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alternatives and spatial consequences**

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The city of Dar-es-Salaam is the largest area in Tanzania, with the largest population concentration, and most commercial and industrial activities. The city covers an area of approximately 1350 square kilometres. The population of the city is estimated at between 2.5 to 3 million and has a growth rate estimated between 7 to 10 percent. It constitutes about 30% of the country's urban population and is one of the fastest growing cities in sub-saharan Africa.

The city's infrastructure is not adequate for such a population and apart from this, there is also a crisis of city management. This is evidenced by the lack of all essential urban services—electricity, sanitation, telecommunications, and water supply. Faced with reduced public funding and incapacity of the administration to provide such services, these services are currently under reform due to pressure from the World Bank.

Part of the services are run by the private sector, where in most cases, foreign investors break into this market. At the same time the government involves new actors under the decentralisation programme. The civil society and non-governmental organisations participate more and more, at the neighbourhood level in urban management. Indeed, international organisations like the United Nations, have stopped financing projects within the town and

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prefer to be part of small projects, managed at the local level. As a result, local initiatives have increased within the urban areas.

There are now new social organisations in some neighbourhoods, with certain locations being autonomous from the city network. The focus of this presentation is not only the provision/availability of water resources but also the management of this daily need.

Lack of infrastructure and inadequate water service

The city of Dar-es-Salaam suffers from a lack of water infrastructure and an inadequate water service. The capacity of the system is not proportional to the increasing demand from the population and the industrial, commercial and institutional sector.

The water in Dar-es-Salaam city is provided by 3 major sources:

- MTONI the first treatment plant, in the south of the city was built in the middle of the 1950s (construction began in 1949). It was operational in 1952, providing water to 45000 inhabitants of Dar-es-Salaam with a maximum of capacity of 6.8 million litres per day and now 9 million.
- Due to the rapid growth, it was soon evident that Mtoni plant was too small and therefore Upper Ruvu plant was built in 1953 as a supplementary source. In 1959, it was put into operation. It had a storage of 82 million litres per day. The plant underwent several expansion phases.
- Furthermore, due to the problem of production, and the increase of both industries and population, the plant was not large enough to cater for the demand. This led to the construction of Lower Ruvu plant. It began operations in 1976. The plant is designed for a capacity of 182 millions litres per day.

The actual total capacity of the system is 274 million litres per day. This supply is supplemented by 18 million litres per day from about 200 wells drilled in the city. Most of these wells were drilled in 1997 after the water crisis during the dry season as an emergency supply. This brings the capacity to 290 million.

Table 1: Capacity of the system and growth of the population

| Date | System | Capacity (litres per day) | Total Capacity | Population (approximation) |
|------|------------|------------------------------|-------------------|-------------------------------|
| 1952 | Mtoni | 9 000 000 | 9 000 000 | 45 000 |
| 1959 | Upper Ruvu | 82 000 000 | 91 000 000 | 130 000 |
| 1976 | Lower Ruvu | 182 000 000 | 274 000 000 | 700 000 |
| 1997 | Boreholes | 18 000 000 | 292 000 000 | 3 000 000 |

Half of the water is lost through leakages, as well as illegal and un-coordinated connections. Due to poor management, lack of maintenance of and many improper connections, nearly 50 % of piped water is lost. The city's demand for water is about 400 million litres per day (Ministry of Water), of which domestic demand is 60 % and commercial demand is 10% (SDP). The actual amount that reaches the consumers is therefore 135 million litres per day, which implies a deficit of 270 million litres per day. The storage capacity is also insufficient.

The infrastructure is outdated, the piped distribution system is in poor condition due to age and poor management and financial constraints that have led to deteriorating service delivery. The water network exists on the main roads, but there are hardly any pipes within the neighbourhoods. Some places in the city do not get water, or if they do, it is just once or twice a week as the pressure is too low most of the time. The availability of water is only adequate in the city centre and a few other places like Upanga, Mikocheni, which are high revenue neighbourhoods. However, not all high-income neighbourhoods get water.

State withdrawal

The last major investment in the water sector in Dar-es-Salaam took place more than 20 years ago. As a result, the current parastatal society, the DAWASA (Dar-es-Salaam Water and Sanitation) faces an economic and management crisis. In February 1997, The Ministry of Water announced the dissolution of NUWA (the first parastatal society created in 1982) and the establishment of the DAWASA, which is responsible for the reticulated water system and the sanitation of Dar-es-Salaam.

This society does not have sufficient funds for the extension of the network. Due to the lack of cost recovery and the growth of the city, it cannot provide a good service. The billing system also needs to be renewed. The bills are based on approximations of the consumption. The city is divided into more than 270 pressure zones. In each zone the cost to the consumer is the same. As a result, some consumers are not ready to pay for a service they do not receive, or they do not want to pay the same amount as their neighbour who uses more water because there are more people in the household. This is why 30 to 40 % of the consumers do not pay their bill. Support from the ministry is also restricted due to the economic crisis.

