

EXTERNAL FACTORS INFLUENCING THE SUSTAINABILITY OF MICRO AND SMALL PIPED WATER ENTERPRISES IN KENYA'S PERI-URBAN AREAS

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ABSTRACT

This article examines the influence of external factors on the sustainability of micro and small piped water enterprises (MSPWEs) in peri-urban areas of Kenya. It is based on a study that examined MSPWEs in peri-urban areas of Kenyan cities- Nairobi, Mombasa and Kisumu. Sociopolitical support, regulation, forms of business organization and business development interventions were postulated and studied as factors that could render the industry conditions in which the MSPWEs operate to be favourable or unfavourable and hence influence the sustainability of the MSPWEs. The target population was 2,742 MSPWEs. Data was collected by administering questionnaires to a sample of 503 MSPWEs selected by stratified random sampling supplemented by interviews of top management in key institutions on water services delivery in Kenyan cities and direct observations. The study found that socio-political support, regulation, forms of business organization and business development interventions are external factors that influence sustainability of MSPWEs.

Key Words: Micro and small piped water enterprises, Fully Privatized Model, Master Operators, Business development interventions, Sustainability of MSPWEs

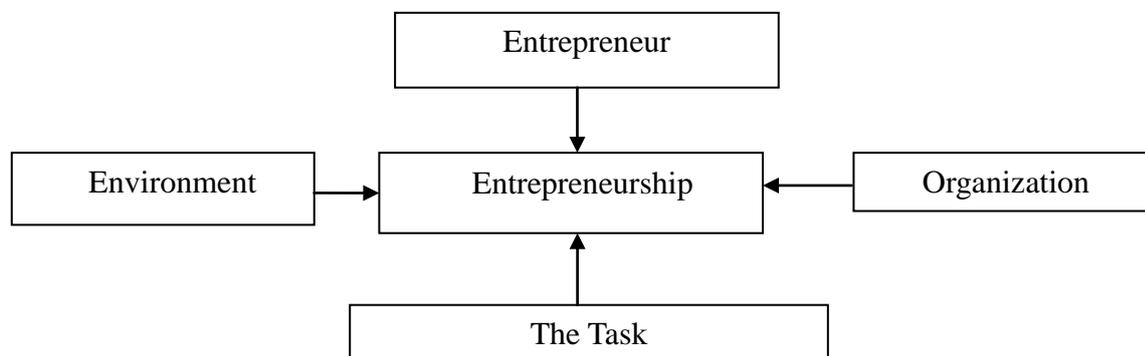
Introduction

Micro and small piped water enterprises (MSPWEs) are independent small-scale private water providers that supply water to users on demand by freely entering markets and taking corresponding risks by investing in small localized networks (Asian Development Bank, 2006). Inquiries with the public water utilities serving the three Kenya cities- Nairobi, Mombasa, Kisumu, indicated that micro and small piped water enterprises (MSPWE's) were operating businesses either as fully private enterprises (FPMs) or in public private partnerships (PPPs) with the public water utilities either as bulk sale enterprises referred to as Master Operators (MOs) or simply as retail PPPs. The MSPWE's had emerged as the entrepreneurial vehicles for meeting unfulfilled demands for piped water consistent with observations by Mattingly and Gregory (2006) that the socio-economic and geo-demographic dynamics of peri-urban areas present opportunities that could be successfully exploited.

Several previous studies had shown that MSPWEs had been created to fill water service delivery gaps in the public water utility networks but none had been undertaken in Kenya to enable generalization on the factors influencing the sustainability of MSPWEs in the peri-urban areas. This study, therefore, aimed at filling the knowledge gap by examining MSPWEs in peri-urban areas of Kenyan cities- Nairobi, Mombasa and Kisumu. The theoretical framework applied in the study was the resource based theory (RBT) that stipulates that an enterprise acquires competitive advantage and earns entrepreneurial rents (that is become sustainable) if the industry conditions are favourable and the resources owned and controlled by the entrepreneur are valuable, rare, imperfectly imitable and non-substitutable. The external factors influencing the sustainability of MSPWEs may be postulated on the basis of the RBT. Dollinger (2008) explains that the RBT stipulates that under favourable industry conditions, the nature and quality of the resources the entrepreneur possesses and can acquire can be a source of competitive advantage (CA), that is sustainability, if the resources are rare, valuable, imperfectly imitable and non-substitutable.

