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ACCESS TO SANITATION AND SAFE WATER:  
GLOBAL PARTNERSHIPS AND LOCAL ACTIONS

## **Affordability of basic services under conditions of extreme inequality**

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*Currently Namibia is ranked as the country with the most skewed distribution of income and the driest in the region. The paper examines the affordability of water and sanitation services for urban users, especially the poor, based on the perceptions of the water users, towards the price and type of water and sanitation services rendered in Windhoek (capital of Namibia). Results indicated that the an orderly way of addressing differential services based on income levels, facilitates the reallocation and upgrading of affordable services, especially for the urban poor and instils a sense of payment for services and empowerment to strive for improved standards of living. There are no formal cross-subsidy policies in place for the urban domestic water sector; hence the results indicate that a proper price-setting process involving cross-subsidizing tariffs should be put in place to cater for all urban needs*

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### **Introduction**

The skewed distribution of income typical of developing countries greatly magnifies the challenge involved in providing necessary services for health and welfare of the urban population, along with other factors such as high unemployment rates, corruption and crime (Uitto et al., 2000). To be able to meet the goal of provision of basic services to all, cross-subsidisation from the rich to the poor is an important possibility to explore. According to van Ryneveld (1995), there are strong links between “affordability; costs; price and subsidy”, in the sense that many people cannot afford the cost of basic services, even though in most cases governments have officially said that water and sanitation services should be affordable. In many countries today, the difference between the cost and price of services for the urban poor is made up by subsidies (van Ryneveld, 1995). Additional challenges faced by developing countries, are physical water scarcity (Uitto et al., 2000); “inequalities in service provision between the rich and poor” in urban areas (UN-HABITAT, 1999 as cited by Vairavamorthy and Mansoor, 2006); and increase of informal and squatter settlements. The poor would immensely benefit from household connections, in terms of cost and time savings; convenience and improved health conditions, however in low and middle income countries public stand post are the best options for the urban poor (Franceys, 2005).

Namibia is no different from many other developing countries, in that it is facing severe water resource limitations and is in need of major water sector reform. In this regard it is predicted that by 2025, Namibia, like other African countries will suffer from water stress (Goldblatt, et al, 1995). Namibia is also reported to have the highest Gini index (74.3) in comparison to other SADC countries (UNDP, 2006), indicating a very skew distribution of income among individuals and households within the country. 34% of the population with the lowest adjusted per capita income accounts for 7% the country’s total income, while less than 1% of the population accounts for 16% of the income (Central Bureau of Statistics, November 2006). An indicator for affordability of water and sanitation services is that households should not spend more than 5 per cent of their income to pay for water services (DWA, 2007). The country has a history of non payment for water services until the early 90s, when the water sector was heavily subsidised by Government (Dinar and Subramanian, 1997). The Namibian Government opted to commercialize bulk water services in 1997, a decision that entailed determination of levies and tariffs structures based on full cost recovery principles. The water sector institutions are primarily guided by the Water Supply and Sanitation Sector Policy (WASSP) of 1993, as well as the Water Policy (2000) (white paper) which promotes economic water values, while recognizing it as a public good for those that cannot afford to pay for water services. It also strongly advocates efficient and effective use of water resources. This was later translated into the current promulgated

Water Resources Management Act of 2004. Even though the legislation and policies has been put in place, it was not yet implemented due to lack of capacity and ability (Heyns, 2005). Namibia, compared to other Southern African countries, is performing well, with a reported 99.3% water coverage and 84% sewerage cover (Central Bureau of Statistics, 2006), however further improvements are required for equitable water and sanitation services. In Windhoek (capital of Namibia), the local demand of a population of approximately 250 000, is higher than the available local resources, so that meeting it will require an expensive water-supply augmentation scheme (currently exploring artificial recharge of aquifers as part of 'water banking' approach) (Du Pisani, 2006). Currently 70% of the city's water is supplied by the bulk water supplier, while the rest is blended with recycled water. It is cited that Windhoek that 35% of the city's population lives in informal settlements (CoW, 2001), that primarily make use of communal taps and in some cases lack formal toilet facilities. At the same time, there are presumptions that irrigation, mining and commercial industries are heavily subsidized by the Government.

The purpose of this paper is to examine the affordability of water and sanitation services for urban users, especially the urban poor, based on the perceptions of the water users, towards the price and type of water and sanitation services rendered in a highly income skewed country with limited water resources<sup>1</sup>. The results were obtained by using a combination of an exploratory and descriptive case study approaches mainly based on semi-structured interviews with a total number of 35 individuals representing 16 organisations. These latter were divided into the following target groups: government (in their role as policy-makers and regulators); providers (both bulk water and local authorities); users (domestic and non-domestic) and other interested/representative groups (NGOs, consultants, para-statal organisations).

