

AFD
(AGENCE FRANÇAISE DE
DEVELOPPEMENT)

**ENTREPRENEURS IN TRANSITION:
SMALL SCALE PRIVATE WATER SUPPLY
OPERATORS IN GREATER MAPUTO**

October, 2010

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Acknowledgements: Field research carried out by Amilcar Xavier and Jossias Humbana with assistance from Margarida do Rosário Paulo for this paper was made possible by the Agence Française de Développement.

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ENTREPRENEURS IN TRANSITION: SMALL SCALE PRIVATE WATER SUPPLY OPERATORS IN GREATER MAPUTO

Gaye Thompson

Summary

Entrepreneurial Small Scale Private Operators (SPOs) have become a significant feature of the water market landscape in Greater Maputo over the past ten years. Steps were taken to start their assimilation into the formal market in recent years through introducing the private management by some of these SPOs of donor financed new small piped systems. Candidates tendering as managers were not as prolific as expected. Additionally, when the government offered a facility to provide output based aid (OBA) to SPOs to subsidise the expansion of their own systems, it had virtually no response at all. Although it was known that resource constraints, particularly access to loans were reasons inhibiting the growth of SPOs' systems; when offered financing services, they did not take them up. The question of why SPOs were not interested in expanding their services using OBA is taken up in this paper. We look at SPOs in their social context, their entrepreneurial and leadership types, and their use of *bricolage* as a means of cushioning risk. We then look at their participation in the government's project as managers of small water supply systems. We follow the changes these managers underwent in the way they conducted their businesses juggling the frames of reference for business development used by SPOs and others by the government. Finally we learn from their relationships with their own systems why OBA was not an appropriate business expansion tool.

1. Introduction

In 1996 small scale private water supply operators (SPOs) were first identified in a study of the water market in Greater Maputo (including the city of Matola) as having a noticeable market share. Their entry into the market at end of the 1980s was the beginning of their rapid growth in response to demand created as the peri-urban population swelled with refugees from the war and new small and medium scale commercial and processing activities in these areas required water. The physical limitations of the main supply network meant it did not reach the periphery of the cities. Small water supply systems were constructed by the

State at that time for public consumption and by private individuals and companies to provide water for their domestic and productive activities.

A rapid increase in numbers of these informal SPOs over the past two decades has occurred. However it is only recently that SPOs have attracted wider attention due to the organization of operators into two associations in Matola and Maputo.

Updated information from FIPAG (2009) suggests that there are approximately 500 private operators active in the cities of Maputo and Matola, managing some 60,000 household connections. Some SPOs also have standpipes which usually take the form of a kiosk or lockable shop front where buckets of water are sold at particular times of the day. These are operated by a paid operator or a member of the SPO's family.

Mozambique needs to double its 1990 - 2004 rate of coverage increase urban water supply to reach the Millennium Development Goals by 2015. As noted by the most recent National Poverty and Well Being Assessment (September 2010), urban service coverage in the south of the country from improved sources is increasing phenomenally (20% point rise between 2002 – 2008 based on the national Household Survey in 2002 and the Household Budget Survey in 2008). This contrasts sharply with the rest of the country, where the trend has been a slight drop in access to clean water. It is highly likely that the high access rate reported in the south is due to the increased numbers of connections made by SPOs. SPO business expansion is more rapid than that of the main network water supply provider a concessionaire consortium called 'Águas de Moçambique' (AdeM). Between 2002 and 2008 private operators installed around 25,000 connections compared with 13,000 by AdeM. SPOs are progressively capturing an increasing share of the water market in the metropolitan area.

Recognizing their role in providing water, the government has recently been seeking to legitimise the SPOs through licensing, thereby requiring them to meet certain minimum service quality standards¹.

In 2007 the government augmented its planned improvement of the main network supplies in Greater Maputo with a component of the Maputo Water Supply Project, to construct sixteen small independent systems in areas not covered by the SPOs but that would be managed by SPOs who would compete for management contracts through public tenders.

¹ This is the rationale for Component 3 activities of the Water Asset Fund's (FIPAG) Maputo Water Supply Project.

It was hoped that by elaborating an institutional framework to enable the SPOs to formally manage the small systems within a regulated framework, a process for licensing SPOs would also be defined and once launched, would gradually bring them into the formal sector. It was recognised by the government's water assets manager FIPAG and the municipalities that the process of licensing would need to be gradual. Thus from an initial census registration of operators and their provisional 'licensing', they should be encouraged to gradually meet more stringent legal requirements ensuring the quality of their water supplies so that eventually they could be licensed as fully compliant providers who could be regulated on the basis of recognised standards.

Plans to license the SPOs were initially implemented by FIPAG and the Municipality of Matola, followed by the Municipality of Maputo. Just before the municipal elections in November 2008, the government decided to stop the process without a clear indication of when it would be re-initiated. Plans for licensing SPOs were taken up again in preparation for the launching of bids for management by SPOs of FIPAG's first newly constructed small systems. Leaflets were made explaining the process and meetings were held in both cities by FIPAG to explain to potential SPO bidders how to pre-qualify and more general meetings were held to explain about the licensing process.

After the award of the first three small systems constructed by the State to three experienced SPOs, excluded SPOs began discussing their fears that the licensing process would not provide enough benefits to them as it appeared that they were being offered temporary licenses conditional on the achievement of certain minimum performance levels. They perceived that smaller operators would lose out and this began to cause some anxiety. One of the SPO associations in particular, AFORAMO with its base in Matola, began to publicly express these anxieties to the media and to FIPAG. It first expressed its lack of confidence in the engagement process with the government after the planned opportunity for licensing SPOs was suspended in October 2008 (due to political agitation around the national elections) - before registering anyone. Then AFORAMO refused to continue dialogue with FIPAG for as long as decisions taken and shared publicly were not acted on.

During the period of the study as will be seen below, the public rhetoric from AFORAMO and engagement between SPOs and FIPAG were perceived by SPOs as unsatisfactory. They claimed that the government was not recognizing the SPOs' role in sustaining livelihoods and essential services. Instead it appeared to be dividing operators and privileging a few at the cost of the rest. The situation grew tense and culminated in an appeal by AFORAMO to the Minister of Public Works and Housing for recognition of the vital role

of the SPOs as service providers in meeting water supply needs in the cities.

FIPAG's initiative with small systems managed by SPOs came under attack in the media which, citing AFORAMO, discredited it as a means of segregating more successful SPOs from the rest, by providing them with a longer term 'licensed' period of five years while all other SPOs only had short term guarantees via one year temporary licenses. In reality, the delegated management contracts held by the SPOs managing FIPAG's systems were for five years and were fee and tax paying positions subsidised by output based aid performance agreements for their expansion and new connections. Their connection fees were slightly less than those charged by other SPOs and the tariffs approximately equal.

The SPO association AFORAMO then led a process of discrediting FIPAG and threatening a strike. AFORAMO had limited membership of around 20% of SPOs in the cities. It actively mobilized only some SPOs. Our qualitative research indicated that the only way many SPOs learned about the issues in question was through the media, while still others knew almost nothing. However, the government acceded to the association's requests (while also stipulating conditions that effectively allowed the government programme to go-ahead unhindered). The associations (AFORAMO and another called AMATI) assumed responsibility as representatives of all SPOs in signing an agreement on these issues.

The project to construct small systems has continued and SPO managers continued to be selected for management of these. However the wider SPO licensing process came to a halt. Responsibility for licensing was to be passed to the municipalities as prescribed in legislation, but the municipalities were not sufficiently professionally equipped nor did they have adequate resources to take the matter up where FIPAG left off.

At the end of the study period in 2010 relations between the SPOs and government had reached a point of inertia with no indication of how they would be taken up again with any hope of a progressive outcome. Interestingly, as an indicator of the acceptability of the new agreement as a basis for transition towards more engagement with the government, three of the founder members of AFORAMO won the management of three of the next batch of small systems recently constructed by the State.