Desai (2009), articulates a multidimensional conceptual model of entrepreneurship (Figure1) with following dimensions; (1) individual entrepreneur, (2) environment – resources and constraints and; (3) organization. In this conceptual model, entrepreneurship has the following dimensions; (1) Individual Entrepreneur, (2) Environment – Resources and constraints and; (3) Organization. The entrepreneur scans the environment in terms of opportunities to sell a service or product and adopts a strategy that optimizes on the prevalent industry conditions. Working within the combination of the above dimensions, the process of entrepreneurship is developed and the organization (the enterprise) created may be operated to acquire CA or even sustained competitive advantage, that is, become sustainable.

Figure 1: Conceptual Model of Entrepreneurship

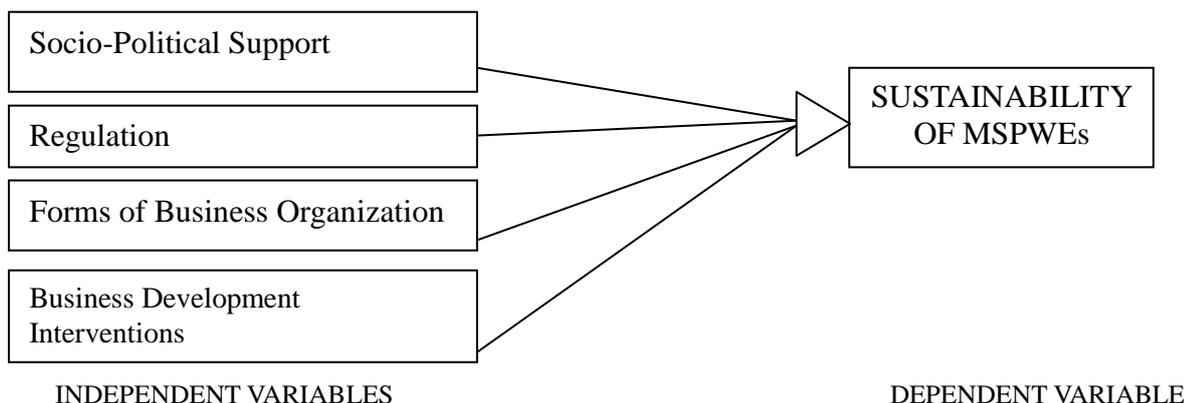


Source: Desai (2009)

As would be expected markets are influenced by policy and legislative environment (Republic of Kenya, 2005). The water markets in the peri-urban areas in which the MSPWE’s operate are predisposed to a policy, legislative and regulatory environment precipitated by the National Water Policy (1999) and the Water Act 2002 which uphold water as an ‘economic good’ but also add a ‘social good’ dimension to protect the poor, making it potentially possible to regulate water prices. The MSPWEs in the peri-urban areas of Kenyan cities therefore operate within an environment in which the worldwide divergent views of water as an economic good or a social good (World Ecumenical Council, 2002; World Water Council, 2005; K’Akum, 2006) are at play. On the basis of this environment it would be expected that there should be specific underlying factors, both market and regulatory in nature, influencing the sustainability of the small piped water enterprises. On the other hand, it is also expected that sociopolitical factors such as the view of water as a social good, aiming to make water available to all as a social service (World Ecumenical Council, 2002) might as well be influencing entrepreneurial behaviour as relates to business sustainability.

The question arising is whether or not the MSPWE’s could be sustainable under such industry conditions. A sustainable entrepreneurial response is also expected to be determined by the forms of business organization which may form the basis of not only the market entry but also the way the enterprise relates and benefits from external actors, access and control of resources in the environment. Furthermore business development interventions (BDIs) directed at the MSPWEs influence the entrepreneurial preparedness to cope with change, skills and attitudes of the enterprise as BDIs have been shown to impact on the MSPWE sustainability by improving performance (Namusonge in Mullei & Bokea, 1989; Rosa and Scott, 1996). To recap the foregoing discussion, it may be postulated that socio-political support, regulation, forms of business organization as well as business development interventions influence the sustainability of MSPWEs. This relationship is illustrated in the conceptual framework presented in Figure 2.

Figure 2: Conceptual Framework of Factors Influencing Sustainability of MSPWEs



Methodology

The study also sought to determine how sociopolitical support, regulation, forms of business organization and business development interventions influence sustainability of MSPWEs. The study was conducted against a background in which previous studies had not examined these factors adequately enough in order to enable generalization on their influence on the sustainability of the MSPWEs. The study adopted mixed model research design. The target population consisted of 2,742 MSPWEs that included public private partnerships (PPPs) comprising six master operators (MOs) and 2,425 retail MSPWEs as well as 311 fully privatized MSPWEs (FPMs). A sample size of 503 MSPWEs was picked by stratified random sampling from the strata defined by city and MSPWE organization model, that is, whether fully privatized (FPM) or a public-private partnership (PPP). This sample size was large enough to enable statistical inferences at the 5% level of significance, corresponding to 95% level of confidence (Mason *et al.*, 1999). This is the level of confidence normally used for research in social science (Saunders *et al.*, 2007). Data was collected by administration of questionnaires to the entrepreneurs of the selected MSPWEs supplemented by interviews of key decision makers in the institutions on water services delivery in Kenyan cities and direct observations of the MSPWEs. Qualitative data was analyzed to detect themes and categories which were then quantized, that is converting qualitative data into numerical codes so that it can be analyzed statistically (Saunders *et al.*, 2007). Data was then subjected to statistical analysis by application of statistical package for the social sciences (SPSS).

