> <li>Regional capital city and Chartered city serving large urban population and a very densely populated region</li> <li>2013 pop 269,000</li> <li>2005-2013 pop growth rate of 4%</li> </ul>	<ul> <li>Significant economic development potential (<i>Planned Special Economic</i> <i>Zone (SEZ) and major industries</i> <i>located in and nearby the city</i>)</li> <li>Has a public university</li> </ul>	• Significant Connectivity (Eastern gateway to the Country; on key route ADDIS-Djibouti; road and rail links. Current standard gauge railway under construction likely to advance to Dire Dawa- Djibouti)
Jimma	<ul> <li>Zonal capital</li> <li>2013 pop 155,000</li> <li>2005-2013 pop growth rate of 8%</li> </ul>	• Significant economic development potential (Mineral resources nearby – possible availability of oil and gold for extraction –Jimma is located in agriculturally productive region [e.g. coffee]. Noted eco-tourism potential)	• Important Connectivity (Planned freight railway between Yayu fertilizer factory and Ambo likely to stimulate development of Jimma and surrounding area. Future main connection to South Sudan)

#### Table 6-5: Summary of Key Characteristics of the Seven Growth Poles

Source: Consultant's Assessment

#### Drivers of future urbanisation - The Development Corridors

Many of these growth poles are part of existing, emerging or potential 'development corridors' and one can expect that the future development of the urban sector of the country will be focused on these centres and their encompassing development corridors. The key development corridors are more fully described in Chapter 4 (The Economy; see pages 156-157) and can be a summarised as follows

- The Addis Ababa Adama corridor, which is the only established corridor and is defined by one of Ethiopia's business roads in the country, linking Addis Ababa to Djibouti Port.
- An Eastern Corridor extending from the existing Addis-Adama corridor to Djibouti through Dire Dawa. Once the new standard gauge railway from Addis Ababa to Djibouti is completed (in 2015), it will have a significant impact on the economic development of the towns which are located along this corridor
- **A Northern Corridor** stretching from Addis Ababa to Mekele, the economic capital of Northern Ethiopia. This emerging corridor follows the main road leading to Northern Ethiopia. It encompasses the emerging economic cluster of Dessie-Kombolcha.
- A North-Western corridor from Gondar to Bahir Dar is emerging along the road connection from Sudan to Addis Ababa. The development potential of this corridor is related to its hinterland for tourism (Tana Lake), agro-industrial development linked with regional agriculture (sesame, cotton...) and fishing. It is well connected and extended toward Debre Markos town.
- A Southern corridor going from Addis Ababa to the Kenyan border (Moyale border town) through the Hawassa-Shashemene urban cluster. Economic activity is expanding along the Addis-Hawassa corridor (e.g. cut flower greenhouses and vineyards in Ziway and tourist resorts on the shores of the lakes). Mining activities at Shakiso and Kibra Mengist areas will be incorporate to this Corridor if the activity will be more expanded in the future. Shashemene is an important cross road centre to develop logistic and trade for the corridor. This Corridor is also doubled by a secondary corridor linking Arba Minch to Hosaena to Arba Minch. It will be extended in the future towards Omo Kuraz when developed.

 A Western corridor could emerge that will connect the capital city to the highpotential agricultural areas of Gambella, Benishangul-Gumuz and Wellega. This corridor will have two main branches, one going to Asosa through Nekemte and the other one to Gambela through Jimma.

#### Drivers of future urbanisation - City Clusters

City clusters that are group of cities and towns with strong links can support the expansion of the economic development corridors that are based on transportation corridors. Connections are assessed on the basis of traffic level between cities and towns (see maps on the Transportation chapter). Several city clusters are emerging in Ethiopia including:

- 1. Addis Ababa Metropolitan cluster : A metropolitan cluster is emerging from Addis Ababa to Adama with two distinctive sub regional clusters:
  - i. <u>Sub metropolitan Addis Ababa</u>– this is the urban agglomeration from Addis to Bishoftu. Since 2012, it has been anticipated that Addis and Oromia special zone will become a major metropolitan area. The Addis Ababa and the surrounding Oromia special zone integrated development plan (AASOID) focuses on Addis Ababa and five satellite cities: Sebeta in the South-West, Burayu in the North-West, Chancho in the North, Sendafa in the Northeast and Gelan / Dukem in the Southeast.
  - **ii.** <u>Sub metropolitan Adama–Mojo</u>- The sub metropolitan cluster of Adama is strategically located at the crossroad of Southern corridor and the Addis Ababa to Djibouti corridor. Mojo will be the major dry port of the country and could be the location of the future international airport. Adama is the main city of this sub metropolitan area. Its economic importance is due to its strategic location 100 km southeast of Addis Ababa. As such it is the most heavily trafficked road in the country. The city serves as a university, industry, trade, conference and weekend recreation centre. Local industries include garment factories, the Wonji/Shoa sugar factory near the town, and one of Ethiopia's chief exporters of oil cakes, oilseeds, and pulses has its headquarters in Adama. It is a destination for agricultural inputs and manufacturing and commercial products from Djibouti port, and it gets grain from the nearby Arsi/Bale wheat belt and livestock from Borena.

#### 2. Main regional clusters:

- i. <u>Tigray city cluster (Mekelle Adigrat- Adwa Aksum Enda Selassie)</u> The Tigray city cluster is organized along the Northern road connecting Mekelle to Adigrat, Adwa, Axum and Enda Selassie. This cluster is bordering Eritrea and could expand its potential in the future with direct access to Eritrean ports. Mekelle is the most important city of this cluster. It is the regional capital and major existing population centre (216,000 inhabitants.) and 109,000 jobs. Mekele is also home to one of the country's major universities. Its international airport makes it a gateway to many tourism attractions of Northern Ethiopia: Axum (UNESCO World Heritage Site), the rock-hewn churches of northern Tigray, Erta Ale & Dallol volcanoes.
- ii. <u>Tana lake Bipolis city cluster (Bahir Dar Gondar, Debre Tabor)</u> The North Western Bipolis is supported by two large cities of Bahir Dar and Gondar along

the road connecting Sudan to Addis Ababa. Bahir Dar is the capital of Amhara region and renowned for its wide avenues lined with palm trees and its favourable location on the southern shore of Lake Tana. It serves as a regional administration centre, as well as a trade, tourism (Lake Tana, resorts, churches, Blue Nile Falls), services and university centre. The city has strong economic linkages with the surrounding agricultural areas. Recently a cut flower industry has developed south of Bahir Dar thanks to favourable environmental conditions and to the presence of the international airport. Gondar is noted for its historical and monumental assets and the proximity of Simien natural parks make it a main touristic destination. The region is also producing Sesame (first producer in the world) and cotton placing Gondar as a major service provider of high quality for the whole region. The city is a significant highway junction and is served by an airport. The modern hospital has an attached medical university.

- iii. <u>Eastern Tripolis city cluster (Dire Dawa—Harar—Jijiga)</u> Dire Dawa is a Chartered city, and Harar is the capital of a region. Jijiga is the capital of a very large Somali region. Two potential main communication axes are crossing this city cluster: one connecting the international harbour of Berbera in Somalia, and the old and future highway and train connecting Addis Ababa to Djibouti through Dire Dawa. The existing economic development potential is due to its location on these axes to attract investments for industrial development, mainly in Dire Dawa. The government also plans to establish a full-fledged Special Economic Zone (SEZ) in order to attract foreign investors and to transform Dire Dawa into the major industrial hub of Eastern Ethiopia. As of today the city is already home to three of the country's major cement plants as well as to Ethiopia's oldest textile factory.
- iv. <u>East-Southern Rift city cluster (Hawassa Shashemene Zeway Arsi Negele Dila)</u> These cities provide services for the whole region and has witnessed significant investment in the recent past; Hawassa with a new airport, a stadium, a University and an Industrial area Hawassa is a regional capital and an important administrative, university and economic centre for Southern Ethiopia. The government plans to establish an industrial zone in Hawassa in order to boost the city's industrial activity. Currently Hawassa is home to one of the country's biggest textile factories. Once completed, the new airport that is being built on the outskirts of the city will also contribute to attracting more investors (especially in the cut flower industry and perhaps in other higher value added activities such as information technology and communication) and boost tourism.
- **3. Emerging sub regional clusters**: Emerging sub regional cluster, at present, are less important than city clusters, but could become focal points of development:
  - i. <u>Dessie-Kombolcha</u>: This bipolis is providing urban services for around 140,000 inhabitants (and some 93,000 jobs) hat is a similar size than other large secondary cities. Large scale industries (e.g. textiles; metal) are located in and nearby the bipolis, which has significant industrial development potential. The existing Industrial Zone will be expanded with a future Special Economic Zone. There is a dry port in Kombolcha.

- ii. <u>Jimma Agaro Bonga Bedele</u>: Jimma is characterised by significant economic development potential (at present some 70,000 jobs can be found in the city), and a large population with 120,000 inhabitants. It is located in an agriculturally productive region (e.g. coffee, ECX centre). Large commercial farms and a major fertilizer projects are planned for the area. Mineral resources have been identified nearby, and the eco-tourism potential has been recognised. The focus of its university is on agriculture. Cities like Mizan Tapi near Jimma are participating in its growth dynamic, mainly through their connections with nearby and related coffee production areas and facilities.
- iii. <u>Nekemte-Dembidolo-Gimbi</u>: Nekemte is located on the main road connecting Gambella and Asosa regional capital cities. A network of medium size cities are well connected by this road and the traffic shows important connections. This region has several assets due to agriculture, but also the emerging cities are supported by the government with large facilities as universities and other amenities. Connexions are not yet important towards Bure and Gimbi, but would be integrated in the future
- iv. <u>Sodo-Hosana-Sodo-Hosana cluster</u>: is growing quickly as a quasi-continuous agglomeration on the Western part of South Rift region. The very dense populated rural areas of this cluster creates conditions that might lead to the emergence of a large agglomeration that could expand to and ultimately coalesce with the Hawassa cluster. This cluster could be also extended towards Arba Minch and Omo Kuraz in the future.

As well as the above 'clusters', there are a number of intermediate cities that are relatively isolated. Many of main towns play a role of centre for their own hinterland with few connections with the rest of the country. These are remote cities, located beyond the main transportation corridors. For example: Gode, Gambella, Arba Minch, Robe, Hagere Mariam, Humera and Lalibella. Growth centers are main secondary cities that deserve their hinterland. Regiopolis are the most important secondary cities. It could be also the main city of a cluster. A cluster is a network of cities and towns that have strong inter-cluster links.

#### Drivers of future urbanisation - 'headwinds and tailwinds'

Urbanisation in the future is going to be very different from the urbanisation of the past. Ethiopia, through GTP I and II, is seeking to become integrated into regional and world markets and to build a modern industrialised economy. The functions of many of the existing urban settlements will change in order to facilitate this transformation. New urban settlements will emerge in response to changes in the economy. Both existing and new urban settlements will in turn enable and accelerate the further development of the economy. A new urban *and* economic landscape of the country will evolve. The growth poles and emerging city clusters together can constitute the main elements of a framework for the *new urban landscape* of the Country, one that is balanced and directly underpins continuing economic success<sup>72</sup>. But this success is not assured – as well as 'tailwinds', namely forces prompting beneficial change, there are also 'headwinds', namely, constraints that may hinder the development of the urban

<sup>&</sup>lt;sup>72</sup> The Ministry of Agriculture's plan to create one urban center for each three rural Kebele could also be included in this framework.

system and the economy; there are key challenges to overcome in order to ensure that the type of plan-led urbanisation that the Government envisages can be implemented.

Figure 6-6 is a summary of the (a) forces promoting and hindering change in the urbaneconomic landscape and (b) the key challenges that the Government and all stakeholders (including the private sector) will have to address over the coming years. The assessment of the drivers of urbanisation presented in this chapter will directly inform the construction of the urban scenarios and provides the backdrop to the outline recommendations of actions that can be taken to ensure the smooth urbanisation over the coming 20-25 years.

#### Location of Future Urbanisation - Initial Hypothesises

In the absence of plan-led urbanisation the most likely evolution of the urban settlement pattern of Ethiopia is as follows:

- Concentration in and around Addis Ababa primacy is declining slowly
- Growth at selected Growth Poles but many perform similar functions and some are in direct competition like Gondar and Bahir Dar; growth may be muted for many
- Growth is concentrated along key corridors (those with the greatest traffic and containing the urban settlements with the greatest economic development potential) mainly between Addis to Djibouti and towards Hawasa and Mekelle.

Many of the on-going and planned 'mega' projects, such as fertilizer plants and the sugar factories, will generate new settlements for workers and their families.<sup>73</sup> The job creation due to these projects have been analysed in Chapter 5 (The Economy). Three maps have been prepared to show the location and nature of existing urban settlements, used as a basis for outlining the possible future development of the sector. The first (Map 6-7) shows the spatial distribution of key existing and emerging urban cluster areas based on the review of urban clusters presented earlier in this chapter. The second (Map 6-8) indicates the urban and economic functions of the clusters, and the third (Map 6-9) illustrates the linkages between these urban clusters and their rural hinterlands in order to assess joint urban and urban growth processes In Map 6-7 the area of each cluster is delineated by local traffic patterns. A provisional classification of these urban clusters indicates the following hierarchy:

- The single metropolitan urban cluster, focused on Addis-Ababa surrounded urban cluster of Adama/Mojo/Bishoftu and the cities of Ambo, Debre Birhan and Assela
- Three urban clusters with one or more leading cities (Mekele in Tigray cluster, Bahir Dar and Gondar in Tana Lake cluster, Dire Dawa, Harar and Jijiga in Western cluster) and a range of related intermediate cities)
- **Two urban corridors along main roads** with one main city (Dessie in the Northern corridor, Hawassa in the Southern Rift corridor) and a range of related smaller cities
- Four emerging urban clusters and corridors (Jimma cluster, Nekemte cluster, Gojam corridor near the Tana Lake cluster and Southern near the Southern urban Rift corridor) with a range of dispersed intermediate and small cities

<sup>&</sup>lt;sup>73</sup> The urbanisation effect depends of the shape of urbanisation required by these projects: concentration in cities around factories or dispersed in villages due to agriculture production. These mega projects are analysed and used as driving factors for urbanisation in the urban scenarios.

<b>Tailwinds</b> (Promoting urbanisation – and equitable regionally development)	Headwinds (Constraining urbanisation - and equitable regional development)
<ul> <li>Steady population increase (rural-urban migration is increasing)</li> <li>Dramatic recent economic growth</li> <li>Structural change towards an industrial-urbanised economy (an economy that 'requires' urban functions in order to continue to expand.)</li> <li>Potential future economic growth driving structural change and urbanisation:         <ul> <li>Agriculture and agro-processing developments will accelerate urbanisation (e.g. cut flowers; sesame seed; coffee; sugar factories; latter likely to stimulate new settlement creation)</li> <li>Light industry expansion (e.g. textiles; footwear)</li> <li>Mineral based investments - extractive industries (e.g. potash; oil)</li> <li>Service sector expansion (e.g. ITC /BOP/Tourism)</li> <li>Recent FDI inflow in the above</li> <li>East African development and intra regional trade increasing</li> </ul> </li> <li>Infrastructure facilitating structural change towards an industrial-urban economy:         <ul> <li>Development of Industrial Zones , SEZs and agro-industrial parks</li> <li>Establishment of Dry Ports</li> <li>Major Transportation improvements (road / airports etc.)</li> <li>Major investments (e.g. Renaissance Dam)</li> <li>Access to state-of-art Diibouti container port</li> </ul> </li> </ul>	<ul> <li>Constraints on economic development:         <ul> <li>Export growth not as fast as expected (small size of export sector and underlying vulnerabilities in export structure -unprocessed and undifferentiated agricultural products)</li> <li>Narrow industrial base</li> <li>Slow structural change – industry as a % of GDP only slowing increasing</li> <li>Labour productivity increases in both agricultural and industrial sectors not as fast as expected</li> <li>Poor trade logistics</li> <li>Urban unemployment rising</li> <li>Burdensome business rules that obstruct firm entry (Ethiopia lags behind its peers in Global Competitiveness rankings and trade restrictions biased against exports)</li> </ul> </li> <li>Some commercial farms and investments unlikely to trigger adjacent urban development (see Economic Chapter which explains which investments are likely to stimulate urbanisation and which may not)</li> <li>Settlements created by the new sugar factories located in remote areas may be limited in short-to-medium term (see Economic Chapter)</li> </ul>
<ul> <li>Emergence of Economic Corridors 'pushing' growth around the country:         <ul> <li>Addis – Adama (East Corridor)</li> <li>Addis – Mekele (North Corridor)</li> <li>Addis – Kenyan Border (South Corridor)</li> <li>Addis – Wellega high potential agricultural area (West Corridor)</li> </ul> </li> <li>Emergence of geographical dispersed Growth Poles and city clusters (Mekele, Kombolcha – Dessie, Bahir Dar, Hawassa, Dire Dawa:, Jimma; Adama).</li> </ul>	<ul> <li>Pull of Addis remains strong – industrial development (in short to medium term) likely to be occur with 50 Km radius of the capital. (see Economic Chapter; page 140). Service sector concentrating in Addis</li> <li>Inter-urban and rural-urban linkages remain underdeveloped.</li> <li>Ability of secondary cities / local government to manage and guide development currently limited</li> </ul>

#### Figure 6-6: Summary of Key Factors Promoting and Hindering Future Rapid Urbanisation

### Key Challenges to Overcome

- Capacity Challenge: (inability to manage urban growth may be 'overwhelming' leading to agglomeration diseconomies –
  possible overcrowding, slums and informal settlements expand, congestion, pollution, social tensions major challenge to
  improve urban governance, management and planning)
- Financial Challenge (significant resources will be required for urban infrastructure and service provision calculations undertaken by EGIS indicate that unless the private sector is involved the financial resources required may overwhelm city budgets – major challenge to structure financial instruments / mechanisms that can be used to effectively provide urban infrastructure and service
- Urban Infrastructure and Service Challenges- these challenges can severely limit growth prospects and often include (a) dysfunctional housing and land markets which are not up to that required of modern industrial-urban economy and (b) the difficulties providing adequate social and health services (e.g. inability to adequately house and service the new urban industrial labour force and possibly rise of informal settlements and slums). These problems educe the attractiveness of urban area to investment. Major challenge to change how key markets (housing / land) operate and improve the provision of urban services (see Chapter 3 for a description of the difficulties involved in providing urban infrastructure and services)
- Economic Challenge (Need to strengthen efforts to increase value addition in agriculture and industry competition based on low waged labour will be time-bound).
- Climate Change Challenge. Climate change impacts may severely affect agriculture and agro-processing operations (could include water availability stress which will directly impact on urban development). Climate and development are directly interlinked in Ethiopia

Source: Consultant's Assessment

The second map (Map 6-8) shows the high-level urban functions (e.g., local, national and international administration, domestic and international airports, urban facilities and functions, economic functions) of the urban clusters. It is a description of the existing situation. It makes clear the large diversity of urban profiles and possible functional complementarities inside each cluster. Comparison between clusters indicates the prevalence of important economic functions in key urban clusters and widespread trade functions in emerging clusters. Urban functions (e.g. university, culture and urban services) are a distinctive feature among the 10 key clusters but are lacking in many of the cities.

The third map (Map 6-9) focuses on urban-rural linkage between urban clusters and their rural hinterlands, overlaying maps of city clusters and their economic hinterlands. There appears to be two types of rural hinterlands, roughly classified according to their economic present value and potential (areas of high value and multi-sectorial production and others of mono-production and more limited potential; -referring both to agriculture, crops, livestock or mining). In addition to internal economic cooperation between cities recorded in the second map, linkages between urban clusters and rural hinterlands often appear quite strong, in particular through agro-industrial chains and food supply to cities.

#### Supporting the international position of Addis Ababa and defining its domestic role

Addis Ababa is considered as a motor for development for all the country. The international promotion of Addis Ababa is without doubt 'good' for the country and secondary cities of Ethiopia as well. Recent visibility in the international media has portrayed Addis Ababa as a city on the move:

- It is ranked 3rd (after Djakarta and Manila) in the list of the Emerging cities outlook, positioned to advance over the next 10 or 20 years (Nairobi ranked 9th)
- It is a city (on the move) to be seen to day, according to the Lonely Planet travel guide. Addis Ababa is the only city of Africa to be referred to in such terms by the Guide, with a rank of 9th out of 10 (the others include San Francisco, Amsterdam, Beijing, Hobart, Christchurch, Montreal, Puerto Iguazu.)
- It is a major African hub for airlines with 85 air connections all over the world run by Ethiopian Airlines
- It is seen as a real success in terms of economic development (which has occurred without the country having access to oil reserves) and a driver of the country's economic growth rate of more than 10% a year.

Addis Ababa primacy is reducing due to the emergence of large secondary cities. Its role for the national economy is crucial, but need to be better balanced with the other part of the country. Paradoxically, its extensions in the surrounding suburbs is participating to the rebalance in favour of Oromia region, but need to be well coordinated to ensure the most efficient capacity for the development. It is the role of the new AAOSID project.

Map 6-7: Existing and emerging urban clusters



Source: Egis/IAU-IdF/Urba Lyon analysis

Map 6-8: Urban clusters, high-level urban functions



Source: Egis/IAU-IdF/Urba Lyon analysis

Map 6-9: Urban clusters, linkage to rural hinterlands



Source: Egis/IAU-IdF/Urba Lyon analysis

But the recent international visibility of Addis Ababa should not minimize the difficulties that could be encountered as the capital seeks to become a world class city. Indeed there are many challenges. At present:

- Addis Ababa is not seen by the "Economist "as one of Africa's 'competitive cities' (competitive cities identified by the magazine include Johannesburg, Cape Town, Durban, Cairo, Nairobi, Lagos. Addis Ababa is not listed)
- Addis is not seen as the location of a famous universities or a top level business school
- Addis is not seen as one of Africa's 'Innovation hotspots' (except, perhaps, in relation to the Ethiopia Commodity Exchange) and the city economy in general is not feted for 'excellence'
- Addis is not seen as a location for major international cultural or sport events, or as a 'vibrant city', except in the sense that it is a secure and relatively safe city with an equitable climate

Addis Ababa is facing many challenges as it seeks to become a World Class City. Indeed, the City is suffering from poor quality urban development and housing stock (with poor world ranking on 'dirtiness and the environment' indices), visible and very real urban poverty, and a low level of business competitiveness.

Although Addis Ababa is currently not regarded as a major and competitive international city it certainly is extremely important domestically. The Consultants estimate that the city accounts for around 28% of national GDP. It is one of the most important engines of the Ethiopian economy, and is the seat of key national public and private decision makers. It is the biggest urban consumer and job market in the country. The majority of industrial operations and HQs are located in or around Addis Ababa, and, in general, investors are choosing Addis Ababa over every other location in the country because of its connectivity (domestically and international), the availability of business and professional services, its large job market, and the availability of skilled workers. Furthermore, the quality of urban infrastructure and services is better than can be found in any other city in the country. The advantages of Addis Ababa can be defused to and beyond its hinterland through the metropolisation process.

#### Addis Ababa's contribution to balance development

The primacy of Addis Ababa is reducing for several reasons:

- Higher population growth in other cities and regions (see Chapter Three: Population)
- Better communication inside the country triggering new opportunities for economic and urban development beyond the Capital (see Chapter Five: Infrastructure)
- The rise of new economic sectors (e.g. cut-flowers, mining, commercial farms, tourism) that facilitate the emergence of new cities (see Chapter Four: Economy)
- Important public investments in other cities (universities, stadiums, conference centres, roads etc....)
- Upgrading of urban infrastructure and services, and the development of the energy sector which has increased the attractiveness of cities beyond the Capital
- A federal system that facilitates the emergence of region capital cities

The advantages of Addis will always be strong and unique because it is the Federal Capital of Ethiopia, and an international hub and diplomatic city. It is also the main urban job and domestic market, the city in Ethiopia with the greatest number of educated and skilled people, the main cultural centre of the country, and the city with the best urban services.

Several issues need to be addressed in order for Addis Ababa to support the evolution of balanced urban development. If Addis Ababa has comparative advantage, a better sharing of the development between region needs to use Addis Ababa higher added value to support other regions, and to distribute better the economic development in all part of the country regarding their own comparative advantages.

It may be costly (and less efficient economically) to divert resources from Addis to other cities. Economic returns will remain greater in Addis for many years to come. It may be better to gradually and incrementally increase support for other cities while steadily reducing support for Addis (hopefully the city will be able to self-generate enough revenues to look after itself). In this regard the Chinese experience is instructive (see the International Case Studies below).

Over a 30 year period the Chinese developed urban areas located on the main communication hubs and medium size cities. Large cities was not the beneficiary of the development, but transportation corridors and connexion towards international hubs (ports) were the support to the urbanization in the coastal areas. A polycentric urban pattern was promoted followed by attention given to the development of the smaller cities.

# Transitioning from one urban pattern to another is an important (and very practical and economically efficient) way to achieve a 30-40 year urban vision.

Several factors support the proposition that Addis should be nurtured as a main engine for economic development that *can contribute to national development*.

- **The metropolization effect** is expanding the economic development on a large region of some 150 km around Addis: Adama, Debre Birhan and Ambo are directly benefiting from this effect;
- **Transportation corridors from Addis to Djibouti** are creating favourable conditions for new investments along this corridor in Adama, Awash, Dire Dawa and other cities
- Future high capacity connections from Addis to Kenya will support the South Rift valley development
- Better communication between Addis and the secondary cities will facilitate trade and production in those other cities
- **Population growth of the secondary cities** and their increasingly good connectivity is enabling their development and thus promoting balanced regional development.
- Better connection between regional cities and their hinterland will facilitate their role to provide service on larger extend and to facilitate investments on these regions
- Improved telecommunications, water supply and energy in the different part of the country enable, facilitate and indeed encourage investments and urban development beyond Addis.

## 6.8 International Case Studies

A comparison between countries of relevance to Ethiopia is given in Table 6-6 below. Only large countries (> 50 million inhabitants) with less than 10.000 USD/capita are included in this comparison. The selection is based on important similarities with Ethiopia. The population of Ethiopia will reach about 130 million inhabitants and is expected to reach more than 2.000 USD/capita in the year 2037. Few large countries have experience rapid development is currently characterising Ethiopia: the best example with a fast GDP pace and also a quick urbanisation rate is **China**, but this country has a very different population characteristics (in terms of pattern and size).

-							
Country	Current Population (million)	Population growth 2005-2010	GDP/ capita 2013	GDP growth 2013	Urban population 2013	Industry GDP % 2013	Number of cities > 1 million inh.
China	1373	0,48%	6807	7,70%	53%	44%	143
India	1251	1,46%	1499	5,00%	32%	25%	57
Indonesia	254	1,16%	3475	5,80%	52%	46%	11
Pakistan	186	1,84%	1299	6,10%	38%	22%	10
Nigeria	177	2,27%	3006	5,40%	46%	22%	10
Bangladesh	153	1,67%	829	6%	33%	29%	4
Philippines	100	1,72%	2765	7,20%	45%	31%	2
Vietnam	88	1,32%	1911	5,40%	32%	38%	4
Ethiopia	87	2,51%	498	10,40%	19%	11%	1
Egypt	86	1,76%	3314	2,10%	43%	39%	2
Congo	77	3,22%	454	8,50%	39%	na	1
Thailand	67	0,66%	5779	1,80%	48%	43%	2
South Africa	53	0,55%	6618	1,90%	64%	28%	7

#### Table 6-6: Country comparisons

Source: World Bank indicators, 2014

A correlation between urbanisation and GDP growth per capita for large countries can be made (see Figure 6-7 overleaf). Most large countries were more urbanised when they had had the same level of GDP as does Ethiopia. This particularity of Ethiopia lends force to the argument in support of rapid urbanisation in Ethiopia. Countries which exhibit urbanisation patterns similar to that of Ethiopia include Vietnam, Pakistan or Bangladesh, but each one has direct access to the sea unlike Ethiopia. **Vietnam** is perhaps an interesting example of mastering of the urbanisation process, avoiding a too fast urbanisation with its effect on slums and urban poverty. But the polarization on two main cities, Hanoi and Ho Chi Minh City, that limit the expansion of secondary cities make this example wrong for the urban development scheme. The progressive opening up of its economy has a direct resonance with the case of Ethiopian. Two case studies will be addressed in this Chapter: China and Vietnam.

