# Background Information Document (BID)

## *Introduction*

Zimbabwean cities and towns led by Harare and Bulawayo are toying with the idea of introducing prepaid metres for domestic water supply. With Harare and Bulawayo, the city authorities have pronounced their determination to go ahead with the prepaid water metering programme against the residents' cries. This idea of introducing prepaid meters is motivated by among other things the following factors;

- Poor rate collection system
- Reluctance of residents to pay their bills in time
- An expensive debt collection system
- The seemingly successful prepaid electricity metering system rolled out by ZESA which has seen improved rate collection giving hope to the success of prepaid water metering

The authorities argue that these factors among others have led to dwindling flows of much needed revenue to keep the water flowing in the residents' tapes. They blame the above factors as contributory factors to the poor state of the cities and towns' water supply situation. Pipes are breaking down and pump stations are failing due to old age. The local authorities are failing to maintain and upgrade this important water supply infrastructure because of lack of finance. Water treatment plants in most cities have gone past their design horizons and are in dire need of refurbishment if not total decommissioning but the local authorities have to make do with these failing facilities as their revenue flows are limited by poor revenue collection. The cities and towns are owed hundreds of millions by residents including central government and industry with Harare being reported to be owed more than US$80m.

The semi treated water coming out of the failing water treatment plants need heavy chemical doses that gobble millions of US dollars per month (Harare uses 3million) from the emptying coffers of city councils. The water supply lines that deliver the water to the final users are also in a state of disrepair due to corrosion and rust caused by their infrequent usage as some sections of the cities go for months without water. This has meant that even in those rare occasions when the permeate water from the treatment plant meets the SAZS 560:1997 and ZWS 987: 2014 Drinking Water Quality Standards, there is absolutely no guarantee that it will reach the end user at the same quality standard.

The current economic challenges facing the country compounded with the cutting of credit lines has also left the municipalities with only one source of financing and this source is the rate payer. This scenario has meant that all possible loopholes in revenue collection have to be closed as the councils battle to recover the cost of delivering potable water to the residents among other services. The proposed measure of prepaid metering has met with serious resistance from residents'

representatives owing to its inherent threat to exclude the poor from access to potable water among other challenges.

## *Opportunities for Managing the Negatives*

In these challenges are opportunities for success. There are a number of ways that could be employed to mitigate the negative externalities of this policy position. These ways shall all require as basis a very inclusive consultative effort that allows all interested and affected stakeholders to participate and have their voices heard and their wishes engaged in the development of the final position and implementation model on this very delicate development in Zimbabwe's urban water resources management. This BID intends to achieve just that by giving the Zimbabwean social media community both within and without the country's borders an opportunity to share their views on this very pertinent matter to advise the local authorities on how best the planned prepaid water metering system should be if ever it can be implemented.

We present here a BID giving brief details of the water supply situation in the country and issues around the proposal and at the bottom of this BID are a couple of questions that you are kindly requested to take a few minutes to complete. Your input shall be analysed with other contributions to guide the process and implementation of this proposed project. This is meant among other goals to promote the spirit of community involvement and stakeholder participation in decision making and policy formulation. Under ordinary circumstances a policy position of this nature would require a Strategic Impact Assessment or other related study but I guess the situation currently obtaining in the **House of Stones** does not allow the luxury of detailed lengthy studies. We hope this survey will, by transporting your voice to the policy makers contribute to the development of a socially and environmentally sound approach to urban water resources management in Zimbabwe.

## *Water Supply Situation*

In some suburbs of Cities like Harare and Bulawayo the water supply situation is at best not worth mentioning. There is no municipal water to talk about and the residents depend on shallow wells, boreholes and supply from water merchants around the city. These residents have lost all hope of getting any water from the city pipelines. In those places where it occasionally flows, the quality is always so bad that from the taste and odour one can easily note that the water is not suitable for human consumption. These residents have been complaining that even though they hardly get any water from their tapes, they get regular unjustified bills which local authorities claim are based on 'estimates'. There is also the growing urban community known as housing cooperatives where the water supply infrastructure is yet to reach. These communities depend on what we refer to in this paper as alternative sources.