Results and discussion

Enterprise growth

The study established that MOs in Kisumu, operating under PPPs with the Kisumu Water and Sewerage Company (KIWASCO) and the FPMs in Nairobi had invested and were managing multiple connections. This demonstrated that MSPWEs had the potential for growth to become businesses that could manage larger, albeit localized networks whether alone or in partnership with the water utilities.

Socio-political support

The study sought to establish the specific socio-political support, if any, for MSPWEs in peri-urban areas of Kenyan cities and determine how such support influenced the sustainability of MSPWEs. This was against a background in which small water enterprises (SWEs) faced many constraints that included administrative, legal, financial, and hostile trading conditions and environment in city water supply markets (Njiru & Albu, 2002; Asian Development Bank, 2006). These studies observed that without formal recognition and licensing by local authorities and the city water utilities, SWEs operated on a commercially precarious footing. This study sought to determine whether this orientation against MSPWEs had changed, more so after the operationalization of the Water Act 2002, and how the sociopolitical support, or lack of it, influenced the sustainability of MSPWEs.

From the results, it emerged that in Mombasa city, 98.63% of the PPPs felt that they were working with the goodwill and recognition by public authorities. Another 86.3% were in partnership with the utility and had a license from the water utility. For FPMs in Mombasa goodwill and recognition stood at 74% but less than 10% had licenses or partnership with local utility. Enterprises operating in Kisumu benefited from political goodwill of the Lake Victoria South Water Services Board and KIWASCO to improve services for the poor. From discussions held with KIWASCO, the enterprises including the MOs had the good will and support of the city authorities; a view that was shared by all the 6 contracted MOs. A majority 93% of retailing PPPs and 83% of the MOs felt that there was goodwill and recognition by public authorities, and another 58% of retailing PPPs enjoyed partnerships with public utilities. The MOs had also been beneficiaries of business improvement interventions, with 50% of the MOs indicating that they had received business intervention support from public authorities and 17% from Donors and NGOs. This was facilitated mainly by the utility after signing of contract and prior to handing over of network.

The situation was somewhat different in Nairobi where the PPPs under the Nairobi City Water and Sewerage Company (NCWSC) did not obtain a license and what was reported as one was simply the categorization of the connection as a kiosk. Rather the MSPWEs obtained a general trade license from the city council while the NCWSC however made no deliberate efforts to protect the interests of the enterprises. A high proportion of PPPs, 46.90%, and 36.17% of FPMs suffered harassment by public authorities. Interviews with NCWSC officials revealed that the MSPWEs were viewed as stop-gap measures to provide improved water services to the peri-urban areas in the short run but would be driven out of business by way of providing better utility services in the long run. These findings, on average, reflect an improving view and treatment of MSPWEs by the water utilities compared to the earlier findings by Asian Development Bank(2006) and Njiru and Albu (2002).

The study established that unlike the assertions by the Asian Development Bank (2006) and Njiru and Albu (2002), the constraints faced by MSPWEs in peri-urban areas of Kenyan cities were being mitigated. Unlike these earlier assertions, the study established that in a lot of instances the MSPWEs had been licensed and given water in bulk at concessionary prices which they retailed at market driven prices. Hostility and frequent harassment had declined and some MSPWEs such as the MOs in Kisumu had formalized contracts with the water utilities with exclusive rights to manage and extend networks in defined localized zones. In Mombasa the water utility was sensitive to MSPWE business viability and was defining zones in which it gave MSPWEs the exclusive rights to retail water sourced in bulk from the utility at concessionary rates.

Regulatory Frameworks

The study established that the majority of MSPWEs experienced regulation on market entry and water quality by either a government institution or a water utility. Retailing MSPWEs in Kisumu, however, reported no regulation by the utility but it was indicative that the MOs, on whom they principally depended upon for supply of bulk water were regulated by the water utility on market entry, water quality and price. Retail PPPs in Kisumu (61.8%) also indicated price regulation by water vendor associations. In Mombasa, regulation was mostly felt among the PPPs with 87.67%, 91.78%, and 79.45% citing market entry, quality regulation and price regulation by the water utility. The most felt regulation by FPMs was quality regulation cited by 66.67% and whose responsibility was under the local authority as opposed to the water utility. In Nairobi retailing MSPWEs operating as PPPs indicated regulation on market entry (61%) and price regulation (50%). There was little regulation on all other aspects. Significant proportions of FPMs experienced market entry regulation (100%) and quality regulation by government(50%).