#### Vietnam Case Study

Viet Nam is an emerging country (GDP = 1,911 USD/per capita) with a favourable pace of both urbanisation (from 22% to 32% in 15 years) and economic development (+5.40% in 2013). Since the Doi Moi reforms of 1986, Viet Nam has embarked on a path towards a
market economy and integration into the global economy. This policy has meant that the country has seen unprecedented levels of industrialization (from 22% to 38% in 15 years) especially in rural outskirts driven by foreign investment and rampant expansion of residential land on urban outskirts. The urban population is forecast to be about 35 million in 2015; some 44 million in 2020 and about 52 million in 2025, accounting for 50% of total population.



## Evidence Box 1: Vietnam targets 38 percent urbanisation rate by 2015

Vietnam will strive to achieve an urbanisation rate of 38 percent with 870 urban areas by 2015, if the Government approves a draft national urban development programme from now until 2020 suggested by the Ministry of Construction. The rate is expected to reach 45 percent with close to 940 urban areas by 2020. The development of urban areas will be in line with the socio-economic development strategy for the 2011-2020 period, in the direction of a green economy, contributing to the country's industrialisation and modernisation process. The urbanisation must ensure that urban land is used effectively, and the development of infrastructure and environmental protection are carried out in a synchronous manner. These efforts are expected to help local urban areas stand out among others in the region and the world. In order to fulfil this goal, the localities need to pay attention to urban planning while encouraging encourage investment under the BOT (build-operate-Transfer), BTO (building-transfer-operate) and PPP (public-private partnership) models in urban construction and services such as water drainage, sewage treatment, and environmental improvement.

Source:http://www.talkvietnam.com/2012/06/vietnam-targets-38-percent-urbanisation-rate-by-2015/

The National Urban Development Program for the Period of 2012-2020 targets a national urbanisation rate of 38% for 2015 and 45% for 2020 (see Evidence Box 1 above). The national urban system shall meet socio-economic development requirements and effective urban administrative management authorities shall be in place, especially in two key cities

(Hanoi and Ho Chi Minh City), The 195 urban localities are to expand to more than 640 urban localities.

Viet Nam is administratively divided into three regions (northern, central, and southern) and six socio-economic sub-regions. These divisions are subject to be changed in the next regional planning reform in preparation. Viet Nam has a three-tiered system of local government. According to the 1992 Constitution, Viet Nam consists of provinces and centrally-controlled cities. A province consists of prefectures, prefecture-level cities and towns, while a centrally-controlled city consists of districts, prefectures and towns. A prefecture consists of townships and counties; a prefecture-level city or a town consists of wards and counties; and a district consists of wards. According to the Law on Urban Planning, urban centres are classified into 6 Grades, including Special Grade and Grades I, II, III, IV and V:

- Centrally-controlled cities must be an urban centre of Special Grade or Grade I.
- Prefecture-level cities must be an urban centre of Grade I, II or III.
- Towns must be an urban centre of Grade III or IV.
- Townships must be an urban centre of Grade IV or V.

There are two main programs related to national spatial policy: the Viet Nam Socio-economic Development Plan, and the Spatial Plan. The two components of the centrally-planned Viet Nam Socio-economic Development Plan are the 10-year "Socio-economic Development Strategy" and the corresponding consecutive two "Five-year Socio-economic Development Plans". The stated objective of the current 10-year strategy is "to accelerate national industrialization and modernization along the socialist line and to build the foundation for the country to basically become an industrialized nation by 2020." Under the Viet Nam Socio-economic Development Plan scheme, a bottom-up mechanism is employed whereby local governments (counties, districts, and provinces) issue proposals to the higher levels of government, which are then ultimately and eventually send to the Ministry of Planning and Investment where they are incorporated into the country's overall spatial/land development policies.

The details of the spatial plans under the purview of the Ministry of Construction are conceived through four administrative mechanisms: the Master Plan Orientation for Viet Nam's Urban System Development (national plan), the regional plans, (Ministry of Construction / provinces), the master plans (cities / provinces), and detailed plans (districts, wards, industry zones, or development projects). The plans are prescriptive in character, laying out specific ways to use land in specific locations.

In 2009 the Prime Minister approved the Adjustment Master Plan Orientation for Viet Nam's Urban System Development to 2025 with a Vision to 2050. From now to 2015, the key economic regions and large urban areas assume high priority and the economic zones will act as growth poles at national level; from 2015 to 2025, the development of basic urbanised area is to be prioritized in order to promote balanced development. During the period from 2026 to 2050 the overall urban network will be improved.

The Construction Law of 2003 lays out regulations for "construction planning" (corresponding to master plans). In effect, it is a set of regulations for urban, regional and/or spatial plans. According to those regulations, "regional construction plans" fall under the category of regional plans. As such, it is possible to formulate broad-reaching plans that encompass

provinces and centrally-controlled cities ("multi-provincial plans" and "metropolitan area plans"), both of which form the largest regional administrative units. Based on this Construction Law, in recent years Viet Nam has undertaken the creation of regional construction plans that divide the country into 6 socio-economic regions (multi-provincial areas). The Law on Urban Planning n°30/2009 is applied on planning and urban development in urban areas. Regional planning and rural planning still comply with Construction Law. According to the Law on Construction, types of Construction Planning are classified into Regional Construction Planning, Urban Construction Planning, including master and detail planning, and Rural Construction Planning. According the Law on Urban Planning, there are 3 types of urban planning: General Planning, which is made for centrally-controlled cities, prefecture-level cities, towns, townships and new urban centres; Zoning Planning, which is made for areas within cities, towns and new urban centres; and Detailed Planning, which is made for the areas to meet urban development and management requirements or construction investment needs.

The Ministry of Construction is responsible for drawing up regional construction planning of the capital and other metropolitan areas; urban planning that involve more than 2 provinces. The Ministry then seeks the opinions of related agencies and their branches, other relevant ministries, and the centrally-controlled cities' people's committees, related provinces' people's committees after which the plans are submitted to the Prime Minister for approval. There are 3 metropolitan areas: Ha Noi, Da Nang and Ho Chi Minh. There are challenges to implement multi-provincial plans, because the Constitution does not define multi-provincial governments then there is no government to be in charge of implementing these plans. Therefore they actually are not effective as expected.

The Planning of the Ha Noi Capital Region was approved by the Decision n°490/2008 of the Prime Minister. It emphasised that the Region is the area of multi-central poles in which Ha Noi Capital is a core; prefecture-level cities are link poles for multi-directions of the development. The Hanoi regional plan is in revision with three additional provinces included in a new regional shape. Ha Noi Capital Construction Master Planning to 2030 and Vision to 2050 was approved on 2011 by the Prime Minister. According to the Master Plan, the development model is a conurbation in which there are one Urban Core, 5 urban satellites, 3 eco-towns and some other townships.

#### Lessons from Vietnam

The fast pace of economic development (around 7%/year during the last decade) has facilitated rapid urban development. But Vietnam has also 'used' urbanisation to support economic development and has developed a long term visions (complete with a series of urban visions /scenarios) as a clear pathway for the symbiotic development of the urban sector and the economy. Furthermore, whilst recognising the importance of its two major cities Vietnam has devised and implemented policies to promote a more balanced urban sector. Also of note is the co-ordination between socio-economic, regional, sector and master planning. Although complex and often slow in Vietnam the importance of co-ordination has been recognised and is a lesson for Ethiopia. Moreover, the new planning reform in preparation will promote further decentralisation, sector co-ordination, and is a more pragmatic governance tool for use by the different levels of government (national to local, local to local). Coordination between provinces is necessary in order to prepare integrated master plans of the main agglomerations.

## China Case Study

Over the past three decades, China's urbanisation has experienced very high growth and rapid transformation of the economy (in excess of 10%/year), allowing people to move from agriculture to more productive activities. In the process, 500 million people were lifted out of poverty. China's cities, with abundant and cheap labour, cheap land and good infrastructure attract industry and commercial investments. Chinese cities have become increasingly connected with each other and with the rest of the world.

China's experience of urbanisation shows a clear relation between the economic development and the urbanisation. Before the economic reform (1949-1979) the percentage of the population that resided in urban areas was less than 20%. After the reforms the urbanisation rate increased to 50% in 2010. The number of medium and large cities (those with 100.000 inhabitants or more) increases from 232 in 1982 to 654 in 2009. In 1938 there were 22 cities with 1 million inhabitants or more, by 2010this figure had increased to 88.

Economic development drives urbanisation (see Evidence Box 2). From 1982 to 2002, the major factors included the move towards a market economy; the release of rural surplus labour; a policy of giving priority to the development of small cities and towns, with development of medium and big cities as supplement; the development of rural enterprises, and the emergence of small cities and towns.

## **Evidence Box 2: China Wants Its People in the Cities**

Urbanisation has been designated a national priority. On March 16 2014, the State Council and the central committee of the Communist Party released the "National New-type Urbanisation Plan (2014-2020)," which sets clear targets: By 2020 the country will have 60 percent of its people living in cities, up from 53.7 percent today. What's the ultimate aim of creating a much more urban country? Simply put, all those new, more free-spending urbanites are expected to help drive a more vibrant economy, helping wean China off its present reliance on unsustainable investment-heavy growth. "Domestic demand is the fundamental impetus for China's development, and the greatest potential for expanding domestic demand lies in urbanisation," the plan says. To prepare for the new masses, China knows it must vastly expand urban infrastructure and services. The plan calls for ensuring that expressways and railways link all cities with more than 200,000 people by 2020; high-speed rail is expected to link cities with more than a half million by then. Civil aviation will expand to be available to 90 percent of the population. Access to affordable housing projects funded by the government is also expected to rise substantially. The target is to provide social housing to 23 percent of the urban populace by 2020; that is up from an estimated 14.3 percent last year.....China will map out city clusters across the country's central, western and north-eastern regions and develop them into engines for growth as part of its urbanisation strategy, according to the nation's leadership.

Source: http://www.businessweek.com/articles/2014-03-20/china-wants-its-people-in-the-cities

China has avoided some of the common ills of urbanisation, notably urban poverty and unemployment. But China's growth has been driven by investment rather than productivity increases. Urbanisation has relied excessively on land conversion and land financing, which is causing inefficient urban sprawl and, on occasion, ghost towns and wasteful real estate development. The large influx of migrants puts pressures on urban services. Rural-urban land conversion has been inequitable in the distribution of its gains, has added to wealth inequalities, and has fed social unrest among farmers whose land has been expropriated. Urbanisation is competing for scarce water resources and is adding to pollution that affects the quality of farm produce and food production capacity. The recent evolution of the urban system is interesting. Coastal cities developed quickly due to their proximity to the main transportation corridors and the presence of a port. Today, more than half of the urban population is living in coastal cities. Inland cities are now growing as fast due to recent infrastructure investments. The urban system, however, remains unbalanced, though emerging small and medium cities are creating large city networks. Large cities tend to be more evenly distributed both on coastal areas and inland. Large city region and mega regions are growing. Indeed China's urban landscape is changing. The largest cities are becoming larger and due to their role as gateways to the world and centres of a diverse economy, moving increasingly into services, knowledge, and innovation. Secondary cities within metropolitan areas are likely to attract more land-intensive manufacturing. China's large inland cities can compete with coastal cities as they are well connected to markets. Hinterland cities and rural towns focus on activities with firm-level scale economies and on providing the public services that allow people to move to opportunities elsewhere. Better allocation of land, labour, and capital accelerates the shift of industry to secondary cities, and as job opportunities open up in these areas, migration pressures in large cities are likely to moderate. Consumption increase driven by a growing middle class whose demand will spur a more services based urban economy.



Map 6-10: China Urbanisation

Source: Di Fang University, 2013 (Urbanization rate on the left back side; red dot are urban population of cities)

The legislature in China is the National People's Congress and local people's congresses at all levels. The State Council of the People's Republic of China, i.e. the Central People's Government, is the highest executive organ of state power and the highest organ of state

administration. Local people's governments at all levels are local executive organs of state power at all levels and local organs of state administration at all levels.

In accordance with the Constitution, the whole country is divided into provinces, autonomous regions and municipalities that under the direct administration of the central government. Provinces and autonomous regions are divided into autonomous prefectures, counties, autonomous counties and cities. Counties and autonomous counties are divided into townships, nationality townships and towns.

Municipalities and larger cities are divided into districts and counties. Autonomous prefectures are divided into counties, autonomous counties and cities. Autonomous regions, autonomous prefectures and autonomous counties are nationality autonomous areas. Provinces, municipalities, counties, cities, municipal districts, townships, nationality townships and towns set up people's congresses and people's governments, which are the local organs of state administration. At present, it is being changed to an administrative system with four levels, i.e. central government, provincial governments, municipal and county governments, and township governments.

In 1984, "The City Planning Ordinance", China's first urban planning regulation, was promulgated and enacted, creating a legal framework for the implementation of urban planning and management and so a fundamental change of the absence of guidance of urban planning. At the end of 1989, the NPC Standing Committee adopted the City Planning Act of the People's Republic of China, which entirely set out the guidelines for urban development, basic principles of urban planning, and schemes for the formulation and implementation of urban planning and legal liabilities, etc. The Act also established a set of basic systems regarding the modern urban planning and management in China.

The Amendment to the Constitution in 1988 permitted the transfer of urban lands with compensation, which promoted the prosperity of the real estate industry. The "real estate boom" and "development zone boom" that occurred nationwide at the beginning of the 1990s made the urban development out of macroscopic control and brought a huge challenge against the urban planning. The compilation and practice of regulatory detailed planning was implemented nationwide, so as to strengthen the regulation of urban real estate development. After the reform of taxation system in 1994, local governments had their own interests and demands significantly different from those of the central government.

In 1996, the State Council issued "Circular Regarding the Strengthening of Urban Planning", which stated that "the basic task of urban planning is to uniformly arrange the various lands and spaces in cities, comprehensively deploy the various construction projects and realize the sustainable economic and social development." This was the new positioning of urban planning by the central government under the conditions of market economy. Urban planning was no longer just an extension of the national economic plan, but the regulatory measures to guide and regulate the investment activities of different market players.

The "Real Property Law", enacted in 2007 with the legal protection of private properties lawfully obtained with public properties, greatly stimulated the wishes of property owners to protect their own interests, and enhanced the policy's nature of urban planning. To maintain public interest, protect urban safety, conserve resources and environment and promote the healthy development of urbanisation became the new historic mission of city planning. With the new "Urban and Rural Planning Act" enforced in 2008, the mission of technical urban

planning was gradually shifted from overall planning as the main function to regulatory detailed planning. At the same time, public participation in urban planning became an important driving force in the transformation of planning. The state government emphasized the integrated urban and rural planning and restriction over the planning administrative power.

#### Lessons from China's experience

The China case study highlights the following lessons for Ethiopia:

- China uses urbanisation as an instrument of economic development: Currently China is seeking to develop its internal market and move away from consumption-repressing investment-driven growth which has become increasingly reliant upon debt. One of the fastest ways to do this is to develop the urban sector. The Country also seeks to generate endogenous development, namely development driven by entrepreneurial and innovative activities, which are inherently urban in nature. More specifically, China will define city clusters across the country's central, western and north-eastern regions and develop them into engines of growth. Urbanisation is crucial for economic development; for Ethiopia's GTP II to be successful, urbanisation and balanced urbanisation is required.
- In China rapid economic development has triggered (and required) rapid urbanisation. The percentage of the total population that lives in urban areas has increase 1% each year during the last 30 years. Good infrastructure (transportation, water, energy) and the provision of planned industrial and commercial areas (e.g., industrial zones) are key factors that attract foreign investors. Ethiopia needs to continue focusing efforts on providing infrastructure to connect ports and cities and on ensure that a favourable business environment characterises the cities
- **Increased urbanisation changes the scale for planning** with the need to develop new planning and urban management tools for fast urbanisation and for large urban areas. As the scale of urbanisation changes so the scale of the instruments used to manage and guide urbanisation must correspondingly change.
- Large city clusters are emerging in China (e.g. Pearl River delta [from Hong Kong, Shenzhen to Guangzhou], Beijing-Tianjin-Hebei and Shanghai megapolis), as it will be the case between Addis Ababa to Hawassa. Regional planning and coordination between local bodies and central bodies are necessary in order to devise and be able to implement city cluster development strategies
- Detailed planning and physical regional planning are very important tools to for successful socio-economic planning. The coordination between physical planning and socio-economic planning is a key for success of policies.
- Urbanisation can produce ghost cities and urban sprawl when real estate and land speculation is not well regulated. Low dense urban standards applied in formal planning can increase urbanisation costs. In Ethiopia, the average density is close to the international standards, but the current process is producing more density than before.
- Effective financing instruments and modalities are required for the adequate provision of urban infrastructure and services. Local financing capabilities need to be improved and new instruments (e.g. public private partnerships) investigate for the provision of urban infrastructure and services.

## 6.8 Concluding remarks and recommendations

The Consultant is aware that the Government intends to be proactive as regards urbanisation, and has been debating a policy target of around 40% of the total population residing in urban areas by 2035<sup>74</sup>. A national urban development plan that pro-actively encourages and guides urban development across the country is vital in order to achieve the Government's goal. Without such a plan urbanisation will be slower, more complicated and not entirely in the right place. Plan led urbanisation is needed.

Key elements of this plan have been described above, namely, growth poles, development corridors and city clusters. What is required is an (a) overarching framework within which to integrate these elements and ensure that they work in harmony, namely a National Urban Development Spatial Plan Scheme (NUDSP) and (b) a clear economic development strategy, namely GTP I and II. A NUDPS can be based upon a number of strategic organising principles:

- Adopting an Agropolitan Development Approach. This is what is known as a bottom-up or urban-based rural development strategy. The main aim of this approach is that basic needs must first be satisfied within specified areas. It will lead to cities that are based on agriculture and in so doing lead to a rise in the standard of living not only in the city but also in its immediate hinterland. Later the economy can be diversified. The lessons learned to date as regards both approaches clearly indicate that urban-based agricultural development that takes place around small towns needs to be considerably linked to or supported by that occurring around much larger towns, since development doesn't occur everywhere at once, due mainly resource limitation that could serve as input for various socioeconomic and political activities.
- Adopting a Growth Pole Approach. The Growth Pole approach (growth from above) is structured on the bases of urban systems aiming at the promotion of the spill-over effects of urban development to the hinterland or periphery. The basic aim is to generate strong development and growth dynamics in strategic urban centres from which spill-over effects to the peripheries would bring bout desirable changes in development.
- Adopting sub regional and metropolitan approach. Urbanisation is expanding out
  of the kebele administrative limits. Large agglomeration are emerging along the main
  roads in a continuous shape on dozen of kilometres. Connections between cities are
  more important and city clusters are supporting the economic development. New tools
  are necessary to plan these new scales to organize the development. The
  coordination between kebeles and regions will be strategic. For example, the Eastern
  Tripolis cluster need coordination between a chartered city (Dire Dawa), a small
  region completely integrated in the cluster (Harar) and three regions (Afar, Somali,
  Oromia). These tools are politically complicate to implement (refer to AASOID master
  plan) but are crucial for the Ethiopian development policy.
- Adopting a vision for the Ethiopian Mega-region. Larger clusters may emerge: For example, South-Eastern Rift cluster will probably merge with Sodo-Hosana cluster in

<sup>&</sup>lt;sup>74</sup> Minutes of Meetings with the TAC (11 August 2014) sent to TAC by the Consultant.

the mid-term and with the Federal metropolitan cluster in the long term creating a mega region of several dozen million inhabitants. There are several mega regions in the world like US Eastern belt (around New York), the European North-West (Netherlands, Belgium and part of Germany), and the Shanghai region. These regions are key components and drivers of the global economy.

According to Solomon et.al (2003) a reasonable combination of the Growth Centre approach with the Agropolitan Development strategy could bring about a more balanced and speedy economic development in both the urban and rural areas of Ethiopia. In order to strike a favourable balance between the two development strategies industries in the large cities should not produce the same products as those in the small towns or rural service centres, and there should be a meaningful forward and backward linkage between industries of the larger and the smaller centres. Furthermore,

A simple and stylised representation of how the NUDS could be implemented is given below in Figure 6-8. The NUDS (or National Spatial Framework) should be driven by the priorities of GTP I and II (perhaps with a focus on an agropolitan development approach) and implemented through strategic plans at the level of development corridors and city clusters and local economic development [LED] plans / city development strategies [CDS] at the level of the individual growth pole. As many growth poles will be located within a development corridor or city cluster the LED or CDS must be coordinated with and nested within the encompassing strategic plans for the wider area. NDPs and UPS will operate at a more granular level and are important instruments whereby the LED/CDSs are implemented.



Figure 6-8: The NUDS and 'nested plans' – driving Ethiopia towards Middle Income Status

Source: The Consultant

## SWOT of Ethiopian Urban Sector

St	rengths	Weaknesses
•	A large metropolis (Addis Ababa) acts as a major engine for development	The primacy of Addis Ababa – there are very few large urban centres beyond Addis Ababa
•	Existing urban network evolving towards a polycentric system	Poor integration of parts of the urban network due to incomplete transportation / communication petwork
•	The on-going development of a good quality road system connecting key cities and enhancing their connectivity and attractiveness	<ul> <li>The inadequate capacities of local bodies to support and manage urban development (capacity constraints – lack of financial</li> </ul>
•	Political will from Federal Government to support the development of balanced urban development	<ul> <li>Rapid (and potentially overwhelming) urban population growth</li> </ul>
•	Existing processes that go some way towards integrating informal settlements into the city in a participatory manner	<ul> <li>Poor quality of urban utilities and amenities and their inadequate provision (especially outside Addis Ababa)</li> </ul>
•	Existing decentralised bodies (regional – city)	High rate of urban informal settlement growth
•	and the process of financial decentralisation	Delimitation of urban areas without     consideration to urban functional areas
	be planned from the beginning of the urbanisation process	Low level of coordination amongst cities
0	pportunities	Threats
•	Larger and growing consumer market	Urbanisation becomes too rapid – becomes
•	Higher incomes leading to the development of domestic trade and commerce	chaotic and a brake on economic development
•	Expanding East African market including the relocation of manufacturing from South-East Asia towards Eastern Africa	<ul> <li>Adverse climate change impacts (increase natural risks and environmental constraints on urbanisation)</li> </ul>
•	Extensive and unexploited resources (mining, agricultural land) to create revenue and add capacities for public and private capital	Water resource scarcity due to climate change and higher demand associated with the economic development
	investment in utilities and facilities for cities and towns.	Slow implementation of infrastructure investments (road, railway, airports, energy,
•	On-going projects to established centres of commercial and transportation logistics, and	water, telecommunication) required to support urban development
•	industrial zones /special economic zones Expansion of tourism - will encourage service	Difficulties in attracting foreign investments related to large infrastructures (especially outside Addis Ababa)
	development in cities and towns	High dependency on international trade, but
•	support for urban growth poles developments	widening trade gap
•	Border opening to Eritrea, South Sudan and Somalia to facilitate development of cities in peripheral regions	High cost of urbanisation; but inadequate self- generated revenues and few effective financial instruments to generate revenues
•	Larger urban population that increase city clustering and agglomeration effects	<ul> <li>Inability to 'crowd-in' the private sector and establish effective PPPs (public-private partnerships) involved in urban infrastructure</li> </ul>
•	Expanded and improved education increasing the capacity and capability to develop	and service provision
	innovation in the planning and management of cities (including the development of new urban management tools / establishing city	Difficulties maintaining the centralisation of the financial and human capacities in the Federal and Regional bodies
	planning agencies)	• Continuing lack of co-ordination amongst cities and between cities and their hinterlands.

# 7 Institutional and Financial Systems



Figure 7.1: Oromia Region Headquarters, Source: IAU, 2014:

# 7.1 Introduction

This chapter briefly describes the institutional structures governing urban development in Ethiopia and assesses their capacity to manage the expected rapid urbanisation of the coming 20-30 years. Particular attention is paid to the way in which local governments are managing the settlements for which they are responsible, and to the identification of capacity constraints which must be addressed if future urbanisation is to be managed effectively and efficiently. The chapter also outlines the way in which the various levels of Government are financed and seeks to identify possible future funding constraints that could compromise the effective management of urban growth and development.

# 7.2 A Federal Decentralized Institutional Framework

The current institutional framework is directly associated with the modernization of Ethiopia; it provides the backdrop to the prevailing economic development strategies and plans and is the mechanism whereby society is organised in order to meet the challenges of the future. In the current decentralized system established by the 1995 Constitution; the country is organised as follows (also see map 7-1):

- Nine regional states
- Two chartered cities.
- Woredas (rural and urban districts or cities)
- Kebeles (rural and urban neighbourhoods, with more than 5,000 inhabitants).

In addition, there are 68 administrative zones above woredas (generally without council) to facilitate local administration and provide the woredas with support (see Map 7-1).



#### Local Self-Governments

Ethiopia is still mainly a rural country and most of the 556 woredas and around 15 000 kebeles are rural (see table 7-1 overleaf). These two forms of local administration were featured in the 1995 decentralisation framework, as were regional governments, However, while the latter have become fully operational, many woredas and kebeles remain very restricted in what they can acheived due to significant capacity constraints and the low level of resources at their disposal.

In order to "decentralize powers, enhance local democracy, governance and service delivery" in rural woredas and city administrations, a local decentralisation reform programme was launched as part of the 2001 District Level Decentralization Program (DLDP) and the Urban Management Program (UMP). It was first carried out in four regions, Oromia, Amhara, Tigray and SNNPR (which accounted for 87% of the total population of the country), with transferred regional grants and a decentralized fiscal power towards the local levels.