The alternative supplies particularly the shallow wells and urban backyard boreholes also have their myriad of challenges. With the frequent sewage line bursts and indiscriminate waste disposal in the cities, the water from these boreholes and shallow wells is heavily polluted with faecal coliforms, nitrates and other chemical and heavy metal pollutants from industrial and domestic waste. The water merchants on the other hand are also unreliable in both supply and water quality standards as they are not registered thus are unregulated. They fetch the water from undesignated points as such the quality of their water is as good as their word. The city and town dweller in Zimbabwe has come to terms with this reality and has found survival strategies. The risk of a repeat of the 2009 cholera outbreak is a reality they battle with daily and they know that the health and safety of their families can no longer be left to the city fathers but is their sole responsibility.

## *Available Water Supply Management Systems*

Potable water supply is an expensive mandate for local authorities across the globe and is particularly a burden for resource poor economies of the third world. Potable water supply is actually such a challenge to global development to the extent that it is one of the Millennium Development Goals. (***Target 7.C: Halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation***). There a variety of urban water supply management options designed to optimise consumption thus avoid wasteful handling and usage of treated water and water resources in general. These options can be grouped into demand and supply management measures and these include among others

1. Demand Management
    - Water conserving technology
    - Alternative sources
    - Pricing
        - Post paid and
        - Prepaid

2. Supply Management
    - Rationing
    - Separate Potable and Raw Water Supply Systems

## *Social Impact Assessment of the Proposed Introduction of the Prepaid Water Meters in Zimbabwean Cities and Towns*

### *The Prepaid System*

The prepaid model is a system by which prepayment technology is harnessed to ensure that for one to access a good or service for which they are expected to pay, they are required to pay up an amount of their choice into an account specially created for them and they will only be able to use the amount of goods or service equal to the value of their deposit in the account. This technology was first introduced in Zimbabwe by Econet Wireless through their Buddie mobile telephone line. Zimbabwean urban dwellers will live to rue the day that wizkid who coded the program for Buddie was born. The technology has come into the electricity supply system and is now threatening the water supply, if there is still any water supply system to talk about that is. Liberty Dandira and his crew at Midlands State University have also come up with *esadza* another addition to the family of prepaid system that is designed to deny the broke students at the university a chance at swindling the dining hall of a plate of dinner. The system allows the MSU community to swipe themselves a plate of sadza from a prepaid account.


### *The Positives*

The prepaid system has with it a wide spectrum of advantages amongst them being;

- **Conservation of Water Resources:** This is the one I find most interesting for the obvious reasons. *I am a tree huger.* The fact that the system forces you to consume as much as your pocket can support means that you are forced to plan and rationalise your usage to remain within budget. You cannot also leave leaking pipes and children playing with water as this will mean a direct and immediate dip into your emptying pocket otherwise you run on dry. This aspect is not there in the post-paid system as people are inherently hopeful of a better tomorrow and tend not to worry much about future adversity. There is always that stubborn voice in the back of the head that's saying I will fix this, I will take care of it tomorrow. The prepaid model will force the user to adopt water conserving technology like the ones discussed below as every drop counts with the model;
    - **Water harvesting:** Zimbabwe receives relatively good rains that can support good water harvesting technologies like collection from rooftops, creation of artificial wetlands and underground storage. These options will become viable to the households that may find the burden of prepaid metering too much to bear.

- **Greywater Technology:** This is one brilliant technology that when effectively applied can half household water demand. Roughly 60% of urban household water demand reports to the sewage system through bathing and washing as well as through toilet flushing. Water from bathing and dish washing can be recovered by diverting the plumping to a reservoir from where the water can be used in washing cars, watering gardens and landscapes as well as flushing toilets. We are already using the system in Southern Africa as we reuse our bath water in gardening and flushing. What we need is to improve the system by subjecting the greywater to treatment through mere clarification via a filtering media to allow it to be stored for future use without posing a health hazard and odours.
- **Water Conservation for Gardening and Landscaping:** Technologies like the drip irrigation system and dry landscaping will help conserve the water resources as people are forced by the direct costs to conserve water.