Contextually it is important to also recognise some of the on-going dynamics in the peri-urban areas that have a certain influence on the growth and development of the informal water market including a) the continued rise in demand for better living standards and basic urban services such as water supply, electricity and transport; b) continued conflicts over land and water supplies; c) mistrust of corrupt authorities; d) rising insecurity with the advance of

urbanisation and income inequality; and e) the increasing cost of doing business and serving customers who are among the poorest in the world.

1.1 What do small private operators do?

The small private water supply operators in Maputo and Matola have developed water distribution services through investment in small independent systems, consisting of a borehole fitted with a submersible pump, an elevated water tank and very simple small diameter distribution network. In scale, they vary from a single person selling borehole water through a single standpipe in his/her backyard, to those operating five or six systems with some of them serving up to 1,800 households.

Water supply appears to be an economically attractive business. A 2006 study of SPOs in Maputo (Davis and Bhatt, 2006) noted that a third of SPOs interviewed for the study planned to expand their businesses and more than two thirds were confident they would still be operating in ten years. The major constraints to business were cited as costly and unreliable electricity supplies and access to credit.

A Service Quality Mapping study carried out for the Water Regulatory Council (CRA) shows how business models identified in FIPAG/Hydroconseil's SPO survey of the Northern Zone of Greater Maputo, June 2007, can be organised in an evolutionary context with four steps or stages. The prevalence of these at that time is shown comparatively in the graph below:

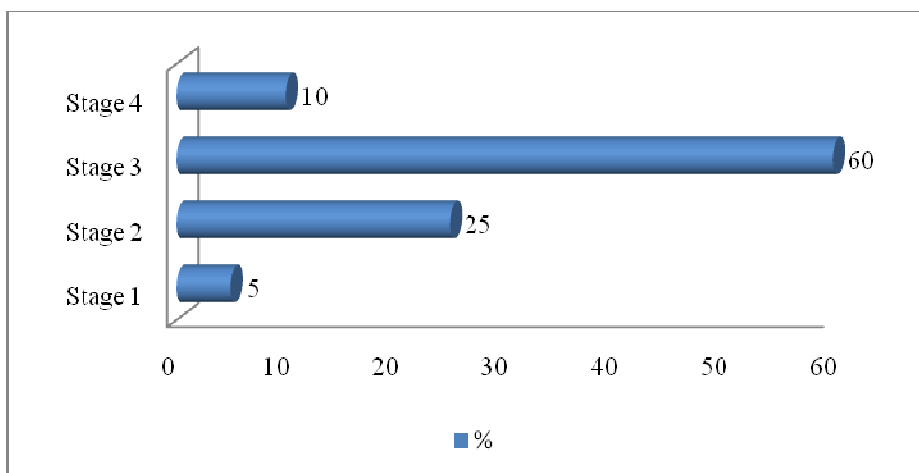


Figure 1: Stages of Evolution of SPOs in Greater Maputo (June 2007)

The stages are characterised by SPOs in the following investment and operational situations:

- Stage 1: building a standpipe, managed by the borehole owner or a relative;
- Stage 2: providing domestic connections to a few dozen neighbours and the business is still managed by the borehole owner or a relative;
- Stage 3: providing water through an expanded network in neighbouring streets, and employing plumbers to install connections and an accountant to manage the customers (systems supplying water to a few standpipes and 25 to 500 household connections – although the majority have under 100 connections);
- Stage 4: investing in other boreholes and water systems (in Maputo/Matola SPOs had more than one and some even up to five independent systems);

The distribution of SPOs in this typology shows that market entrance is difficult – requiring substantial capital investment to enter into the first stage. It clearly shows that SPOs respond to the demand for house connections, and once in the market, foreclosing access to others, established SPOs expand and build more systems. The initiative by FIPAG to offer management of its new small systems to successful SPOs is a logical consequence of this analysis.

The larger businesses in Stage 4 and some of those in Stage 3 were entrepreneurs investing in network expansion, and in Stage 4, in several water supply systems. The FIPAG study shows that a few of them managed systems with more than a thousand private connections.

The Service Quality Mapping study also shows that among the private operators surveyed by FIPAG /Hydroconseil (2007) only 30% financed their investments with loans from banks, micro credit institutions or family / friends. In cases where credit was used, personal property was consistently used to guarantee the loans. The majority financed their investments themselves.

Most infrastructure is located in the private operator's own compound. Very few SPOs have legal title to the land. Distribution pipes are located in public spaces (along roads) and the connection centres are for security reasons, usually in the private compound of the operator or a client.

Connection fees are variable. This is the main mechanism for gaining new customers. Private operators were observed by Davis and Bhatt (2006) to use promotional strategies (reduced cost connections) when they entered a new zone, or when a competitor entered the area. SPOs in the present study confirmed this approach, but at the same time publicly maintained their expressed preference to expand where they did not have to be competitive.

Initial investments tend to cover a borehole, a tank and pipes. Start-up costs range between 10 – 45,000 USD, indicating that only the better off can even think of entering into the water vending business as SPOs.

Some small operators joined one of two SPO associations that emerged around 2006 (AMATI and AFORAMO). AMATI has its headquarters in Municipal District Four with local membership and interests. AFORAMO is a nationwide association that became active in Maputo / Matola as a result of the potential formalization of the SPOs and then in defence of SPO interests in general in relation to the government. AFORAMO is the more publicly vocal association, advocating SPO recognition.

2. Question and approach

Since the SPO's started becoming a significant feature of the market landscape, and lately, since steps were taken to start their assimilation into the formal market, the question of how to motivate their participation has become relevant. Candidates for management of the new small piped systems constructed as a component of the Maputo Water Supply Project were not as prolific as expected. Additionally, a facility offering output based aid (OBA²) to SPOs to subsidise the expansion of their own systems had virtually no response at all.

In this paper we ask why SPOs were not interested in expanding their services using OBA. Although it was known that resource constraints, particularly access to loans were

² Output Based Aid, commonly abbreviated to OBA is a development aid strategy that links the delivery of public services to targeted performance-related subsidies. OBA subsidies are given to service providers to replace costs associated with providing the service to people, such as user fees. Thus in the case of the SPOs after a government technician has verified that an agreed service is being delivered according to a specified level of performance (i.e. number of additional connections), a subsidy will be granted enabling the SPO to expand again. The number of times the cycle is repeated is specified in pre-established agreements.

cited as reasons inhibiting their growth; when offered financing services, they did not take them up. Indeed engagement with SPOs followed a sort of ‘hit and miss’ rhythm in terms of the government’s success in gaining their collaboration.

In looking at who SPOs are in their own social context and then at their participation in the government’s project by managing small water supply systems, we are able to gain some insights concerning the changes these managers underwent in the way they conducted their businesses. We discuss the frames of reference used by SPOs and some of the transformations that occurred when SPOs became managers of systems that were not their own, to help us understand more clearly their relationships with their own systems and why OBA was not an appropriate business expansion mechanism.

An anthropological dimension was used to qualitatively examine and analyse SPOs’ historical development, their relationships with their customers, each other and the government with the aim of learning more about the reasons for their decisions and actions. Over one hundred informal semi-structured interviews were carried out over nine months during the field research with 20 private operators, their families, employees and drilling companies. The private operators in the study comprised of six women and fourteen men dispersed through the northern peri-urban areas of Maputo and Matola cities.

Most of the work was conducted in Portuguese and ChiChangana by two anthropology graduates. Interviews and conversations were carried out on the site of the system, at an operator’s home, in his or her vehicle, or at their formal employment premises or other income source locations.

3. Theoretical bases

Many SPOs studied had entrepreneurial characteristics. Economic anthropologists and political anthropologists have used the concept of the entrepreneur to describe people who make use of the gap between different contexts or spheres where the valuation of goods and meanings can be raised.