Without adequate financial resources the society is unable to finance any new extensions of the networks. When citizens apply for connection, the society carries out a survey and estimates the cost. It is up to the citizens to find sufficient financial resources. Unable to provide such amounts, they require the support of foreign NGOs or donors. Due to its incompetence, and under the pressure from the World Bank, the society dealing with water supply is headed for privatisation. The distribution of water will be in the hands of a private operator. Community boreholes will supply the parts of the city that are not equipped. This process has already begun.

The current DAWASA and international donors' policy is to encourage the participation of the population and NGOs at the level of the neighbourhood. Community-based organisations (CBOs) and NGOs are not only integrated in the urban policy of the society but also in the ministry and the municipality. The approach of the United Nations clearly illustrates this change. Under its Sustainable Development Programme for Dar-es-Salaam, a water coordination commission was established in order to arrange the meeting between NGOs and citizens in need. The municipality will continue the work of the SDP. In this project, they will stimulate the intervention of the civil society and of the private sector. The new reform of the local administration tries to reinforce the municipality in the urban management.

The water supply will be in the hands of private operators for the network, and the community for managing the boreholes. The economic crisis and the structural adjustment programme explains this withdrawal of the State in the urban management and the service delivery.

The water network does not respond to the water demand, so how do people manage to get adequate water daily?

How people get water

Less than 30 % of the population receive their water directly from the utility. As the network does not reach most of the population, the inhabitants have to look for alternative means of getting water. This is done individually or through a collective organisation.

Individually

- *Connection to the city network*
Households with private water connections in Dar-es-Salaam represent 30% of all households. This means that less than a third of all households in Dar-es-Salaam have private water connections (one notable feature is that most of the households in the high income stratum have private water connection.). Most of the time it is a tap outside the house.
- *Purchasing water from vendors or neighbours*
Since DAWASA does not provide water to all citizens, small-scale independent providers of water have increased in the city of Dar-es-Salaam. The private commercial sector plays a major role in water distribution. Water from vendors supplies about 50 % of households.

There are several kinds of vendors within the city.

Vendors who have built a reservoir with a capacity of 5000 to 10000 litres in their plots. Most of the time they are near the main pipeline. They sell water; 10 or 20 Tsh (10Tsh = 1Ksh.) for 25 litres, to the population but their target clients are the vendors with handcarts who will provide water directly to the population.

Vendors with handcarts sell the 25 litres containers at 100 Tsh. This price can easily increase two or three times during water shortages. These vendors take the place of the network inside the neighbourhood. In the poor urban/squatter areas, cart pushers are the most common source of water services.

Truck tanker service. They sell water in the medium and high-income areas like Msasani. In most cases, water is purchased directly from DAWASA

at kiosks/standpoints manned by its employees or from an owner. They deliver 9 000 litres to the population, which they sell at about 40000 Tsh.

- *Water from private wells*
Middle and low income households use shallow wells. These can have a manual or power pump or just a simple hole. This water is not always safe; there are pollution problems (salinity, fecal pollution...), which lead to diseases which can be deadly.
- *Free water (usually unsafe water from the river or stagnant water)*
This concerns the poorest citizens who have the following options:
 - Surface water taken from springs, rivers, and sometimes rainfall runoff or water pools in swampy areas. The use of this source is prevalent in the low-income stratum (80 % of households use its source).

Most households have more than one source of water. Rainwater harvesting is also used to supplement water supply by most of the citizens. Households generally differentiate their water into two: one for their personal consumption (more safe) and another (less safe) for other uses.

To counter water cuts and low pressure, citizens have to stock water. High and middle-income earners can afford more storage capacity by construction of underground or overhead storage tanks. This leaves the low-income people more vulnerable to depletion of storage during prolonged dry periods. High and middle-income groups can also afford installation of pumps to overhead tanks during water low-pressure periods.

The methods used to get water on an individual basis depends on the income of the households, its physical situation *vis-à-vis* the networks or underground water, and the status of the household.

General responses

Since the beginning of the 1990' s, there have been more and more associations and Community-Based Organisations (CBOs) within the city. Some of these deal with the water problem.

Within the same period, international organisations (The World Bank, the United Nations and other donors) developed the concept of good governance.

The definition of good governance is given as "*a city management partnership between, municipality, the private sector, central government, NGO's and CBO's.*" There are also more NGOs dealing with water, some of which are specialized, e.g. Water Aid. The results of preliminary surveys from other NGOs working in the area revealed that water was one of the priorities (e.g. Plan International, Concern).

These NGOs involve citizen organisations. They ask the residents to elect a committee, which will be the link between them and the NGO. This ensures the continuity of the project after the NGO staff leave. In some cases, households organise themselves without external input. In the case of Kimanga, 48 households contributed money to pay for the pipeline inside the neighbourhood. These households wanted to have water in their houses.