The influence of regulation on the MSPWE business environment was assessed by asking the MSPWEs how the regulation favoured or not favoured their businesses. The MSPWEs were asked to indicate whether regulation was favourable or unfavourable on market entry, quality, price and public private partnership conditions (Figures 3-5). An overwhelming majority of MSPWEs across the cities, 60-100%, viewed regulation favourable on all aspects except public private partnerships which was assessed as unfavourable by 80% of the PPPs in Mombasa and Kisumu and 90% of FPMs in Nairobi. It is noteworthy that only a small proportion of PPPs in Nairobi, less than 10%, viewed public private partnerships as unfavourable.

The study established that all water utilities provided water in bulk to the MSPWEs at concessionary rates and expected the MSPWEs under PPPs to retail water at equivalent US\$1.33/m³. However, the MSPWEs water prices were market driven and were much higher than the prices expected by the public water utilities. On the other hand MOs in Kisumu, bound by firm PPP contracts, provided water in bulk to MSPWEs under PPPs at a prescribed tariff. Kisumu also indicated the highest proportion of MSPWEs, 61.8%, applying collectively determined prices by retail MSPWEs. Hence, except for the MOs price, price regulation was weak and the MSPWEs had a free hand to set prices according to market forces. The study showed that the majority of MSPWEs would continue in business with or without concessions on water bought in bulk from the water utility with the precondition that market driven pricing reigned.

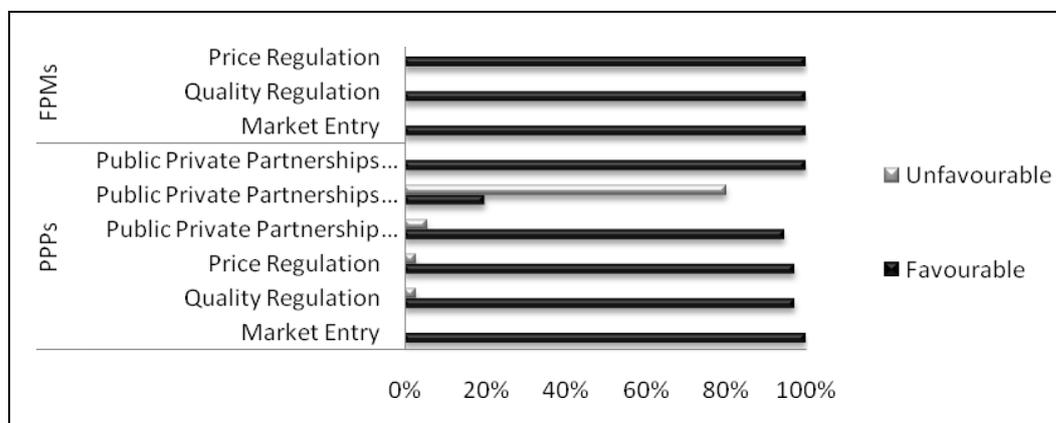


Figure 3: Business environment rating – Mombasa

On the basis of assessment of whether regulation was favourable or unfavourable and observations in the field it emerged that what was viewed as favourable regulation was actually absent or weak regulation on many counts, for instance prices. A majority of MSPWEs indicated that they received market entry regulation and quality regulation. However, as the observations indicated, regulation was weak or non-existent in many cases.

