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Rome, Italy 6–10 May

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Infrastructural services (water supply and sewerage systems):
Problems and options for the provision and financing of it in
Ethiopian cities(A case study on Bahir Dar city)

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Chapter One: Introduction

1.0.Overview

- World over there is an increase in the growth rate of urbanization.
- world urban population is expected nearly to double by 2050 (World urbanization Prospects: The 2007 Revision).
- Urban population growth, particularly in the developing world, has not been matched with investment in the requisite infrastructure and services. Investments in new infrastructure always lag behind demand.

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1.1. Background

- Ethiopia is still one of the poorest countries in Africa with a per capita gross national income of less than one-fourth of the average of all sub-Saharan countries, and 80 percent of the population live on less than US \$1 per day (Munoz and Cho, 2003).
- Ethiopia's population was estimated in 2007 at 81.2 million and is projected to reach 170.2 million in 2050.
- Ethiopia's urban growth rate of 4.5% is not the highest in Africa, but it is much higher than the 3.2 % average for the continent, and the same as the average for least developed countries. MUAD, 2008

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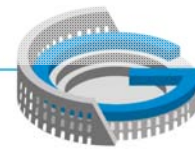


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1.3. Statement of the problem

- In Ethiopia, a number of urban settlements are not adequately supplied with requisite infrastructure and services (MUAD, 2008), leads to exposition of urban populations to health risks, limiting productivity through service cuts, increase in household and investor costs through property damage and increasing production costs through congestion, accidents and traffic jams.
- The main problem affecting infrastructure provision in Ethiopia is that the government, which is the main funder of infrastructure projects, is faced with series budgetary constraints (Nyarirangwe et al.2007)

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- In the Ethiopian urban development policy document, intervention strategies that make urban infrastructure sustainable and, cities and towns to function properly and become comfortable for the people to live there was not thoroughly documented and analysed.

Research questions

Who is responsible? How is the situation of water supply and sewerage services in the city; and how infrastructural services are provided and financed by the responsible organizations in the city? what are the problems and alternative solutions? Who are the actors?

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1.5.Objectives of the study

- The general objective -identify the problems and options with related to the provision and financing of infrastructure services.
- Specific objectives:
 - Assessing and evaluating the current responsibility and practice of the BDWSSS with respect to water supply and sewerage systems.
 - Assessing the current trends in connection with infrastructure (i.e. water supply and sewerage system) development in the city.
 - Identify and describe the main actors in the development of infrastructure services in the city.

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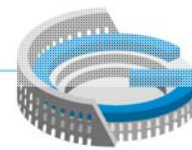




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1.5. Methodology of the study

- With regard to the methodology of the study, the paper has used different types of methods in order to meet its objectives.
 - Theoretical analysis
 - descriptive analysis
 - Some statistical techniques such as percentages, ratios

1.5.1. Data type and source

- The study has used both primary and secondary data
- To collect the primary data, the researcher has used questionnaires and Key Informants Interview(KII).

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- Questionnaires have been filled out by 150 sample respondents from the three groups in Bahir Dar city. These sample respondents are informal settlers, people who is living in the downtown and people who are living in the periphery.
- Secondary data -from different published and unpublished materials, books, reports, magazines, articles, journals, etc

1.5.2. Data organisations and analysis

- The collected data from the sample households has been presented using tables, figures and charts .The paper has employed both qualitative and quantitative methods to analyse the collected data. In addition, the paper has also used some simple statistical techniques such as percentages, ratios etc.

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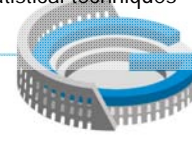




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Results and Discussion

4.2. Water Supply in Bahir Dar City

- Water supply in Bahir Dar city and its surrounding areas (rural kebele) are taken care of by the Bahir Dar Water Supply and Sewerage Service Office (BDWSS).
- Water supply in the city is from two types of sources namely, from springs and deep ground water. Now a days the city is getting 12946.16 meter cube water from the two springs and 3388.22 meter cube water from the deep ground water.
- Even though the sources now are better than the previous ones, their sustainability is really in question unless some improvements on the existing ones and new constructions are under taken- there is lack of water in the dry season and an increase in number of population in the city .