Early historical literature on entrepreneurs can be found in references from the political economist Say (1816, pp 28–29) who defined the entrepreneur as the agent who ‘unites all means of production and who finds in the value of the products...the re-establishment of the

entire capital he employs, ...as well as the profits belonging to himself’.

Economic anthropologists such as Frederik Barth pointed out that such individuals were often outsiders or strangers (Barth, 1963, 1978). These outsiders were able to serve as bridges between different groups or across different spheres. In contexts where novelty was often actively resisted by political and/or religious authorities, strangers were among the few members of society who did not feel so constrained. The role of strangers was to connect groups that would not otherwise interact, deriving value from the exchange.

Ideas about entrepreneurship have expanded widely in recent decades, from it being seen as an activity conducted by outsiders, to a widely accepted practice carried out by small business people, and business and political leaders. Academic efforts to understand management and leadership processes from Fraser (1937) onwards began, associating entrepreneurs with the management of a business unit, profit taking, business innovation and risk-bearing. The theme of entrepreneurs assuming risk themselves has been emphasised by theorists in parallel with the study of entrepreneurial innovation and management expansion.

An entrepreneur may be a Big Man if he gains political status primarily from achieving his leadership position by economic ability (Marshall Sahlins, 1963). A Big Man secures influence over his kin and neighbours by astute economic generosity and management. People support a Big Man’s ambitions to build his ‘name’ because he contributes to their own financial needs and prestige. Big Men typically possess aggrandizing and competitive personalities.

A Big Man occupies no office but creates his reputation through entrepreneurial expertise and generosity to others. The overall idea of a leadership type that is competitive, influential and economically powerful, anxious to be seen to be giving away his wealth, and in doing so creating reciprocal socio-economic obligations is the Big Man image applicable to some of the SPOs.

Entrepreneurs have also been noted for their operation, certainly in the initial start-up phase, with limited resources. Ted Baker has been studying entrepreneurs in small businesses over the past decade in the US. His focus was on the resourcefulness of entrepreneurs in the face of very limited resources (Baker 2003, 2004). In observing that some entrepreneurs manage to survive or even to create robust and growing firms despite long periods with what appear initially as inadequate resources, he asked ‘what kinds or patterns of behaviour might account for the ability of some entrepreneurial firms to make do or to flourish with the resources they have at hand.’ He identified the behaviour patterns found as a form of

bricolage.

Cunha observed that ‘people facing difficult and uncertain situations, may have to use whatever resources they have at hand to reach their goals’ (Cunha, 2005), and posed the idea that *bricolage* is used in critical situations. In a classic work of social anthropology (Levi-Strauss, 1967), Claude Levi-Strauss defined *bricolage* more or less as making do with whatever is at hand. Cunha defined *bricolage* as the invention of resources from available materials to solve unanticipated problems (Cunha 2005) and suggested that an important focus of entrepreneurial tendencies to try to fulfil consumer needs while staying alert to opportunities, should be on the processes of improvisation and *bricolage* that help firms co-evolve with their environments.

Baker developed a theory of entrepreneurial *bricolage* based on several years of comparative ethnographic research among entrepreneurs and employees in two very different highly resource-constrained contexts. Entrepreneurs in resource-poor environments were able to render unique services by recombining elements at hand for new purposes that challenged institutional definitions and limits. As a result Baker developed hypotheses on the conditions for firm growth while under resource constraints. Baker found that Levi-Strauss’s concept of *bricolage*, explained many of the behaviours his team observed in small firms that were able to create something from nothing by exploiting physical, social, or institutional inputs that other firms rejected or ignored (Baker 2005).

Most literature about entrepreneurs has focused on their responses to resource constraints by identifying ways that they attempt to eliminate these by obtaining additional resources. Baker’s study by contrast, focused on proprietor-*bricoleurs* in which he distinguished two distinct patterns of behaviour, he labelled “serial” and “parallel” *bricolage* and their apparent relationship with the chances of firm growth. In so doing he identified several categories of positive and negative outcomes of *bricolage*. Thus some *bricoleur* proprietors would share their time across many different projects requiring various skills they had to learn, and accumulate various resources that could be useful for their activities, but which would not necessarily be used or might not ever be used. Serial *bricolage* on the other hand were more narrowly focusing on moving their primary projects forward; accumulating resources that they knew would be useful, even if not immediately so for their main project.

In his data, serial *bricolage* was exclusively associated with growth, and parallel *bricolage* was associated with stable, declining or very slowly growing businesses.

A fundamental feature of *bricolage* that has also been pointed out in the analysis of

organizational theory (Yiannis 2002) is that it does not worry about 'proper' and 'improper' uses of objects. It makes do with whatever is available regardless of state, cost or degree of complexity. Thus, *bricolage* is opportunistic and *ad hoc*. It captures the makeshift, improvisatory and creative qualities of cultural life in organizations and among an increasing range of applications, it is in consumer studies that the concept of *bricolage* has come into its own, opening up great possibilities for the study of services where the encounter between the provider and the consumer is so important.

The present study of SPOs in greater Maputo focuses on the structural relationships of 20 SPOs in their social context, and examines the processes leading up to the establishment of these in order to gain a better understanding of them. During the study period a few key events led to changes in the governance structure. The study reflects on the changes in social relationships that resulted, and looks more closely at the processes by which these were brought about.

This paper is organized so that an overview of the water market in greater Maputo and the increasingly important role of the SPOs provide the background against which the research results are subsequently presented. The main discussion looks at SPOs, their social relationships and business expansion strategies. It then traces the events and perceptions surrounding the licensing process that culminated in a widely publicised threat of a strike to demonstrate the value of their services to the public in the face of perceived threats from the government. In conclusion we reflect on the importance of social factors for SPO operation and comment on the need to maintain this in view when the inevitable uncertainties are generated with the continuation of legalization of SPOs and increasing engagement with them by the government.

4. Research results

SPO classification that existed at the time this study started was best described by Hydroconseil in 2007. Hydroconseil showed how business models could be typified in evolutionary steps based on the size and development of the systems they managed. We looked at the social relationships and networks used by SPOs classified on this evolutionary scale to try and learn more about their growth processes.

We found that in general the management of small systems as businesses was based on involvement of family members that was critical at all levels of the evolutionary scale. This meant that affines, agnates³, close neighbours or relations of employees were involved. Trust was the principal driver for involving these people in system operation.

4.1 Start up and early expansion

SPOs participating in the study either invested in a water supply system for their own use, or were recommended to invest when they had available capital by family members, or upon demand from neighbours. Men and women initiated their businesses capitalized from other small businesses, employment or via family with financial connections. The SPOs studied had the following start-up profiles:

- a) Twelve drilled their first borehole to provide their own domestic water supply, among these three of the group drilled a borehole for house construction, and one other to provide for another business - poultry.
- b) Six SPOs with available capital constructed their first systems specifically to pursue the business of selling water.

³ Affines are kin of a woman's family lineage and agnates are kin of a man's lineage.

- c) Two well known SPOs that had good businesses in other sectors at the time who acceded to the pressure of local leaders and local residents to construct a borehole and install a system in the area.

The role of the family in determining start-up of new water supply systems means that the moral and financial support is provided from within.

The operators did not generally seek outside assistance to establish themselves.

The majority of operators were supported by third parties to construct their first systems. The support was monetary in some cases and social support in others.

For example one of the operators, Jorge, accumulated money from his charcoal transport business and was at first going to rehabilitate a local football field, but he was convinced by his friends to invest in a water supply system instead. However since funds were short, he also accepted additional financial support from four of these friends.

Other SPOs received social and technical advisory support such as Helder who was helped by his uncles, themselves small operators and experienced in the business, who urged him to enter into it. He resorted to their advice whenever he had problems and said that he followed their suggestions.

Four of the six women SPOs in the study had financial support from their husbands for building their first systems. Most of the men running systems used their own savings from other businesses to build their first system. None resorted to banks in this early phase except for finalizing construction and in very small amounts.