- **Improved Revenue Collection:** The system improves the efficiency of revenue collection and removes the burden of debt collection. It also cuts out the labour costs currently employed in meter reading. This is the most important point for the local authorities as they seek to ensure that residents pay for every drop they use.
- **Cost Reduction**
  - **Use of Raw Water for Toilet and Garden:** There is also the available option of raw water for gardening, toilet flushing and other non potable water demanding uses. This will save the treated water thus reduce the treatment cost burden on the local authorities, costs which are borne by the residents through water rates. Related to this is the creation of opportunities for private water merchants.

- **Opportunity for Private Water Merchants**

  The water challenges in Zimbabwe have created a new breed of entrepreneurs in the form of water merchants who ferry water for domestic and industrial users in containers. These business people can help meet the gap in water supply particularly for raw water which should ordinarily be cheaper than treated water. This raw water would then be used in other non potable water demanding uses. This protects the existing jobs in the water supply market and presents an opportunity for growth in the sector as entrepreneurs adopt water polishing technologies like the reverse osmosis RO technology to cater for a continuously discerning market.

  There are other benefits like;

- ✓ **Facilitating effective budgeting:** It can be a useful way for customers to budget, including those customers on a low income. Customers can pay smaller amounts as they use the service rather than having to fork out huge bills on demand.
- ✓ **Delivering timely consumption feedback:** Customers receive feedback as to their water usage, in close to real time, and can try to adjust their consumption accordingly.
- ✓ **Sharing the water cost burden more fairly:** For shared households it provides a fairer and easier way for all to contribute. For households where there are short term visitors, or functions, the burden is not shared by all the household members.
- ✓ **Preventing arrears, credit action and high reconnection costs:** Customers cannot build up high arrears, which then prove difficult to pay, and can result in debt collection action and a credit default listing. In the case of disconnection, customers can be back on supply

immediately on purchase of new credit. Customers avoid additional fees associated with late payment, disconnection and reconnection.

### *The negative*

The prepaid technology has its fair share of challenges chief amongst which being its potential to deny the economically disadvantaged members of the urban residents community one of the most basic of human needs, the access to clean water resources. This has the effect of further sidelining those of little economic means further deep into the poverty vortex beyond the point of recovery. Instead of spending their day seeking income to finance, food, clothing, education and health care, the poor is forced to pay his sole attention on securing water resources for water is the kind of resource one will hardly survive without at least without training from the San community. Without guaranteed access to potable water the poor man is left to the mercy of his environment as he depends on natural water sources which in urban settings are almost always polluted.

When water becomes an expensive market commodity, social cohesion erodes in neighbourhoods and communities. The result is that basic rights become privileges that are earned only by the depth of one's pocket. Families are forced to decrease their consumption of water and to make difficult tradeoffs between food, medicines, school fees, or water. Such hard decisions rest mainly on women who are humiliated in their desperate need for water.

The whole population of urban Zimbabwe have over the past 15 years largely survived on these alternative water resources so one may only hope that the poor man will survive this scenario to have his go at the fortunes of the economy to allow him a chance up the social ladder to join the watered community. The rolling out of the prepaid water meter system provokes human right issues and it needs to be looked at from that angle as well. I leave this part to those cooked in that pot of life matters.

### *Capacity of Community to Absorb the Pains of Change*

As discussed above the urban community in Zimbabwe has been coping with a **NO** water supply situation for more than a decade now to the extent that in some localities the availability of water on the tape is a very odd occurrence that can send the whole neighbourhood into a frenzy with the '*mvura yauya'* chorus even in the odd hours of the night. The introduction of water meters may exclude some from the council grid but may not entirely exclude people from access to potable water as Zimbabweans have a way of catering for their neighbours.

