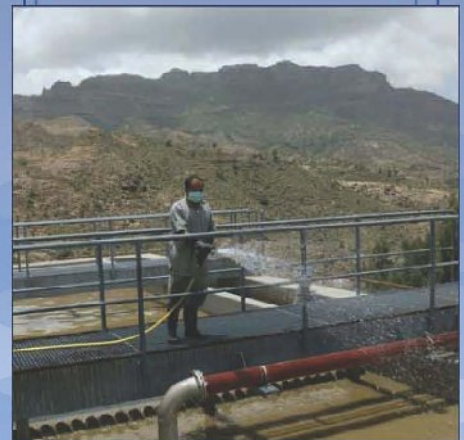
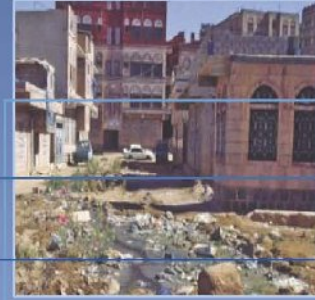


# EQUITY AND EFFICIENCY IN YEMEN'S URBAN WATER REFORM –

A SECTOR STUDY AND POVERTY AND SOCIAL IMPACT ANALYSIS

HIGHLIGHTS & RECOMMENDATIONS



MARCH 2009

Christopher Ward, Sabine Beddies, Taha Taher,  
Anwer Sahoooy, Barbara Gerhager and Nadia al Harethi  
Ministry of Water and Environment



gtz

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### **Highlights and Recommendations**

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## ACRONYMS

AU	Autonomous Utility
CSS	Comprehensive Subscribers Survey
DCMMS	Customer Complaints System
GTZ	Deutsche Gesellschaft fuer Technische Zusammenarbeit (GTZ) GmbH
JAR	Joint Annual Review
KfW	Kredietanstalt fur Wiederaufbau (KfW Development Bank)
LC	Local Corporation
MDG	Millennium Development Goal
MoF	Ministry of Finance
MWE	Ministry of Water and Environment
NGO	Non-Governmental Organization
NWRA	National Water Resources Authority
NWSA	National Water And Sanitation Authority
NWSSIP I	National Water Sector Strategy and Investment Program 2005
NWSSIP Update	2008 update of NWSSIP
O&M	Operation and Maintenance
OMS	Operations Management System
PIIS	Performance Indicator Information System
PSIA	Poverty and Social Impact Analysis
PTOP	Provincial Towns Open Program
SFD	Social Fund for Development
SWAp	Sector Wide Approach
TS	Technical Secretariat of MWE
UWSS	Urban Water Supply and Sanitation
Wadi MENA	IDRC Program for Middle East and North Africa
WHO	World Health Organization
WSSP	Water Sector Support Project