Ali is a good example of an SPO urged to start a business by neighbours and community leaders insisting he serve water to people in the area. Ali said he was at first reluctant thinking

Who is an SPO?

Fabião is a 33 year old chicken farmer who lives in Km 15 neighbourhood with his wife and young son. Poultry farming has always been his dream. He wanted a space that was isolated and far from residences to avoid contamination of the birds. This he found in Km15 neighbourhood. Since poultry farming requires a continuous water supply and the area had no water at that time, he constructed a borehole. Over time people began approaching him, to ask him to provide water. At first, he supplied via a stand pipe. Later he made household connections. As these increased, he installed meters in their homes as they said they wanted control their expenditure.

Reinaldo is a resident in T3 neighbourhood and has a water supply system in 1° de Maio neighbourhood where he is building a house. He also has a shop in Zonas Verdes neighbourhood selling mobile phones, accessories and jewellery. In the shop he has a photographic studio. He also has two Coaster buses which he runs on local passenger transport routes from Zonas Verdes to the Natural History Museum in the city centre. With advice from an SPO friend he decided to build a system. The friend also advised on which driller to hire and how to set up. The system was initially used to supply the house construction needs, and then he also began selling to people in the area.

that this would break down friendships and trust with neighbours, but he found that it did not, and additionally that it was a profitable business.

Location of an SPO's first system was almost invariably at the operator's home. Domestic water supply was then expanded from simply supplying the operator's family to supplying neighbours. SPOs expanded the reach of their systems to varying degrees, ranging from five to over a thousand connections. Financing for expansion of most systems was found to usually be obtained from funds accumulated from current system operation, often supported by income from other economic activities, plus rarely, bank loans. In the case of the new systems constructed by the State, payment for expansion was provided through an OBA scheme.

The water selling business was very profitable, and operators tended to expand their businesses in response to demand. SPOs were usually pressured by demand made by local members of the population or by local leaders. In four cases the SPOs said they were obliged to respond even though they did not have the capital resources readily available. Investment funding was difficult, especially for SPOs who were still at an early stage of development of their activity. Money to extend their business was achieved through loans but only two cases used banks. One of these, Eduardo took out a bank loan while also calling in his older brother recently returned from the mines in South Africa with money at hand to invest in the same activity in the same neighbourhood.

SPOs with available capital on the other hand, planned their investments strategically; they offered lower prices and ensured they could provide better quality services than other SPOs in the area in order to gain customers. One of the large SPOs said she considered investment in new systems as being 'safer than money in the bank'. These were operators with capital available from their employment and other small business activities such as running a fleet of mini-buses, shops or poultry for example. Managers of the new State systems obtained money from the OBA scheme where available funds made strategic planning possible.

Innovative financing arrangements with drillers were found to be carried out by some SPOs expanding their businesses. Most sought services from individuals with whom they could negotiate rather than from formal companies. Ali used his social network to arrange with a drilling company managed by a friend to only pay 60% of the value of the drilled hole at the time of borehole construction with the rest paid off during operation of the system. Through this system Ali was able to expand at a much faster rate than any of the other SPOs

in the study by repeatedly using this arrangement as a springboard to construct another borehole. He maintained strong social relations with the family managing the drilling rig and almost all of his 12 boreholes were constructed using this financing arrangement.

The largest two SPOs in the study had ten and twelve small systems in the two cities. The one with ten systems focused on these as his main economic activity, but the one with twelve, also maintained parallel businesses in other sectors at the same time. The latter used common administrative resources for all his businesses – transport, water supply and construction. Some of the medium sized SPOs with five or six systems used their resources to provide inputs to various businesses in parallel. They used the benefits from one business to move another forward. As water supply was one of the most lucrative, it was most often used to finance the start up of new business activities.

Although clearly performing *bricolage* according to Baker's concept, the SPOs in the study did not conform to his hypothesis on success being related to a shift from parallel to serial *bricolage*. Instead our study appears to show that the SPO entrepreneurs continue with parallel *bricolage* at all levels of growth.

Sites for new systems constructed by established SPOs were located in areas that they chose carefully. It was found that three practical factors tended to influence the choice of sites for system installation:

- i) the availability of a plot with enough altitude that gravity distribution from a small system is possible (i.e., operator Jorge has surface and not elevated tanks, possible because of the elevation of the terrain allowing sufficient pressure for adequate distribution).
- ii) the available of good quality, reliable electricity; and,
- iii) low density of the network of water supplies in an area. Most private operators were not interested in entering into an area already well covered by suppliers.

It was found that SPOs wherever possible, avoided direct confrontation or openly competing for clients when selecting sites for new systems. Exclusivity was an important factor in these business development decisions. As the systems were expanded with additional connections on the ground then conflicts arose with neighbouring SPOs. They thus tried to avoid or postpone this inevitability by siting new systems where other SPOs were not already

providing services.

The choice of sites was also found to be related to SPOs' social and political connections. Larger SPOs in some cases used their close relationships with local authorities in order to secure spaces to construct their systems. Others such as Alberto and Luís, men who were locally renowned and respected suppliers with many systems and capacity to expand, were asked by local authorities to provide services in areas where there was a specific need. Involvement of local authorities meant that sites were provided and their tenure was secure.

The allocation of land for small systems by local leaders was much less common however than the purchase urban plots identified by SPOs through their social networks. In the outer peri-urban areas of Maputo land speculation is rife, and many plots have houses built on them by families living in the urban centre or inner peri-urban neighbourhoods. As a result the price of plots is high. Ali pointed out that prices are especially high for water suppliers as they are perceived by others to be able to make enough money from their business to pay (Ali spent over US \$660 for a plot of 10x5m for a borehole, shelter for electrical system and tanks).

In order to secure their use of land, most SPOs purchased plots on which to establish a their systems, but a small number used their social networks to find small plots (around 5 x 10m) that they rented or bought from the owners of the surrounding land, on which they constructed a borehole and tank. These small plots were islands in other people's property, and required various innovations to ensure they were not meddled with. Examples of such innovations can be seen below:

Innovations to gain land tenure security

a) All of Ali's 12 systems were on purchased plots. He himself used neighbourhood leaders and his wife used her social network to locate potential sites. When a suitable option was identified private negotiation with the plot owner followed. Some plots were subdivided and sold, in other cases a land owner sold a selected small portion for a borehole only.

b) Smaller operators such as Eduardo highly valued their relationships with plot owners as a key means of ensuring continued security of tenure in an ambience of goodwill. His wife and one of the women involved in the scheme were instrumental in identifying women who would be willing to provide land for building a borehole and system. His new business 'partners' were low income single women. After negotiating a transaction arrangement for a portion of a plot with a woman owner living on her own with a low income, he then awarded her an active role as a remunerated guard and vendor from the new system. He ensured the security of tenure of the land for his systems through the involvement of these women in their operation.

c) José located one of his systems on the plot of the brother of his second wife. José had identified the plot for purchase in the first place, and looked after it while the brother-in-law was in South Africa – thereby establishing a social obligation which he claimed later for his water supply system.

d) Joana initially used her mother's contacts to identify and use the land for her systems. Initially she paid rent or informally advanced a security to the owner, but after twice losing plots of land with boreholes constructed on them when the owners reneged on the arrangement; she abandoned this approach. She has since opted for outright purchase – but always of plots identified through her social network.

4.2 Organizational relationships

In order to make sure they would capture the benefits of their businesses, SPOs tried to involve people they could trust in the operation of their systems, and their social networks were one of their most important assets.

The relationship between an operator and his or her customers is usually open and direct. However when the issue is responsibility for repairs and replacements of pipes that were broken or leaking, there are quite often disputes over who has to pay and where the obligations lie. Non-payment of bills is an issue that can result in ending relations between and operator and customer. However, the most demanding situation seen requiring a strong sense of obligation is the need to dissuade customers from engaging in theft of water (either by its resale, or illegal connections). For example, one operator resorted to customer contracts witnessed in the presence of the community police and traditional authorities as a form of pressure to urge their good behaviour.