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The focus was mainly on districts, rural woredas and cities with administrative and financial powers. At the same time, regional states began to restructure their urban local governance system. The 2001 reform helped address the urban challenge and many of the concerns of the rural population and settlements (the rural population density can be quite high, especially around a network of small towns and middle-sized cities).

rabie r		0/ 20//00	, anoann	rara ne				ogion in 20		2007
	Amhara	Oromia	SNNPR	Tigray	Benish.	Afar	Somali	Gambella	Harar	Total
Zone	11	20	14	6	3	5	9	3	1	72
Rural	128	259	134	34	20	29	52	12	3	671
Urban	22	39	22	12	1	0	0	1	1	98
Woreda	150	298	156	46	21	29	52	13	4	769
% urban	14.7	13.1	14.1	26.1	4.7	0	0	7.6	25	12.7
Rural	3,074	6,484	3,666	611	417	338	0	211	17	14,818
Urban	348	546	270	92	29	49	0	17	19	1,370
Kebele	3,422	7,030	3,336	703	446	387	0	228	36	16,188
% urban	10.1	7.7	8	13	6.5	14.1		7.4	53	8.4

Table 7-1: Share of zones, urban / rural woredas and kebeles by region in 2008 and 2007

AA = 19 zones, 99 urban kebeles - DD = 1 zone, 1 woreda, 9 urban & 32 rural kebeles Source: Ethiopia World Bank Office, 2008, CSA 2007 (zones, kebeles)

#### Note 1: Can the current institutional framework meet the 'Urban Challenge'?

- The current institutional system certainly facilitates national cohesion. However, given capacity and resource constraints it is a moot point whether the system enables the effective delivery of pro-poor and economic development programs and, meets the 'urban challenge'
- The extent to which regional states, (although extremely important to the decentralization process), can support appropriate urban development, and allow and facilitate local governments to meet the urban challenge is, at present, uncertain.
- The process of decentralization (DLDP, UMP 2001) has transferred many competencies to a quite dispersed local level; has this action undermined the role of intermediate zonal level organisations in delivering pro-poor local strategies and meeting the urban challenge?

# 7.3 Federal Policies and Urban Planning Challenges

Since 1991, a range of policies have been designed to rebuild the country blighted in the past by starvation and conflict. Pro-poor policies were implemented along with local services and infrastructure development. However, soon thereafter a major shift occurred with regard to national economic priorities and strategies. While the pro-poor policies were mainly directed to rural areas and small towns, increasing emphasis was placed on supporting the development of the urban and industrial sectors.

It was recognised that urbanisation must be supported in order to develop the country. Global experience clearly demonstrates that urbanisation is associated with economic development; the greater the proportion of a country's population that is urban the higher the GDP of that country. This recognition has led to many changes in how urban areas can be managed and developed; and corresponding changes in the way urban local governments have to operate.

## Changing emphasis from rural to urban

The key federal policies and plans designed to address poverty are listed in Table 7-2. Two important plans are the Sustainable Development and Poverty Reduction Program (SDPRP) of 1999-2003 and 2002-2005 and the 2005-10 Plan for Accelerated and Sustainable Development to End Poverty (PASDEP). Many of the programmes had a rural focus and concentrated on local services and infrastructure delivery (e.g., BSD Basic Service Delivery, HSDP Health Sector Development Plan 1997-2017, Roads, Water Supply, Solid Waste, etc.) thus allowing the development of villages and rural centres.

This emphasis changed with the introduction of the Growth and Transformation Plan (GTP) which identified strategic growth sectors (such as textile, leather, agro-processing, mining) and infrastructure (e.g., transport, energy, telecommunications) as requiring support in order for the country to meet the Millennium Development Goals by 2015 and to achieve the middle-income status by 2025 as stated in GTP2.

GTP2 is mainly oriented towards industrial development and export activities, and aims for a minimum 11% GDP growth rate. Many of the important GTP I related projects (such as commercial farms, agro-industrial factories, and the establishment of industrial zones) may be indeed be located in rural areas but require service and logistical support as only found in urban settlements. Moreover, connecting to international markets requires relatively sophisticated urban support services. The role of urban centres thus becomes crucial to the success of GTP2.

Table 7-2: Key federal strategies, policies and plans					
Poverty reducing	Economic growth	Urban development			
HSDP 1997-2017 (Health Sector	GTP1 (Growth &	NUDP (National Urban Development			
Development Plan),	Transformation Plan)	Policy)			
SDPRP 2002-05 (Sustainable	2005-10 &2010-15	National Policy Framework for			
Development and Poverty	IDS (Industry	Grading & Defining Urban Centres,			
Reduction Program)	Development Strategy)	Federal Urban Planning Law &			
PASDEV 2005-10(Plan for	ADLI (Agriculture	Building Code,			
Accelerated & Sustainable	Development Led	Federal Housing Policy, Federal			
Development to End Poverty)	Industrialization), etc.	Urban Planning Manual & Guideline,			
BSD (Basic Service Delivery),	GTP2 to be prepared	Federal Urban Land Lease Policy,			
MDGs (Millennium Development		Federal Urban Capacity Building			
goals) 2005-2015		Strategy.			

Source: Ministries, WB

## Urban Planning: from local tools to the NUDS

Under GTP2 urban areas will play an increasingly important role in the development of Ethiopia. As such the importance of effective urban planning and management is thrown into high relief. Urban planning has, of course, been practiced for decades; including the production of local spatial plans. The current planning framework was established via the 2005 Federal Urban Development Policy of Ethiopia. Currently (MUDHC 2012), 968 towns are 'planned' (around 45% of all towns). However, rarely is planning undertaken with elaborate tools; indeed the planning capacity of most urban areas needs considerable strengthening if the urban challenge is to be successfully addressed.

The 2008 Urban Planning Proclamation defined an urban centre as "any locality with established municipality or having a population size of 2000 or above inhabitants of which 50% of its labour force is primarily engaged in non-agricultural activities", enlarging the scope of planning. Moreover, the Proclamation addresses urban policies alongside setting national urban standards for plans pertaining to rural market centres, towns and the capital city. The National Urban Development Scheme (NUDS) was also established, and one of the key functions of Urban Development Plans was to promote balanced regional and national development. Local plans are to be prepared in order to determine a town's physical boundaries and within these boundaries to organize its socio-economic activities and urban services and infrastructure (see Figure 7-2 and 7-3, and Map 7-2).

Figure 7-1: Hiera	archy of the curr	ent Ethiopian urban planning	system				
Level 1		National Urban Development Scheme'					
Level 2		Regional Urban Development Plan'					
Level 3		'UrbanPlan					
	Basic plan	City-wide Structure Plan	Local Development Plan				
Level 4		Detailed plans (Sketch plan	, Urban Design)				

Source: Urban Planning Proclamation No. 574/2008 on the 16<sup>th</sup> of May 2008





Table 7-3: Standard levels for plans						
Standard	Small town	Medium town	Large town	City	Metropolis	
Size	2000 to 20,000	20,001 to 50,000	50,001 to 100,000	100,001 to 1 million	> 1 million	
Plan	Basic Plan, Sketch plan	SP + LDP	SP + LDP	SP + LDP Urban design	SP + LDP Urban design	

Source: MUDHCO Urban Planning Proclamation No. 574/2008 on the 16th of May 2008

Structure Plans (10 Year term) and Local Development Plans (10 Year term) are to be focused on effective conditions of implementation with operating plans, while Basic Plans are suited to small towns (see table 7-4). Recently, two non-binding citywide planning approaches were added (Strategic and Sketch Planning) together with a Detail Planning "Urban Design" Approach, which helps in the management of land use.

#### Table 7-4: Structure Plan and Local Development Plan

SP / Structure Plan (10 Y term)	LDP / Local Development Plan (10 Y term)
<ul> <li>A legally binding plan</li></ul>	<ul> <li>"A legally binding plan depicting medium term, phased and</li></ul>
which "formulates and	integrated urban upgrading renewal and expansion activities
draws" on the urban	of an urban area
boundary "basic	<ul> <li>"View to facilitating the implementation of the structure plan</li></ul>
requirements regarding	by focusing on strategic areas"
physical development the	<ul> <li>Platform defining "development objectives, implementation</li></ul>
fulfilment of which could	strategies, role of implementing bodies, required institutions,
produce a coherent urban	local economic dynamism, urban design principles, concrete
development in social,	standards, spatial framework, budget and time of
economic and spatial	implementation"
<ul> <li>Contents: urban centre's</li></ul>	<ul> <li>Contents: zoning of use type, building height and density /</li></ul>
growth / land use classes /	local streets and basic infrastructure / transport system /
housing development /	housing and neighbourhood's typology / urban renewal and
physical and social	intervention areas / green and open spaces, water and
infrastructure / urban	common places / etc.
intervention areas / industry zones	<ul> <li>"Detailed implementation schemes" defining "institutional set up, resource and regulatory prescriptions needed in a concerned area"</li> </ul>

## 7.4 Competencies at the various levels of Government

The federal government has executive power and is led by the Prime Minister with a Council of Ministers (currently 22), selected by the Prime Minister and approved by the House of People's Representatives. Federal competencies are distributed amongst a number of Ministries; those of direct relevance to the urban sector include the Ministry of Urban Development Housing and Construction (MUDHCO), the Ministry of Finance and Economic development (MOFED) and the Ministries of the Transport, Education, Health, and Water Resources. MOFED is the most powerful, with directories dedicated to strategic development planning and international relationships (external resources, financial cooperation, UN agencies, bilateral cooperation, EU national authorizing, Ethio-China development cooperation).

Regional government is an important instrument of decentralization. Regional States are directly accountable to the people of each region, but they have the duty to respect the powers of the Federal Government. Likewise, the Federal Government has the duty to respect the powers of the States. Some competencies are shared between federal and regional levels. Regional competencies vary by region, being more or less defined in the various regional proclamations. Regional States define local competencies, at woreda and kebele levels, and control the distribution of dedicated grants to these lower levels of government (see Figure 7-3 and Tables 7.4 and 7-5 below).



Figure 7-2: The Urban System in the Decentralization Process

Regional Government shall:	Woreda shall:	Kebele shall:
Have all powers not given expressly to the Federal Government alone, or concurrently to the Federal Government and the States	• Examine and approve the draft economic development, social service, in line with administrative working plans and programs	• With details to be outlined by law, ensures that rural land users fee, agricultural income tax and other revenues are
<ul> <li>Formulate and execute its economic, social and development policies, strategies and plans</li> <li>Administer land and other natural resources in accordance with</li> </ul>	• Follow up the basic agricultural development activities consistent with the appropriate season, the development, conservation and care of natural development	<ul> <li>collected in due time and even imposes other service charges</li> <li>Considers / approves its own budget</li> <li>Utilize any source of</li> </ul>
<ul> <li>Federal laws</li> <li>Levy and collect taxes and duties, rural land user fee, agricultural income tax</li> <li><b>Regional Constitutions</b></li> <li>Regions shall: <ul> <li>Set out the Regional economic and social development policy, strategy and plans</li> <li>Enact the constitution and other laws of the Region</li> <li>Administer land and natural resources in accordance with federal laws</li> </ul> </li> </ul>	<ul> <li>development.</li> <li>Properly handle and keep data concerning the land administration and use.</li> <li>With details to be outlined by law, ensure that rural land users fee, agricultural income tax and other revenues are collected in due time and even imposes other service charges</li> <li>Utilize any source of revenue which may have been outside the sum allocated and administered by regional state thereof</li> </ul>	revenue of the woreda concerned, which may have been outside the sum allocated and administered by regional state thereof

Table 7-5: Main competencies at regional, zonal, woreda's and kebele's levels

Source: 1995 federal constitution, regional proclamations

Table 7-0. Synthesis of del	Table 7-0. Synthesis of devolution of some main competencies at each level						
Power	HPR HoF	Ministers	Region	Spec. Zone	Woreda	Cites	Kebele
Economic & social development	Х	Х	Х		Х		
Laws / land & natural resources	Х	Х	Х	Х			
Transport, roads & telecom	Х	Х	Х				
Water, rivers, lakes	Х	Х	Х		Х		
Taxes	ХХ		Х		collects	Х	collects
Budget	Χ	Х	Х	Х	Х	Х	Х
Loans	Х	Х					
Basic services		Х	Х		Х	Х	Х
Urban planning		Х	Х			Х	

## Table 7-6: Synthesis of devolution of some main competencies at each level

Source: Consultant's data compiled from federal proclamations

Regional states have legislative and executive powers, and a judiciary organisation. The President of the region is also the head of the executive. Only the SNNPR State has two councils at regional level, the Regional Council (the law maker) and the Council of nationalities. In matters of education, the regional level has to establish and administrate the 2nd cycle of secondary education, special schools, technical and vocational schools, teacher training institutions and medium-level colleges.

## The Sub-Regional Level

In order to "decentralize powers, enhance local democracy, governance and service delivery" in rural woredas and city administrations, reform was first introduced in Oromia, Amhara, Tigray and SNNPR through the 2001 District Level Decentralization Program (DLDP) and the Urban Management Program (UMP), which decentralized fiscal powers and made regional grants available. It has been subsequently extended to all the regions and autonomous cities, and is now available for the 752 woredas and around 16 000 kebeles.

**The zonal administrative level** is another component of the efficient territorial administration. The zonal authorities had a controlling, checking and monitoring power over the activities of the woredas up to the 2001 reform, which aimed to enhance woredas' competencies required for better service delivery. Zonal administrations became oversight bodies for woredas; most of their employees have been transferred to woredas and zones became mainly oversight bodies on woredas.

**Woredas** all have: an elected council with representatives from kebeles, an executive organ and an independent judiciary body, but otherwise have widely variable human and financial resources. Woredas competencies are defined by each regional constitution. Woredas and urban centres are mainly involved in local development, through basic services, but they area also required to prepare and implement their own development plan. Available resources (skilled labour force, budget, technical tools) are often unequal to the latter task. For instance, in the education sector alone, woredas are in charge of primary, secondary and adult education, educational plans, new schools, hiring (and deploying) teachers and managing boarding schools for primary education (both governmental and not governmental schools). Since 2001, the regions have assumed powers and responsibilities from woredas, while urban areas have gained a special status as Urban Local Governments (ULG) with elected councils, self-generated tax revenues and control over expenditures

**Kebeles** (village, in Amharic, akin to *Idir*: traditional rural community) have a council and an executive cabinet but no proper budget, with needs partly financed by the woreda. In the four reform regions, kebeles have to "prepare an annual kebele development plan, ensure the collection of land and agriculture income tax, and organize local labour and in-kind contributions to develop activities, resolve conflicts within the community through social courts". The principal focus is on improving the local provision of public services. Kebeles often lack resources as well. The World Bank, in line with the 2001 reform, provides kebeles with specific support through programs focused on basic services, capacity building and financial aid, as do many NGOs.

Table 7-7. Regional translations of		s competencies
Federal framework	Amhara 102 woredas	Oromia 199 woredas
<ul> <li>Prepare and approve the annual <i>woreda</i> development plans and budgets and monitor their implementation</li> <li>Set certain tax rates and collect local taxes and levies (principally land use tax, agriculture income tax, sales tax and users fees</li> <li>Administrate the fiscal resources available to the woreda</li> <li>Construct and maintain low-grade rural tracks, water points and woreda level administrative infrastructure (office, houses),</li> <li>Administrate primary schools, health institutions and veterinary facilities</li> <li>Manage agricultural development activities and protect natural resources</li> </ul>	<ul> <li>Woreda administration may facilitate:</li> <li>Economic development and social service plans, implement regional policies, laws, regulations and directives.</li> <li>Draft economic development, social services, administrative woreda's working plans and programs</li> <li>Agriculture development activities, development, care and conservation of natural resources</li> <li>Public mobilization</li> </ul>	<ul> <li>Urban and social services to residents (environment, construction, roads, sewage, water, parks, waste disposal, control of pollution, transport, education, health, housing, culture, statistics)</li> <li>Economic and social development</li> <li>Urban land and houses administration and expropriation right</li> <li>Management of human resource</li> <li>Collection of taxes et services charges</li> <li>Various partnerships (residents, Region, urban-rural, private bodies, etc.)</li> </ul>
	1	City plan

Table 7-7: Regional translations of federal definition of woredas' competencies

Source: Federal proclamation, Amhara 2001 Proclamation, Oromia 2003 Proclamation

Case Study Box n°1 of institutional 'architectur	re' of Oromia Special Zone surrounding Finfine
Oromia Special Zone Surrounding Finfine (Addis-Ababa), urban centre and woreda, an example of specific zonal system, showing the level of basic services in middle-sized cities and the kind of urban studies (city grading, etc.) which may be carried out at zonal level.	Special zone ( <b>OSZSF</b> ) created in 2008 to coordinate urban and economic development of Addis-Ababa outside of its city limits. Around 800,000 people (in 2002), 228,420 (28.75%) live in 6 urban <i>woredas</i> and 15 cities Welmera includes 96,000 people in 2004 on 80,831 ha with 43 agricultural cooperatives and 24 peasants associations (crops, life stock), mining extract, industry (agro-industry, flowers, metal and wood, cement). Wereda annual budget in 2003: 22,127,800 birr,





#### **Oromia Finfine Special Zone**

Oromia 2000 Proclamation to establish OSZ (8 towns and 6 rural woredas from former Shoa zones, as the urban fringes of Finfine City/AA). <u>Private investment</u>: 9 sectors along the 2011 socio-economic profile (manufacturing, agro-industry, social services, hotel & tourism, commercial, real estate, flower, education, health, transport).

#### Welmera woreda:

23 rural kebeles, one urban (Holeta), 90,000 inh., <u>Administration</u>: Council 72 members, 4 committees 8 members

<u>Annual budget</u>: 32,000 birr, 90% being recurrent expenditures, 90% from Oromia + people's contributions, needs review, 5Y program. <u>Education</u>: 38 schools (12 primary, 24 secondary, 2 high)

Health: 2 centres, 26 posts in kebeles.

Holeta town (city administration, municipality), 8 kebeles, 57 621 inhabitants

<u>Activities</u>; incl: 66 manufacturing, 40 wholesales, 532 retail trades, 674 service trades, 2 banks, 5 Micro Financial institutions. 16% unemployment. <u>Sources of revenue</u>: land lease balance taxes/ service charges. 2006-2010 average annual revenue = 8,650,732.49 Birr

<u>Major investment opportunities</u>: agro–industry processing, hotel and tourism development, construction industry and social services (education and health). Housing: 24,678 mainly built of mud, stone and of which 6,867,615 are local revenues from taxes and others.

Structure plans for cities are being prepared by AA and OSZSF' Integrated Development Plan Project Office.

**Main cities** inside the OSZ were defined from the 2000 Proclamation.

Rural	City's		Popu	grade
woredas	Age	Cities	lation.	
	1946	Burayu	100 200	1
	1894	Holeta	57 621	2B
Welmera	1928	Menagesha	13 200	4C
	1926	Tefki	10 162	4C
Sebeta	1930	Awash Melka	6 315	4C
Hawassa	1936	Sebeta	114 674	1
	1998	Legetafo	18 177	2A
		Sendafa		
Berek	1929	Beke	24 863	2B
	1978	Gelan	40 000	2A
Akaki	1988	Dukem	24 222	2A
	1929	Sululta	32 206	2A
	1928	Chancho	26 107	4B
	1956	Derba	2 309	4C
Sululta	1958	Duber	2 500	4C
Mulo	1818	HojaDure	2 434	4C

Education: 9 private and 1 public kindergartens,
3 private primary schools, 6 junior secondary
schools, 2 high schools, 1 college
Health: 1 public health centre, six public health
posts, 11 private clinics
Transport i15 mini bus, 29 Bajaj taxis and 306
horse drown carts
Solid waste: collected by 1 tractor and 8 horse
drown carts and disposed in open dump
Public places: meeting hall, ambulance, public
library, general and cattle market meeting twice a
week, daily market
Deligious convision 4 Orthodox churches 40

<u>Housing</u>: 24,678 mainly built of mud, stone and wood private and public owned houses Protestants, 4 mosques

Source: OSZSF Wereda 2004 Report, Oromia Region Zonal Urban Development Office

The **chartered cities** of Addis-Ababa and Dire-Dawa (see table 7-7) are directly accountable to the federal Government. Their powers are defined by their charters, and Addis-Ababa and Dire-Dawa administrations have their own organs of government.

For the **other cities and urban woredas**, the 1995 constitution did not recognize municipalities as independent entities. Some regional states did allow establishing urban local governments early on (Oromia in 1993, Amhara in 1995, Tigray in 1997) to enhance socioeconomic development, services and investment, following Addis-Ababa's longer standing experience in development and administrative management. In the 2001 second wave of decentralization, four regions (Tigray, Oromia, Amhara and SNNPR) enacted municipal proclamations and a Council Mayor system was developed. Cities may henceforth issue laws and regulations.

	0	
	Addis-Ababa Sub-cities	
Chartered cities government	Dire-Dawa kebeles	Other cities (urban woredas)
<ul> <li>City Council (members elected for a 5Y term) enacts law, master plan, etc., accountable to the federal government and city residents</li> <li>Mayor, chief executive officer, accountable to the federal government and city council</li> <li>City Cabinet, ensures implementation of legal and regulation aspects, policies</li> <li>City manager, responsible for the execution of the municipal services</li> </ul>	<ul> <li>Council</li> <li>Spokesperson</li> <li>Secretary</li> <li>Chief Executive</li> <li>Standing Committee</li> <li>Manager</li> <li>Social Court</li> <li>Other executive bodies</li> </ul>	<ul> <li>City council</li> <li>Speaker of the Council</li> <li>Mayor (being elected)</li> <li>Mayor's committee</li> <li>Manager of municipal services</li> </ul>
<ul> <li>Issue and implement policies concerning the development of the City</li> <li>Approve and implement economic and social development plans</li> <li>Identify, determine and organize municipal services to be delivered at the level of the City</li> <li>Administer, according to law, the land and the natural resources located within the bounds of the City</li> <li>Prepare and approve the budget of the City, collect taxes and other incomes from revenues.</li> </ul>	<ul> <li>Addis-Ababa sub-cities</li> <li>Provide and locate municipality services</li> <li>Administrate their area</li> <li>Facilitate popular participation</li> <li>Dire-Dawa kebeles: +</li> <li>Facilitate micro- and small business enterprises local development,</li> <li>Facilitate basic and primary education, primary health care service</li> </ul>	<ul> <li>Prepare budget proposals</li> <li>Assess and collect allowable municipal revenues</li> <li>Prepare and implement development plans</li> <li>Provide internal roads and bridges, markets, laughter houses, terminals, public gardens, recreational areas and other public facilities</li> <li>Regulate cleanliness and providing solid waste, water, sewage and drainage services</li> <li>Deliver miscellaneous services (fire protection, libraries, public toilets, street lighting, nursery</li> </ul>

Table 7-8: Chartered cities and sub-cities' government, administration and competencies

Source: Consultant's compilation of regional and municipal proclamations

## The performance of the urban governance system and the ULGDP I and II,

Modernizing the economy involves organizing urban growth as a priority. International experience in emerging economies demonstrates that a high urbanization rate coupled with a low management capacity and insufficient revenue generation in local administrations and in secondary cities will ultimately act as a dampener on economic development.

There have been consistent efforts in improving governance practices in urban administrations (a GTP priority), as well as progress in better infrastructure and service delivery. However, change in urban financial administration is behind governance improvement and better service delivery.

Local finances should and can be improved within a more comprehensive reform of the urban sector, and recent programs support this need.

Following 2001 reform and regional proclamations, there are currently 84 ULGs (Urban Local Governments), generally at woreda level, with populations over 20,000 and managed by city-administrations with state and municipal functions

To help local urban governments to face the financial challenges related to continued provision urban infrastructure and services, a first Urban Local Government Development Program (ULGDP), led by the MUDHCo and supported by the World Bank's International Development Association (IDA), was carried out from 2009 to 2014 with a US\$380 million credit. It helped 18 cities "improve the capacity and performance of their local urban governments to expand sustainable urban infrastructure and services".

A second ULGDP has been launched (July 2014 / December 2019) for 44 ULGs' (the 18 existing and 26 to come) It aims to set principles of good governance for urban local governments in Ethiopia:" participation of citizens in ULG planning and budgeting, efficient fiduciary management, increased amount of own source revenues at the ULG level, improved infrastructure, service delivery and O&M systems, strengthened accountability and oversight systems". Cities will receive Performance Based Grants (PBG for US\$ 315 million) and CBG (capacity building grants, US\$ 10 million Budget) through CB annual plans. As in ULGDP I, core urban infrastructure investments will focus on roads, water supply, sanitation, solid waste, greenery and street lighting.

Under the MWUD federal global management, regional governments will involve their REPA, Regional Environmental Protection Authority) and Bureau of Works and Urban Development (BWUD). Local Governments will install a Coordinator at the Mayor's office, having Infrastructure Offices and a planning and implementation staff with environment and social development specialists. This program (as per January 2014 ESSA - Environment and Social System assessment) may represent a crucial step to improve urban local governance (source: ULGDP II, Technical assessment report February 2014).

# Note 2: In following the principle of 'Subsidiarity' has urban management efficiency improved?

- Institutional and fiscal decentralization has empowered local self-governments but may have been associated with the dispersal skilled human resources from the Zones to woredas and kebeles. To what extend this dispersion fosters the use of community resources and increased local capacity to manage development is, however, uncertain.
- Local urban governments have been assigned certain duties and responsibilities but they lack resources, and human capacity and capabilities. The implementation of strategic objectives suffers from lack of suitable resources. There appears to be a clear need to improve the capabilities of local government if the expected urban development at local levels is to be effectively managed

- Combining regional level support (urban bureaus) and urban administrations capacity will be a way to improve technical and administrative skills at relevant levels in order to address strategic issues.
- A main condition for a strong urban growth may be to promote financial urban autonomy. In this regard it is a positive move that cities have recently gained their own taxes revenues and expenditure powers and assignments.

# 7.5 Financial issues and Financial Management

A federal financial administrative law sets the types and basis of taxes and specific competencies at each level. For each fiscal year, federal public bodies in charge of action plans (annual and medium term) send their budget requests to the MOFED. The federal budget sets the general framework for implementing policies. Both regional bodies and. Urban Local Governments are accountable for important programmes (see Table 7-8) though the financial resources available to each, especially for local bodies, are often not sufficient to enable them to successfully implement the programmes for which they are responsible.

	Federal	Regions	Urban local governments		
	government 		State	Municipal	
			function	function	
Currency and banking policy	Х				
Defence and foreign policy	Х				
Immigration	Х				
Electricity	Х				
Justice	Х				
Universities	Х	X			
General public	Х	X			
transportation					
Health care			Х		
Primary and secondary			х		
education					
Police		X	Х		
Water and Sewerage					
<ul> <li>Capital expenditures</li> </ul>		X			
<ul> <li>Current expenditures</li> </ul>				X	
Waste management				X	
Local roads				X	

Table 7-9: Accountability for some areas of expenditures at each level

Source: Jan Werner & David Nguyen-Thanh, January 2007

## The National Budget System

In the federal budget, poverty oriented programmes (agriculture & food security, education, health, road and water) represent about 70% of expenditure. Deficits (after grants collection) are financed through domestic and external borrowing. Capital spending represents more than half (58.5%) of the expenditure budget. In 2014, 28% of the budget goes to the regions.

MDG's represents 1/10 of the budget (see table 7-10). The financial commitments associated with GTP account for around 40% of GDP. Important issues include the huge public investment on infrastructure and export-industries, and the increasing trade imbalances, necessitating debt financing (see Figure7-3).