### **Price of water and sanitation services to urban users**

The City of Windhoek (hereafter referred to as 'the City'), is a three tier local authority, which implies that they are fully responsible for setting their own tariff structures, for recovering of costs, and for supplying water, obtained from the bulk water supplier, to their customers. The Ministry of Agriculture, Water and Forestry (MAWF) and Ministry of Regional Local Government and Housing and Rural Development are primarily responsible for policy development, monitoring and regulation of water supply from bulk water suppliers and local authorities respectively. Therefore both bulk water supplier and local authority have to submit their proposed tariffs to their respective line ministries before tariffs can be effected. The city operates on an increasing block tariff system, which includes a basic charge depending on the diameter of the meter inlet, as well as the volumetric charge which is added as per usage. An once-off connection fee is also applicable to all water users. The commercial and industrial tariff water users are charged a flat rate as well as percentage charged to use as a cross-subsidisation tool as well. The low income domestic water users are also charged a flat (with no basic charges) tariff for communal taps (ranging between N\$ 25-39<sup>2</sup> per month per household). All taps (including communal taps) are metered, and the City is currently considering pre-paid water meters for informal areas (based on request from the residents) mainly due to delays or non payment for water services. Currently the piloted pre-paid meters are adapted from the Netherlands (tag meter system). The challenge with these meters is maintenance and this first needs to be addressed before the system can be fully implemented. Approximately 42% of the customers are paying at 120 day recovery rate, but in more affluent areas payment is recovered within 30 days. The tariffs were reported not beneficial to the urban poor, in the sense that they are paying more per cubic meter of water (if basic charge is considered in additional to the amount they use, which is usually on the first block tariff), because they use very small volumes of water. As a coping mechanism to the influx of people into the city, the local authority has developed a remarkable system of re-allocation and upgrading for informal areas, based on income levels.

### **Types of services based on income levels**

"The welfare of households can be measured by access to various amenities and facilities. There is a strong relationship between the income level of the household and the distance to the source of drinking water; the higher the income, the closer the drinking water source is to the household". (Central Bureau of Statistics, 2006). In this regard, the City has developed a Development and Upgrading strategy (implementation started in 2000, but strategy is constantly reviewed and adjusted accordingly), which aims at "providing all lower income target groups of the city with a range of land development options in accordance with their levels of affordability" (CoW, 2006a). These options include town planning and erven demarcation; road development and maintenance; water and sanitation supply; energy (electricity) supply; refuse removal and community development. However for the purpose of this paper focus will be on water and sanitation services only.

The different development levels with corresponding income levels and water and sanitation services are presented in table 1 (the information in Table 1 is derived from the strategy and will be used to supplement actual fieldwork perceptions obtained).

<b>Table 1. Indicates the types of water and sanitation services available according to development levels based on income of residents</b>			
<b>Development level</b>	<b>Income level</b>	<b>Water service levels/options</b>	<b>Sanitation service levels/options</b>
Level 0:	N\$ 100-166	- communal water points within 200 m walking distance	None
Level 1:	N\$ 167-666	- water points at each toilet block - walking distances not to exceed 200m - water meters at each water point	- ventilated improved pit latrines at access points to each block - 2 latrines (1x ladies, 1xgents)/80 people -100m walking distances
Level 2:	N\$ 667-1,202	- water points at each toilet block - walking distances not to exceed 200m - water meters at each water point - pre-paid taps being piloted	-communal flush latrines in road reserves - 2 latrines (1x ladies, 1xgents)/80 people -30m walking distances
Level 3:	N\$ 1,203-2,184	-full water reticulation designed and installed -water points with meters at each toilet block - pre-paid taps being piloted	-standards same as for level 2 -entire sewer reticulation system designed and installed
Level 4:	N\$ 2,185-3,436	-full water reticulation designed and installed	-full sewer reticulation -individual sewer connections
Level 5:	N\$ 3,437-4,505	full water reticulation designed and installed	-individual connections for flush toilets (full waterborne sewer)
Level 6:	+N\$ 4,506	-full water reticulation designed and installed	- individual connections for flush toilets (full waterborne sewer)
Source: (CoW, 2006a)			