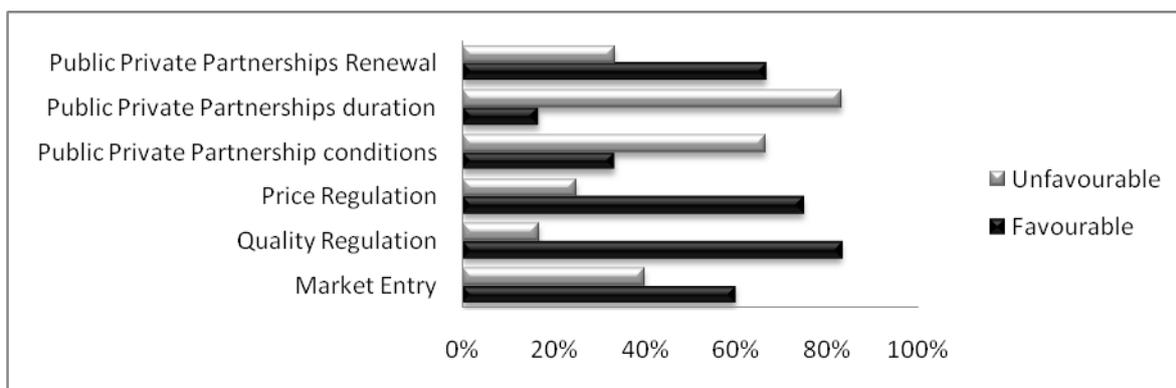


Figure 4: Business environment rating – Kisumu

The absence of effective regulation left the field too open and whereas MSPWEs may not view regulation as good for business, quality regulation may indeed impart a competitive advantage to an MSPWE by boosting consumer confidence. For example MSPWEs cited consumer confidence in their source of water as a source of competitive advantage over mobile water vendors. In addition a form of certification of MSPWEs as quality water service providers by the water utility, for instance recent certification of water tankers by NCWSC, could further assist consumers in choosing the MSPWEs from whom they purchase water.

There was positive institutionalized orientation and deliberate efforts to embrace MSPWEs role in delivery of water services as water utilities in all the cities had an arrangement where MSPWEs get water at concessionary rates for sale in the Market. This support exhibited by the water utilities towards MSPWEs was also consistent with the views of Ouyahia (2006). Ouyahia argued that to protect consumers and private operators there was need to implement policy formulation that favours a win/win approach to private sector participation, particularly on MSPWEs in peri-urban areas. Public Private Partnerships (PPPs) are seen in this context as an effective means to establish cooperation between public and private actors and to bundle their financial resources, know-how and expertise to meet the challenges facing service provision (Ouyahia, 2006).

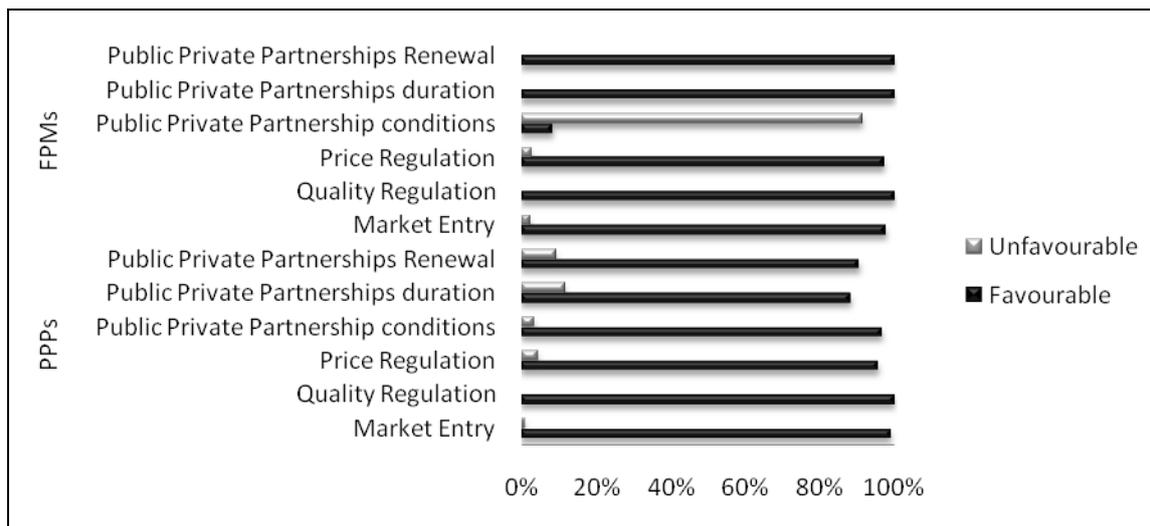


Figure 5: Business environment rating - Nairobi

Business organization

The study established that the MSPWEs models included public-private partnership with water utility (PPPs), private-private partnership with Master Operators (MOs) and Fully Privatized Models (FPMs). Of these, only public-Private partnership (PPP) with the public water utility were found in all the three cities, as the master operators (MOs) confined only in Kisumu was a variant form of this organizational arrangement. Fully privatized MSPWEs were found in Mombasa and Nairobi only. The MSPWEs under PPPs relied on the water utility for water supply but they invested in the network needed to connect to the water utility network in the periphery of a larger neighbourhood to deliver water closer to the customers than the utility had done or was willing or enabled to do. Such MSPWEs only owned the network after the water meter. FPMs enabled MSPWEs exclusively access, possess and control water as a valuable and rare resource and the associated infrastructure needed to deliver it to the consumers. All PPPs obtained water from the water utilities in bulk either through MO contracts or as licensed retailers at concessionary prices.