Table 7-10: Federal Budget, Rough Structure and Recent Evolution (in Birr)							
Budget	get 2010		2011 2012		2014		
Recurr. Expend.	14.464511 906	16.019142 769	23.341059 969	26.811047 670	32.53000 000		
Capital Expend.	29.110957 210	35.987819 790	48.078168 086	54.466161 104	64.32173 351		
Total	43.575469 116	52.006962 559	71.419228 055	81.277208 774	96.85173 351		
Regions grants	20.932960 000	25.201202 900	31.393412 000	36.558838 331	43.05155 548		
MDG's			15.000000 000	20.000000 000	15.00000 000		
Total	64.508429 116	77.208165 459	117.812640 055	137.836047 105	154.903290 899		

Source: MOFED

Figure 7-3: Ethiopian Export / Import trade balance 2002-15



Source: Ethiopian Investment Prospects, African Review of Economics & Finance, 06.2013, UN COMTRADE data

A separate budget ("off-budget") is dedicated to economic development, mainly infrastructure and industrial programs. It includes the major public projects, led by project-specific public enterprises (e.g., Renaissance Dam, sugar factories, etc.). 30% of financing is supported by the project development enterprises (including foreign enterprises), the rest is raised through borrowing. The foreign share of the whole Currency Requirement is more than half (55.42%). This contribution of the private sector is "a critical element of the country's overall capacity to finance the GTP" (GTP report). The "off-budget" represents half of the federal budget (see Table 7-8). Egis International in association with IAU-IdF & Urba Lyon – Existing Situation and Diagnostic Final Report (March 2015)

Table 7-11: Off-budget financing requirement / infrastructure, IDP (Industry Development)							
Off-budget	2010-11	2011-12	2012-13	2013-14	2014-15		
Industry dev	16,229.76	51,954.59	56,728.13	42,056.96	26,591.73		
Transport	35,088.3	43,223	41,795.4	30,550.1	11,047.7		
Communication	6,58	1,9	13,19	0	0		
Energy	36,234	52,966	29,219	29,658	29,658		
AA condominium	2,64	2,64	3,08	3,08	3,52		
Total	96,638.53	152,687.33	143,970.23	105,228.20	70,666.84		
% Foreign Currency	62.85	53.32	54.01	53.42	53.46		

The development of the capital-markets was initiated in 2000, with the establishment of a stock exchange governed by standard international rules and regulations. Since then foreign direct investment has increased fairly steadily. The federal agency (the FIA, Foreign Investment Agency)has focused on 16 countries to attract foreign investors and set local conditions for major projects, in line with GTP 2.

## The Fiscal System

Fiscal policy aims to maintain the deficit at a sustainable level, while incorporating an ongoing tax reform programme focused on improvements in the administration and collection of taxes and on the creation of a tax regime that supports new economic growth. Revenue raising (taxation) power is shared between the Federal and Regional levels, with the Federal Government responsible for raising the majority of the taxes. Woreda's fiscal powers are limited to user charges (see table 7-9).

The limited fiscal power of many cities continues to hamper the provision of urban infrastructure and services. Already tight budgets will foreseeably be strained by urbanisation pressure, with cities struggling to provide infrastructure and services for a rapidly expanding population. Cities may have to strengthen to a considerable extent their ability to generate revenues and undoubtedly will have to enhance their administrative and managerial competencies in order to tap economic growth for services provision. With a view to organise and control future the urban growth and especially to prevent the appearance of non-serviced or poorly serviced neighbourhoods, more fiscal autonomy for cities could be explored.

Tax category	Base Determination	Rate Determination	Tax collection			
Customs duties	F	F	F			
Income tax	F	FR	F			
Estate & Gifts	F	FR	F			
Corporate Inc. T	F	FR	F			
Resource taxes	F	FR	F			
Retail taxes	R	R	R			
VAT	F	FR	F			
Excises	R	R	R			
Property taxes	R	R	R			
User charges	F R W	FRW	FRW			

#### Table 7-12: Territorial Level of Tax Levy and Determination

F = federal, R = regional, W = woreda

## The Decentralized Financial System

Federal and regional constitutions determine the tax base at each level. Subventions are made by the federal Government to the regions which in turn issue subventions to local governments. While revenue generation is at present hampered by the limited tax base, the country is witnessing significant diversification and growth in the private sector. Carefully managed taxation can lead to gradually improving the government tax-take, without unduly burdening private enterprises. Particular care should be taken in not limiting, but on the contrary providing a supportive environment for innovative enterprises, including SME's, as these are the basis of the emergence of a diversified domestic economy, essential in post-middle-income development.

#### o The Regional Level

The federal level transfers funds (as a block grant) to the regions and autonomous cities, representing around 80% of regional budgets (95% in the case of Afar and other developing regions). Each region has the liberty to decide how to use the block grant depending on its priorities. The regions in turn transfer funds to the woredas, the size of which (in both area and population) varies greatly amongst the regions. Each Woreda's performance agreements combine federal and regional development objectives with local priorities.

Regions may raise their own capital funds through taxation and also have access to the private credit market. The additional regional sources are mainly income taxes: agricultural and urban land taxes, urban land lease fees, service fees and charges, some of them feeding back the federal budget. Regions have slightly different tax rates and some limited abilities to raise their own revenue. However, to maintain harmonization, tax bases are the same in all regions. At woreda level, the situation is similar and administrators struggle to reduce the gap between expenditure and revenues, additionally hindered by poor collection rates (figure 7-4, below, shows both some balanced and even positive situations and a range of unbalanced ones, see also the case study of Benishangul-Gumuz – Figure 7-5).



Figure 7-4: Regional Revenues and Expenditures, 2008-13

Source: MOFED

Type of revenue	2009	2010	2011	2012	2013	Average
Personal income tax	34,1%	26,2%	30,0%	58,8%	35,4%	37%
Business income tax	51,4%	56,0%	67,0%	80,1%	69,7%	65%
Value added tax	144,7%	50,4%	20,6%	107,4%	95,6%	84%
Municipality revenue	18,6%	50,5%	16,8%	29,6%	5,1%	24%

Table 7-13: Growth rates of regional major revenue sources

Sources: MOFED 2010, Benishangul-Gumuz Revenue Authority December 2007





Sources: MOFED 2010, Benishangul-Gumuz Revenue Authority December 2007

## o The Local Level

Woredas receive grants from the region and transfer a share to kebeles (see table 7-11). For the majority of woredas the issue of insufficient revenue (grants) is acute (often funds received are barely enough to pay salaries). Self-generated resources are very limited (citizens are required to contribute "in-kind, cash or labour"). There have been a number of NGO programmes to help woredas develop their capabilities and, despite their role in implementing various aspects of PASDEP, the dire financial state in which many woredas find themselves persists. At the level of the Kebeles, resources are often even weaker, with the administration having no recourse but the mobilization of the local community for developmental works (in some woredas of Tigray, communities are required to provide 20 days free labour and in Afar, a woreda directive requires the communities to contribute to the upkeep of forests).

Table 7-14: Block grants to woredas (Millions ETB)								
Year	Amhara	SNNPR	Oromia	Tigray				
2005-06	-	852.106	1819.24	493.74				
2006-07	2497.171 (86%)	-	2,688.20	-				
2007-08	2936.29 (78.4%)	2121.33 (77.7%)	3,133.63 (76.1%)	769.44 (61.8%)				
2008-09	2714.2 (78.2%)	2529.4 (73.3%)	3619.3 (81%)	839.48 (57.6%)				

Source: MOFED 2010 / Zemelak Ayele, 2011

## Service Delivery and the Urban Economy

Rural woredas discharge an expenditure budget but, without any self-generated revenues, they depend mostly on regional grants. In line with regional financial arrangements, urban local governments (ULG) have greater revenue autonomy than rural woredas, achieved mainly through land-lease. These land-lease revenues should help finance infrastructure for urban development; but at present they serve only to cover the daily expenditures of the ULG (see Tables 7-157-16). Indeed, the 2014 WB Report for ULGDP II, finds that municipal revenues *"are simply not sufficient to meet the rapidly growing municipal functions"*.



Figure 7-6: Revenue Structure of 33 ULG & Municipalities in 4 Regions, 2003

Sources: J. Werner & D. Nguyen-Thanh, 2007 / GTZ, 2005

Municipality	Mu	Municipal Functions			State Functions		
	Revenue	Expenditure	Surplus/ - Deficit	Revenue	Expenditure	Surplus/ - Deficit	
Bahr Dar	12,683,659	8,991,674	3,691,985	9,899,016	12,683,153	-2,784,137	
Dessie	8,085,083	6,689,530	1,395,553	13,581,679	14,977,232	-1,395,553	
Lalibella	443,590	293,109	150,481	90,411	0	90,411	
Woreta	408,195	443,196	-35,001	35,001	0	35,001	
Nekemt	7,331,887	2,800,144	4,531,743	1,644,129	6,175,872	-4,531,743	
Weliso	3,405,145	1,633,522	1,771,623	2,732,983	4,504,606	-1,771,623	
Adama	14,312,521	27,173,916	12,861,395	73,374,827	60,513,432	12,861,395	
Ambo	2,029,587	1,859,242	170,345	3,757,006	3,927,351	-170,345	
Mekelle	33,679,015	9,128,767	24,550,248	466,223	25,016,471	24,550,248	
Rama	257,541	547,212	-289,671	758,471	0	758,471	
Wukro	1,021,989	1,598,704	-576,715	5,849,025	5,272,310	576,715	
Adwa	4,652,753	3,459,689	1,193,064	5,173,296	6,366,360	-1,193,064	
Alamata	1,450,878	1,524,118	-73,240	3,637,269	3,564,029	73,240	
Dilla	4,827,366	2,566,049	2,261,317	-1,509,366	451,989	-1,961,355	
Durame	1,697,567	632,204	1,065,363	1,175,900	2,241,263	-1,065,363	
Yirgalem	2,369,740	1,245,805	1,123,935	-55,468	1,068,467	-1,123,935	
Total	98,656,516	70,586,881	28,069,635	120,610,402	146,762,535	26,152,133	

Table 7-15: Revenues & Expenditures in 2004 in 16 cities
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Sources: J. Werner & D. Nguyen-Thanh, 2007 / GTZ, 2005

J. Werner & D. Nguyen-Thanh have stated that "*ULG collect revenues taxes on behalf of the regions and of the central government but incentives to attract the full tax potential are quite low, because no tax sharing exists*". The urban private sector in many ULGs appears to be developing slowly while the services needs of the settlement foreseeably increase at an accelerated pace driven by rapid urban growth. A larger urban middle-income population, however, may create opportunities for both the public and private sectors. It may also be effective at a very local level, in a pro-poor perspective, as evidenced by the 2005-06 Cobblestone Road Program. Low income housing programs involving inhabitants, construction of schools and other public buildings, etc. could jump-start emerging local industries, employment and vocational training.

As poverty-oriented expenditures are growing, an additional concern should be to ensure that urban services used mainly by the middle-and upper income groups are provided via the private sector, in order to concentrate the public effort on pro-poor service delivery (which could be linked with the non-profit NGO's involvement). In the health sector, for example, the number of private sector charging hospitals has grown significantly. This indicates the potential of the urban residential economy to 'fund' urban investments. However, most of these private sector hospitals can be found in Addis-Ababa.

There remains significant demand for private health-care throughout the country and in the developing intermediate cities (in 2010, 6,000 Ethiopians travelled to Bangkok for medical treatment<sup>75</sup>). In order to foster private investment in urban facilities, fiscal devolution should be strengthened and would include new self-generated taxes as well as access to private capital (as already practiced by the four pioneer regions). An Urban Development Fund should be considered. This fiscal evolution would need sensitive regulation but could provide a new basis for local resources and also have a positive impact on local employment numbers and opportunities (see Note 3)

#### Note 3: Developing urban economies through expanding the tax base and rate

- There are opportunities to diversify and expand revenue resources at local- and citylevels. In line with urban growth, it becomes possible to meet middle-and upper income population needs through the emerging private sector. The public sector could then focus on poorer local areas and regions, which suffer from an insufficient level of basic services.
- A feasibility study should examine whether regions and cities should have a greater fiscal autonomy in order to manage (and in some cases promote) urban growth and support the expansion of priority economic sectors (for instance through own local property tax and tax sharing of the VAT).
- Any property tax needs a basis for property-value, but cadastre surveys generally do not exist in urban areas. Relevant indicators to assess property value should be mobilized at regional level in view of a federal fiscal reform. This fiscal decentralization could be piloted in the four reform regions.

<sup>&</sup>lt;sup>75</sup> Ethiopian Investment Prospects / African Review of Economics and Finance, June 2013

	Total estimated	% of	Average per city per	The study by Werner et al
SUMMARY OF PROPOSED INVESTMENTS OVER 5 YEARS 2006/07 TO 2010/11	(Birr)	total	(Birr)	showed the following:
Main Municipal Infrastructure				
Roads	1,803,554,056	34%	20,039,490	• 72% of municipal
Street lighting	119,477,780	2%	1,327,531	investments is on
Bridges	29,264,676	1%	325,163	infrastructure (mainly
Pedestrian Walkways	8,661,850	0%	96,243	
Water supply	1,041,216,491	20%	11,569,072	roads and water
Urban upgrading	69,000,002	1%	766,667	supply)
Industrial zone infrastructure	185,873,000	4%	2,065,256	<ul> <li>14% is on housing</li> </ul>
Drainage & flood control	178,892,766	3%	1,987,697	
Liquid waste/ Sanitation	159,411,540	3%	1,771,239	<ul> <li>Little is spent on</li> </ul>
Solid waste	135,189,427	3%	1,502,105	schools, markets, and
Plant & Equipment	79,629,500	2%	884,772	local services / urban
Subtotal (A)	3,810,171,088	72%	42,335,234	upgrading r
Housing				
Housing	724,100,000	14%	8,045,556	<ul> <li>Investment in public</li> </ul>
Subtotal (B)	724,100,000	14%	8,045,556	space improvement
Other Local Services				(street lightning,
Schools	233,880,000	4%	2,598,667	nodostrian
Markets	161,964,111	3%	1,799,601	pedestriari
Other	109,080,000	2%	1,212,000	walkways) is also
Emergency preparedness	36,383,772	1%	404,264	weak
Recreational facilities	69,988,000	1%	777,644	
Slaughterhouses	44,548,650	1%	494,985	
Municipal buildings	45,410,000	1%	504,556	
Bus stations	17,750,000	0%	197,222	
Public libraries	3,600,000	0%	40,000	
Public protection services	7,350,000	0%	81,667	
Cemeteries	2,000,000	0%	22,222	
Health centres	15,143,996	0%	168,267	
MSE Training centres	14,000,562	0%	155,562	
Subtotal (C)	761,099,091	14%	8,456,657	
OVERALL TOTAL I=(A)+(B)+(C)1	5 295 370 179	100%	58,837,446	

able 7-16: Average on	16 cities, 5Y inve	estments by sector (2006-11
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Sources: J. Werner & D. Nguyen-Thanh, 2007 / GTZ, 2005

# 7.6 Challenges of Decentralization and Urban Planning

Ethiopia is a mostly rural country, though urbanisation has ancient roots in Northern Ethiopia (Axumite Kingdom), where many cities have a long history. Urbanisation is set to 'return to' and rapidly expand in the country, requiring considerable efforts devoted to urban management. Some practical urban planning exercises took place first in the late 1960s to prepare master plans for 40 Ethiopian towns (excluding Addis Ababa) and preliminary master plans for 20 additional towns. In the mid-1980s, the Addis Ababa Master Plan (1983-86) was prepared, which marked a new era in Ethiopian urban planning.

Foreign experts acted as advisors, while national professionals developed the major preparatory studies and the development of planning options: the AAMPPO's plan was a guiding principle. From 1987 to 2001, the NUPI produced 82 urban plans before involving as MWUD Urban Planning, Sanitation and Beautification Bureau (120 development plans, parcellation plans, topographic maps, regulatory function about urban development).

Table 7-17: Planned Towns in Ethiopia between Late 1960's and 2001						
Region	Planned Towns by Different Actors				Urban	% Planned
	MIMD	MUDH / BWUD	NUPI	Total	Centres	Urban Centres
Tigray	4	2	15	21	74	28.4
Afar	0	0	6	6	28	21.4
Amhara	13	65	16	94	208	45.2
Oromia	25	64	16	105	373	28.2
Somalia	1	0	5	6	67	9.0
Gambella	1	0	5	6	13	46.2
SNNP	16	0	13	28	149	18.8
Benishangul Gumuz	0	0	6	5	6	83.3
Harari	0	0	1	1	1	100.0
Dire Dawa	0	0	1	1	2	100.0
Addis Ababa	0	0	1	1	1	100.0
Total	60	129	82	272	922	29.5

Table 7-17: Planned Towns in Ethiopia between Late 1960's and 2001

Source: Tesfaye et Al, 2002; Tilahun, 2002; Yassin, 2002 MIMD (Ministry of Interior Municipality Department), NUPI (National Urban Planning Institute); Belachew, 2001 - MUDH / BWUD (Bureau of Works and Urban Development)

#### o Planning tools and plan-making bodies

With regard to human resources and planning tools, while regional planning offices prepare plans, the federal level sets strategies, policies, procedures, guidelines (manuals), standards, capacity building planning and general support.through the MWUD (600 employees, currently 400). Skilled labour force also comes from international consultants and foreign agencies.

MWUD is organized in two parallel branches: construction (Industry, Housing, Prefabrication) and urban development (Urban Planning, urban Land Planning, MSE development, Government House Agency, Capacity Building, etc.). With regard to housing, a major concern is to involve stakeholders into a general improvement (minimal costs, jobs creation, urban rural linkage, rural housing, etc.) with 2025 programs. While a recent housing program fostered condominium building (mainly in Addis-Ababa) as a social solution to expropriation in case of urban regeneration, the prefabrication-building bureau seems to be currently inactive. Urban planning aims a global coherence and a housing policy should rather aggregate technical, social and financial strategies in a joint global approach. It will be a major field of successful implementation of the future NLUS at local level.

At regional level, a positive example of experimental urban planning is that of SNNPR, one of the four reform regions<sup>76</sup>. Addis-Ababa is understandably important for the national plan and its urban planning has inspired other methodological or organizational documents (manuals, etc. – see for instance the Addis-Ababa City Organization Chart for Housing – Appendix D).

<sup>&</sup>lt;sup>76</sup> The reform regions have also benefitted from donor support. For instance the World Bank focused its financial and technical assistance to local decentralization firstly towards kebeles in these regions, where staff strength and skill levels are higher, though donor emphasis is now shifting towards secondary and tertiary towns and more isolated areas.

With the exception of Amhara and Oromia Regions and the Addis Ababa City Administration, efforts in organizing regional urban planning units have been fairly weak. While Addis Ababa is for instance organized at a Regional Planning "Institute" level, planning in other regions has been organized as a "Business Process Unit", with weaker material and professional resources (see Table 7-19).



Source:	SNNPR	UDS

Table 7-19: Distribution of Regions by Plan Making Bodies (Institute, Business Process Unit)				
Tigray	Urban Planning Preparation Business Process Unit			
	Urban Planning Regulatory Business Process Unit			
	Urban Research & Organisation Business Process Unit			
Afar	Urban Planning Sanitation & Beautification Business Process Unit			
Amhara	Urban Planning Institute			
Oromia	Urban Planning, Implementation, Sanitation & Beautification Institute			
Somalia	Urban Planning, Sanitation & Beautification Improvement Business Process			
	Unit			
Benishangul Gumuz	Urban Planning Sanitation & Beautification Business Process Unit			
SNNP	Urban Organisation, Plan Preparation & Follow Up Business Process Unit			
Gambella	Urban Planning Business Process Unit			
Harari	Urban Planning Business Process Unit			
Addis Ababa	Urban Planning Institute			
Dire Dawa	Urban Planning Business Process Unit			

Source: Urban Planning, Sanitation and Beautification Bureau, 2012

The Addis Ababa Master plan / Oromia IDP sets the parameters for basic services, infrastructure, natural resources and environment management, cross-boundary investments and joint regional projects. Along the rapid urban growth, the metropolitan approach was led at three levels: the city / the extended urban area (OSZ) / the metropolitan region. The current Master plan and the expansion surveys into the Oromia Finfine Special Zone help setting clear visions. Despite this comprehensive system and the Finfine OSZ experience (see the Box-Case n°1), managing the development of the metropolitan area of Addis-Ababa and of some other neighbouring cities is quite difficult.

The recent Addis-Ababa master plan assessment (Mathewos 2010 report, and case study box n°2) pointed out weaknesses in its application due to: (a) inadequate coordination between administrative levels and with neighbouring territories, (b) insufficient integration of sectorial planning, (c) lack of operational tools (administration, agencies, procedures...) and (d) the lack of a dedicated financing system which hinders the implementation of projects. Improving administrative and territorial coordination and the linkage between sectoral and urban planning are issues directly related to the prevailing institutional framework. Furthermore, financing is, as nearly always, a crucial and often limiting issue.

In Dire-Dawa, the Master Plan was prepared but is not active, due to poor cooperation with neighbouring regions, Oromia and Somali. Furthermore three near-by cities, Dire Dawa, Harar and Jimma, do not appear to collaborate. The Omo Kuraz project, far away from the capital city, is another interesting case study (see case study n° 3). It is an example of a project led at the federal level and negotiated with the region. As part of the project, people are likely to be displaced, and many others will arrive to seeking jobs. The project should generate significant economic benefits and is an example of the relevance of urban planning to economic development. Could a collaborative system be established among regions and towns to share skills and experience as to how urban planning supports economic development?

The National Urban Grading Framework was initiated during 2002 with a legal and regulatory approach by the NUPI and the Ethiopian Civil Service College. A method of city grading was established from large cities (population over 100,000) to medium and emerging towns, in order to implement the 2001 reform in representative "reforming towns". In some regional constitutions, cities are classified according to their size. This definition is somewhat dated (the minimal level of 2000 inhabitants derives from the 1960's) and may have to be reconsidered in times of rapid urban growth.

As a tool to organize the urbanisation process and to set required levels of services, facilities and infrastructure, city grading should go beyond its purely quantitative definition and use additional criteria related to the regional role and economic profile of each urban area.

Regions also establish their own city grades for different purposes and use different criteria: Tigray in 1994 (to fix the rate of rent of land in the urban centres), Amhara in a 2003 regulation to define towns and cities (along the federal criteria), Oromia in 1995 to provide for lease and rent holding of urban lands (regulation under the 1993 Urban Land Lease Holding Proclamation). Furthermore, the nine regions and the two chartered cities used their own scoping tool to support municipal reforms and decentralized competencies.



Sources: AA MP assessment, AASOR-IRDP



#### Case Study Box n°3: Sugar farms in Omo Kuraz SNNPR

The Omo Kuraz sugar development project has reportedly created jobs for 6, 695 residents of the vicinity in the just concluded budget year (including 505 permanent jobs). The project comprises the construction of five of the 10 sugar factories to be built across the country by the end of the Growth and Transformation Plan (GTP) period.

They all will in the end have 20,652 residential and 720 non-residential houses. All the above five sugar factories working with their full capacity will create job opportunity to 117,131 citizens.

The five sugar factories being built in South Omo Zone in Southern Nations, Nationalities and People State will have production capacity of 278,000 tons of sugar per annum each when they begin production. "As part of the project, construction of a village for employees, roads and irrigation reservoir are underway".

Region	Grade	Nb		Region	City Grade	Nb	Region	City Grade	Nb
Tigray	Metropolitan	0			City Administration			City Administr.	1
	City Admin.	12			1	1	Gambella		
	Emerging Cities	14			City Administration			Municipal	
	No Clear Status	13		Tigray	2	8		Town	2
	Total	39		Tigray	City Administration			Emerging	
	Metropolitan	3			3	3		Town	6
	City				Emerging Town 1 13		Total	9	
	Amalgamated	0			Emerging Town 2	7		1	6
	City Admin.	8			Emerging Town 3	40		2A	6
Amhara	Lead Municipality	53			Total	72		2B	32
	Sub Municipality	21			Metropolitan	0		ЗA	4
	Emerging	71			Amalgamated	0	Oromia	3B	10
	Towns			Ambara	City Administration	36	Oronna	3C	19
	Total	156		Annara	Lead Municipality	92		3D	21
	Grade 1	1			Sub Municipality	84		4A	62
	Grade 2	4			Emerging Town	138		4B	62
SNIND	Grade 3	6			Total	350		4C	221
SININF	Grade 4	7			Lead City Administr.	1		Total	443
	Grade 5	8			Higher City Admin.	3			
	Grade 6	52			Medium City Admin.	5			
	Total 2000	78			Emerging City				
Source: Urban Institute et al.		al	SNNP	Admin.	11				
2006		ur,		Municipal Town	75	]			
2000,						13			
and G1Z, 2006				Emerging Town	7	G	rand Total 2012	1106	
					Total		232		

Table 7-20: Regional Grading in 2000 and 2012

Source: Compiled Report of MUDHCo, Amharic Version, 2012

A more complex city grading was recently investigated, as cities and towns have to tackle new challenges (e.g. environment management, increasing poverty, rapid economic development, and the strains of city management) and may rely increasingly on private-public partnerships. Between 2000 (in three regions) and 2012 (in five regions), the number of graded cities increased nearly threefold, with a total number of 443 graded cities in 2012<sup>77</sup>.

Table 7-21: Example of Tigray City Grading

٠	No metropolitan city (> 500,000)	٠	Abolished previous grading system with
٠	Cities (> 20,000): Mekelle and 11 others, cities or		13 cities at urban status grade 5 and 34
	towns, with self-government, legal capacity and		small rural towns without urban status,
	functions, a mayor's committee, a City manager, a		administrated by the woreda
	city council with functions in land management,	•	In Western, around Humera, four
	infrastructure and services, housing, water supply.		spontaneous new towns (Rawian, 10,000
٠	Regional authority administers health, education,		inh.; Adabai,10,600; Mai Kadra, 24,000)
	transport and trade		and Bakier,10,600) were set in 1991 by
٠	Emerging cities (10,000 to 5,000) with 14 state		Tigrayan refugees returning from Sudan,
	functions by the woreda's administration, municipal		are now administrated by the woreda (no
	functions by towns		civil administration, no city plan).

<sup>&</sup>lt;sup>77</sup> See in the annexes, Table 5-42 Distribution of Towns by Grade Level in five regions in 2012

As an example of recent grading, Harar, which is a single city region, developed a 2004 Regulation to define kebele Administration Council organisation. Addis-Ababa and Dire-Dawa also defined more precisely what is to be provided at the kebele level in 2002. In these city-grading systems, the level of development and volume of activities were the principal criteria for of the grading (though other criteria were general and subjective) and were used to determine municipal powers.

One of the most important efforts in Ethiopia towards achieving an optimum pattern of urbanisation is the National Grading Framework drafted by National Urban Planning Institute (NUPI) in 2002. It was drafted assuming that rapid urbanisation is inevitable, and that (a) rural areas could not simply absorb the excess labour force that would be created; and (b) there would be a need to foster mutually beneficial rural-urban linkages.

Cities and towns were weighted based on a number of indicators. The total score per town was then used to rank all urban settlements on a scale of 1 to 90 (excluding Addis-Ababa). Cities were then categorized into 5 main grades. Four regional capital cities, a chartered City and five large cities were given the highest grade.

The framework was designed to redress existing urban disparities and imbalances and to attain a balanced national urban system. To reach a national optimum spatial pattern of urbanisation is a challenging task, given the existing strong disparities among regions and urban centres. National strategies will have to choose between encouraging or discouraging primacy along existing urban grades, fostering expansion of small and medium sized towns or setting new towns, perhaps rather setting collaborative system between cities at territorial scale. A new system of City Grading was established in 2014.

#### o Current System of City Grading

In February 2014, MUDHCo drafted a directive to define the grades and levels of cities. The objective was to define urban centres with less than 20,000 inhabitants and those accommodating 20,000 and more. In application, this requires care as administrators may be tempted to direct investments only towards projects which help 'gain' a grade level, to the detriment of other local needs.