Illegal connections made by SPOs' employees to gain a personal source of income is a very common occurrence. It is one of the main reasons why almost all SPOs studied insisted on a family member accompanying the monthly meter readings. Cases have been taken to court, and almost all cases of employees losing their jobs were due to theft or conniving with customers to steal.

Establishing relationships based on trust is a complex and evolving process. Unfortunately the opportunity for enrichment from water supply services is patently obvious and theft by employees is a constant threat to this trust. As such, the recruitment of employees by SPOs is a complicated matter since there has to be a distinct level of trust and/or sharing of socio-cultural frames of reference to firm the bond as an obligation.

In southern Mozambique inheritance is patrilineal and the value of the male line is considered more important than that of a wife's family. This means that SPOs usually seek

family members of the male line to work at their systems. Recruitment of their wife's family members is much less common⁴.

The recruitment of system management and operating personnel is primarily based on trust. People are usually drawn to male SPOs from social networks of known and trusted male line family members from social networks in the immediate neighbourhood to an SPO's area of origin that was sometimes hundreds of kilometres away.

Aside from trust as a central criterion for recruitment, social responsibility towards family and neighbours is another key factor in recruiting staff. An SPO's responsibilities for family dependents in general, means that some family members brought in to work at the systems are not directly well known and trusted. SPOs needing people to operate their systems sent word to their families living in the districts and provinces to send someone to come and work with them. Often they did not indicate the particular person they preferred.

As a result of the SPOs' obligations to their kin in their districts of origin young people who are not skilled or experienced in such work are brought in. Their qualification lies in being family members. As such they are housed and fed, and in a few cases they are not paid a wage for their work at a system. Reciprocity defines the obligations between the two parties; SPOs are patrons who ensure the dependent family member receive food and shelter (and usually income) in return for a commitment to work for the benefit of the patron rather than himself.

By identifying family members, usually children in the agnatic line⁵, most SPOs attempt to secure a socio-cultural basis of trust from them that would prevent them from stealing or otherwise disrupting the business. This does not always work and thefts sometimes occur. However even so, the arrangement is used repeatedly, since the concept of family and the socio-cultural pressure for a patron to take responsibility for less fortunate family members are very strong drivers.

Patronage relationships are frequently (and increasingly) characterised by monetary exchange. Employees who are not SPO family members are usually paid salaries based on

⁴ This situation was much less pronounced at systems managed by women, where the SPOs studied either worked only with their sons, with their own affinal kin, or with nominal kin – a church 'brother'.

⁵ This could include sons or nephews, as all are recognized as generational 'sons'.

oral labour agreements; written contracts are uncommon. Salaries and working conditions are generally non-negotiable and established by the SPO.

Even in the case of an SPO who does not recruit his own family members, kin-based patronage continues to determine recruitment. One SPO clearly instructed the manager of three of his systems to employ his family members. Others were less explicit, but the lower level relationships were seen to exist. The patron-client relationship is thus passed on to a successive level of ties as a functional means of reinforcing obligations and ensuring allegiance up a hierarchical structure.

One of the SPOs in the study with a large business has started to recruit people based on competence. He is starting to place much greater responsibility for performance on these employees than on those employed based on trust and family obligations. However, he still involves one or two qualified family members in senior positions.

Management organization is in the majority of cases family based; control is exerted by the owner through pivotal intermediaries, most often an SPO's wife, son/s or a highly trusted long term employee or neighbour. System management was found to be a complex myriad of social relations which we simplified into the three categories below:

- a) Direct management by a private operator and own kin (all people involved tend to multi-task and no employees are hired);
- b) Management control by the operator and his wife supervising 'employees' who are kin (with low level specialization of responsibilities) and,
- c) Management control by the operator (and wife or other trusted manager) in a more business-like situation with mixed ties to employees and at a secondary level employees' kin (marked by a specialization of operational responsibilities).

The degree of use of family members varies but where they are instrumental in successful management: wives, husbands and sons are the essential core elements of the SPOs' organization⁶.

The large complex systems require more management skills and staff organization that focuses more on efficiency and involved task specialization. For example, Ali's large business

⁶ Due to prevailing patrilineal mores daughters and sons-in-law are rarely involved in key management positions.

is carried out through a registered company with official documentation, regulated employee conditions, division of labour and formal documentation of contracts and accounts. He still mediates much of his work through his wife and their business has persisting informal characteristics, particularly related to his social network based recruitment mentioned above. In addition, although some staff are dedicated to only one business, most of the administrative staff handled the various businesses the Ali couple runs (water supply, transport and vehicle parking).

SPOs tend to multi-task. Those with smaller systems or businesses employ a few people who carried out a variety of tasks. Only one of the SPOs in the study employ a family member professionally trained in the area of water supply. Others employ administrative professionals, and in the case of Eduardo, he himself had a degree in civil engineering. Workers often sequentially and sometimes in parallel work in their employer's different activities such as transport businesses, baking, trading or in domestic tasks in employers' homes.

SPOs thus tend to use their social networks to source borehole drillers, plumbers, electricians and other short term service providers. SPOs collaborate when advice and goods are shared, sold or given in specific cases. Sharing upstream goods and service suppliers was observed, particularly through the SPOs who also have plumbing equipment, cement and construction materials or drilling services for sale. Eduardo, for example, maintains a strong social and transactional relationship with a spare parts supplier for himself and his customers.

4.2.1 What about leadership?

SPOs are generally financially self supporting, influential and their social responsibilities running family businesses extend to their support of others through a primarily patrilineally connected network. There are different types of SPOs, and the characterisation of entrepreneurs and small business owners outlined below helps in the first place to distinguish the nature of SPO leadership and secondly its purpose:

A *small business owner* is an individual who establishes and manages a business for the principal purpose of furthering personal goals. The business must be the primary source of income and will consume the majority of one's time and resources. The owner perceives the business as an extension of his or her personality, intricately bound with family needs and desires.

An *entrepreneur* is an individual who establishes and manages a business for the principal purpose of profit and growth. The entrepreneur is characterized principally by innovative behaviour and will employ strategic management practices in the business (Carland, Hoy, Boulton, and Carland 1984, pp. 354-359).

The owner-managers of the businesses we studied tend to retain the personalised characteristics of their businesses even as they grow to become growth-oriented expansionists. They continue assuming the risk for their expanding enterprises, making their relationship to the businesses very personal.

Small business owners and larger entrepreneurs alike have activities aside from the water business from which they also obtain income and which are carried out in parallel to the water selling business.

Preoccupations with social change and economic growth led economic anthropologists to focus on the social bridging roles of entrepreneurs carrying out business transactions between groups from different social spheres that had not previously been linked in such ways (Barth 1963, 1978) and entrepreneurship as it related to management and innovation in relation to processes of resource use (Cunha 2005, Baker 2005, Levi-Strauss, 1967).

Eduardo uses innovative plot acquisition strategies for boreholes and systems, and the influential Ali accumulates wealth and status from various businesses including the production and sale of water. He shares his leadership of the business with his wife. They reinforce their social status by their continued inclusion of family relations among employees and religious piety (constructing a mosque, allowing special concessions to poor customers) in.

Entrepreneurial development

Joana is a private manager of one of the new water supply systems constructed by the State. She had constructed four systems prior to this and runs a business drilling boreholes. Her *bricolage* was evident when she noted that this activity also gave her potential for establishing new advantageous business relationships. She recently opened a construction yard.

In addition to the sale of water from her single system, Lina has also sold cement for construction for many years, and has a sales yard for building materials.

Fabião runs a poultry business, his wife has a business selling plumbing hardware and equipment, and jointly they operate the water supply business.

The marked continuation of personalisation of business relationships even among larger entrepreneurial SPOs such as Ali arguably presents characteristics of the archetypal Big Man.