PPPs provided MSPWEs with the isolating mechanism they needed to protect themselves from imitative pressures in the areas of operations, for instance MOs in Kisumu and retail PPPs in Mombasa, for which the water utilities defined localized zones and gave the MSPWEs exclusive rights to sell piped water obtained from the utility at concessionary rates. Hence regulation and forms of business organization influence sustainability of MSPWEs according to RBT. PPPs and FPMs were willing to go where the water utility remained constrained to go. To this extent, as explained by the water utilities in the three cities, the MSPWE was a useful vehicle to reach out to those consumers the utility could not serve due to constraints faced, key amongst them being the limitation that water utilities could not invest in networks in areas that were not formally planned. FPMs on the other hand invested fully in own sources and network to deliver water to the selling points located close to the consumers.

It emerged that the majority of MSPWEs did not view the licensing to sell water and delegated management as contributing to their sustainability. An overwhelming majority of MSPWEs under PPPs in all the cities felt that obtaining water in bulk from the water utility and at concessionary rates was the only significant condition favourable to their businesses. In Mombasa 81.4% of PPPs felt that they benefitted from the partnership with water utilities by getting water in bulk (Figure 6).

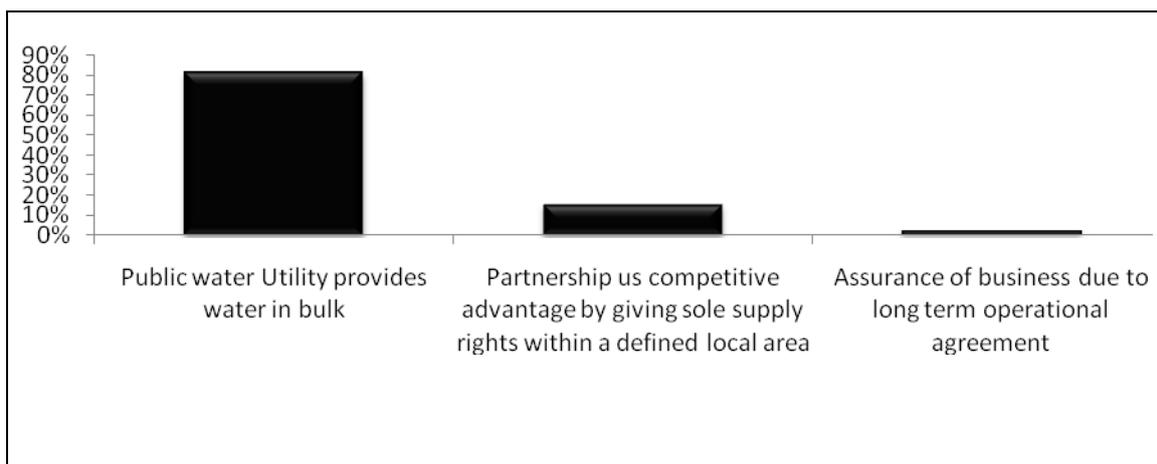


Figure 6: Benefits accrued from Public private partnership - Mombasa

In Kisumu 83.33% of MOs felt they benefitted from the partnership by getting water in bulk. A slightly mixed response was 66.7% of retail PPPs feeling assured of long term business assurance by virtue of the PPPs and 33.33% feeling that the supply of water in bulk was the only favourable condition they derived from the relationship (Figure 7). In Nairobi a significant majority of about 60% felt they benefitted from the partnership. A small proportion of about 20% felt that the supply of water in bulk was the only favourable condition they derived from the relationship (Figure 8).