#### Table 7-22: MUDHCo City Grading achievements

- To set a grading cities and towns to make centres of development and good governance as a prerequisite to realize the objectives of GTP.
- To enhance grade based capacity building and development support to wisely use the limited resources.
- To limit the existing growth gap among cities and enhance balanced national urban development.
- To support urban centres in priority along complexity of problems, development role, crucial impact on common use, balanced growth and development.
- To address the interest of ever increasing number of urban population.
- To deepen decentralization in order to enhance public participation, access to standard municipal services, to build capacity of urban centres, establish data base management.
- To provide sustainable encouragement to realize equitable and healthy competition among urban centres.
Map 7-3: City Grading Map (national synthesis of various regional city grading systems)



Quantitative and qualitative criteria related to size, administrative role, and economic trends were used to measure the importance of cities. In addition to its score, each city was identified inside a hierarchical framework<sup>78</sup>, taking in account the (single) metropolitan level, four regional capitals (Dire-Dawa, Hawassa-Shashemene, Mekelle, Jimma) and six categories inside three main cities grades. For the first time, the City grading method enables the establishment of a national vision of the urban structure, based on clear criteria. Various scenarios identify around 140 cities throughout the country, with different territorial patterns.

	Criteria	Max.	Points calculation mode
1	Population, Area, Density	55	
	Population	40	Proportional to the size, out of AA (3 M/55 pts)
	Area	7.5	Maximum=7,5 pts
	Density	7.5	<120/7.5 pts, 91-120/6, 61-90/5, 31-60/4, <30/2
2	Political and Administrative Centrality	20	20/DD, 18/Regional capital, 15/Zonal capital, 10/W, 5/others
3	Economic and Development Centrality	15	6/univ, hosp., electric sub-station, 5/trade &centre of development, 4/industrial shed, developed land
4	Historical and Cultural Centrality	10	3/recorded world heritage, 4/protected world heritage,
		10	3/tourism service facilities
	Total	100	

#### Table 7-23: City Grading - Criteria and Scoring

Four scenarios show similar results with regard to the total amount of labelled cities and towns (140 or 141) but varying part of larger cities and towns (19 or 104, 7.7% or 74%). It would be very useful for NLUP to have a single table of criteria at federal level, perhaps not for all the city levels but at least for the most important ones, metropolis, regiopolis and grade 1, while definition of smaller cities and towns could vary along regional context.

The major issue stands as the effective use of this city grading, over pure assessment of the evolving urban status. If a purpose was to establish a range of cities' clusters at national level, grading would be a crucial tool and grading constitution could be improved in two directions: supporting a collaborative growth at territorial level (competitive cities) and drive improvement of weak areas and rural-urban linkage through market towns.

<sup>&</sup>lt;sup>78</sup> See the Table 'City grades', 2014, in Appendid B

Level of			Sce	enar	io 1			Total			So	cenar	io 1a			Total
Administratio n	М.	1	2	3	4	5	N G		М	1	2	3	4	5	NG	
Federal Capital	1							1	1							1
Federal City		1						1		1						1
Lead Municipality					1			1					1			1
Regional Capital		2	2	2	2			8		2	2	2	2			8
Special Capital					1			1					1			1
Wereda Capital				1	46	41		88				1	46	41		88
Zone Capital		2	2	6	29	1	1	41		2	3	5	29	1	1	41
Total	1	5	4	9	79	42	1	141	1	5	5	8	79	42	1	141
Level of			Sce	nari	o 2a			Total			S	cena	rio 2			Total
n	М.	1	2	3	4	5	N G		M	1	2	3	4	5	NG	
Federal Capital	1							1	1							1
Federal City		1						1		1						1
Lead Municipality					1			1					1			1
Regional Capital		5	3					8		5		3				8
Special Capital			1					1				1				1
Wereda Capital			19	3 8	31			88			3	54	31			88
Zone Capital		5	27	4	4			40		5	13	18	4			40
Total	1	11	50	4 2	36	0	0	140	1	11	16	76	36	0	0	140

#### Table 7-24: Four scenarios

Source: Ministry of Urban Development, Housing and Construction, 2014

#### Note 4: Do we have the right tools to manage rapid urban growth?

- Could Addis-Ababa be an experimental place for urban planning, combining national and international experts, a place to foster knowledge and innovation and to disseminate it to other cities, leading an open dialogue between local practical planning experiences, experiment in construction or housing, with researchers, universities, high schools, public and private stakeholders, both on practical exercise and regulatory function? Should a "centre of excellence for urban planning" (on the NUPI model) be established in Addis-Ababa?
- City-grading is widely developed throughout the country. It could be a useful instrument for guiding financial resources towards poor cities and rural kebeles (infrastructure, basic services) and developing cities (own resources, specific needs) or for local assessment about implementation of programs.

#### Land Lease, a Crucial Function for Urban Management<sup>79</sup>

The present section covers an analysis of the present situation as relevant to the NUDSP spatial framework. A full analysis at national level, including recommendations for reform, is being carried out by the World Bank under the Ethiopia Urbanization Review.

Land-holding systems in Ethiopia have evolved over the last century. The urban and rural land tenure system and property rights markedly differ:

- During the Imperial time (before 1975), a predominantly communal ownership mixed with private ownership prevailed (land control mostly by the state and feudal lords, citizens customary tenure arrangements by nature and in numbers),
- During the Derg period (1975-1991) a public ownership of land and use rights for citizens was established. All the rural and urban land and urban houses were transferred to state ownership in 1975, with the nationalization of rural land. Land transfer (sales, lease, exchange, mortgage) was prohibited and inheritance severely restricted
- Since 1991, public ownership combined with lease hold rights has been established. The 1991 FDRE Constitution guarantees for every Ethiopian own "private property". "The right to own rural and urban land belongs only to the state and the people of Ethiopia. Land is an inalienable common property of the Nations, Nationalities and peoples of Ethiopia and shall not be subject to sale or to other Means of transfer." In rural areas, "Ethiopian peasants have the right to obtain land without payment, and protection against eviction from their possession". In urban areas, the government "may expropriate private property for public purposes subject to payment in advance of compensation commensurate to the value of the property".

#### • Land market and principle of land-lease

In rural areas, acquisition was mainly informal (but registered). In urban areas, the 1993 Proclamation is based on free market in order to "transfer urban land by lease for a fair price". The 2002 dedicated Proclamation aimed to improve land incomes and allow negotiation in addition to auction. The 2011 dedicated Proclamation aims a more efficient urban land administration. Land Lease becomes the single avenue for land possession and building permission. Rules for the allotment of urban land are detailed, e.g. for social purpose (public office, social services and housing, religious places, etc.), for economic development (manufacturing industries, nationally significant projects, etc.), for urban renewal.

In order to ensure an efficient land market, benchmarks for land lease prices are required for each location and up-dated every 2 years. Lease contracts define price and payment conditions. The period of the lease is set for all the urban centres: 99 Y (education, health, culture and sports, housing, technology, research, government, charitable and religious institutions), 80 Y (industry), 70 (commerce), 15 Y (urban agriculture, diplomatic missions)<sup>80</sup>.

<sup>&</sup>lt;sup>79</sup> A discussion of land-lease and the housing sector is given in Chapter 3.

<sup>&</sup>lt;sup>80</sup> In Addis-Ababa, duration goes from 90 Y (education, health, culture and sports) to 70 (industry) or 60 (commerce)

Payment is calculated based on the expected duration of return on investment, and divided between a down-payment (10% or more) and equal annual instalments for the remainder. In case of failing annual payment, penalty fees are imposed by the Commercial Bank of Ethiopia. If construction is late, 7% of the lease price is paid as penalty fees. Construction must be completed within 24 months (small project), 36 for medium and 48 for large construction projects (the later may be extended by the region and city administration).

Currently only about 15% (147 on 965 towns) are governed under the lease system. However, the government decided to apply it in all towns in the country within five years since the 2011 proclamation (721/2011). Currently, 416 towns are finalizing the process of approval to enter into the lease system (see Figure 7-8).



*Figure 7-7: Practice and level of implementation* Urban Centres/Towns administered or not entered in the lease system81

#### The land lease market

The lease price has drastically increased during the past 8 years (average lease price x 18 from 2006 to 2013) and, in most cases, the maximum price registered during 2006 is less than the minimum price in 2014. During the 2005-06 fiscal year, lease auction price increased everywhere, and Amhara capital city, Bahir Dar registered the highest lease price /  $m^2$  (37000 ETB) ever recorded in the country. Furthermore, during the same period, towns like Adwa, Mizane, Amane and Robe registered a lease price of 10 400 to 12 600 ETB /  $m^2$ . However, the lease price recorded in some towns of Oromia regional state, at less than 40 km from Addis Ababa, is under 3 500 ETB /  $m^2$ .

Addis Ababa registered its highest lease price 31102 ETB (\$ 1555) / m<sup>2</sup> during 2013 first half fiscal year. But unofficial result, released from recently held lease auction, indicates that the lessees has offered 65000 ETB / m<sup>2</sup> (\$ 3250) for a plot in the city, located around Bole Friendship area, the highest bid ever made in the city. Leased urban land in the region and urban administration by end-use, land allotted for residential buildings predominate (72%).

<sup>&</sup>lt;sup>81</sup>See ANNEX D, for a list of urban centers and towns under the lease system







Source: Mathewos evaluation of the AA 2001-2010 Master plan, 2010

Important issues concerning the current land lease practice and its impact on urban development include inadequate compensation due to housing displacement for urban renewal; the lack of transparency in the process; and the fact that determining the land price is hindered by the lack of urban cadastre. The Addis-Ababa owned condominium public policy doesn't work well as a social solution, many displaced persons can't afford the annual purchase price and cover it with a rent while accommodating elsewhere an informal housing (see Map 7-9).

Furthermore, the land market seems not to function properly as a free market (a residential house in the city is cheaper than the lease price of land), and adequate credit access is not always available for construction of commercial centres and residential houses. Many exemptions distort the market and limit the cities' financial land resources for infrastructure provision and social services delivery. The whole system is quite complicated and needs a very skilled management, which may not exist at local administrative levels.

The city administration launched a 2012 study to improve basis of land lease price and provide with a rational cost of land lease through quantitative elements: costs of equipping the land (road infrastructure, water supply system, sewer lines, treatment plants, electricity supply, urban renewal, and ecological costs), cost of replacement / compensation, land grade potential. Eight grades and four types of land use (river buffer, road area, green area, and unusable area) are defined; each of the related areas being measured 52% of the land suitable for urban development is usable. This framework then allows a rational calculation of the land value through a series of land equipment costs. This new approach may foster the economic efficiency of the land lease management throughout the country.

#### o Informal land market and informal settlements

The widespread informal land market contributes to the alarming rate of squatter development, and unplanned settlements in many Ethiopian cities, even on their urban periphery. The inefficient and improper functioning of the formal land market is one of the factors leading to the expansion of informal land market. For example, on the periphery of Addis-Ababa, around 2000 hectares of land are occupied by 300,000 people. There are many unregistered land parcels, and an informal market operates but with sale agreements endorsed by local officials. Almost 70% of the Addis Ababa city's population lives in informal settlements (see Paul Syagga's research, Urban land Market In East Africa), and the urbanised area increased from 224 km<sup>2</sup> in 1984 to about 540 km<sup>2</sup> in 2010, encroaching on farmlands and other open spaces.

The informal system of accessing land is characterized by forms of land tenure that do not conform to the statutory procedures, with a quasi-customary tenure (influence of the clan diminished, often individual rights-holder, local administrators or leaders often transfer the land right) and an informal tenure which does not require authority from others but comes through occupation of the site and social recognition.

Total land lease costs much more than residential house and illegal land market, the farmer land is cheaper than the lease price and the price of land offered in the illegal market is more attractive. Therefore, farmers from the urban outskirts are encouraged to sell part of their farmland on the illegal market. The illegal market land continues unabated: the supply of land is limited while the demand consistently increases. Indeed, informality is a widespread urban reality which has to be taken in account.

#### Note 5: Land lease: a crucial tool for urban planning

- Land Lease, an effective tool for land management and for urban regulation, will help reduce informality. Improving methods and tools of land management will facilitate the regulation of the urban growth. But managing the land lease is very demanding and different methods may be suited to different types of urban contexts; more sophisticated in large cities and much simpler in towns.
- The Addis-Ababa current experiment concerning the rational calculation of land value could be extended to other fast growing cities, with a range of positive impacts: e.g. clear rules for the urban market and so facilitation for the urban economy, and a better vision of related public investments.
- Condominium policy as solution for displaced people has not been a total success. Going on the operational calculation of land lease costs, other ways of relocating and re-housing people should be investigated (e.g. low cost building, slight urban reshaping of residential informal areas, etc.)

#### Case Study Box n°4 Illegal Land market and Price of residential houses, Legetafo Town



Oromia / North Shoa Zone, Barak Woreda, 21 km away from Addis Ababa to the East. 9840 inhabitants in 2007

1935 garrison town, 1962 rural-urban settlements through lease from Addis-Ababa, recognized as town in 2006.

- Price of land in the illegal market is 400 % greater than the compensation rate/ m<sup>2</sup>. Buyers highly attracted by the price of farmer land (much cheaper than other illegal land market even if it is legally insured).
- Price of illegal land market / m<sup>2</sup> 367 % less than lease market.
- Land lease / m<sup>2</sup> price is 108 % more expensive than real state residential houses and compound
- More than 107 people have registered for 10 plots of land (Information from Legetafo woreda town administration).

Lease and informal market price of the residential area in Legetafo Town									
	Residential +	Market price	Price of the	Down payment					
Type of market	compound	birr /m²	land						
	area / m²								
1. Legal lease price*	140	11000	1400000	140000					
2 & 3. Legal urban holding	140	1786 to 2375	250000 to	250000 to					
urban dwellers transferred in			330000	330000					
the informal/illegal market to	500	1000	500000	500000					
buyer									
4. Informal market (illegal)	500	100-150	50000 to	50000 to 75000					
from farmer agricultural land			75000						
5. Compensation payment for	500	20	10000	10000					
displacement farmers									
6. Residential area from real	1000	9000	900000	9000000					
estate** (CCD)									
*remaining 756000 interest paid	within 40Y **Lu	xurious 4 bedroo	ms villas (1000 m	<sup>2</sup> compound)					

Sources: City's web site, Residential houses and land dealer (brokers) and website

## 7.7 Conclusions, recommendations and SWOT

An over-arching aim of the Government, as expressed in the 2008 Federal Proclamation for Urban Planning, is to promote a balanced urban growth with a multi-centred and urban system developed at regional level through small, medium-sized and large towns as market, service and economic centres. In 2013, under the support of the IDA (International Development Association), the Ministry of Urban Development and Construction decided to initiate an Urban Local Government Development Project (ULGDP) for a National Urban Development Scheme (NUDS) with Neighbourhood Development and Urban Design Plans (LDP, UDP), currently being studied in 12 target cities. A main challenge is how to promote opportunities for urban growth and development in the specific context of selected urban areas.

Institutional framework related to urbanisation							
<ul> <li>Strengths <ul> <li>National cohesion and vision (GTP) (there is substantial national consensus around the creation of a strong competitive market economy)</li> <li>Recent dramatic economic growth</li> <li>Ethnic &amp; political negotiation and firm regional decentralized institutional system since 1995</li> <li>A balanced framework of strong national policies, pro-poor / economic development, rural / urban issues, etc.</li> <li>Public property of land and land lease system</li> </ul></li></ul>	<ul> <li>K related to urbanisation</li> <li>Weaknesses <ul> <li>No large intermediate level city</li> <li>Lack of human capacity and capabilities</li> <li>Strategic tools</li> <li>Implementation of plans</li> <li>Administrative management (Which collectively leads to e.g. low efficiency of revenue administration and urban management)</li> <li>Limited inter-city cooperation</li> <li>Limited city financial autonomy, which hinders own development capacity</li> <li>Policy induced inefficiencies (e.g. operation of housing and land markets)</li> </ul> </li> </ul>						
<ul> <li>Opportunities         <ul> <li>Common development prospects</li> <li>Dynamic city economies (especially service sector)</li> <li>Experiment in four reform regions (can disseminate 'learnings')</li> </ul> </li> <li>Urban planning</li> </ul>	<ul> <li>Threats</li> <li>Continuing institutional blockages</li> <li>Weakening economic growth</li> <li>Growing territorial disparities</li> <li>Unbalanced urban development not corrected</li> </ul>						
<ul> <li>Strengths</li> <li>Addis Ababa strong experience in planning which can be disseminated across the country, in particular in larger cities (among which land lease management)</li> <li>Decentralized system and growing urban planning experience,</li> <li>Some rough planning tools which may be suited to small towns and management low human force</li> <li>Capacity building rules widely developed even if still insufficient</li> <li>Involvement in international networks</li> </ul>	<ul> <li>Weaknesses</li> <li>Insufficient human skills at strategic levels to undertake comprehensive planning (particularly at local level)</li> <li>Limited linkage between sectorial policies and spatial planning</li> <li>No more national planning body (NUPI) to lead the urban change</li> <li>Informality of land and housing markets makes planning difficult – inadequate housing for the poor and not clear how current housing policy benefit the poor</li> <li>City grading (to determine infrastructure and service standards) unsuited to more strategic issues</li> </ul>						
<ul> <li>Opportunities</li> <li>Urban and economic growth</li> <li>Stakeholders for urban economies</li> <li>Growing intermediate cities</li> <li>Huge urban consider market developing – growing middle class with purchasing power,- opportunities for rural areas to supply this market</li> </ul>	<ul> <li>Threats</li> <li>Development of regional and urban disparities and inequalities</li> <li>Lack of capacity of local planning to support economic development</li> <li>Climate change impacts intensify</li> <li>Urban growth overwhelms capacity of cities to cope – slums and unemployment increase</li> </ul>						

#### Inadequate infrastructure and services in small towns

**Small towns generally are characterised by a low level of infrastructure and services**. In growing rural centres and towns, the challenge is how to improve infrastructure provision and service delivery when few resources are available, and capacity and capability constraints are clear. The fear is that many rural centres and towns might be 'overwhelmed' by rapid economic growth and urbanisation. Furthermore, poverty remains at a high level in many areas and the issue is how to include the poor and marginalised into the growth process; will this automatically occur in line with the expansion of the economy or are proactive measures over and above those already being implemented required in order to ensure that it happens?<sup>82</sup>

#### Planning tools and economic development

Another challenge relates to the extent to which planning documents create a comprehensive framework for sector development policies. Furthermore, it is clearly an issue requiring attention as regards how new projects can be effectively integrated into existing planning frameworks. There are a number of difficulties that must be overcome in addressing this challenge as demonstrated in Dire-Dawa, where the Master Plan was prepared but is not implemented. Economic, environmental and urban issues should be taken in account in the planning process at various scales, but often this does not happen at present.

#### Control of Cities' growth, and informal/formal and planning tools

Some local plans are quite efficient at the local level, as basic tools for low-level organisation, in line with the administrative capabilities of the locality and community self-management activities (roads, infrastructure, basic services, etc.). For larger and growing cities, dedicated tools are needed to set up an efficient framework to address the new challenges, such as the location of economic activity, the need for denser residential developments, measures to cope with informal settlements and urban sprawl, and instruments to organize and promote urban rural linkages. In particular, a key issue is likely to be housing with comprehensive strategies needed to address the needs of many diverse social groups; at present there is a huge housing deficit (see Chapter Three) and this may only get worse during rapid urbanisation.

#### Organising for successful urban planning

Ethiopia is rapidly changing and growing. In this context, clear strategies from the federal level are necessary. With regard to urban growth, comprehensive urban management and planning measures are required, particularly focusing on how to achieve effective and efficient implementation. Effective urban planning will require greater co-operation amongst towns and cities (as connectivity improves and becomes one of the drivers of economic development); negotiated management of long term and collective projects and affect more than one urban area will become increasingly common in the future. This may require a new form of governance, with dedicated cross-urban centre teams collectively responsible for projects, and a political process to manage the project.

<sup>&</sup>lt;sup>82</sup> Note the statement in the Government's Urban Development Policy paper (unpub and undated): "There has been no policy or strategy, appropriately developed land, construction capability and finance supply to build houses that, considering the growing population and development work, are able to cater to the demand of low-, middle- and high-income families". The recognition of dysfunctional land and housing markst is clear.

**One instrument for organising for success is city grading**. However, the current grading criteria adopted by the MUDHCo raise serious questions. The principle of a global score per city is not only unsuitable but can very risky; for example, the priorities and the weights used cannot be the same for Kombolcha, Axum, Gondar and Lalibela. What are the implications of a low weight for historical / touristic cities? It could mean that inappropriate development is encouraged and the heritage of a city damaged – which is exactly the case in Axum today. City grading must be sensitive to the unique and important function of each town. In addition, it cannot inform about territorial development strategies, involving cities, rural hinterlands and a range of thematic prospects. Other specific tools and studies may be developed.

#### Financing urban development

The shift towards an urban economy underpins and requires financial decentralization, but adequately financing urban management remains problematic. A key issue concerns the federal grants to the regions. The block grant refers to the principle of "self-government" but the way the grant is determined is obscure. As in Europe, multi-annual contracts may allow setting objectives for the next period between the federal state and each region. Allocating grants to cities according to their needs and their capacity of self-development seems to be a good way to encourage dynamism at each level and at the same time to ensure national solidarity. Addis-Ababa does not use all the grants it receives; the factors hindering use need to be clearly identified.

The obvious lack of local resources hinders the provision of infrastructure and the implementation of social services. New financing methods are required, and could involve the private sector provision of services, especially those used by middle and upper income groups. Hospitals, for example, are seen as attracting sectors for the private investment. Perhaps the intermediate level (private clinics) also could be improved and standardized in order to meet quality demand. This would release scare funds pro-poor service delivery at local level.

#### The importance of capacity building

**Small towns lack the capacity to manage urban growth**. At the rural woreda level (see the OSZ case study), it seems obvious that only regional bureaus are able to prepare urban plans. Even in large cities, capacity constraints hinder effective urban management. The land lease management issue is a major concern for urban growth regulation. A first step to improving matters will be to set solid basis through cadastres is all the sensitive urban areas. One has to ask what could be the role of a regional support (as played the NUPI in the 1980's) to local bureaus?

If concepts such as 'cities clusters' are included in the NLUS, specific implementation solutions are needed at many scales. In addition, a centre of urban planning excellence may be needed to provide advice as to how the many new issues associated with urban management in times of repaid urbanisation can be addressed. A body such as NUPI at federal level could be useful in order to organize and disseminate expertise and experience (in addition to very performing capacity building programs), and to establish linkages with universities, Ethiopian, African, and foreign applied research around urban management topics, and disseminate learnings to the stakeholders across the country.

# 8 Conclusions and Next Steps



*Figure 8-1: African Union Building, Addis Ababa* Source: http://www.ethiopicture.com/index.php/photos/show/Melat/1299/in\_album:42

## 8.1 Introduction

As stated in the introduction to this report (Chapter 1) the primary objective of this document is to provide a comprehensive description and concise analysis of the existing situation as it relates to the production of the Land Use Maps (2014 and for 2037) and the urban scenarios for 2037. The report provides the 'background information' needed to prepare the maps and the scenarios. It is lengthy in nature as it is comprehensive and should be regarded as a 'resource document', containing significant analytical work on urbanisation trends and challenges.

Ultimately, this report together with the urban scenario report, are intended to allow the Government of Ethiopia to formulate and implement *Plan-Led Urbanisation* (see Figure 8-2 overleaf). The urgency of this task is not to be under-estimated. GTP I and II have provided favourable economic conditions for urbanisation, but it is urbanisation that will allow the successful implementation of GTP II and the acceleration of economic development. This is so as the form of economic development envisaged under GTP I and II requires support functions that are only created and found in urban areas. Successful economic development requires urbanisation (see Figure 8-3).



Figure 8-3: Plan–led urbanisation accelerating the Implementation of GTP II and III



Figure 8-2: From 'This report' to plan-led urbanisation in Ethiopia

Source: The Consultant

## 8.2 Key Challenges

There are, however a number of factors that could severely compromise this virtuous spiral of urbanisation and economic development. One of the most important is the absence of adequate urban infrastructure and services, and the associated likelihood that urban agglomeration diseconomies could rapidly materialise. Instead of witnessing the development of cities and towns that generate significant employment, are characterised by low levels of unemployment, and are pleasant and invigorating places in which to live with green spaces and a range of cultural and social services adequately meeting the needs of the inhabitants, the urban sector in the future could be characterised by congestion, pollution, overcrowded informal settlements, unemployment and social distress and tensions<sup>83</sup>

Figure8-4: Alternative futures for the urban sector?



The analysis presented in the report clearly indicates that the challenges that will be encountered as the Government seeks to manage rapid urbanisation will be many and immense and, at times, could be overwhelming. For example, the finances required to provide the urban infrastructure and services needed to adequately serve the expected huge increase in the size of the urban population will be considerable, but must be found if the urban sector is to support the continuing economic development and future prosperity of the country. These challenges and suggested ways in which they can be addressed will be further explored in the urban scenario and final NDP and UDP reports.

## 8.3 Overview of Urbanisation Drivers

A brief review of the main drivers of urbanisation is presented in this section.

#### Ethiopia and the benefits of globalisation

One of the most important macro-level drivers of urbanisation is the integration of Ethiopia into global markets. The current investment driven export development growth model is

<sup>&</sup>lt;sup>83</sup> As one member of the Project Sterring Committee stated: a major potential problem is the 'overflooding' of urban areas, namely a flood of people into urban areas before cities and towns are geared up to absorb them and provide adequate urban services. Source: meeting at MUDHCo 12<sup>th</sup> Agust 2014.As as stated in the Urban Development Policy of the Government (unpub and undated):-"*Urban development is unthinkable without good governance.....our cities have grown only sluggishly and have not attained the image and feel of typical urban centers They have therefore become not centers of development in their vicinity, but centers of unemployment, begging, worn-down neighborhoods which have failed to satisfy the demand of their dwellers*"

generating remarkable growth rates. The opening of the country to foreign investment has been and continues to be important. Improving the business environment will be crucial in order to attract and sustain investors, and will continue to be a major driver of urbanisation. It should be noted that Ethiopia is characterised by a very low rate of private and public capital accumulation, and, as such, it is difficult to find capital investments from internal resources to finance the considerable infrastructure investments required to drive economic development and the provision of infrastructure and services

#### The potential associated with regional integration

Macro regional integration is difficult today due to several conflicts in the region (e.g. in Somalia and South Sudan). Insecurity reduces capital investment and economic production. So trade today with these countries is limited. But this situation could change. South Sudan has large oil and gas reserves that could underpin trade with Ethiopia. The connection of Eritrea to various regional ports could support the economic production of North Ethiopia by reducing transportation costs. Complementarity of products from both countries could facilitate trade and support production.

Furthermore, peace in Somalia would give Ethiopia access to a port (Mogadishu) and facilitate the economic development of Somali region. Berbera port is a small competitor to Djibouti with 15% of the Ethiopian traffic, but it could contribute to the diversification of port outlets for Ethiopia. Relation with Sudan and Kenya are good but could be strengthened. Oil is coming from Port Sudan by trucks, but few products are exchanged. Towards Kenya, the road and security conditions are problematic and few products are crossing the border. Djibouti is strongly linked to Ethiopia and vice-versa. It is the main harbour for Ethiopian products and the connection towards Djibouti is the most important link to be upgraded in order to improve integration into the global economy.