“In principle, the City strives to provide at least Development Level 1 to all its citizens, even if recovery of capital cost is not possible. For the lowest income group who can not afford the cost of Development Level 1, the extent of the situation will be quantified and Government approached for subsidies”. In this regard, there is also another level referred to as ‘welfare’ (income group: N\$ 0-99), however there are no services catering to this group according to the strategy. The strategy attempts to cater for all residents, including the ‘ultra-poor’. Community development services are mostly targeted for level 0 and 1 groups, where the city facilitates self-help initiatives, where community structures are formed through which a community can access support from the city. This process is also done with strong emphasis on capacity building to instill a sense of empowerment amongst low income groups and to improve their living conditions. In this regard Social Compact agreements are signed with the low income groups to decide on the services that they need and can afford (CoW, 2006). Numerous informal area residents have been relocated since 2000 to improved areas as part of the strategy. This process includes feasibility studies (to determine the financial, social and environmental impacts), registration of demarcated land, signing of lease agreements and community participation. One of the challenges of dealing with this situation is preventing illegal settlers to settle in upgraded areas, because this disorients the process and no proper control and monitoring can be exercised (CoW, 2006b). Incoming (immigrants) residents are required to settle in the ‘reception’ areas (Level 0), from which they will eventually be moved to upgraded areas, according to their income levels. The concept of a reception area is not promoted, however it is seen as the most organised way in which to handle influx of people to the city. In this way, proper monitoring can take place and people are then urged to register and follow the procedures as set in place for settlement. The reception area is not meant for people to stay permanently and this where the city only provides the “most rudimentary service for survival, namely water stand pipes as an emergency arrangement”. Similarly, “Development Level 1 represents the level where the City starts assisting households to improve their living conditions. The service provided in this level is based on minimum acceptable health standards and reasonable walking distances. Convenience

levels may be compromised (where they do not influence health standards), but reasonable health standards will be honored” (CoW 2006a). Development for subsequent levels takes place before people are resettled, in other words, the necessary infrastructure is installed, erven are demarcated, basic social services such as schools, clinics etc are built before reallocation commences. Photograph 1 shows an area that is being developed for re-allocation for development level 2 residents.



**Photograph 1. Area in development stage before reallocation is done for development level 2 residents. Toilet blocks are built, with gravel road construction and clearing of land for housing taking place**

Source: Richard Franceys, June 2007

It was very clear from the results of the fieldwork undertaken for this study, that no ‘special’ provisions are in place for the ‘ultra poor’ by the local authority, and this was seen as the social responsibility of the government, since the local authority needs to recover all their costs, due to lack of additional financial support, and thus cannot afford to subsidise the urban poor. However water services are provided at the bulk water supplier costs and this is considered to be subsidised price, since the provider does not charge for their services to the urban poor. The City officials also mentioned that it is very difficult to get real income values from residents and thus it is always difficult to determine the level of affordability and hence the level of suitable services for low income groups. There are various types of water and sanitation services that are available depending on the various income levels of residents.

There are approximately 32 informal settlement areas within Windhoek, with 9 indicated to have no toilet facilities at all. In this regard, sanitation was identified as a huge problem in informal areas during the interviews. Various options of dry toilet facilities (photograph 2), specifically for low income groups, are being investigated by the Habitat and Research and Development Centre in Namibia. Six different types of new facilities are being tested (in various parts of Namibia) and it includes Jo-Jo; enviro loos, composting loos, urine diverter, vacuum systems and Otji-toilet. The pilot projects are in different stages and no results are yet yielded, however the enviro loo and VIPs are mostly used in Windhoek. The enviro loo is most preferred, because if designed and built properly; it only needs cleaning once a year. The biggest problem experienced from these toilets is cleaning and maintenance and potential ground water pollution threats. However, results indicated that the Namibian government is promoting waterborne sewers, which could potentially send the wrong signal of water scarcity to the users. According to some interviewees: *‘Dry toilets is the answer for informal areas, especially since people cannot even afford to pay their water bills’*. One interviewee further pointed out that *“there is an underlying element that needs to be dealt with regarding these different toilets, which is an attitude/behavioural problem, and unfortunately waterborne sewers comes with a price (both conservation and monetary)”*. In informal areas, the taps and toilets (normally two for males and females



respectively) share the same meter (photograph 3) and thus the water bill includes water used for flushing of toilet as well (if toilet is waterborne). Only houses that have been demarcated and registered (signed lease agreement) are being charged for toilets (N\$ 70 per month for shared toilets) as part of the rates and taxes. The majority of people in informal areas are not paying for access to toilets until they are formally re-located.

In formal areas, the tariffs for sanitation are calculated differently from that of water. These are calculated based on flat rate multiplied by the size of erf (land). Sewer charges for industrial and commercial clients are calculated on average costs plus a certain percentage (differs for each client). These are calculated based on the intensity of effluent discharged according to the Polluter pays principle. There are different charges for different institutions.