## Eight Key Messages from the Report

1. **Reforms well underway – with transition issues.** Urban water and sanitation sector reforms are well underway and are showing results in terms of increased coverage and improved utility performance. There are, however, a number of issues that need attention in order to speed the transition and to produce the targeted outcomes.
2. **Need for Business Plans.** Although many utilities face difficult challenges, there is much that can be done now to improve performance by energetic and committed managers. All utilities should prepare as soon as possible pragmatic and customer-oriented Business Plans showing how they will improve services, achieve financial sustainability and expand access, with particular attention to the poor.
3. **Support to be comprehensive, tied to results, and long term.** Support to improve service delivery and utility performance works best when there is an integrated package of institutional development, capacity strengthening and physical investment. All support to utilities should be provided within a comprehensive approach based on the Business Plans, adapted to the situation of each utility, and linked to performance milestones. Although institutional development and capacity building need to be provided appropriate to each utility, they have to have a long term vision, donor commitment and links to institutional development benchmarks.
4. **Governance improvements and management empowerment needed.** Institutional development of the utilities and the completion of the decentralization process are priorities. The governance structure of the utilities needs to be improved to clarify the powers and responsibilities of boards and management and their relation to the center. Managers need to be empowered by clear delegation of authority, capacity building and the strengthening of management procedures and tools.
5. **Regulation and monitoring essential to successful decentralization.** In order to protect the interests of both utilities and consumers, the introduction of independent regulation is a priority. This needs to be combined with improvements to the information system and the adoption of benchmarking in order to allow performance assessment. Regulation also needs to be expanded to the private sector.
6. **Cost recovery and (longer term) financial autonomy.** There is movement towards the NWSSIP Update cost recovery targets of ‘operation and maintenance costs plus electro-mechanical depreciation’, but utilities remain entirely dependent on government transfers for investment finance. Business Plans need to spell out how the NWSSIP Update targets will be achieved by 2015 through a combination of efficiency gains and tariff adjustments. Tariff studies need to be carried out to show how tariffs can be adjusted linked to improvements in service standards. For the longer term, thought needs to be given to how utilities can become autonomous in terms of investment financing.
7. **Social accountability between pro-poor utilities that are open to dialogue and consumers who pay for services received.** Utility managers show an awareness that utilities are socially accountable with a responsibility towards society and the poor, and also that public outreach and communication are essential components of good business

practice. Utilities should address the needs of the poor in their Business Plans both through the tariff structure and through programs to ensure better access for the poor. Innovative technologies and partnerships with the private sector and civil society are ways that utilities can expand the population's access to services and protect the poor with a reduced burden on the public purse. Customer relations and public dialogue and transparency about services and policies need to be given priority, so that customers will understand the need for tariff increases. Utilities need at the same time to strive for improved efficiency.

8. **Yemen's structural water scarcity is considered in the reform program.** Freshwater availability in Yemen is one of the lowest in the world with per capita availability of just 135 m<sup>3</sup> per year. Groundwater resources are being used up at twice the rate they are replenished, making water scarcity a structural problem in many urban and rural areas. Access to safe water and sanitation is low by regional standards.

## A. Urban Water Reform and the PSIA Process

### Urban water reform

Until the mid-1990s, the urban water sector suffered from slow expansion of coverage, high costs and poor service, with high physical loss rates and intermittent supply. Government investment and recurrent subsidies were high and cost recovery was low. The system was excessively centralized under the National Water and Sanitation Authority (NWSA) and very inefficient. Little effort was made to target the poor.

Reforms in urban water and sanitation began more than a decade ago. In 1997, Cabinet Resolution 237 was issued, embracing a policy of decentralization, corporatization, commercialization, separation of service delivery and regulatory functions, and partnership with the private sector, with the aim of increasing efficiency, improving service delivery and (ultimately) reducing the cost burden on government. These reforms have been incorporated into the national water strategy (*NWSSIP*, 2004) and into the update of the strategy currently being prepared (the *NWSSIP Update*, summarized in Box 1 below).

#### **Box 1: The NWSSIP Update action plan for urban water and sanitation**

##### Institutional reforms aimed at creating efficient and accountable utilities

- completing the decentralisation and corporatization process
- improving efficiency through institutional development, capacity building and investment
- establishing a regulatory function
- developing outsourcing
- setting tariffs to cover O&M and depreciation of electro-mechanical equipment (by 2015)
- improving investment implementation

##### Reforms aimed at expanding coverage

- maintaining levels of government and donor resource allocation
- government paying for new schemes and extensions
- introducing lower cost technology
- phasing in partnerships with the private sector, including regulation of private supply