At the macro region level, the potential for development is large due to the pace of population growth, the quick economic development and urbanisation process of Eastern African countries: this will create in the medium term the condition for larger trades. If the first priority is to strengthen the connections to Djibouti, main other connections will open the way for a diversification of outlets towards large markets.

#### Balanced development and national solidarity and security

Balanced and inclusive development is important in order to ensure national solidarity and security. This is one reason why the primacy Addis Ababa should be moderated and polycentric urban development promoted. This form of development will support growth in each region of the country. In order to support the emergence of a polycentric structure to the urban sector, urban growth poles and associated industrial should be established. These poles should be connected via efficient transportation and communication links that will, over time, facilitate the emergence of economic development corridors. Prosperity most likely will then be diffused throughout the rural hinterlands of these growth poles and development corridors.

#### Climate change impacts

Climate change will creates new environmental conditions that will play a role on agriculture production, water management, risks management. With an average forecast of + 1°C in the next 20 years the country will face more drought, more storms, more heat waves, but at the

same time more flooding and landslides. The health conditions will be affected due to the occurrence of malaria and other diseases in highlands currently unaffected. After 2020, Ethiopia will reach the hydric stress threshold due to its population increase. Water management will become crucial to ensure that the various uses of water can be accommodated: - namely water for drinking, agriculture, livestock, industry, hydro energy etc.

#### Demographic changes

The demographic transition is huge with about 50% more people in the next 25 years. The larger part of the population increase will be in rural areas. The main increase of population in cities will be provided by natural growth of cities and migrations from urban to urban, and from rural to urban areas. This migration will play a big role in this urbanisation process. Different generations of urban citizen will live together in the cities. New migrants will try to find housing at an affordable price in secure areas, (unfortunately generally in slums, and mainly close to sources of employment). Migrations will reduce the demographic pressure in less attractive areas, those saturated of population regarding agriculture production and land tenure, those subject to natural risks or insecurity. Most attractive areas will receive surplus population from rural areas. It is the place where job creation will be provided as commercial farms, industrial areas, but also commercial activities inside cities.

#### Rising urbanisation rate

The urbanisation rate could reach 40% after 25 years and most likely will be associated with fundamental changes to the structure of the economy (for example the move from agricultureled to industrial-led development). A significant number of jobs in the service and industrial sectors will have to be created for this change to be realised. However (as shown in the Chapter 4: The Economy) at present structural change is slow. To speed up industrialization better conditions for foreign investors will be required including, efficient infrastructures (energy, communication, and water), well-planned industrial areas and a business friendly environment. At the same time, huge investments will be needed in urban areas in order to accommodate a population, which will be three times the size of that of today. Cities will be transformed with higher densities and large extensions in their suburbs. New towns will emerge in the countryside. Planning, large investments in amenities and utilities, large investment on housing are necessary to support these changes.

#### 8.3.1 Economic Development

#### GDP growth

The Ethiopian government aims to achieve Middle Income Status by 2025. In order to achieve this goal the pace of economic development must be maintained. There are several reasons for believing that this is feasible including (a) the recent rapid modernization of the country (b) the successful recovery after long period of troubles in the country and (c) the relocation of manufacturing from South-East Asia towards Eastern Africa. To attain Middle Income Status the country needs to attract capital from foreign investors in order to upgrade production, move up value chains, and integrate into global value chains.

To support this development public investment is needed in strategic infrastructure projects (e.g. road, railway, airport, hydropower, industrial zones) and policy and programme interventions to ensure that productivity levels and the education of workers are upgraded.

Fortunately, education levels are rising. New universities are preparing the necessary skill workers to support service and industrial developments. Higher education level in cities will give opportunities to develop higher productivity activities. This is important – Ethiopia cannot trade on its low wages for long (perhaps another 8-10 years 0r so); the economy must focus on value addition, otherwise it may be difficult to become a Middle Income Country and most certainly will leave Ethiopia in the Middle Income Trap<sup>84</sup>.

#### Sectorial development and a change in the Product Composition of Output

There are different ways in which the macro-economic aims of the government can be reached. The structure of the economy could remain largely unchanged while its size significantly increased. Agriculture, for example, could expand. At present, agriculture production is characterised by very low levels of productivity (agricultural productivity in South Africa is 20 times higher than in Ethiopia). Due to the large numbers living in agriculture will be one of the most important sectors to support, despite of the benefits expected from existing and future urban and industrial activities.

The Government places considerable emphasis on the industrial sector, which it hopes, will account for an increased share of GDP over the coming years. Over the last 10 years, industry's share has remained static at around 10% of the GDP. This could change due to, for example: (a) the future availability of energy (e.g. hydropower) which could make Ethiopia the energy hub of the region, (b) investments in transportation and communication infrastructure and the establishment of industrial zones, agro-industrial parks and SEZs, (c) the impact of the new universities providing skilled workers and (d) the generally favourable investment climate in Eastern African countries

The service sector is growing quicker than any other sector. This is related to the urbanisation process, and should be encouraged. Indeed, a modern economy requires services that are only created sustained and developed in urban environments (ranging from business support services to complex educational, cultural and social activities). More specifically mention should be made of the potential in the tourism sector in Ethiopia both in terms of the heritage and cultural 'offer' and the country's natural assets (e.g. biodiversity, natural parks, landscapes...). With better communication, better tourism facilities and strong protection measures, tourism could be an important part of the GDP.

#### 8.3.2 Environmental management

#### Natural resources management has to improve

Natural resources underpin the economy of the country. Sound environmental management is required. Some resources are renewable, other are not. Water resources are not completely known today and a policy to manage this resource is in preparation by the MoWIE. Water is considered as a renewable resource, but with variation from year to year.

<sup>&</sup>lt;sup>84</sup> Wages will rise in Ethipia as the economy expands and deepens – international wage equalisation can be expected – the country increasingly may find it difficult to compete against the 'new' low wage economies of Africa and Asia on the one hand and the higher value added innovation driven economies on the other – Ethiopia could be trapped – in the Middle Income Trap.

Climate change impacts may reduce the ready availability of water resource, but a larger population and increased economic activity will need more water.

Better management will be necessary to change the way water is distributed amongst the 'competing' end-users. The sound management of other resources is also vital (e.g. minerals; biodiversity resources) and vulnerabilities due to changes in the environmental must be addressed. For example, it is likely that the vulnerability of urban areas population will increase if natural hazards increase with climate change. The capacity to prevent such risk must be built into urban planning and management systems.

Moreover, pollution is most likely to increase in line with the expansion of human activities and settlements (e.g. air pollution with traffic and industrial production, soil pollution with some industrial activities; water pollution with uncontrolled wastewater from urban dwellers, hospitals and industrial activities). The capacity of management of solid and liquid waste (sewage, wastewater plant, solid waste collection and plant) and the control of emissions will be an important factor on the quality of life, the preservation of water resources,

#### Utilities and Amenities

The implementation of large infrastructures at the national level will change and *enable* the development capacities at local level. Cities will benefit directly of these investments:

- **Transportation that is more efficient** will reduce transportation costs and delivery times. Better connections between cities will create more opportunities for trade and production. The attraction of cities located on the main transportation corridors to investors will increase.
- Increased energy generation. Energy is crucial for the expansion of the economy. Fortunately, Ethiopia has the potential to export energy and become a regional energy-producing hub. This will significantly increase the attractiveness of Ethiopian cities to industrial investors.
- **Improved Telecommunication**, the expansion of this sector will directly and quickly improve the attractiveness of Ethiopian cities
- Water management will become crucial and will play an important role in the economic development of both rural and urban areas. Due to water resource scarcity, however, priorities between the different uses of water will have to be determined. Potable water for cities, no doubt, will be the first priority. As regards economic development, choices will be made in favour of the most profitable activities for the country (including industrial areas in cities). But some sectors will experience over time intensifying constraints on their use of water.

Urban infrastructures are vital for urban efficiency. Without good infrastructure, urban life and economic development cannot work properly. So it is one of the drivers to implement good utilities as roads, urban logistics, public transportation, water supply, sewage, drainage system, energy, street-lighting and telecommunication networks. Urban services are playing an important role in the efficiency of development. It deals with health, education, culture, security, quality of life, quality of public spaces, greener and solid waste management

## 8.5 Next Steps

The present report constitutes the background information required in order to prepare the urban scenarios (2035) and the associated proposed land use map (2035). As required in the Project Terms of Reference and confirmed in the Project Inception Report the Consultant will construct various scenarios of the future of the urban sector in Ethiopia. A preferred (or consolidated) scenario, which can be either one of those prepared by the Consultant or a hybrid, will be recommended for adoption by the MUDHCo as the vision for the urban sector and system in 2035. If adopted, it is recommended that the Government then focus on policy programme and projects interventions that can be made in the near future order that the vision is realised. Collectively these interventions will constitute *Plan-Led Urbanisation*.

Figure 8-5 illustrates how the urban scenarios are to be constructed (and in so doing demonstrates the importance of analysing the existing situation as presented in this report). The scenarios will be build form the bottom-up, namely they will be based on an understanding of the existing situation related to the urban system of the country and an assessment of four change drivers or 'ingredients' namely:

- **On-going and planned infrastructure investments** (e.g. important economic infrastructure investments such as built or planned the industrial zones, special economic zones, agro-industrial parks, and dry ports; important physical infrastructure investments such Renaissance Damn; major transportation investments and energy projects)
- **Potential and future economic activities** (e.g. mineral extraction and use; the development of large commercial farms and sugar plants; light manufacturing opportunities including; textiles and value addition in agro-processing; service opportunities including tourism and BOP [back-office-processing] developments)
- Existing and possible future constraints on urban development (e.g. environment hazard / increasing water stress; inadequate urban management capacity and capabilities inadequate urban infrastructure and services; problematic urban housing and land markets)
- **Urban strategy and policy**, namely the direction that the Government wants to take the urban sector and the impact of over-arching GTP strategy.

Having created possible futures of the urban sector from the bottom up, a selected number of international benchmark counties are chosen. These are countries the urban system of which is similar to that of Ethiopia, or countries that have been through an urbanisation process that Ethiopia is entering, and / or countries have or had urbanisation goals and targets similar to those of Ethiopia. These benchmark countries are used to validate from the 'top-down' the urban scenarios that have been built from the 'bottom-up'.

The finalised scenarios will be reviewed with the MUDHCo in order identify a preferred or consolidated scenario, which, as stated above, could be any one of the proposed urban scenarios, or a hybrid of one scenario, or a composite constructed from two or more of the scenarios. The preferred or consolidated scenario will be the vision for the urban system (2037). The task for Government will be to devise and implement policy, programme and project interventions that can be implemented in the near future in order that the vision for 2035 is achieved; the challenge will be one of implementation.





Source: the Consultant

Figure 8-6: Proposed structure of the Urban Scenario Report

#### A – Background

- A.1 Purpose of the Scenario Building Exercise
- A.2 Urbanisation Trends
  - Demographic trends
  - Economic development trends
  - Urban spatial and functional trends
- A.3 Urbanisation Forecasts
  - ADB, IMF and WB forecasts
  - Impact of Industry, energy, telecommunication and water strategies
  - Impact of Ethiopia's climate-resilient Green Economy
- A.4 Urbanisation Benchmarks
  - Urbanisation in three relevant countries
  - Case study 1: Vietnam
  - Case study 2: Indonesia
  - Case study 3: China

#### **B** – The Urban Scenarios

- B.1 Summary of the Scenario Building Methology
- B.2 Drivers of change
  - Economic drivers
  - Policy drivers
  - Main criteria used to define the scenarios
- B.3 Spatial dimensions of the drivers of change
  - Main spatial effects
  - Cross analysis regarding factors of change
- B.4 Concepts to define the 3 scenarios
  - Impact of Ethiopian policies: corridor development, urbanisation & rural development

#### C - Description of 3 urban development scenarios

- Corridor development scenario
- Polycentric development scenario
- Meshed development scenario

#### **D** - Evaluation of the 3 scenarios

- Criteria based on policy goals
- Grid for analysis
- Evaluation Results
- Components common to all scenarios
- Components unique to each scenario

#### **E** - Description of the preferred scenario (completed after the workshop)

- National urban development scheme (location, hierarchy, functions, interactions)
- Economic development impacts and implications of the NUDS
- Investments required to implement the NUDS (e.g. communication network changes)
- Regional development impacts and implications
- Implementation requirements and outline implementation plan (may involve

transitioning:- from one scenario / vision in the short to medium term to the preferred / consolidated scenario / vision by 2037)

The Consultant's plan is to submit the urban scenarios report in early march 2015. It is recommend that workshop is held with the TAC and SC (and any other stakeholders that the TAC and SC feel should participate) in order to discuss and validate the urban scenarios and most importantly to co-design with the Consultant the preferred or consolidated scenario which is to be the vision for the future of the Ethiopian urban sector and system. The Consultant, as necessary, will then detail up the preferred / consolidated scenario and present the finalised version in the NUDS final report (in late March 2015); see Figure 8-7



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Egis International in association with IAU-IdF & Urba Lyon - Existing Situation and Diagnostic Final Report (March 2015)

# Appendices

# **ANNEX A: Renewable Energy Sites**

#### **Geothermal Sites**

Site	Status of Geo- Scientific investigations	Status of exploration drilling	Existing generating means	Next steps in 2013 (drilling, PPA, etc.)	Potentialsize(MW) and timing(COD year)
Aluto Langan o	Extensive surface studies by GSE and others since 1980 Recently (2009) 40MT and AMT stations (Westjec funding, GSE collaboration) helped develop the reservoir model and determine new drilling targets. Temperatures up to 335C <sup>0</sup>	8 deep exploration wells drilled (1981- 1985) 4 wells produced 36 to 100t/h high enthalpy fluids Lock of permeability (2 wells), cold water ingress (1 well) and lost fish (1 well) Permeability and well flow/drawdown to be confirmed with new wells	7.3MW binary plant since 1999 Binary unit rehabilitated by GDA and bock to operation since 2007 (5MW capacity)	Aluto Phase 2 program underway (with Westjec support), i.e. drilling of 4 exploration wells till end 2013 (Japanese Government, World Bank and Government of Ethiopia funding) in 2014 - 2016 plan to build a 35 to 70MW plant, SREP program to finance production and re-injection drilling.	35 to 75 MW 2016 at the earliest productivity per well (MW/well will be essential for the economy of the project. NCG reported to be high (8%) and scaling - corrosion issues to be implemented with an EPC contractor.
Tendah	Extensive surface studies by GSE international support (Italy) geology/geochemis try/geophysics. MT & TEM were performed but need in fill stations and extension of the exploration area. Petrochemical and XRD analyses of surface and subsurface manifestations were performed, as well as logging of down hole geology in existing deep wells. Feasibility studies for the implementation of	3 deep wells at 2,100m depth and 3 shallow wells at 500m depths were drilled between 1993-1998). Temperatures of 245 to 270 <sup>0</sup> C were evidenced at depth, but poor permeability was encountered due to basaltic lava at depth. Up flows are possible via the Dubti faulting system and temperatures of 245 <sup>0</sup> C were measured in the		Current Argeo program till mid 2013 with MT, TEM, geochemistry and hydrogeology, AFD support to develop a new drilling targets (in a zone at the South East of previous	Results of Argeo financed geo- scientific program necessary to assess reservoir capacity. Next wells drilled in the South East area will confirm productivity per well and geochemistry of extracted fluids. Development of 100 MW announced by GSE in 2018 at the earliest. Project will be implemented with an EPC
0	100MW under way.	shallow reservoir.	None	drilling area.	contractor.

Site	Status of Geo- Scientific investigations	Status of exploration drilling	Existing generating means	Next steps in 2013 (drilling, PPA, etc.)	Potential size (MW) and timing (COD year)
Corbetti	Some geoscience by GSE in the past. Reykjavik Geothermal (RG) performed a thorough MT and TEM survey in 2009 - 2012 (120 stations) and a conceptual model with drilling targets has been defined (confidential report). Feasibility studies are underway with RG own finance. Geochemistry suggests that 300 C should be achieved	8 temperature gradient wells to 180m maximum were drilled in the 1980's (94°C recorded.)	None	Sept 2013 note: RG has agreed with Ethiopian Ministries of Mines and Water & Energy to build and operate up to 1000 MW. PPA agreed with EEPCO (first IPP project in Ethiopia) A power purchase agreement has been signed with EPECO. Initial agreement is for 500 MW, stated to be fully operational by 2018 Complete surface exploration followed up by exploration drilling (3 to 5 wells)	Corbetti site was evaluated at 75 MWe by GSE prior to RG field investigations and capacity assessments. RG intends to develop 300 MWe in 3 successive steps. First 100 MWe in 2018 at the earliest. Overall site capacity possibly more than 500 MWe ((to be confirmed with drilling and further delineation). Sept 2013 note: 1000 MW is mentioned
Tulu Moye	Young volcanic setting. Investigated by GSE; in year 2000 studies confirmed a 200 <sup>0</sup> C reservoir. Investigated already in the 1970's; hydrothermal activity (fumaroles, steaming, ground alterations).	In 1998-2000, shallow gradient wells (up to 200 m depth) were drilled. Target areas for deeper drilling were defined.	None	Private sector negotiations are under way. Further geo- scientific field investigations needed to develop a well siting strategy potential by drilling.	40 MWe estimated by GSE. To be confirmed with geophysics, Monte Carlo simulations and exploration drilling.
Abaya	Hot springs with good flow rates and temperatures (96°C) in a young volcanic setting. GSE studies dated 2002 (geology, geochemistry and geophysics) confirmed a reservoir temperature around 260 degree °C.	None. Temperature gradient wells recommended.	None	Private sector negotiations are under way. Further geo- scientific field investigations needed to develop a well siting strategy and confirm the resource potential by drilling.	100 MWe estimated by GSE. To be confirmed with geophysics, Monte Carlo simulations and exploration drilling.

Site	Status of Geo- Scientific investigations	Status of exploration drilling	Existing generating means	Next steps in 2013 (drilling, PPA, etc.)	Potentialsize(MW) and timing(COD year)
Dofan -	Hot springs and fumaroles. GSE investigated the site (delineation, predefinition of drilling targets. Need for deeper investigations (geochemistry, MT, TEM etc.). 2 power studies have been			Private sector negotiations are under way. Further geo-scientific field investigations needed to develop a well siting strategy and confirm the resource	60 MWe estimated by GSE. To be confirmed with geophysics, Monte Carlo simulations and exploration
Other	In the 1980's investigations (geology, geochemistry and geophysics) at other sites included Dallol in the far North, Lake Abbe, Danab and Teo near Tendaho, as well as Meteka and Kone near Dofan-	None	None	potential by drilling.	To be defined; geology and geochemistry first, followed by geophysics and exploration drilling if promising
sites	Fantale.	None	None	To be defined	results.

Source: EEPCo

#### Wind and Solar Energy Candidate Sites

Name of site	Capacity (MW)	Area (km <sup>2</sup> )	Domicile	Altitude (m)	Wind Speed 2000-2009 50 AGL (m/s)
Adama wind farm	300	254	Oromia	1904	6
Mekelle South wind farm	100	77	Tigray	2231	9
Sheno wind farm	100	56	Oromia	2747	7
ch'ach'a wind farm	100	56	Amhara	2786	8
Phase I wind farm in Iteya	100	66	Oromia	2063	7
Sululta wind farm	100	60	Oromia	2955	7
Gondar west wind farm	50	49	Amhara	2474	7
Indibir wind farm	50	47	SNNP	2191	5
Dire Dawa wind farm	50	40	Dire Dawa	1156	7
Dilla East wind farm	300	268	SNNP	2323	7
Mekelle North wind farm	200	185	Tigray	2134	7
Debre Markos East wind farm	200	143	Amhara	2230	5
Sodo wind farm	200	160	SNNP	1841	5

Name of site	Capacity	Area	Domicile	Altitude (m)	Wind Speed 2000-2009
	(MW)	(km²)			50 AGL (m/s)
Sendafa North wind farm	100	70	Oromia	3065	8
Sendafa South wind farm	100	70	Oromia	2508	8
Gondar North wind farm	100	65	Amhara	2940	7
Phase II wind farm in Iteya	100	70	Oromia	2017	7
Bu'i East wind farm	100	70	SNNP	2045	5
Aysha wind farm	100	80	Somali	726	9
Phase I wind farm in Bolo	100	60	Oromia	2480	7
Dichotto wind farm	50	60	Afar	556	7
Bahir Dar wind farm	50	100	Amhara	1975	5
Assela wind farm	50	80	Oromia	1777	5
Jacho wind farm	600	71	Oromia	1481	5
Phase II wind farm in Bolo	500	330	SNNP	2655	7
Hula wind farm	300	300	Amhara	2300	5
Dilla West wind farm	300	220	Oromia	1386	5
Dangela wind farm	200	230	Oromia	2404	5
Debre Markos West wind					_
farm	200	170	Oromia	2186	5
Ambo wind farm	200	150	Amhara	2124	5
Babile wind farm	200	130	Amhara	1587	6
Dabat wind farm	100	61	Amhara	2610	7
Phase I wind farm in Woldiya	100	43	Amhara	3508	8
Phase II wind farm in Woldiya	100	40	Amhara	3450	8
Gondar East wind farm	100	76	Amhara	2563	7
Rufael wind farm	100	100	Amhara	2715	6
Debre Birhan wind farm	100	67	Amhara	3327	8
Bale wind farm	100	60	SNNP	1791	5
Harar West wind farm	100	90	Oromia	1965	8
Harar East wind farm	100	75	Harar	1629	7
Jijiga wind farm	100	80	Somali	1919	8
Durame wind farm	100	65	SNNP	2478	6
Debre Sina wind farm	50	30	Amhara	3013	9
Bu'i West wind farm	50	40	SNNP	2602	7
Butajira wind farm	50	30	SNNP	3331	7
Fonka West wind farm	50	25	SNNP	2331	6
Fonka East wind farm	50	25	SNNP	2128	6
Yabello wind farm	50	45	Oromia	1635	10
Mega East wind farm	50	30	Oromia	1443	10
Mega West wind farm	50	30	Oromia	1497	10
Wind energy and solar energy demonstration base in Addis Ababa	20	28	Oromia	2995	7

Source: Master Plan Report of Wind and Solar Energy

Diesel Plants			Gas Turbine P	lants	Combined Cycle Plants		
Year	Location	Size (MW)	Location	Size (MW)	Location	Size (MW)	
2017	Dire Dawa	70					
2019	Dire Dawa	350					
	Converted to						
2025	gas		Dire Dawa	140			
2028			Dire Dawa	140			
2029					Dire Dawa	840	
					Awash /		
2030			Awash / Kilo	140	Kilo	420	
					Awash /		
2031					Kilo	420	
					Awash /		
2032					Kilo	420	
2033			Awash / Kilo	140	Dire Dawa	420	
2035			Dire Dawa	140			
					Awash /		
2036					Kilo	420	
2037					Dire Dawa	420	
Totals		420		700		3360	

Proposed locations of diesels, wind and solar plant - Reference case

Source: EEPCO

Year	Installed candidate MW)	e plant (No /	Size in year (MW)	Plant Location	MW
2018	2	200	200	Corbetti	200
2019	3	300	100	Corbetti	100
2020	5	500	200	Corbetti	200
2021	7	700	200	Aluto Langano	200
2022	9	900	200	Tendaho	200
				Tendaho	100
2025	12	1200	300	Abaya	200
				Tendaho	200
				Abaya	100
2026	16	1600	400	Tulu Moye	100
				Dofan Fantele	100
				Tulu Moye	200
2028	21	2100	500	Gedemsa	200

	Installed condidate	nlant (No./	Size in		
Year			year	Plant Location	MW
			(MW)		
2029	23	2300	200	Tendaho	200
2030	25	2500	200	Тео	200
2031	28	2800	300	Corbetti	300
				Тео	100
2032	31	3100	300	Gedemsa	200
				Aluto Langano	200
2033	34	3400	300	Dofan Fantele	100
				Tulu Moye	200
2034	37	3700	300	Dofan Fantele	200
				Corbetti	300
2035	42	4200	500	Dallol	100
				Dallol	100
2036	46	4600	400	Тео	300
				Тео	100
2037	50	5000	400	Abhe	300
	Totals		5000		5000

Proposed locations of wind plant - Reference case

Year	Installed canc (No/MW)	lidate plant	Plant Location	Size of Plant (MW)	
2016	1	300	Aysha area	300	
2017	2	600	Assela area	300	
2018	3	900	Woldiya area	300	
2030	4	1200	Aysha area	300	
2033	5	1500	Debra Birhan area	300	
			Total	1500	

Source: EEPCO

Proposed locations of solar plant - Reference case

Year	Total candidate plant (MW)	Plant Location	Size of Plant (MW)	
		Semera area	100	
		Hurso area	100	
2016	300	Awash 7 Kilo area	100	

Source: EEPCO

# **ANNEX B: Financial and Institutional Data**

# Projected Budget Gap during GTP, base case scenario resource, need by sectors, deficit & financing (Million ETB)

Items	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	Total (2010/11-	Total 2010/11-		2010/11	2011/12	2012/13	2013/14	2014/15	Total (2010/11 -2014/15
	2014/15		2014/15	Total Revenue Including Grants	66,237	79,806	96,941	118,281	147,524	173,040	615,591				
Total Revenue	66,237	79,806	96,941	118,281	147,524	173,040	615,591	Domestic Revenue	53,861	63,315	74,585	94,119	121,660	145,299	498,978
Total Expenditure Required	71,334	92,048	126,827	145,434	174,842	216,915	756,066	Tax Revenue	43,315	52,534	63,588	81,228	105,460	127,212	431,022
Description Press	22.012	10.046	51.046	(1.075	74.507	02.426	222.010	Non-tax Revenue	10,546	10,781	10,997	12,891	15,200	18,087	67,956
Recurrent Expenditure	32,012	40,046	54,040	61,975	/4,50/	92,430	323,010	Grants	12,376	16,491	22,356	24,162	25,864	27,741	116,613
Capital Expenditure	39,322	52,002	72,781	83,459	100,335	124,479	433,056	Total Expenditure	71,334	92,049	106,125	130,187	161,452	201,146	690,959
Poverty Oriented expenditures	47,251.6	60,682	86,243	101,802	124,139	156,179	529,045	Recurrent Expenditure	32,012	40,046	45,224	54,383	65,477	78,924	284,054
Anriculture & Food Committy	6.009	0.519	15 692	17 769	21.690	27.224	01.092	Capital Expenditure	39,322	52,003	60,901	75,804	95,975	122,222	406,905
Agriculture & Food Security	0,990	9,510	15,065	17,700	21,000	21,334	91,965	Poverty Oriented expenditures	47,251	60,682	72,165	91,131	116,245	146,837	487,060
Education	16,870	21,703	29,354	33,043	38,823	46,826	169,749	Expenditure Deficit incl. Grants	-5,097	-12,243	-9,184	-11,906	-13,928	-28,106	-75,368
Health	4,547.6	6,260	8,398	9,826	11,876	14,778	51,138	Deficit Financing	5,097	12,243	9,184	11,906	13,928	28,106	75,368
Pond	14 601	17 304	25 005	32 130	30.065	48.818	163 312	External net	4,131	4,520	4,201	4,974	5,490	5,220	24,405
Roau	14,001	17,504	23,995	32,130	39,005	40,010	103,512	Domestie net	1,758	7,356	4,983	6,932	8,438	22,886	50,595
Water	4,235	5,897	6,813	9,035	12,695	18,423	52,863	Privatization		366					366