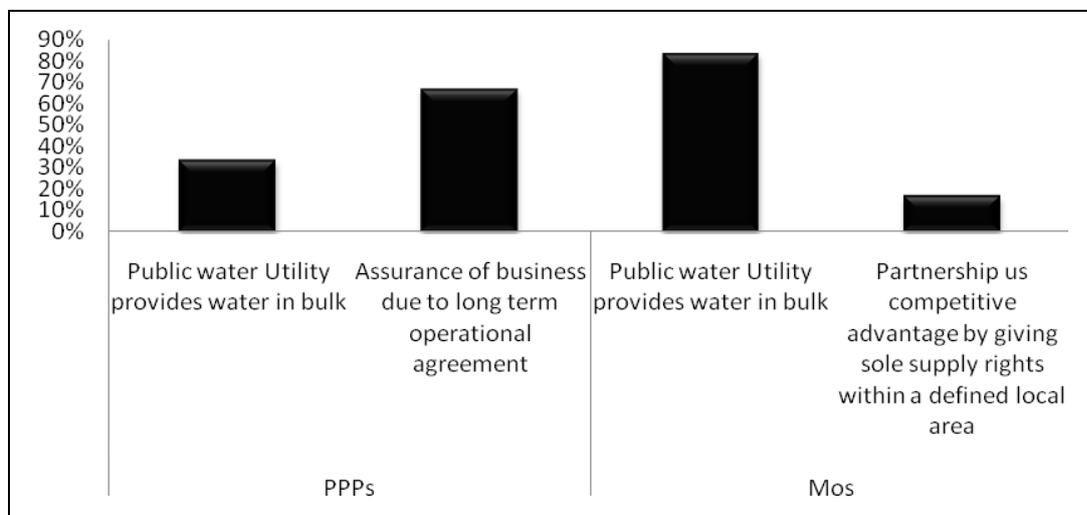


Figure 7: Benefits accrued from Public private partnership – Kisumu

The emerging positive orientation is consistent with experience elsewhere in the World that had shown that in recognition of the competitive advantage enjoyed by the SWEs in peri-urban areas,

there was an emerging trend of deliberate efforts for cooperation between water utilities and SWEs, rather than direct competition in some cities of the developing world to deliver water services in peri-urban areas (Asian Development Bank, 2007). In pursuit of support and win/win partnerships with SWEs, Nickson (2001) argued that (1) small scale private service providers can contribute to better access to services and ease financial pressures (2) large state or private monopolies are not necessarily the only or best option and (3) public limitations can be overcome by allowing appropriate private sector participation in service delivery. There is a strong case, for this reason alone, for tolerance and institutionalized recognition to small scale service providers because the World is full of evidence (*Aguateros* in Paraguay, SWEs in Manilla, Philippines, Can Tho City in Vietnam and others) that large utilities in developing countries, whether under public or large private company management, have been grossly unable to render services, even with the usual exclusive rights to deliver water over the city and its environs, efficiently, equitably and with adequate coverage in the peri-urban areas. Ouyahia (2006), argues that to protect consumers and private operators, Public Private Partnerships (PPPs) are seen in this context as an effective means to establish cooperation between public and private actors and to bundle their financial resources, know-how and expertise to meet the challenges facing service provision.

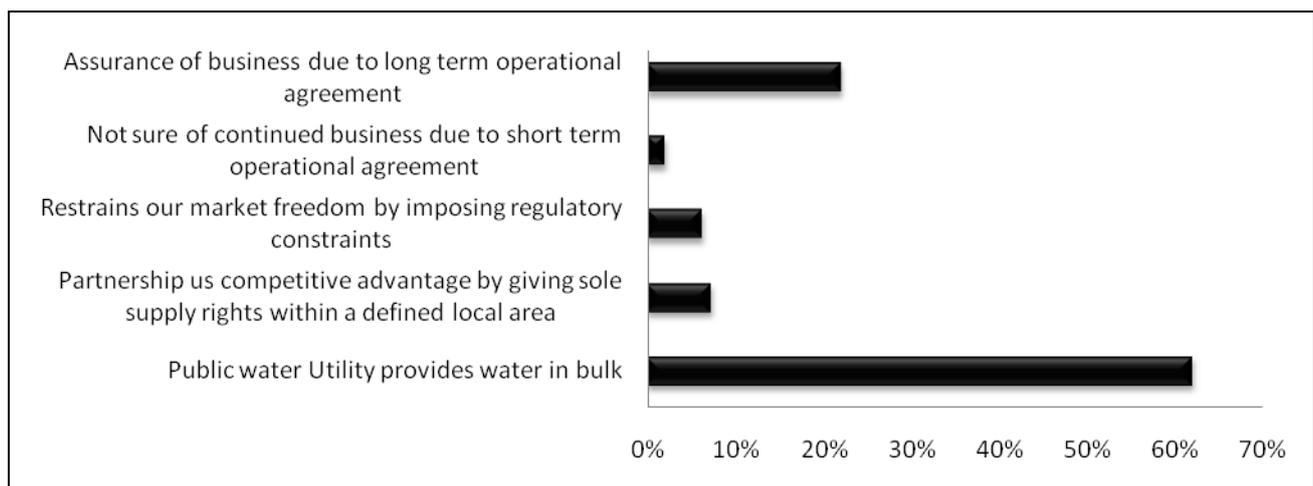


Figure 8: Benefits accrued from Public private partnership - Nairobi

Business development interventions

The study sought to establish the nature of business development interventions and the influence of such interventions on sustainability of MSPWEs in peri-urban areas of Kenyan cities. The study was undertaken against a background in which there was lack of information on the types of business interventions on MSPWEs operating in peri-urban areas and the influence of these interventions on the sustainability of the enterprises, more particularly recognizing the specialization required in investing, operating and managing piped water supply networks.