### *Mitigating the negative*

As alluded above the negative outcomes of this prepaid water metering development can be managed through a number of ways amongst them being;

**Social Nets**

Local authorities could put in place some safety nets to protect the weak of our communities. These nets may also be supported by the donor community and local business. Such nets would include among others;

**Subsidised Water:** The local authorities may in consultation with the social welfare infrastructure create a subsidised water supply scheme for the poor where each family is given a monthly allocation of water. The water allocation per family will be informed by the household water demand calculation method with the lowest estimates. This can be supported by the installation of public standpipes in communities at convenient locations from where the beneficiaries will access water. Access to water will be then through a microchip tag that carries one's monthly allocation and just like the prepaid system the tag would be fed with the individual's account water credit and when they utilise the system, water points will be deducted from their tag. When they exhaust their monthly allocation they would have to *juice* their account like any other user. The system would need to come with its fair measure of controls for it can be easily abused.

**Borrowing Systems:** The mobile phone technology has also introduced a borrowing platform with which subscribers are allowed to borrow airtime to a defined limit measured against their average monthly usage. This technology could also be extended to prepaid water meter users to cushion them from such periods when their water account balance runs out at a time their liquidity position is compromised. This could also cater for such unplanned expenditure as in the unavoidable increase in household water demand due to family funerals.

## *Case Studies*

**Namibia**

The Department of Infrastructure, Water, and Technical Services of the City of Windhoek, Namibia carried out a pilot prepaid water metering system in informal settlements. These informal settlements are inhabited mostly by rural Namibians who moved to the northern side of the City after independence. The majority of these citizens are unemployed and live below the poverty line of one US dollar per day.

The study communities used the prepaid and post paid system. With the post paid communal standpipes freely dispensing water, and one bill is calculated at the end of the month. Community leaders are given this bill for the consumption of the entire community, and it is divided among community members, regardless of their individual water consumption.

With the prepaid metering system, each household receives a prepay card that must be inserted into the meter in order to dispense water. Prepay users can add credit to their card at point of sale (POS) locations in the settlements.

A review of the two systems by the departments established the following;

- That households in the post-pay communities spend an average of **29 percent** of their incomes on water while households in prepay communities spend an average of **5 percent** of their incomes on water.
- Within the post-payment communities, 73 percent of residents believe that water is in fact too expensive. These residents stated that it is very hard to come up with enough money to pay their water bill.
- When a resident runs out of credit on the card, he or she is unable to get water from the standpipe. Of those surveyed, 54 percent of prepay users have run out of water credit and been unable to obtain water from standpipes. Those who did not run out of credit made a point to monitor their cards and plan ahead.
- The POS office only opened form 8am to 12pm, Monday through Friday. The majority of people who ran out of credit did so on the weekends and were unable to add credit their cards until Monday morning.
- The post-payment system allowed for the socially disadvantaged to freely obtain water yet with prepayment, one could not access water if they did not have credit as such although the community subsidization scheme in the post-pay communities was not equitable, it did insure that everyone still had access to water.

The study team then recommended the following;

- That the POS offices expand their hours to include weekends
- Before prepayment is expanded, it is imperative that a proper subsidization scheme is established so that no resident will be denied water.

The study team also concluded that;

- Although prepayment has its own associated problems, it is highly preferred by residents of the informal settlements over the current post-payment system.

**Botswana**

Botswana has always had a standpipe system of village water supply such that rural communities would access water from the standpipes. This was also prevalent in the urban villages like Tlokweng. This water was available to all free of charge for domestic use only and was not to be used for livestock watering with livestock being catered for through boreholes and dams in the grazing areas. Because Botswana has always had a precarious water supply situation owing to its semi desert climate, government had to devise measures to conserve the scarce water resource available. The prepaid water metering system was adopted to manage rural village water demand. This measure was also motivated by the need to cap the leaks in the system as in some villages 50% of the water

supply was unaccounted for with a significant fraction of it being abused by people who watered their livestock from the standpipe.