Source: GTP 1

#### Off-Budget, detailed

S.N.	Sector/Subsector	2010/11	2011/12	2012/13	2013/14	2014/15	Total
1	Industrial Development	16,229.67	51,954.59	56,728.13	42,056.96	26,591.73	193,561.08
1.1	Textile and Garment Industry	1,386.5	2,447.1	3,611.6	3,484.6	5,015.6	15,945.4
1.2	Metal Engineering Industry	32	1,454	5,780	9,600	3,600	20,466
1.3	Agro-Processing Industry	488.6	647.5	862.5	888.1	460	3,346.7
1.4	Chemical, Pharmaceutical and Cement Industries	473.9	8,740.1	12,658	7,895.4	4,826	34,593.4
1.5	Fertilizer Complex Industry	75.99	3,282.45	3,384.33	3,290.24	3,172.01	13,205.02
1.6	Leather and Leather Products Industry	532.9	2,569.4	2,129.1	1,487.8	15	6,734.2
1.7	Micro and Small Scale Enterprises	2,909.4	3,354.3	336.4	0.00	0.00	6,600.1
1.8	Management and Privatization of Public Enterprises	1,155.7	4,962.2	5,510.7	4,256.7	3,210.1	19,095.4
1.9	Sugar and Associated Products Industry	9,174.68	24,497.54	22,455.5	11,154.12	6,293.02	73,574.86
	Sugar Industry	9,008.61	24,265.7	22,273.58	10,964.28	6,269.25	72,781.42
	Resident houses of sugar industry	166.07	231.84	181.92	189.84	23.77	793.44
2	Transport	35,088.3	43,223	41,795.4	30,550.1	11,047.7	161,704.5
2.1	Rail	16,647	31,036	31,304	24,516	7,293.1	110,796.1
2.2	Ethiopian Airports Enterprise	740	866.4	1,689.5	2,174.3	728	6,198.2
2.3	Ethiopian Airlines	14,942.76	8,425.74	6,246.00	1,307.43	220.41	31,142.35
2.4	Ethiopian Marine Transit Service	775	1050	1,290	1,569.1	1,981.6	6,665.7
2.5	Ethiopian Dray Port Service	886.5	1,237.8	671.2	336.7	143.7	3,275.9
2.6	Ethiopian Shipping Line	963.6	610.8	552.4	529.7	530.3	3,186.8
3	Communication	6,580	1,900	13,190	0	0	21,670
3.1	Ethio-Telecom	6,580	1,900	13,190	0	0	21,670
4	Energy	36,234	52,966	29,219	29,658	29,658	177,735
5	Addis Ababa Resident Houses Construction Project	2,640	2,640	3,080	3,080	3,520	14,960
	Grand Total (1+2+3+4+5)	96,638.53	152,687.33	143,970.23	105,228.20	70,666.84	569,191.10
	Foreign Currency Requirement (%)	62.85	53.32	54.01	53.42	53.46	55.42

Source: GTP 1



#### Distribution of Towns by Grade Level in five regions in 2012 Tigray NRS, 2012 Amhara NRS, 2012





	Regions			Towns and lease syst	em		
	Urban Administrations	Total Nb Under Expected to enter		not adm	not administered		
1	Tigray	72	29	30	13	18%	
2	Amhara	204	38	67	99	48.5%	
3	Oromia	366	44	214	108	53%	
4	SNNPR	175	22	95	58	33%	
5	Benishangul Gumuz	23	10	0	13	56.5%	
6	Gambela	13	1	2	10	77%	
7	Afar	27	0	5	22	81.5%	
8	Somali	82	0	3	79	96%	
9	Harar	1	1	0	0		
10	Addis Ababa	1	1	0	0		
11	Dire Dawa	1	1	0	0		
	Total	965	147	416	402	42%	

Urban Centres/Towns administered or not entered in the lease system

Land Provision to lease auction by type of land use by number of plots and area

				fiscal	year		
	Regions/Urban		20122 <sup>nd</sup>	half	20132 <sup>nd</sup>	' half	Evolutive
	Administration	Type of land use	Area m <sup>2</sup>	plots	Area m <sup>2</sup>	plots	nb plots
		Residential		954	132848	618	-35
		Business/Organisation		224	57212	198	-12
1	Tigray	Urban Agriculture	21903.03	2	9300	10	400
		Residential		359	33962.76	156	-57
		Business/Organisation		48	44937.42	42	-13
2	SNNPR	Industry	130094	2	42248	13	550
3	Amhara	Residential	65941.94	31	26401.35	352	1035
		Business/Organisation		11	10123.03	28	155
		Mixed Use		7	1246	9	29
		Social services		2			
4	Oromia	Residential			75214	110	
		Business/Organisation			68184.2	99	
		Industry			122309	20	
		Social Services			6000	8	
5	Benishangul Gumuz	Organisation/Business			3125	3	
6	Harar	Organisation/Business	508.59	1	2125	3	200
7	Addis Ababa	Residential	817441.2	196			
		Organisation/Business		28	4369.44	12	-57
	Total	Mixed Use	1	26	12734.23	27	4
		Large total	1035889	1891	652339.4	1708	-10

	2008 to 2012				2013			
AA Sub-city							increas	
	Cases	Average	Min/Max	Cases	Average	Min/Max	е	
KolfeKeranyo	157	231	108 / 3140	37	7662	3600 / 15000	3217	
Kirkos	63	1293	118 / 4310	4	24740	18000 / 31000	1813	
Bole	469	322	115 / 6269	157	9165	521 / 18201	2746	
Yeka	72	427	92 / 2863	91	10490	2500 / 18200	2356	
Nifas Silk	126	490	102 / 3737	7	15105	13189 / 16630	2983	

# Average, minimum and maximum lease price

#### Maximum / Minimum Auction lease price / m<sup>2</sup> by type of land use

Regio	ons / Urban		2012	2 <sup>nd</sup> half	2013 1	<sup>rst</sup> half
Admi	nistration	Type of land use	Maximum	Minimum	Maximum	Maximum
		Residential	5350.25	130	5819	90
1	Tigray	Business/Organisation	17100	300	5015	215
		Residential	5150	85	6600	70
2	SNNPR	Business/Organisation	11269	130	11410	230
		Residential	4421	0.5	1350	0.16
		Business/Organisation	37500	4	2000	3
3	Amhara	Mixed Use	7300	90	450	27.09
4	Harar	Organisation/Business	17500	-	5000	13000
		Residential	13001	250	-	-
		Organisation/Business	6100	-	6116	1200
5	Addis Ababa	Mixed Use	10052	750	26102	2115

## Average m<sup>2</sup> lease price, Fiscal Y 2012 - 2013

		Tigray	SNNPR	Amhara	Oromia	Benishan gul Gumuz	Harar	Addis-Ababa
Residential	2012	2436.34	1388.1	1181.55			7824.09	
	2013	1237.43	3133.41	360.52	2701.88		7924	
	differ	- 49%	+ 126%	- 69%			-100%	
Business /	2012	1604.78	3624.5	9626.33			17500	2717.75
Organisation	2013	1420.14	4417.03	862.45	3961.12	577.4	14000	5859.55
5	differ	-12%	+ 22%	- 91%			- 20%	+ 116%
Industry	2012							
	2013		316.75					
	differ							
Social	2012							
Services	2013				8544.18			
	differ							
Mixed Use	2012			2495.99				5538.1
	2013			238.54				9597.29
	differ							+ 73%
Urban	2012							
Aariculture	2013	1150						
3	differ							

Auction lease price / type of land use / urban centres

	Mekele	Axum	Gondar	Kombolcha	Wolkitie	Hawassa
Residential	5350,25	1940	1587,95	1050	4305	5150
Business/Orga.	8048,75		1587,95	12600		10001
Mixed use			3006			

#### New land lease approaches

	٥					
	Land Suita	able for Urban	Development	(m²)		Total
Grade	River Buffer	Road Area	Green area	Unusable area	Area	Usable land
1	694,894	11,012,746	4,128	11,711,768	25,718,303	14,006,535
2	866,042	8,294,385	39,888	9,200,315	22,682,472	13,482,157
3	1,843,644	16,601,127	466,580	18,911,351	52,548,301	33,636,951
4	3,442,909	15,383,485	6,111,458	24,937,852	72,474,729	47,536,877
5	2,670,059	8,923,436	4,812,201	16,405,696	45,973,085	29,567,390
6	7,983,077	15,832,626	35,034,488	58,850,191	138,442,679	79,592,488
7	10,324,290	3,930,496	69,003,709	83,258,495	128,443,636	45,185,141
8	1,586,345	0	23,657,630	25,243,975	32,658,932	7,414,957
Total	29,411,260	79,978,300	139,130,082	248,519,642	518,942,137	270,422,495
%	6%	0	27%	48%		52%

Addis Ababa suitable land for urban development

Calculation of land lease value though land equipment costs along grades										
AA	Cost /m2		Sewer	Water	Compen	Sub-	Kebele house	Institutional	BMP	
Cost	Electric.	Road			sation	total	replacement	cost		
Grade										
1	21.49	738.96	116.00	39.00	536.00	1451.5	74.7	74.7	1600.9	
2	17.67	578.20	116.00	39.00	113.00	863.9	45.0	45.0	953.88	
3	14.02	463.85	116.00	39.00	22.60	655.5	30.9	30.9	717.27	
4	10.29	304.14	57.00	35.00	6.30	412.7	20.5	20.5	453.74	
5	8.05	283.64	57.00	35.00	0.30	384.0	19.2	19.2	422.4	
6	5.75	186.95	57.00	35.00	7.42	292.1	14.6	14.6	321.33	
7	4.66	81.75	24.00	28.00	13.06	151.5	7.6	7.6	166.67	
8	4.26	0	24.00	28.00	6.96	63.2	3.2	3.2	69.62	

Grade	Total Score	Sub- Grade	Sub- Grade Total Score	Name of City Administration		
Metropolis	Charter			Metropolis Administration Addis Ababa		
Regiopolis	Charter	Charter		Regiopolis Administration Dire Dawa		
				Regiopolis Administration Hawassa-Shashemene		
				Regiopolis Administration Mekelle		
				Regiopolis Administration Jimma		
Grado 1	50-100	AA	70-100	Grade 1 City Administration (AA)		
Urade 1		BA	50-70	Grade 1 City Administration (BA)		
Grade 2	35-50	AB	40-50	Grade 2 City Administration (AB)		
		В	35-40	Grade 2 City Administration (B)		
		BC	30-35	Grade 3 City Administration (BC)		
Grade 3	20-35	С	25-30	Grade 3 City Administration (C)		
		CC	<25	Grade 3 City Administration (CC) to fulfil criteria		

City Grades, 2014

Source: Ministry of Urban Development, Housing and Construction, 2014

Land Provision to lease auction by type of land use by number of plot and area

			fiscal year				
	Regions/Urban		20122 <sup>nd</sup> half		20132 <sup>nc</sup>	' half	Evolutive
	Administration	Type of land use	Area m <sup>2</sup>	plots	Area m <sup>2</sup>	plots	nb plots
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		Business/Organisation		11	10123.03	28	155
		Mixed Use		7	1246	9	29
		Social services		2			
4	Oromia	Residential			75214	110	
		Business/Organisation			68184.2	99	
		Industry			122309	20	
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		Organisation/Business		28	4369.44	12	-57
	Total	Mixed Use	1	26	12734.23	27	4
		Large total	1035889	1891	652339.4	1708	-10

# ANNEX C: Urban Population Projection Methodology

This ANNEX outlines the manner in which the Consultants have calculated the urban population in the future.

#### Background

The last UN World Urbanisation Prospects (WUP 2014, July 2014) indicates a slightly increasing rate of urbanisation for Ethiopia: from less than 20% of urban population today to 30.5% in 2035 and 37,6% in 2050 (as compare to 27,7% and 35,5% in WUP2011).

CSA urbanisation projections for Ethiopia are very similar: below WUP2014 in the slow urbanisation scenario (27.7% in 2037), equal in the medium one (31.1% as compare to 30.5%) and slightly over in the fast one (34,7% in 2037).

Do they both underestimate future urbanisation rate, as some experts think? Over the long term or only in the next 10-15 years? The fact is that these two approaches do not take explicitly into account hypothesis about economic development or the impact of public policies. In addition, they are based on almost the same methodology (see box below).

The problem with this method is that the result (the proportion urban in 2037 or 2050) is very dependent on the most recently observed urban-rural growth difference in a given country. To demonstrate it, consultant used the method below to make two retroprojections of the proportion of urban in China.

The first retro-projection begins in 1975, at a time were the proportion of urban in China was similar to Ethiopia's one today (17%) and uses the latest observed urban-rural growth difference at that time. It leads to a projected proportion of 27% of urban population in 2010.

The second projection begins five years later, in 1980, and leads to a much higher projected proportion of urban population in 2010 (42%), but still below the observed one (49% in 2010). Why such a difference? Just because the last URR available was much smaller in 1974 (0,8%) than in 1979 (4,8%). Nevertheless, in both case, the projection remains below reality in 2010.

CSA used the UN method and data from the census of 1994 and 2007 to calculate URR in each region and produce their urbanisation scenario. With the data available, and such a method, it was impossible to reach more than 34.7% of urban population for Ethiopia in 2037 in the fast urbanisation scenario.

To put it differently, China example shows that it is not because a mathematical method applied in 1975 or 1980 to existing data cannot lead to 49 % of urban population in 2010 that it might not happen.
### World Urbanisation Prospects 2014 – Methodology

The proportion of the population living in urban areas is estimated and projected by country or area for the period 1950-2050 in single-year intervals using the urban-rural ratio (URR<sub>t</sub>), defined as the ratio of the urban to the rural population, that is:

(1) 
$$URR_t = \frac{U_t}{R_t}$$

where  $U_t$  and  $R_t$  denote the size at time t of the urban and the rural populations, respectively. The urban-rural ratio at time t is directly related to the percentage urban (PU<sub>t</sub>) because:

(2) 
$$PU_t = \frac{U_t}{(R_t + U_t)} = \frac{URR_t}{(1 + URR_t)}$$

Let  $_n rur_t$  denote the growth rate of the urban-rural ratio between times t and t+n:

$$(3)_n rur_t = \frac{1}{n} \times ln\left(\frac{URR_{t+n}}{URR_t}\right) = nr_t - nu_t$$

where  $_nu_t$  denotes the growth rate of the urban population between times *t* and *t*+*n*, and  $_nr_t$  is the growth rate of the rural population over the same interval. That is, the growth rate of the urban-rural ratio is equivalent to the difference between the growth rates of the urban and the rural populations. Therefore,  $_nrur_t$  is known as the urban-rural growth difference and is the basis for the projection/extrapolation of the proportion urban in the United Nations or the CSA work. The method projects the most recently observed urban-rural growth difference by assuming that the proportion urban follows a logistic path that attains a maximum growth rate when the proportion urban reaches 50 per cent and whose asymptotic value is 100 per cent. Normally, a projection based on a simple logistic curve would imply that the urban-rural growth difference would remain constant over the projection period. Assuming a constant growth rate, if *T* is any time point after *t*, it follows that:

(4) 
$$URR_{T} = URR_{t} \times e^{(n^{rur}t \times (T-t))}$$

when T is any year after the latest intercensal period available which is (t, t+n). The use of equation (4) for interpolation and extrapolation purposes relies on an assumption that *rur* remains constant over time. Once an estimate of URR<sub>T</sub> is available, it can be converted to PU<sub>T</sub> with equation (2).

However, empirical evidence shows that the urban-rural growth difference declines as the proportion urban increases because the pool of potential rural-urban migrants decreases as a fraction of the urban population, while it increases as a fraction of the rural population. Consequently, a model for the evolution of the urban-rural growth difference was developed by UN so that it would evolve over the projection period, passing from the last observed value to a world norm consistent with historical experience. The norm is expressed in terms of a hypothetical urban-rural growth difference, denoted by *hrur*. For the 2014 revision, the hypothetical urban-rural growth difference, was obtained by regressing the urban-rural growth difference during any given time interval on the percentage urban at the mid-point of the corresponding time interval, for the 148 countries or areas with 2 million or more inhabitants in 2013. The resulting regression equation estimated on 1,068 observations (with 926 observations covering the period 1950-2013 and 142 observations for the period 1800-1949) is as follows:

$$(5)_n hur_t = 0.030588 - 0.020508 \times PU_{\left(t+\frac{n}{2}\right)}$$

where PU(t+n/2) is the proportion urban for the mid-point of the intercensal period between times t and t+n.

The projection of the proportion urban is based on the projection of the urban-rural growth differential. It is assumed that the most recently observed urban-rural growth difference in a given country converges to the hypothetical urban-rural growth difference, or world norm, over a period of 25 years. The projection is set to start at time  $t_0$ , the time at the most recently observed PU, and is carried forward until the year 2050.

The projection method has been modified slightly in two ways in 2014 revision. First, because the world norm is a decreasing function of the percentage urban, the convergence of the projected urban-rural growth differential to the world norm was not assumed exactly linear. Rather, the projected urban-rural growth difference, denoted by *rur*\*, was obtained recursively as follows:

$$(6)rur_{t+1}^* = rur_t^* + \left[\frac{hrur(PU_t) - rur_t^*}{(25 - (t - t_0))}\right] \quad for all \ t < t_0 + 25$$

This ensures that the projected rur\* approaches the world norm smoothly in consonance with the contemporary level of the percentage urban, and that at  $t = t_0+25$ , the projected *rur*\* attains the world norm evaluated at the corresponding level of urbanisation. Second, for  $t > t_0+25$ , rather than keeping *rur*\* constant at the level of the world norm, *rur*\* was set to track the *hrur* that corresponds to the projected level of PU. In other words,  $(7)rur_{t+1}^* = hrur(PU_t)$  for all  $t_0 + 25 \le t < \omega$ 

where  $\omega$  is the last year of the projection, 2050. Each projected value of URR<sub>t</sub> was then converted into a proportion urban PU<sub>t</sub> using equation (2). In order to derive the urban population at the national level, the proportion urban was multiplied by the total population of each country, obtained from the independent estimates and projections published in World Population Prospects: The 2012 Revision (United Nations, 2013).

### Addis Ababa population strongly underestimated in CSA projections

There is another problem using the UN method at regional scale in Ethiopia as CSA did, because the capital region (Addis Ababa) is already 100% urban in 2007. It explains why there is so little difference between the CSA low and high scenario for Addis Ababa (5,01 million inhabitants in 2037 in the Low scenario as compared to 5,14 million in the High scenario). Differences are only due to fertility hypothesis, which are not very different (Total Fertility Rate for AA is projected between 2.0 and 2.1 in 2037, respectively in the low and the high population scenario). It means that rural migrations to AA are the same in all CSA scenarios.

If we compared with WUP 2014 for AA, the population of Addis Ababa appears to be clearly under-evaluated in CSA projections. UN WUP 2014 used another method to project the population of the largest agglomerations in the world. The projection ends in 2030 and leads to a much higher population at that time: 5,9 million inhabitants for Addis Ababa in 2030 (as compared to 4,5 million in 2030 in CSA projections). The difference is quite important: +1,4 million inhabitants in 2030.

### Other caveats in CSA projection of urban population in Ethiopia

The urban population in 2037 is obtained by multiplying the total population in 2037 by the projected proportion of urban population. Surprisingly, CSA associated the fast urbanisation scenario with the high population scenario (i.e. the high fertility hypothesis) and the slow urbanisation hypothesis with the low population projection (i.e. the low fertility hypothesis). In CSA scenarios the less the urbanisation increases, the more the fertility declines, which is counterintuitive. Every single study shows that fertility declines as contraceptive use increases, education level increases and urbanisation increases.

### Total Population Projections for Ethiopia

The Consultants used the results of CSA projections at national scale, which lead to a population for Ethiopia in 2037 of :

- 127 million in the Low Population Scenario (Low Fertility scenario);
- 136 million in the Medium Population Scenario (Medium Fertility scenario);
- 142 million in the High Population Scenario (High Fertility scenario).

### Urban Proportion Projections for Ethiopia

Consultants develop three different urbanisation scenarios. First, we begin by the projection of Addis Ababa population, using different methods (WUP 2014 for Capital cities; The Law of Metropolization of Moriconi-Ebrard<sup>85</sup>) and information about the Master Plan for Addis Ababa and the surroundings areas. We also take into consideration, for the development of urbanisation, the impact of:

<sup>&</sup>lt;sup>85</sup>The Law of Metropolization of Moriconi-Ebrard<sup>85</sup>) and states that the size of a megapolis varies according to the total urban population, as follows:  $P_m = 6.55 * P_u 0.815$ ; where  $P_m$  represents the metropolitan population and  $P_u$  the urban population in cities over 10,000 inhabitants.

- The mega projects (e.g. Renaissance Dam etc.)
- The new large industrial Zones
- The fast evolving rail and road networks according three different scenarios
- The new factors / industries (e.g. the new sugar factories the potash mining) etc.
- The designated 7 Growth Poles
- The Government's desire to decentralize economic activity and administrative functions
- Major opportunities and constraints for the development of towns
- The development of urban areas from rural settlements
- And the uncertainty about the pace of the future economic development of Ethiopia

More details about the scenarios will be presented in the scenario report. The three scenarios can be summarized as follow:

- The Meshed scenario leads to an urban proportion of <u>31%</u> in 2037 (almost the CSA medium urbanisation scenario at national scale) and is associated with the high population scenario. In this scenario, 44.5 million Ethiopians live in urban areas in 2037, of which 5.8 in Addis Ababa
- The Corridor scenario leads to an urban proportion of <u>35%</u> in 2037 (almost the CSA fast urbanisation scenario at national scale) and is associated with the medium population scenario. In this scenario, around 48 million Ethiopians live in urban areas in 2037, of which 7.1 in Addis Ababa
- The Polycentric scenario leads to an urban proportion of <u>40%</u> in 2037 and is associated with the low population scenario. In this scenario, almost 51 million Ethiopians live in urban areas in 2037, of which 6.7 million in Addis Ababa

Given below are the projections of the urban population under the difference scenarios for selected towns, as calculated by the Consultant. Note that these are interim projections as calculated on the 15<sup>th</sup> of November 2014 and may change (the change will be reported in the forthcoming urban scenarios report)

	Meshed scenario	The Corridor scenario	The Polycentric
	leading to an urban	leading to an urban	scenario leading to an
	proportion of 31% in	proportion of 35% in	urban proportion of 40%
	2037	2037	in 2037
ADDIS ABABA CITY ADMINISTRATION	5,824,963	7,100,000	6,647,101
DIRE DAWA-URBAN	572,857	903,048	812,456
ADAMA TOWN	806,446	1,045,383	971,291
MEKELE TOWN SPECIAL ZONE	757,818	891,110	1,066,724
HAWASSA CITY ADMINISTRATION	713,457	852,966	817,351
BAHIR DAR TOWN	771,524	894,887	1,040,678
JIMMA TOWN	380,809	478,057	594,784
HARARI-URBAN	219,586	234,233	290,925
KOMBOLCHA TOWN	283,364	427,759	382,332
WOLDIYA TOWN	270,112	375,059	348,393
AXUM TOWN	155,537	162,085	200,871
WELKITE TOWN	97,865	105,421	110,056

# **ANNEX D: Urban Development Policy**

Several policies applied by the Federal government directly affect urban development:

- Urban development policy defines the framework for urban good governance
- Urban green infrastructure is designed to address adverse climate change effects. Mitigation and adaptation measures are proposed for reducing GHS emissions.
- Small town policy is the framework for structure plans, which guide the development of small towns. Specific measures are proposed to strengthen urban rural linkages
- Urban land development and management policy is a crucial tool for managing urban development.
- Micro and Small enterprises development strategy identifies measures to be undertaken in order to support economic development
- Construction industry development policy is defining potential to face the huge urban development the country is facing.

Integrated urban infrastructure provision including, for example, urban solid waste handling and disposal strategy, are defining the framework for the provision of urban infrastructure and services.

Urban development in Ethiopia is facing several challenges:

- Rapid urban population growth
- Weakness of urban services (health, education, culture, security) due to inadequate financial and human resources available to local administrating bodies
- Low quality of urban infrastructures (water supply, sewage, paved roads, drainage, solid waste, telecommunication, energy) except in few cities
- Shortage of housing due to dysfunctional housing and land markets and the lack of public/private investment in the sector
- Development of illegal housing in the outskirts
- Degradation of old housing in the city centres
- Shortage of recreation centres, greenery, parks etc.
- Increase of air, soil and water pollutions
- Lack of autonomy and good governance
- High turnover of the city managers
- Weak links between cities and their hinterlands
- Unbalanced development with a large primacy of Addis Ababa, large revenue differences between large cities compared to small cities

Many cities struggle to provide urban services for their citizen and investors, and act as effective regional centres for the surrounding rural area. Assistance is required as is a more comprehensive policy and strategy concerning the way in which urban infrastructure and services can be financed and provided.

The MUDHCo is responsible for urban development and the policy framework can be developed in order to promote decentralised and balanced urbanisation, and strengthen urban-to-rural- and urban-to-urban linkages. The objective is to enable cities become centres of development and has several components:

- Rural and urban development linkages are crucial for both rural and urban areas and in order to promote a modern industrial economy. The services found and sustained in urban settlements 'unlock' development in both the rural and industrial sectors - they facilitate the introduction of modern and professional management process and organisational forms and they allow a focus on value-addition and value capture. Cities are commercial, services and industrial centres serving both urban and rural areas.
- **Industrial development strategy** makes major cities centres of industry and enables even small cities to utilize the local agricultural production and surplus labour of their locality and become agricultural-industry centres.

**U**rban policy is one aspect of the Government's development policy. GTP I defines the objectives for the development of the sector:

- Industrial development: Micro and small scale enterprises development programme aims to increase employment opportunities and expand their role in poverty reduction programmes. It is based on job opportunity created for unemployed citizens, training of trainers, training conducted to operators, land serviced and shades built for operators
- Construction and urban development
  - Integrated housing development programme
    - increasing job creation and reduce housing problem through implementing integrated housing development program: strengthening building low cost houses; implementing programs to build the capacity of construction design
  - Urban infrastructure development program
    - Ensuring provision of quality urban infrastructure services through implementing urban infrastructure: improving urban main and feeder roads; improving in urban sanitary services; expansion of industry zones and market infrastructure
  - o Construction industry
    - Creating a conductive environment for the development of construction sector through the promotion of increasing competition and by improving the supply of construction materials, strengthening human resources and improving the working environment in the sector

### - Democracy and Good governance

- o Urban capacity building
  - Enhancing capacity of regional urban and city administration's officials through implementing urban good governance packages: ensuring effective working system and implementations
- o Land development and management program
  - Land and land related information system database

- Implemented urban land administration system and improving land service
- o Improving urban planning and implementation
- o Building capacity of executives and top managements in urban administration

The MUDHCo has produced an urban policy framework consisting of 12 Pillars:

- 1. Urban development strategy
- 2. Small town development strategy
- 3. Micro and small enterprises development strategy
- 4. Construction industry development policy
- 5. Urban Plan preparation and implementation strategy
- 6. Urban Land development and management policy and strategy
- 7. Integrated urban infrastructure provision strategy
- 8. Climate change resilient urban green infrastructure
- 9. Urban solid waste handling and disposal strategy
- 10. Urban Housing provision strategic framework
- 11. Urban developmental good governance building framework
- 12. Developmental communication

These 12 pillars are covering the four main fields of urban development:

- Economic development (SMEs, Construction)
- Land management and urban planning (including small towns development strategy)
- Urban services, Infrastructures and Housing provision
- Governance and communication

### Urban development strategy

The Urban development strategy is the umbrella for many other policies and strategies that are the remit of the MUDHCo. It is based on (a) an integrated approach ro urban and rural development designed to encourage sustainable and steady growth, and (b) a participatory approach in favor of the citizens. The development strategy looks for linkages between urban and rural development, a close interaction between urban development and industrialisation, a balanced development between cities, a decentralised urbanisation reducing the primacy of Addis Ababa, a reduction of poverty in urban centers, public participation, partnership with investors, and a decentralized administration.