José is another Big Man SPO. Similar to Ali he is concerned with being seen to be generously providing benefits to others, while also aggrandising his role and competitive position. For him social status and the social prestige gained from providing largesse that enhances his status are key to many management decisions such as system siting, employment and expansion (he gave each of his four wives a small system; he offered lower prices justifying this as generousness; when he upgraded his 15 KW pumps he gave his old pumps to SPO friends; he also gave away other smaller equipment to other SPOs; he made new connections to poor customers for free; and he took on needy family members in his employment).

Most of the interviewed SPOs portray the expansion of systems as their contribution towards the greater good of communities in need, their commitment to community welfare. Such public generosity is an important factor among aspiring Big Men.

4.2.2 SPOs - maintaining their distance

Most SPOs have little to do with other SPOs. The majority of the SPOs describe their relationships with colleagues as predominantly competitive, but specifically not confrontational. These characteristics tends to encourage their isolation them from one another in the pursuit of their businesses. This does not mean that there are no conflicts. Conflicts between SPO neighbours were found to be quite frequent. Conflicts observed were almost always related to system expansion, particularly where there was,

- a) Competition for clients between SPOs via connection prices and,
- b) An invasion of another SPO's space or destruction of property associated with system expansion. Special attention was drawn to the rapid expansion of the new State systems during the study period.

In part, the emergence of these conflicts can be explained by SPOs' lack of dialogue in general in the context of limited numbers of highly competitive operators all anxious to maintain their market shares and profits.

Competition between SPOs is mainly carried out through connection price undercutting to

increase an individual's local market share. This is widely practiced and can have dramatic effects that undermine the viability of a weaker SPO in a short period of time. Some SPOs make price agreements in order to prevent this. These are one of the only informal agreements found between SPO neighbours (the other two being not to take on new clients from one another leaving debts behind, and concerning laying pipes in areas considered the territory of another) effectively creating localised price cartels to reduce competition and ensure continued profit-making by the members.

Three of the SPOs in the study maintain local cartel-like agreements: Célia, a customs agent at the border with South Africa who is an SPO has a verbal agreement with her closest two neighbouring SPOs on connection prices so none undercut the other. José one of the Big Men described above and another SPO, Silva, each try to maintain agreements with neighbouring SPOs not to trespass into one other's operating areas.

Offering free connections is a highly competitive strategy to appeal to new customers. Connection price competition as the means of expanding into another operator's 'territory' was found in Maputo in the following example:

In August 2009 when research began, a typical price for a contract in Magoanine neighbourhood was 2,300 Meticaís. Ali initiated a campaign to promote connections to his system by lowering connection costs to 500 Meticaís. At this time Eduardo was offering 2.500 Meticaís. Eduardo responded by reducing his price to 1,000 Meticaís.

Eduardo lost new connections and existing clients. He noted that from 2008 to 2009, the number of clients connected to his system fell by around 50%. Ali gained Eduardo's clients and continued to expand his system.

Eduardo then shifted his attention to investment in a system in another neighbourhood in Marracuene District, just outside the boundaries of Maputo city where there was no competition. He capitalized on the loss of clients in Magoanine too, where he claimed to supply his customers for longer periods with better pressure than Ali, and as such he said he was able to retain a viable number of clients to keep the system operational.

Although almost all SPOs are pressured to expand the number of their connections to the limit of their system's capacity, aggressive expansion requiring confrontation with neighbours is a significant step the majority do not take.

However as more people enter into the SPO business, the effects of system expansion are becoming more acute. For example, Lina accused Reinaldo of invading her operating

space. His justification was that he was supplying customers that wanted water supplied for a longer period. Lina appealed as a member to one of the associations for mediation of the conflict. She also complained about the privately managed State system which also appeared to be expanding into her area.

Similarly Célia launched complaints against her neighbour, for his expansion into her operating area and the cutting of some of her pipes by his staff to facilitate access. She drew an image of his qualities that did not comply with her reference frame for SPO relations:

‘He only thinks in terms of earning money. He does not worry himself with others, or in giving good quality water to people. What interests him most is getting more clients without knowing if his system has the capacity to supply them or not’.

Conflicts surrounding the expansion of the new State system financed by OBA in 1° de Maio neighbourhood attracted attention as neighbour SPOs complained to the association too. Many households had abandoned their connections to existing SPOs and moved to the new State system leaving debts behind. Helder the manager had his stakes on both sides of the fence: on the one hand he said he was using boundaries drawn on a map by FIPAG⁷ to define his limits of intervention, but he also said he ‘believed that the market should be free and potential customers should be free to choose where they want to connect and no one should stop them’. The ambivalence of his position as ‘close to the government’ while also being an SPO drawing on his cultural ethos of cooperation caused him to tell us he had become very confused as to how to rationalize these conflicts to himself. However he was actually using government policy to acceptably verbalize the competitive aspects of the SPO values to us.

Meetings were hosted by AFORAMO on the subject and it was decided that a commission should be created that should work to harmonize and mediate conflicts wherever they occurred in relation to new connections in the physical space of another operator. The ambiguity continued when they agreed at two levels that a) boundary lines were a convenient concept for technicians, but b) in reality boundaries were the limits of mutual agreements between SPO and customer, and between SPO neighbours.

⁷ Maps were made of the expected operational boundaries of each of FIPAG’s systems according to the density of occupation of the areas by SPOs in the pre-planning stage of the project. At the time of the study, some two to three years later, the areas were no longer free. This gave rise to the conflicts. The maps had no legal status.

The other State-owned small system included in the study was also being rapidly expanded using the OBA facility. Joana, the private manager was also being accused by neighbours of extending her secondary mains beyond the mapped limit drawn up for her system's operation.

As research progressed it became evident that the State systems had become catalysts escalating conflicts, in part due to

- a) the OBA facility provided to system operators who based on their performance contracts with the State, allowing them to carry out much more rapid expansion than their neighbours,
- b) political tensions that existed at the time related to the national elections,
- c) the SPO leadership characteristics of the State systems managers.

SPOs managing the State systems, now with State financial and formal support now were able to legitimize their more aggressive competitive traits. They were seen as threatening by their SPO neighbours as they continued to take customers away from them and reportedly cut their pipes, and were defended by the government that legitimated their actions.

The State system managers had interacted with their neighbours using references to a new State reality to try and explain and justify their actions. They referred to the maps drawn by the system designers as legitimating their expansion up to a point, they denied wrongdoing, and finally in the case of Magoanine, Joana referred the complainants to the government that she said was responsible for protecting her interests.

Eduardo, one of her neighbours said: 'The whole design for the construction of this (State) system was done here in my house, the engineer made the map here in my house, saw my system down to details of where I had buried my pipes, and then said that the FIPAG system would only reach up to the low lying area (west of the Magoanine road). Now I wonder why I see pipes that are already reaching beyond the low lying area, to the point of some of my pipes being cut'.

The Ali family claimed that their pipes were being cut as a strategy directed by Joana to discourage customers using their system, causing customers to pass to her.

Her entrepreneurial commitment and the resources of the OBA scheme made her expansion rate remarkable. Her boundaries were established by the limit of her ability to keep

making new agreements with customers. Agreements with neighbouring SPOs were no longer a priority.

The additional power of managers of the State systems was thrust into the limelight repeatedly over the first year of their operationalization of the systems. These managers had a new resource the SPOs did not have. With the government behind them they showed themselves as competitive and used the full possibilities that OBA allowed them, expanding as never before. Despite attracting the hostility of SPO neighbours the ambivalent status of the managers of the State systems was highly attractive in business terms – it was secure, licensed and sure to make money.

Unhappy SPO neighbours could not deal with them. Some perceived the new managers as government agents, as people who had moved into some kind of in-between status. SPO neighbours encouraged public criticism of the managers' privileged 'special' status.

FIPAG offered participation in an OBA scheme for expansion of SPO's own small systems to selected larger operators. A condition of acceptance was that meters must be located at consumers' homes. The location of meters is a key issue reflecting the level of SPO trust of his or her customers. Luís, a known hardliner owning six systems, has his meters grouped together in junction boxes. His clients do not trust him as a result; they believe he is stealing water from them as they cannot see the meters. He refuses to change his way of working, claiming that they will steal from him if he put the meters in their homes.