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- There are four storage reservoirs which are working now with the total capacity of 4500m³. In addition to these, there is one storage reservoir under construction with the capacity of 500 m³. So, when it starts to work there will be a total capacity of 5000m³ in the city.
- There are 16 water pumping motors in the city with different powers in kilo watt which ranges from 18 to 45 kilo Watt. The water lines are:
 - *Primary lines (transmission lines)* -26 km
 - *Secondary lines (distribution lines)* -80 km
 - *Tertiary lines (clients' lines)* -436km
- There is a problem of leakage due to old aged distributive lines .

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Number of customers and water supply coverage in the city

- up to May 2009, the total number of customers who have signed a contract with the office and utilizing the services are 17440.
- From these ,15774 constitutes household connections,1034 commercial connections, 505 government connection,75 industry connection and 52 public connections.
- From the sample house holds,94% of the informal settlements,58% of the periphery households and 14 % of the are not connected the BDWSSS water supply service.

Reasons-

- Informal settlers-no water supply service in the area
- Periphery and down town-financial problem because the distributive lines are very far from their houses

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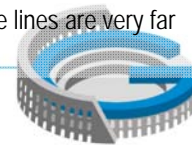


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- Two ways of getting water-public posts and buying from their neighbours



4.3. Water supply Approach

It is a top-down approach with no public participation

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3.3. Sewerage System in Bahir Dar City

- In Bahir Dar city, let alone having sewer lines, there are only about 5% of the households who have flush toilets with septic tanks. The majority of the households, i.e. around 67%, have access to pit latrines (Milda L., 2009).
- The city is using vacuum trucks for emptying the septic tanks. The problem in this case is that there are no any facilities for the treatment of the waste; and wastes are not disposed off in a proper way and area in the city.

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Financing of Water Supply and Sewerage System in the City

- According to the data from the BDWSS office, their way of financing is totally traditional.
- The major components of the sources of finance for BDWSS office are the following:
 - Water sales Revenue- takes the lion share of the source of revenue
 - Application Revenue
 - Estimation Revenue
 - Other incomes and donated incomes

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3.5. Actors

- The principal actors in the provision and financing of water supply and sewerage services in Bahir Dar include :
 - households,
 - Bahir Dar Water Supply and Sewerage service office ,
 - Amhara National Regional State Water Resource Development Bureau,
 - and Bahir Dar city Administration.

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Problems

- Backward infrastructure provision approach
- Restricted source of finance
- Loss of water
- Collection inefficiency of user charges
- Non-standardised land use planning
- Failed to properly apply the rules and regulations

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conclusions

- In the city from 45000 households, up to May 2009, only 15,774 households have formally connected to the BDWSSS office(i.e. direct services from the office).
- The result from the sample households also showed that, 94% of the informal settlers, 58% of the periphery households and 14% households in the down town are not connected to the system , due to lack water supply service and finance.
- Households who are not connected to the system are buying water from the public posts and from their neighbours with greater cost. In this sense, the existing system is not benefiting the urban poor, rather benefiting the richer ones.
- With regards to the sewerage system, there are no sewer lines in Bahir Dar city.

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- It is found that backward service provision approaches , limited sources of finance, loss of water due to old aged water lines and some other reasons, collection inefficiency of user charges, non-standardised land use planning and failing to apply its rules and regulations on customers are the problems in the financing and provisions of the services.

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Recommendations

- BDWSS office should get some permanent income from the city Administration or should change its status so as to increase the water production and renew the old aged water lines.
- The office should create some mechanisms by cooperating with others to supply water for the informal settlers, revise its service provision approach and create other alternative sources of finance such as loan financing, public-private partnerships, bond marketing, etc

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- The office should revise the water tariff; and also has to improve the users charge collection systems, for example instead of expecting the customers to take their bill in the office, providing the bills to their house.
- The office should follow international standards when constructing water lines and push other parties to do the same in the city so as to avoid damage of water lines by other service providers.
- Finally, the office should develop further rules and regulations which can improve their system, and should create awareness about the rules and regulations. In addition, the office should strictly apply the rules and regulations when somebody breaks them

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