Each household was then given a tag with which they can access water. The household is given a free monthly water ration based on household water demands estimations. Beyond this allocation the household would have to pay for the water by putting credit in their tag. The system has been rolled out to most of the villages and its success has now led to talk within government corridors of expanding it to urban households.

The system has its fair share of challenges particularly system failures that may deny the whole village access to water for a whole day until they are rectified. In its initial stages most households would exceed their allocations and struggle with paying for more water but most have since learnt to conserve their allocation to last day of the month.

# Questionnaire

# Kindly respond to the following questions

## *Demographics*

**Gender** *(Tick box below your gender group)*

| **Female** | **Male** |
|---|---|
| | |

**Age group** *(Tick box below your age group)*

| **16 - 20** | **21 -30** | **31 -40** | **41 -50** | **51 - 60** | **60+** |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Home town/ town of interest**

| **Town or City of Residence / Interest** | **Tick** |
|---|---|
| Harare | |
| Bulawayo | |
| Chitungwiza | |
| Gweru | |
| Mutare | |
| Masvingo | |
| Other | |

**Current place of Residence** *(Tick box below your place of residence)*

| **Zimbabwe** | **Diaspora** |
|---|---|
| | |

## *Social Impact Assessment of the Proposed Introduction of the Prepaid Water Meters in Zimbabwean Cities and Towns*

### *Study Questions*

1. Please rate your household water usage by type on a rate of 1 - 4

| **Water usage categories by contribution to monthly demand** | **1** | **2** | **3** | **4** |
|---|---|---|---|---|
| Domestic uses | | | | |
| Vegetable Gardening | | | | |
| Landscaping | | | | |
| Washing of cars | | | | |

2. Rate the current water source of your family by type in terms of significance.

| **Current water source rating by significance** | **1** | **2** | **3** | **4** |
|---|---|---|---|---|
| Borehole | | | | |
| Water merchants | | | | |
| Backyard wells | | | | |
| Municipal or ZINWA water | | | | |
| Donor support | | | | |

3. What percentage of your household income goes towards your water needs?

| **Percentage of household income spent on water** | **Tick** |
|---|---|
| <10% | |
| 11 – 20% | |
| 21 – 30% | |
| Above 30% | |

4. Are you happy with the current post paid water supply system?

| YES | NO |
|---|---|
| | |

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5. Do you think that the water bills you pay are proportionate to your monthly consumption?

| YES | NO |
|---|---|
| | |

Please explain.

_____

_____

6. Rate the quality of water supplied by your current supplier

| **Current water source quality rating** | **1 (poor)** | **2 (good)** | **3 (very good)** | **4 (excellent)** |
|---|---|---|---|---|
| Borehole | | | | |
| Water merchants | | | | |
| Backyard wells | | | | |
| Municipal or ZINWA water | | | | |
| Donor support | | | | |

7. Do you think there is need to improve the water supply infrastructure in Zimbabwean cities and towns?

| YES | NO |
|---|---|
| | |

Please explain.

8. Rate in your opinion on a scale of 1 -4 the reason for the water supply challenges currently faced by the Zimbabwean urban dwellers.

   *Tick in appropriate box 4 being the main cause 1 being the least*

| **Reason for water supply challenges** | **1** | **2** | **3** | **4** |
|---|---|---|---|---|
| Corruption | | | | |
| Poor management | | | | |
| Poor revenue collection system | | | | |
| Economic challenges facing the country | | | | |

9. In your opinion can the prepaid system improve the water supply situation in Zimbabwe?

| YES | NO |
|---|---|
| | |

Please explain.

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_____

10. Do you think the municipality can improve the water supply situation if their revenue collection is improved by the prepaid system?

| YES | NO |
|---|---|
| | |

Please explain.

_____

_____

11. Would the introduction of prepaid metering deny the poor their right to access clean water?

| YES | NO |
|---|---|
| | |

Please explain.

_____

_____

12. In conclusion are for or against the prepaid water management system being proposed?

| YES | NO |
|---|---|
| | |

Please explain.

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***Thank you*** ***Siyabonga*** ***Zikomo*** ***Tatenda***