It is his reluctance to assume responsibility for distribution pipes to metered connections at customers' homes that dissuaded Luís from bidding to manage one of the next lots of new systems offered by FIPAG, or from participating in the OBA scheme. He was not prepared to risk the theft and losses that he assumed would be incurred.

Although a rather special case, Luís distrusted the conditions of OBA as he saw them. No SPOs took up the offer of OBA for their own systems – even those with meters already at customers' homes. As will be seen later in the section on 'encounters with the government', the SPO business is part of the informal economy, and formalization will involve payment of taxes and carrying out business transparently according to the government's rules. Few SPOs are ready for this. Although they want to be recognised formally, they do not want to lose their entrepreneurial independence. The reluctance to engage with government in the OBA scheme may also be related to preparedness to enter into such a novel initiative. The SPOs in the study (excluding Helder and Joana) have a limited understanding of the conditions and

benefits of the OBA scheme, and are in general mistrusting of it – as they see it.

4.2.3 Some effects of bricolage

Customer relationships with SPOs differ based on whether the system is at the SPO's home or not.

In the first case, customer-provider relations are enhanced by the shared neighbourhood relationship leading SPOs to have a more thorough knowledge about their customers. Relationships between some neighbours in these peri-urban areas are almost as important as those with family. Thus neighbours often make good employees and SPOs living on site make good neighbours. When there are conflicts between the supplier and customers, complaints are easily made directly to the SPO and pressure to respond and satisfy a customer is that much greater. Carlos is an example of an SPO who has good relations with his customers and readily responds to complaints made by telephone or visits to his home about water quality and pressure.

In the second case the relationship is marked by a physical as well as a certain social distance, requiring customers to repeat complaints often and via an SPO's employees. Some SPOs are systematically absent from their systems visiting only at monthly or bi-monthly intervals and leave complaints and new connections in the hands of their workers. Many other SPOs are regularly absent from their systems in the short term during the week or irregularly for a few weeks. Locating them to speak to is not easy and weeks can pass without contact with customers if there are not sufficiently urgent issues of mutual interest to deal with. Some SPOs work or visit parts of their family resident in the city centre, others work outside the Greater Maputo area in Maputo province, and others travel and one is giving up his system and planning to start a new life in a new house with employment elsewhere. Most SPOs make their cell phone numbers available to customers as an effort to bridge the gaps.

The absence of SPOs is a key cause of breakdown of relations between them and their customers. In the absence of the patron, local guards or managers feel less constrained by the owner's supervision, illegal connections are made and thefts tend to increase. Customers usually collude with a worker to deceive an SPO through an illegal connection

The absentee SPOs in the study are well aware of the risks. It appears that other, usually livelihoods related priorities, keep them from visiting their systems. They are the result of the parallel *bricolage* that characterizes the operation of these business people. Indeed 40% of

the SPOs studied were absentee owners visiting their system only once a week or once a month due to occupation with other livelihoods priorities. Thus, their activity *bricolage* undermines to a certain degree their success with their systems. It is likely that this effect of *bricolage* is not very evident as a result of the overall profitability of the SPO business of sale of water. SPOs try to prevent theft but they only reinforce their management of the trust relationships with their workers.

It is important to note that SPOs managing State small systems also continue operating their other own systems. They continued being *bricoleurs*. Indeed their entry into the new activity managing the State system is a further continuation of their *bricolage*.

In the period when the conflicts with the government over licensing and private management of State small systems was rife, Helder explained that by managing one of the FIPAG systems, the risk of being negatively affected by them could be mitigated. Joana at the other system, alert to the threat, but considering from her perspective that not all negative effects could be mitigated, immediately planned to diversify into two other businesses to minimize potential income flow risks. At the time neither operator intended to cease managing the State systems, or to stop being an SPO.

The improvisation and invention of resources to solve unanticipated problems that is seen as *bricolage* by Cunha (2005) is reflected in SPOs taking the novel recourse of referring to the government as their legitimation for expanding customer connections disregarding social costs. On the other hand, their accumulation of more activities as Joana said, 'just in case', in order to cushion risk to their income is most certainly parallel *bricolage* in Baker's (2005) terms.

4.3 Encounters with authorities

SPO relationships with local authorities are not consistent and tend to reflect SPO's leadership characteristics and their stage of business development. Some of these relations are not nurtured and are only created if there is a particular need, such as in stages of expansion of an SPO's businesses.

The licensing process launched by the government (which does not involve all SPOs) brought many smaller POs into contact with local authorities for the first time concerning their water supply business.

Prior relationships with local authorities can be seen along a continuum from the SPOs with a strong relationship and who are cooperating with authorities in expanding their systems. The case of Ali is typical, where the relationship legitimizes his acquisition of sites to install his systems, especially those that occupy a space within an already owned plot of land. He specifically maintains a relationship with the local authorities to facilitate his expansion. At the other end of the continuum are SPOs with weak relationships with local authorities that tend to exist only to legalize or legitimate activities, and only when they are unavoidable. José operates with as little contact as possible with the local authorities who he perceives as pursuing personal rather than public interests. In between these two are various permeations of relationships including those initiated by local authorities trying to solve local water supply problems such as those who approached Alberto and Luís to provide services to a school and to residents in three neighbourhoods. Sites were provided and tenure secured by the authorities.

Obtaining sites for new systems was one of the most common reasons for engaging with local authorities. Once legally obtained, most SPOs ceased the relationship because, according to José, ‘otherwise local authorities consider it their right to continue with limitless demands for payment and other additional services’.

The first steps towards the professionalization of SPO activities were taken in the establishment of two associations of SPOs some five years ago. In Maputo this was a response to the government’s proposed extension of the main network services from a newly commissioned distribution centre to the north east of the city. An SPO association was established in Maputo and a national organization with its headquarters in Matola was also set up around the same time.

By 2009/2010 it was admitted by members of both associations (the local level AMATI and national association AFORAMO) and the leadership of AFORAMO, that the associations do not have a wide reach⁸ in Maputo and Matola. AFORAMO leadership said that there was still much work to do before they could be confident that SPOs and the associations were in alignment regarding what interests must be defended for example.

⁸ No data on membership was made available to FIPAG over the past two years from the associations. However unofficial information from members indicates that approximately 47 SPOs are members of AMATI and about 150 SPOs in Greater Maputo are members of AFORAMO.

AMATI the association based in Maputo had a much more limited catchment area than AFORAMO based in Matola. Of the 10 SPOs studied in Matola only four were not affiliated to an association. The remaining six were members of AMATI (2) and AFORAMO (4). Only two of 10 SPOs studied in Maputo were members of an association (AMATI). The rest despite knowing of the existence of an association for SPOs and some having received invitations to join, had not actually done so due their perception of the irrelevance of their membership to their operating status.

It was clear that there is little general knowledge about the associations among SPOs in neighbourhoods located further from where the associations are active. The unfamiliarity of most study SPOs in Maputo neighbourhoods with the strike called by the SPO associations in February 2010 is an indicator of the limited reach of AMATI. In contrast however, most SPOs in the study in Matola were aware of the strike. At the time of the strike AFORAMO notified its members in writing and in addition informed other non-member SPOs about it. A committee was formed by AFORAMO to inform all SPO members and for these to inform their customers of the day of the strike advising them to reserve water for this period.

Water sector institutions involved with the SPOs during the study period included the Ministry of Public Works and Housing (MOPH), the National Directorate of Water (DNA), FIPAG and the Water Regulating Council CRA, as well as the municipal councils of Maputo and Matola. The relationship of SPOs and the water sector institutions was dominated by a sense of discord related to the SPO licensing process facilitated by FIPAG during the research period, and to FIPAG's construction of new small systems. During the months of January and February 2010 tension grew between the SPOs and FIPAG as these two issues became the focus of anxiety and agitated public discussion.