The study established that in all the MSPWEs, other than MOs in Kisumu, there had been little or no business improvement interventions by the water utilities, government, or donors. Amongst the MOs, 83-100% felt that the business development interventions that they had received had a positive effect on their business operations. The study established that interventions for acquisition and improvement of entrepreneurial skills was experienced by all MO's. However there were only few retail MSPWE's that had been exposed to some acquisition of business management skills and in any case such exposure was general and not tailored to the MSPWE's as water service providers. MO's were required to undergo a tailored training immediately on signing the delegated management contract. Amongst the MO's, 83-100% felt that the improvement interventions received had a positive effect on business operations. In all cases there were perceptions of improvements notably on better business management, customer care, coping with changes in business environment, specialized technical skills and finance management.

Based on MO's experience it was determined that acquisition of entrepreneurial, managerial and technical skills improved the way MSPWE's entrepreneurs perceived their markets, served their customers and managed their enterprises. This gave them relevant competencies and capabilities which in the case of MO's seems to have consolidated their first mover advantage in that the contracts of all MO's had been renewed. This was consistent with the expectation expressed by Namusonge in Mullei and Bokea (1999) and Rosa and Scott (1996) that business skills and appropriate advisory support should have a significant impact in the number of new ventures that are created, survive and prosper.

Hence on the basis of evidence from MO's, the study established that interventions for acquisition and improvement of entrepreneurial skills influences sustainability. KIWASCO felt that MSPWEs with multiple and increasing customer bases, such as the MOs could manage their customers more efficiently if they applied computerized customer management systems by adoption of appropriate software. This could for instance be achieved through specially tailored interventions with willing donors. This was consistent with the expectation expressed by Mullei and Bokea (1999) postulating that if business skills are taught, and appropriate advisory and support services are provided, this should have a significant impact in the number of new ventures that are created, survive and prosper. This view is also upheld by Rosa and Scott (1996) who argue that entrepreneurship education is an intervention that can contribute to stimulating entrepreneurial supply and performance.

Conclusions

The study established that MSPWEs were faced by more favourable socio-political and regulatory environment following the enactment and operationalization of the Water Act 2002, unlike the previous years before the reforms in the water sector. Water utilities had since taken deliberate steps to bring on board MSPWEs as partners in the sustainable delivery of piped water in peri-urban areas indicated by bulk supply of water at concessionary prices, licensing to sell water from the utility mains, formalized delegated management contracts such as MOs with the water utilities and relaxation on price regulation to allow the majority of MSPWEs sell water at prices determined by the market forces. Further the MSPWEs were operating in a regulatory environment where they could engage in market driven business. Favourable socio-political support and regulation contributed to favourable industry conditions as per RBT and hence contributed to MSPWEs attaining competitive advantage. The study further established that the MSPWEs business organizational frameworks influences sustainability.

Fully privatized business models (FPMs) enabled MSPWEs exclusively access, possess and control water as a valuable and rare resource and the associated infrastructure needed to deliver it to the consumers. Under PPPs MSPWEs obtained water from the water utilities in bulk either through MO contracts or as licensed retailers at concessionary prices. PPPs also provided MSPWEs with the isolating mechanism they needed to protect themselves from imitative pressures in the areas of operations, for instance MOs in Kisumu and retail PPPs in Mombasa, for which the water utilities defined localized zones and gave the MSPWEs exclusive rights to sell piped water obtained from the utility at concessionary rates. Hence regulatory and business organizational frameworks influence sustainability of MSPWEs. Based on the evidence given by the MO's, the study established that interventions to acquire and improve entrepreneurial skills contributed to more entrepreneurial business management and hence influenced sustainability of MSPWE's according to RBT.

Recommendations

The study made the following recommendations:

1. MSPWE entrepreneurs should be trained on opportunity recognition and benefits of joining forces together rather than have a proliferation of MSPWEs which results in much horizontal growth with little vertical growth.
2. Regulation should be streamlined to promote MSPWEs business to be driven by market forces given that the regulation in which MSPWEs operate was weak.
3. Tailor-made interventions should be designed and implemented targeting MSPWEs as providers of piped water in peri-urban environment, aiming to improve the capabilities of MSPWEs on general business management, customer care in a peri-urban environment, specialized technical skills for piped network management and finance management.
4. Water utilities should enter into public private partnerships with MSPWEs benchmarking the KIWASCO-MO delegated management model, relaxing business stifling regulation and in-building clauses that permit market driven business.

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