These projects could be at various scales: the ward in the case of the interventions of the UN, the neighbourhood (Water Aid), close neighbours (Kimanga).

Increased projects, increased inequality

The presence of water networks or alternative sources depends on several factors, and takes place in specific settlements. This has resulted in an increase of unequal distribution within the city. Apart from finances, other factors exist to explain availability of water in different parts of the city.

The causal factors for an area to be equipped with water supplies include the physical environment, economics, politics and social factors. The presence or the absence of the networks in the neighbourhood depends on the age, status and location). There are significant differences in the population in terms of sources and use of water. The high-income population uses more water per day (per capita) and can afford storage. The low-income population is more vulnerable, uses unsafe water and has less storage capacity.

The intervention of foreign donors and the selection of the area to be financed increase inequality within the city. The donor choice is not a coincidence. Neighbourhoods are selected according to the capacity of those involved as well as human and financial participation of the population. The NGOs and donors select areas where a CBO is already active. This was the UN criteria in selecting the two pilot areas, Tabata and Kijitonyama

settlements, for the Community Infrastructure Program. In Tabata, the Tabata Development Fund was formed in 1989, in order to shut down a dump in close proximity to the neighbourhood. In the case of Kijitonyama, some citizens collected money to finance a road and a pipeline in the neighbourhood.

Water Aid has chosen to support the management of seven boreholes. The selection criteria were mobilisation and participation. They have selected places where some organisation and management has taken place; creation of water committee, money collection; organisations for selling water. People who get together with a common goal of providing water to the neighbourhood are usually owners of their houses (in Dar es Salaam this means people who have built their own house); workers with financial resources, educated people who can convince institutions and external actors.

The spatial differentiation

With community projects, some areas become autonomous from the city water networks, with their own sources of water (shallow wells and taps). Some of these processes are a result of necessity and not choice; in other cases this is a choice between the formal water networks and designing one of their own.

Under the Sustainable Dar-es-Salaam Project, the Community Infrastructure Program was initiated in 1995 with the overall aim of addressing infrastructural problems. This was to be achieved by working directly with communities and their organisations to enhance their capacity to participate and contribute in their development programmes.

Under this program, one dip well of output 10 m³/hour to cater for 14 000 population in Kijitonyama communities has been built. In Kijitonyama the water network was already existing in the planned settlements. Survey findings have revealed that some people did not understand why the well was constructed. They wanted to have water from their taps. This water project gives autonomy to the neighbourhood. They would not suffer any more from the water supply cuts. When the water pipes run dry, they turn to other sources of water. Currently a new project has started in this area—a private connection with the extension of the network. The borehole provides a supplementary source during water crisis.

In the case of Barafu the borehole was a necessity. The NGO Concern and the population asked for an extension of the city network. DAWASA

conducted a survey whose findings revealed that the cost of the project was too high. That is why they built a borehole. This borehole supplies 4000 people, and the Committee wants to extend it.

In other cases, the population has the option of being part of the city and financing extension of the pipelines. This population has the financial capacity to collect a large amount of money and they also have the capacity to apply for water connections and to deal with institutions.

The NGOs select the neighbourhood they will support, based on the capacity of the population to organise itself and participate effectively in the project. The population left out by the distribution society and by the NGOs is the non-solvent population: the urban poor, disadvantaged, and disempowered, “the dumb population”. This sector of the population has to struggle for their daily needs. They have no time or energy to organise themselves and no capacity to reach the other actors.

As a result, the city is a patchwork of areas with a water connection, and those without; areas served by boreholes, with or without community organisations; all juxtaposed. Dar-es-Salaam is a system of areas of supply and those without showing the priority of the society of distribution on one hand and the selection of the NGOs on the other hand.

Conclusion

With the incapacity of DAWASA to provide water and the increase in number of actors dealing with water management inside the city, more and more specific situations merge at the local scale. Some parts of the city tend to be autonomous and the inequality of water supply seems to increase. The city in the future could experience serious problems, such as the reduction in quantity and quality of underground water, and the entrenchment of neighbourhoods, i.e. creation of enclaves within the city. No solution is readily apparent for the problem of water quantity. The proposal of getting water from the Rufiji River, 200 kilometres south of the city, is pending due to lack of funds, and some boreholes are already closed due to the salinity of the water.

The increase of actors and projects raises also a number of questions.

- Will the present reforms address these situations and provide guidelines or regulations?
- There are several local projects with different organisation (committee or association), financial participation and different costs. This questions the spatial cohesion of the city. How will the different parts stick together?
- With the new local reform, could the municipality be the regulator of urban management?
- What is the future of such a fragmented city in terms of not only water supplies but also other resources?

Bibliography

CEEST (1996) *Dar-es-Salaam household water demand: an end use perspective*, CEEST Research Report series October 1996, 72 p.

HUMPHREY H. (1995) *Rehabilitation study of Dar-es-Salaam Water Supply System*, Feasibility report, NUWA - The United Republic of Tanzania, 284 p.