The SPOs saw the key issue as the length of time of validity of a license; the one year license to be provided by FIPAG was too short in their opinion in comparison to the 'license' given to the SPO managers of small State systems for operation during a period of five years. They thought the privileged position of the managers of the FIPAG systems unfair given that they and the SPOs were all providing water to the population in need in the peri-urban areas. Perceptions included the following:

- The short licence period, it was explained by one SPO, was confusing and discouraging since, 'people invest a lot of money in their systems and the indecision about whether the next year they will be granted the license or not ..(means they cannot be sure) if they will be able to recover their investments'.

- In Maputo another SPO argued that the 'FIPAG systems' and the SPO's systems 'all have the same social function, providing water to the public' and SPOs here added that their services are better than the government's and cover a much greater part of the peri-urban areas. In this respect there is no justification, he argued, to differentiate the period of the license.

Aggravating the situation at the moment of the first public complaints, the government backed down, and withdrew plans to go ahead with licensing until the main network operator AdeM, could agree on the licensing conditions for SPOs operating in its licence area. AFORAMO then announced publicly that because of all the inconsistencies in license attribution a strike had been decided upon to demand equal treatment of SPOs and managers of State-constructed small systems. A date was set and the media informed.

The associations managed to secure two meetings at ministerial level to negotiate their position. During the first of these meetings the associations agreed not to carry out the strike. At the same time as these meetings were taking place, the SPOs involved were invited by a private television station to participate in its programme 'The Nation's Debates'. Publicity was secured for the SPOs. The physical and electronic newspapers also followed the story closely as it was a test case of how the government would deal with an informal sector service on which it depended but had not yet regulated.

Exposure to the highest levels of government and the media was not welcome to many of the unaffiliated SPOs. AFORAMO was led by astute spokespeople and its senior members were politically aware of the routes that could gain most leverage for their cause. However, thrusting the informal water sector into the centre of government and media scrutiny was, in the opinion of many of the entrepreneurs and small SPOs in the group being studied, a highly undesirable way of exposing themselves to political processes. The way it was handled they feared, might potentially threaten their operations.

FIPAG's construction of small systems and its innovative project offering to integrate SPO managers into their operation had by this time, been interpreted by some SPOs as the government's new strategy to enter into competition with them on their own territory.

Licensing would have obligated all SPOs to interact with government authorities to legitimate their operations based on compliance with the sector's norms. Most SPOs in the study and their neighbours were unclear about what was included in the licensing package. Most uninformed SPOs expected the licenses (which were in fact provisional), to resolve their illegality and provide them with some benefits. Other operators that had interacted with

FIPAG thought that the government was trying to close down their businesses in order to clear the field for donor-funded expansion of the public systems. Both points of view were based on a lack of understanding of the present and future options, opportunities and risks associated with the licensing process.

Emotions had run high leading up to and immediately after the proposed strike date. Interviewed SPOs at the time showed a mix of politically driven agitation, outrage and confusion:

Maputo SPOs:

‘The licensing process is not being presented clearly; it is as if we were stealing something from the government. What is FIPAG doing? The water is owned by ARA-Sul (the water resources administration), what is the role of FIPAG in all this? This business is no different to the business of the semi-collective transports, have you seen the Maputo Bus Service company create confusion with the private sector? No.’

..‘you can say it is good and necessary for the Government to find out all the people who carry out this activity but to say that we have to pay tax, there I no longer agree! Why do we have to pay, why? Were we wrong to bring water to the poor? Do we have to pay for it? By helping the people?’

Matola SPOs and AFORAMO:

‘Another problem is that the licensing process is very time consuming, because they take too long to license us even though we have already been registered..’

‘..the idea of licensing did not come from the government, but from the SPOs themselves, this is why the State is taking so long..’

‘The license ... is important because it would allow SPOs access to credit and training in technical aspects to better serve consumers. The idea that the government does not want to license the SPOs is because the State still wants to raise external funds for water supply.’

Overall it was clear that the SPOs had developed a highly ambivalent relationship with the government agencies.

Unprecedented collaboration between SPOs appeared to occur when they perceived that the installation and expansion of the State's new small systems under management contracts to SPOs was prejudicing neighbour SPO's businesses. Groups of those directly affected temporarily shared a common interest and the associations used this to obtain the public leverage they wanted to force the government to show its hand concerning recognition for all SPOs on equal terms with the State water supply systems.

It so happened that the new State-constructed system in 1° de Maio neighbourhood was located in the midst of AFORAMO members. These became the leaders of the media campaign by the association that portrayed a much wider collaboration between SPOs than was actually the reality. The outcome of this was however an agreement with the government on various terms and conditions for SPO operation. Some weeks later the government publicised these and in so doing, re-affirmed a new order.

5. Conclusions

The study of SPOs in Greater Maputo has shown a group of business entrepreneurs distinguished largely by their ownership of a single, or more water supply systems. SPOs' approach to risks and benefits associated with their businesses is highly personalized at all levels and motivates them to focus on building relationships of trust as their core resource management tool. Thus patron-client relations are developed using family members and non-family members that are perceived as worthy of trust to secure the successful operation and management of many small systems.

Patronage systems grow when SPO's with small family businesses decide to invest in more than one system. The resources for expansion are sought using familiar channels; money from their own businesses, operators from their own families or personal friends, and as *bricoleurs* they use their social networks as innovative means for locating sites for new systems, trusted borehole drillers, other technicians, materials and equipment.

All SPOs started their businesses using resources created from other activities, and all continue development of their water businesses using the same multiple sourcing of resources from handy activities already underway or social networks maintained in readiness for use. They create resources for development of the different activities from the income, skills and materials or equipment obtained each one. Even though the water selling business is highly

profitable, all the SPOs in the study keep their other economic activities going in parallel as typical *bricoleurs*, and some continue initiating new ones.

The small number of SPOs who entered into the government project providing private management of public systems continue their *bricolage* with the addition of the State contract to their other business activities. They thereby increase their social network capital, and one even expanded the number of parallel activities soon after acquiring the government project – just in case the SPO's relationship with the water sector remained unstable.

All SPOs have various activities underway at the same time and the more successful of them manage to grow more businesses. Thus rather than grow a single water supply system as a single business that would eventually threaten one or more neighbour SPO, they opt to expand by installing more small systems in new areas where there are no other operators.

For the most part initial development and expansion of systems is carried out by SPOs without recourse to the formal banking sector. Lack of access to loans is identified by project developers from the government as one of the most important factors limiting SPO growth. As a result the government project providing access to OBA for SPOs to expand their own systems was seen as a perfect solution, and yet the SPOs did not take the option up.

It was clear to the government that the OBA scheme had not been clearly enough communicated or understood by SPOs, but it was not only this. Whereas the private managers of the new State systems used OBA to extend their reach in a dramatic manner causing all sorts of conflicts with their SPO neighbours; they as SPOs remain significantly less aggressive. Managing the State systems they gain resources which provide them with the power to break 'customary' rules or the public ideals of SPO business behaviour. SPOs' cultural ethos urging social cooperation and discouraging open challenge to other SPOs is overshadowed by the emergence of their competitiveness in plain view – legitimated by alliance with the State.

An obvious advantage of the privately management of FIPAG systems is that the transparency of the SPO manager's operations in meeting government requirements is limited to the FIPAG system alone. OBA applied to SPO's own systems is potentially highly invasive of the way they carry out their business. This is a liability they cannot see being overcome by the benefits of expansion.

It is the managers of the State's small water supply systems who are in the vanguard of change, and much will depend on their successful operation for the determination of the future

of the SPOs. Their proximity to government is both uncomfortable and comforting to them. They are not owners of the business but they gain a new legitimacy from the State with which they can disorient their SPO neighbours. However even though they are in a powerfully ambivalent position, they continue being *bricoleurs*, setting up new schemes to protect themselves from a fall.

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