The support from the government is important to provide the framework necessary for the economic development of both cities and rural areas. SMEs are keys for the development and to create jobs. The government gives priority to support the SMEs in order to increase income, reduce poverty by creating jobs and to broaden the sector's development by creating broad-based development al investors in urban areas. The support consists on facilitating access to markets (Federal MSE Development Agency), work place (construction of shades and industrial zones), credits, technology, machinery and technic and vocational education training (TVET). The SMEs are supposed to develop collaboration between agriculture and medium and high industry sectors.

The land policy is crucial to prepare urbanisation for industry, residential, social and economic services, trade organisations, recreation. Land management is based on urban planning to

well allocate land regarding the needs, the opportunities for development and physical constraints.

Housing development with good standards helps to reduce dilapidation of land consuming and extension of illegal settlements, facilitate investment for job creation. The housing policy is centered on expanding low-cost housing (see Chapter on Demography and Housing). A strong new housing construction is implemented in large and medium size cities with some recent adjustment to deal better with the real capacities of the population. Property compensation is done when demolition or relocation are necessary (sub standards constructions, urban renewal). Rehabilitation of existing urban areas is also considered.

But most of the housing development will be implemented by the private sector and the government is supporting private investors by providing suitable land and infrastructures, trained manpower for construction and design, guaranteeing property rights and develop communication platform solving problems. The big gap between the housing production of the private sector and the need of the population cannot be solved by low-cost public housing. Other solutions that accept urban planning at large scale for sub standards housing built by dwellers and SMEs will be for a long term the way to encourage urbanisation at reasonable costs for the government.

Infrastructure and public services are vital for urban development. Priority is accorded to water supply, then roads, communication (telephone), energy (electricity), transportation. The priority will go first to the largest cities regarding their importance. Social (education) and health services are implemented by the public and the private sector is also encouraged to develop educational and health services. It represents heavy costs that are the condition for the urban development. The policy and strategy on urban services and on infrastructures define the challenges, principles and objectives, but doesn't fix the tools necessary for the management of the different urban services and infrastructure. These management tools are the most important for the implementation of projects: finance, governance, control, monitoring.

City grading has been recently reconsidered by the MUDHCo. It is useful to allocate budget to kebeles and to support rationally the urban development. It is based on the size of their population regarding urban services to be provided, their role as political, historical and cultural centers regarding the status and identity, their potential to be development, service, industry centers and commercial hubs in their surrounding area. After weighing each criterion the MUDHCo categorizes cities (see Chapter on Institutions and Finance) and fix Urban Growth poles. Regional governments will categorize regional cities and medium cities and small towns. The emergent new towns and rural centers are followed up to prepare their development. City grading can create differences between the real development and needs and the status. It needs to be reconsidered frequently in the present and future period of very fast urbanisation.

Urban plans are based on physical constraints, development potential and policies. Several guidelines have been developed in different fields (tourism, infrastructures, urban services, urban standards...) to prepare integrated urban planning at different scales (Structure plans, neighborhood development plans). Lack of National urban Development Scheme and Regional Development Schemes didn't provide the necessary orientation for physical development and strategies for the local plans. The present study will provide the National framework, to be completed at the regional and sub-regional scales.

To address possible adverse climate change impacts the Climate change resilient urban green infrastructure strategy has been prepared. The Government also wishes to develop and protect green areas by promoting public and stakeholder participation, to increase the contribution of green infrastructure to urban beautiful scenery, to resolve the poor implementation capacity in the sector and to create a suitable living condition to residents. It deals with green parks, and green fields, green belts, water shed management, urban agriculture, lakes and riversides, plazas. This strategy tackling with mitigation and adaptation is taking into account private condominium open spaces, institutions, cemeteries, green roofing and walls.

This endeavor is comprehensive but facing lack of human resources to be implemented. The energy policy is turned towards renewable energies, mainly hydropower. Regarding urban issues, the control on GHS emissions of industry and building and on transportation are presently weak and needs new standards and control capacities. The green areas have to be systematically integrated in the NDPs and Structure plan and implemented. The flooding prone areas have to be protected against urbanisation.

Democracy and good governance is also important to encourage people to be involved in their city. Good governance means transparency in the decisions, accountability in the management and on projects, public participation and good coordination between the different administration levels and services. A key concern is the stabilization of decision makers in the cities to support projects and development. Projects and development takes times and need to be supported by key actors with real decision capacity. At the same, good quality of management and urban services is possible with high level skilled people.

### New approaches

These policies and strategies could be augmented and improved by considering the following:

- A sub regional approach to facilitate coordination between local bodies to develop a common vision and coordinate projects and urban management. Urban sprawl often covers many kebeles and some agglomerations are already crossing several local administrations. Metropolitan areas are covering areas larger than agglomerations. The rapid urbanisation over the next decades will amplify the process of metropolisation and necessitate increasing cooperation between local bodies. Local cooperation will become a crucial challenge for spatial, economic and social developments.
- Vertical coordination between local, zonal, regions and federal administration is a key to support development. To plan, invest and operate urban services budget allocations need to be coordinated. The subsidiarity principle can guide the sharing of competencies between the different level of the administration in order to place the urban services and development close to the citizens through their local elected members.
- An integrated approach to facilitate ccoordination between the different depertments responsible for the provision of various urban infrastructures service. The coordination between the different sectors (roads, sewage, drainage, water supply, telecommunication, health, education, culture and security) is necessary to support urbanisation, limit implementation costs and provide services to the population and

human activities. The present study will define urban policies to facilitate the implementation of an integrated urban development that will be social, economic, environment and inter sector.

- A medium and long term approach is also necessary to cope with the expected rapid urbanisation. Urban development takes times; planning financing and building infrastructure and services can take years. Planning for future is the way to avoid lack of housing and urban services deficits. The present study is preparing scenarios to develop arguments to fix the national urban development scheme for the next 20 years and define policies to manage the new challenges facing the country.

MoUDHC PILLARS/APPROACHES	Local Cooperations	Vertical Coordination	Integrations	Vision
Urban development strategy	City clusters	Urban growth poles	Balanced development	National urban Develomment Scheme
Governance	Local/local	Subsidiarity	Public management	Local global authority
Housing	Small and medium contractors	Federal and regional support	Social mix, affordability	Large production
SMEs	Local support to SMEs, industrial areas	Federal and regional support	economic clusters	Structural economic change
Small towns	Urban/rural	Federal and regional support	urban/rural	Emerging towns
Resilience and green infrastructure	Landscaping and risk management	Crisis and control	Reducing vulnerability	Climate change
Land management	Land titling, public realm	Land preservation	Land availability	Urban expansion preparation
Urban planning	Sub regional plans, Structure plans, NDPs	NUDS and RUDS	Functional mix	Urban densification and extensions
Construction sector	Planning, programming and control	Loans, subsidies and control	Resource management	Strengthening sector
Integrated urban infrastructures	Planning, programming and invest	Monitoring and control	Inter sector	New operating tools
Solid waste	Co Investment, operation and monitoring	Monitoring and control	Inter sector	Resource management
Communication	Cooperation local/local	Inter sector/level coordination	Collaborative	Openess, transparent, accountability

Crossing these approaches to the 12 pillars provides guidance for the future:

Source: Egis International, IAU IDF, Urbalyon

**Local cooperation** is often focused at the sub regional scale as is clearly required as city clusters evolve and expand. Furthermore, for emergent small towns and the rural areas to benefit for the support of cities and urban growth poles cross administrative boundary co-operation is vital.

**Vertical coordination** will support local bodies at different level by providing the conditions for development through the implementation of large infrastructure projects (e.g., rail, airport, roads, telecommunication investments) and large facilities (universities, stadium, conference hall, fair, general hospitals, large cultural centers). Federal and regional governments will provide support to local bodies through for example subsidies for social housing, and credit system for contractors and households.

The **Integration approach** is the core to the government policy, and required in order to promote more balanced development, and a collaborative and participative process in decision and management of the urban sphere. Inter sector co-ordination is needed in order to provide urban investments in a cost-effective and efficeent manner and to promote good management within and bwtween different urban service departments.

The **medium and long term vision** fixes targets for the future with the National Urban Development Scheme, the change in the economic structure, the big challenge of the climate change, the necessity to create specific tools the coordinate sectors under the umbrella of public local bodies, the huge scale of production for housing, jobs, utilities and amenities.

This guidance will be used for the scenario preparation as a framework for the policies to be developed for the next decades.

# ANNEX E: Urban Typologies and Functions in Ethiopia

Cities and town have different shapes due to varying local conditions, different functions and history of development. As a result different shapes of urban settlements appear; for example:



Asosa, Begi and Arba Minch: urbanisation in a rich agriculture area (below)

Dire Dawa, Adama, Harar: large cities with historical core (below)



Sodo, Shambu and Nekemt: a mix of planned urban areas and informal settlements (below)



Source: Google map 2013

# Different types of urban typologies in Ethiopia

Different types of urbanisation can be observed in Ethiopia. These different patterns are designing the urban areas with different configurations.

### 1. Historical planned areas

Examples include Dire Dawa near the railway station, Adama near the railway station, and Addis Ababa city core. Currently such areas are the attention of numerous investors; several blocks have been destroyed in Dire Dawa involving the replacement of old buildings and urban design patterns with new urban projects. In Addis Ababa, some parts have already destroyed and the city is losing a part of its old identity.

# 2. Historical heritage areas

Some historical urban areas are protected in Harar, Axum, Gondar or Lalibela, primarily because of their historic monuments, but also because of their attractive urban fabric. These places are unique in Eastern Africa. The protection of these areas and the upgrading of their public spaces and monuments are important.

### 3. Historical decayed areas

Most of the ancient city centres were built in the last century and the beginning of the 20<sup>th</sup> century. Considerable efforts were undertaken to upgrade the public spaces and provide urban services, but the low rentals obtained meant that there was not the financial resources required to maintain the housing units at good standards. Today, most of these areas are in very bad condition. But there is a lot of pressure on these places from private investors and public policies (Addis Ababa propose to at minimum triple the densities in these areas) to remove this habitat to be replaced by dense condominiums, both public or private, and by business and commercial activities. These areas are considered as location to be transforming in a radical manner to reshape city centres in a denser a modern shape. The process is already in progress in the main larger cities.

# 4. Urban densification along main roads

Densification is occurring along the main roads in medium and large cities. We can observe the location of multi-storey commercial buildings, mainly banks and hotels, along the most accessible areas in medium and large cities. Furthermore, planners are applying the principles of the compact city to reduce urban extension, reshape cities and limit costs of providing and maintaining utilities and amenities. Densification is part of the urban planning principles and it is implemented preferably along the main roads and public transport systems using Transit Oriented Development principles.

### 5. Scattered densification in city centres

The increasing attractiveness of city centres is encouraging investment and often land and real estate speculation. There are, however, presently few large-scale urban development projects in Ethiopian cities outside of Addis Ababa, partly because of the underdeveloped nature of the real statement investment business beyond the capital. Therefore, urban densification in the city centre is often driven by development plans prepared by planners and urban densification generally occurs plot by plot. The result is a rather haphazard form of development taking place in a scattered manner.

# 6. Planned private villa plot layouts

Private investors mainly concern themselves with the production of high-class villa plot layout. Organized like gated communities with walls and barriers for security reasons there are different products in the long range. Old villas where only one or two story buildings, to accommodate one household. New villas are bigger, two to 4 storeys, to accommodate two to four households, following an Arabic Gulf pattern observed from Saudi Arabia to Morocco in rich villa neighbourhoods. These kings of neighbourhoods are creating enclaves in the city. Some of them are more autonomous with their own amenities but generally, it is only villas and streets. The question of the maintenance of the utilities, public spaces in this plot layout need to be clarified.

# 7. New planned private large condominium and mix urban projects

There are emerging new large urban projects from local and foreign (Chinese in Addis) investors. These projects are prepared by private initiative. Also, public authorities are encouraging large-scale development projects to attract investors and reshape their city centres. For example, Addis Ababa is preparing an international competition on a very large area around the railway station to give visibility and attract investors in a very ambitious transforming project for the city centre of the capital city.

# 8. Planned public condominiums

Planned condominiums have been implemented through the housing policy of the MUPHC ministry. This policy has been revised to take into account the behaviour and financial capacities of future residents. The financial re-engineering has been a success, but the main challenge is to produce new urban designs that meet the needs and requirements of prospective residents.

Much of existing production of public condominiums has been implemented in Addis Ababa; mostly in the suburbs but also on a smaller scale in the city centre. In fact, it is easier to implement new projects on empty land in the suburbs than to remove people from the city centre. The design used for condominiums in the suburbs is well planned with many open spaces but they are costly to maintain. Furthermore, there is little variety in the housing unit designs, with very high densities (due to the very small size of the housing units).

The result is well-planned areas with enough density to make scale economy on public transportation and social amenities and utilities, but with ambiguity on the use and the social status of the open spaces in the housing plots. The location of these housing units far from the job providing areas are creating difficulties for families due to the transportation costs.

In secondary city, large and medium scale, the results was not a success. The population, more rural in its origin, was less interested to live in collective building in area competing with low land price in large extend. This population is also less financial capable to be involved in the process to have access to these public condominiums. New products are in preparation to be more in line with the real estate market. The challenge to produce more dense neighbourhoods in secondary cities could be supported by this policy, but for the moment, the process is not clarified.

# 9. Illegal planned settlements in peri urban areas

Most of the urban development today is produced by illegal plot division of agricultural land. It is well documented by several researchers that farmers in the periurban areas, where there is a strong demand for affordable housing, are dividing plots and sell the occupancy rights to new settlers who subsequently built their dwelling. Agricultural areas should not be built on it this way according to urban planning regulation. Farmers do not want to be relocated by public authorities with low financial compensations before changing the structure plans to make possible the formal development. So there is anticipation from the farmers. This illegal development is gathering mainly new comers from the decayed city centres (first access to the city) and few local farmers. The plot division is generally designed is a rational manner, with streets and plot divisions, but without location for amenities and for future large development.

Ethiopia looks different from other African countries because most parts of the cities are quite well designed in the aerial photos despite of the low quality of the buildings. The existing land division of the agricultural areas is shaping the design of the future urban development in the peri urban areas. Then the urban shape is taking naturally into account the existing topography. But when developed in a large extend, these areas are difficult to manage, for example to implement mass transit transportation (BRT, Light rail...).

# 10. Scattered informal settlements in peri urban areas

Scattered informal settlements also exist in peri urban areas. They often take the shapes of the densification of the existing rural pattern (more houses in farm plots), or by extension plot by plot of existing local communities. This is the least manageable pattern for the future development of the city, but creating the most original pattern of urban design. On the long range, it is more likely the design of old medinas from the middle age with a lot of charm.

# 11. Scattered industries

Many industries are located around urban areas in a somewhat scattered manner. This is so as the ability to secure land occupancy rights can be hap-hazard and an investor must take the opportunity to secure land when and where it arises. Most investors are looking for low priced land in city suburbs, but this can create problems, notably the rise of mixed and incompatible uses (e.g. residential areas adjacent to polluting industries). It is, however, difficult to remove economic activities without threatening jobs and industrial production. The capacity of city administration to define a land use area and impose standards should be strengthened in order to avoid the increasing instances of incompatible adjacent land uses.

# 12. Planned industrial areas

New planned industrial areas have been implemented in order to attract investments and change the economic structure of the country as required by GTP. Large industrial areas are planned in the suburbs of Addis Ababa, Mojo, Adama, Kombolcha, Dire Dawa and Hawassa. Well connected with the railway and the Highway, using the concept of the Economic development corridor, these industrial areas will create large number of jobs and trigger the urban development of these cities. To provide industrial areas is the better way to limit negative impact of urban development that is needed at the proximity (job market, housing for workers, support services for industries...) and on the environment: solid waste and waste

water treatment plant, easy access to control pollution, well organized goods transportation to avoid traffic jams...

# 13. Market centres and emerging new towns in rural areas

The market implementation policy of the ministry of Commerce, supported by the ministry of Agriculture and the ministry of Transportation and Telecommunication can create the necessary nodes useful to organize services for the rural areas. During the last inter census period (1994-2007), each year 10 to 20 new towns were emerging regarding the official definition of cities (more than 2,0000 inhabitants, mainly not agriculture jobs). It is a threshold effect due to a criterion, but the region and the Federal government are looking with attention on these new small towns to prepare urban plans in order to manage their urban extension. In fact, they will be the main support to structure the urban scheme at the local level.

The shape of these new towns is organized around a market with open spaces for temporary shopkeepers and permanent shops around it. Some administration and commercial services are implemented in the building around the market place like a Bank and a Post office to make possible financial transfer. Other social amenities are also located at proximity using the agglomeration effect to provide services to the population.

# 14. Extension of small towns

Small town are expanding horizontally and growing vertically. The internal city is changing by removing old buildings and through the construction of more densely packed buildings and the introduction of more diverse commercial activities. The suburbs are extending along the main roads. At the same time, new facilities and utilities are being provided in order to cater to the increasing needs of the population. The resident population is participating in the upgrading process often through the provision of labour for minor infrastructure works. Commercial activities are growing with the expansion of local and regional markets. Unfortunately, much of the urban expansion is illegally (informal settlement expansion).

### 15. Agglomerations

Agglomerations are expanding in Ethiopia. The Schmids and Kedir study on agglomeration index made in 2009 provides interesting figures on the agglomeration expansion (see Figure below). An analysis made on Addis Ababa to Hawassa region shows the effect on urbanisation to the emergence of large agglomerations. In 1984, Addis Ababa and other larger cities were primarily confined to its city administrative boundaries. There were only a few cities with greater than 50,000 people. Limited road networks and more dispersed population characterized the demographic landscape.

By 1994, Ethiopia's cities grew, and the country's transportation network expanded. Urban corridors formed between Addis Ababa and Adama. Shashamene and Hawassa also formed an urban network between Oromia and SNNP regions. Jimma urbanisation is also expanding along key road networks. By 2007, urban linkages were clearly visible throughout Oromia, SNNP, and Amhara regions. Addis Ababa expanded to connect Sebeta and Bishoftu, and Asela in the South. Addis Ababa also connected to Ambo in the west, and Debre Berhan in the east. Jimma had grown into a south-western hub with opportunities to link with Nekemt to the north.



Urban sprawl is creating urban corridors that expand along the main roads and connecting town to town to make an urban continuum. It is remarkable in the Southern Rift valley, one of the most populated areas in Ethiopia.

### Urban Densities

To better understanding on the urbanisation process in Ethiopia the Consultant prepared several analyses on densities. The first one was an analysis of a sample of 23 urban agglomerations from different size regarding their population in 2012 and their urban extensions.

There is no obvious relationship between the population size and the density. There is a difference with emerging town like Semera less than 30 inhabitants per hectare and small towns like Itang with about 300 inhabitants per hectare. Most of the cities have densities around **100 inhabitants per hectare**, which is relatively dense.

A comparative analysis was also made between 2007 and 2012. The result is a densification of these cities from an average of 74 to one of 102 inhabitants per hectare. This result, however, is not representative of the whole country because the sample covers only 4% of the existing cities. Investigation on the delimitation of agglomerations when towns are expanding in very dense rural areas: would be interesting.

Town	Urban Population 2012 (CSA forecasts)	Urban density 2007	Urban density 2012	Density increase 2007/2012
Gorgora	2 019	52	82	+158%
Semera	3 369	8	27	+346%
Seraba	3 330	21	94	+442%
Begi	6 341	34	59	+173%
Itang	8 952	135	294	+217%
Dembecha	15 696	50	87	+175%
Logia	19 344	84	115	+138%
Maychew	29 396	66	140	+213%
Asosa	36 976	47	68	+145%
Debark	24 566	95	118	+124%
Sebeta	60 834	49	44	+91%
Debre Tabor	54 411	109	112	+103%
Dilla	79 319	83	139	+167%
Sodo	96 015	74	105	+142%
Arba Minch	105 328	74	136	+182%
Harar	102 739	98	106	+108%
Bishoftu	118 509	42	101	+238%
Shashemene	114 907	60	118	+196%
Hawassa	210 990	90	104	+116%
Bahir Dar	167 755	83	86	+103%
Adama	270 487	65	103	+159%
Mekelle	222 273	99	100	+101%
Dire Dawa	236 051	102	134	+132%
Total		74	102	+134%

Urban agglomeration densiti	es
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Source: CSA 2012 forecasts, Google map 2012 and Consultant's own calculations

The present process of urbanisation indicates a very fast densification of cities. This is due to the following reasons. For cities in very small kebele areas that are almost completely urbanised, the urban extension is out of the kebele and the change is normally happening by densification of the existing urban areas. In some towns the densification is very quick. Cities are becoming denser in Ethiopia. This densification process is enabled by urban planning, but it is also due to the very quick urbanisation process observed in the last few years. Indeed, the concentration of population is often due to the lack of planning and the inadequate provision of services to accommodate new comers.

Ethiopia is facing a specific period of its development that triggers densification. Unfortunately this process is associated with the creation of 'low standard urban areas' due to the lack of investments in infrastructure and services. The urbanisation process seems too fast for the present capacities of local administration and public agencies. The main challenge will be to develop new financial and operational tools to address the very quick current urban changes.

### Different densities inside cities

Cities are made with different component as describe above. We can consider that cities are mostly organized on 4 main components for densities:

- 1. Dense core city centre
- 2. Peri central area
- 3. Specific condominium areas
- 4. Scattered and informal suburbs

To catch these differences some density analysis were done in some sample cities

	City core	В	С	Suburbs
Axum	124	112	87	62
Harar	132	119	79	53
Hawassa	102	92	61	31
Mekelle	130	104	78	65
Kombolcha	106	85	74	53
Wolkitie	123	111	74	37
Woldiya	203	142	122	61
Adama	115	92	69	46

Source: CSA 2007, Google maps and Consultant's own calculation

All the large cities have a more common profile with dense city cores between 100 to 200 inhabitants per hectare, pericentral area with similar but lower densities (10% less), and other crown 30 to 40% less than the city centre and the suburbs between 30% to 50% of the city core.

### Present Urban functions

The urban centres of Ethiopia play very important roles in the country's socio-economic development. Urban areas are dynamic engines of growth centres for innovation and entrepreneurship, and sources of highly developed social services. In general the urban centres have the following main roles. They:

- are synergies for economic growth
- provide social services to surrounding rural areas
- serve as centres of innovations
- serve as markets for surplus agricultural products
- provide social services to surrounding rural areas
- provide job opportunity to the rural immigrants
- create favourable condition for cultural development

**Tourist towns and sites of historic preservation:** Virtually any town could be of interest to foreign as well as domestic tourists. Some towns, however, have peculiar qualities that enable them to stand out as spots frequented by tourists. The following towns, because of their natural and historical importance serve as centres of tourist attraction and historic preservation and hence deserve special attention:.

• Axum; According to census data, it has a high concentration of surplus workers in production and related activities. It also had many construction workers at the time when the census was conducted. However, the fact remains that it is a town of

unparalleled historical and archaeological treasures both as an ancient seat of kings and as the earliest abode of the leaders of the Ethiopian Orthodox Church.

- **Bahir Dar,** which is currently the capital city of the Amhara National Regional State is also one of Ethiopia's leading centres of manufacturing. Added to this is its unique location on the shore of Lake Tana, the largest lake in Ethiopia and the source of the Abay or Blue Nile. Due to this unique location Bahr Dar is the gateway to the famous ancient monasteries on the islands in Lake Tana and to the famous Tis Isat Falls on Abay River.
- Lalibela (Roha) is a small town in the mountain of Lasta, North Wello. However, it a historical town of great tourist attraction because of its highly prized rock-hewn churches.
- **Gondar** is one of the ten largest towns of Ethiopia excluding Addis Ababa. Functionally it is an important centre of manufacturing and higher learning. However, it is also well known and frequented by tourists due to its rich historical castle of King Fasiledess, several other historical palace and other old buildings and castle of King Fasiledess, several other historical buildings and its famous church paintings. Gondar is also the gateway to the famous Semen Mountains National Park.
- **Harar** is presently serving mainly as a centre of public administration and education, health and social services. On top of this however, it has unique qualities for tourist attraction in that it is the only standing walled city in the country and also home to ancient Islamic civilization.
- Arba Minch had a relatively high proportion of surplus workers in manufacturing, public administration and social services in 1994. However, it remains to be a very important centre of tourist attraction due in part to its strategic location as a gateway to the Rift Valley lakes such as Abaya and Chamo and to the Nech Sar, Omo and Mago national parks and game reserves. It also serves as a gateway to Southern Omo, an area that attracts not only tourists but also international and domestic researchers that are interested in studying its myriad of ethnic minorities that have managed to preserve their ancient cultures.
- **Goba and Robe.** These twin towns, which are presently about 14 kilometres apart, are the main gate way to the Bale Mountains National Park and to the famous Sof Omar caves.

**The National Capital.** Addis Ababa has unique qualities both as a capital of the nation and as a primate city. It is also the seat of many international and regional organisations such as UNECA, AU, ILO, and embassies of many countries. Many Africans consider Addis Ababa as the diplomatic capital of Africa. It is also the main port of entry into the country. To maintain this image, the city needs a special attention.

**Regional capitals:** These are seats of different national regional governments and as such, they need special attention. These are: Mekelle, Bahir Dar, Asosa, Gambela, Hawassa, Dire Dawa, Harari, Jijiga and Semera.

**Frontier towns**: There are many such towns, and virtually all of them need special attention due to their indisputable strategic locations and because they are functioning mainly informally as secondary ports of entry into the country. Therefore, it is important to capitalize

the locational advantage of towns of this nature, such as Moyale, Metema, Humera, Kurmuk, Jikao, Dolo, Zala Ambssa, Dewele and Aysha, as a land locked country.

**Mining towns.** One of the untapped and growing sectors of the economy is mining. It is quite possible for new mining towns to emerge in the future like the current fertilizer complexes in Yubdo, in view of the potential of the country. The existing nodes of interest in this regard are Shakiso and Yubdo.

**Main break of bulk points**: Virtually all urban centres serve as nodes. However, some of them need special attention either they serve as dry ports or simply due to the volume of both passenger and freight transport they could handle. So far it is the road mode of transport that largely handles both passenger and freight mobility in the country, with meaningful contribution of Ethio-Djbouty railway in the past. But this pattern of economic movement will be significantly influenced by newly introduced rail network in all corners of the country that will be operational in the near future in five phases (COWI, 2008). And this will have significant structural influence in shaping the urban system of the country, which requires special attention in this study. In this regard, stations (node) in the existing rail corridor and road network such as Adama (Nazareth), Dire Dawa, Shashemene, Modjo, Dejen, Kombolcha, Ziway, Woldia, Enda Selassie , Fiche and Derewonaj, and the proposed ones in the national railway network need special attention

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