**Photograph 2. Dry sanitation with collection chamber (black lid) and rotating self propelled wind turbine extractor**



**Photograph 3. Flush toilets with pre-paid water tap (in front)**

Secondary information provided by the City of Windhoek, indicated that the majority (32%) of households fall within development level 1, which can barely afford services (neither qualify for land with individual connections) and thus can only be accommodated in communal service areas. Approximately 22% (both welfare and development level 0 groups) are unable to afford basic services (CoW, 2006a). However, during interviews with the leadership committee structures, indications were made that the majority of informal area residents understand why they should pay for water and sanitation services and essentially do not have a problem with pay for the services. Even though the City is trying their best to instil payment for the services, it was reported that it is difficult to obtain payment for water services from all the residents and in some cases they have huge outstanding debts of up to N\$ 9000. “The non-payment of accounts leads to a vicious circle, where both the bulk water suppliers and local authorities need to increase their tariffs to compensate for non-payment of accounts. This practice makes services more unaffordable to the poor. These facts illustrate the importance of a proper investigation and policy guidelines to set equitable end use tariffs for all consumers” (DWA, 2006). According to (Kavezeri-Karuaihe) (2005) “*the prices cryptic*”, because water users do not know the true price for water services, since it is imbedded into the municipal bill, and hence “their ability to respond to price may be impaired”.

The Development and upgrading strategy is being reviewed and adjusted as the need arises. Recognising that the Namibian case is still in experimental/adjustment phase, the following principles (based on the development and upgrading strategy principles) could be used as an example to be followed by other developing countries, which are faced with the challenges of providing basic services within the challenges of skewed

income distribution, increasing urbanisation and informal settlements. The primary goal for any low income development project or scheme should be financial, social and environmental sustainability. Services in all development options (especially at low income levels) should include the following principles:

- Reasonable health standards
- Appropriate technology investigated
- Reasonable social acceptance of development options
- Community participation (to ensure orderly facilitation of re-location process, minimum payment of services and gradual ownership over resources and improvement of living conditions)
- Permanency and forms of ownership of land (security of tenure) should be promoted
- Financial risks for the local authority should be minimised in the development and upgrading of serviced land
- Costing, pricing and administrative systems for land sales and leases of each development level should be standardised yet flexible (“user pay” principle should be underlying principle of any low income development project).

## Conclusion

In general, people realise the importance of paying for the services received (to reduce wastage of a valuable resource), however in some cases it is necessary to consider income profiles of the client base when determining tariffs in order to design and implement fair cross-subsidisation policies. The price setting process in Namibia is currently unclear as to how tariffs are determined both at bulk water and local authority level. Current prices potentially are not reflecting properly the water scarcity and skewed income distribution challenges faced especially by the urban poor, so that water is simply unavailable to many of them through the formal system of provision. Differential services are available based on what people can afford, according to the development and upgrading strategy, which is currently being implemented in phases and has been working well in terms of re-allocation of informal areas to upgraded better facilitated areas. Various experiments are being tested both for pre-paid meters (which are most preferred by the informal area residents) and dry sanitation options to meet the demands of low income groups. The system is not perfect and a lot of issues such as irregular revenue collection from low income groups and determination of targeted cross-subsidies still has be dealt with, however the system is more sophisticated and organised compared to most other countries therefore it is regarded as best practice that can be adapted to other developing countries to deliver water and sanitation services to the urban poor based on what they can afford. Equally the price setting process needs revision and a more coherent system could improve the situation of dealing with increasing urbanisation. In this regard, it is clear that a more transparent information system about supply costs and pricing calculations would assist in allowing independent assessment and determination of cross-subsidies such that all urban users can enjoy access to affordable water resources. Based on the present results, future work would include development of conceptual and financial modelling to serve as tools to support the price-setting process to derive at acceptable prices and services levels for all urban users.

*“Price is determined by costs, therefore water availability is reflected through the price of water in a country” (interviewee, June 2007).*

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## Note/s

- <sup>1</sup> This paper forms part of a PhD study currently being undertaken at Cranfield University, with the main purpose of developing and applying a combination of conceptual and financial models to urban water and sanitation services, to be used within various dimensions of water demand management, to determine (1) acceptable prices and service levels of water and sanitation services for all urban users, especially the urban poor, in Windhoek (Namibia), (2) potential for economic regulation as part of the price setting process, given the challenges of growing water scarcity and a highly skewed distribution of income.
- <sup>2</sup> 1 Namibian Dollar (N\$) is equivalent to 0.14 US\$ (date: 21 September 2007).

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