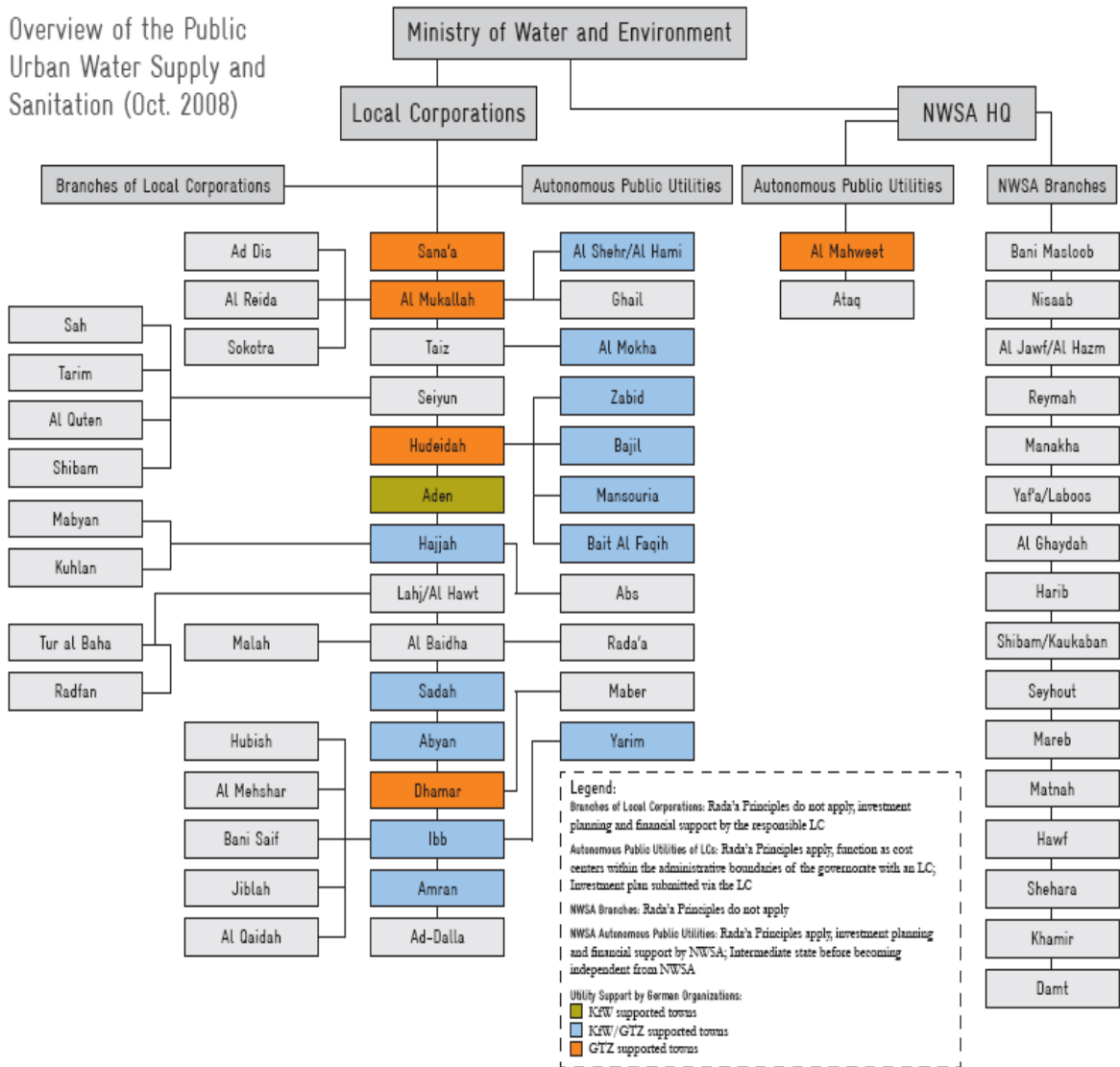
##### Reforms designed to make water and sanitation services affordable

- revising the block tariff system with a pro-poor objective

*Source: NWSSIP Update, December 2008*

## Results and challenges

The urban water and sanitation sub-sector is correctly seen as being more advanced in the implementation of its reform agenda than other parts of the water sector. To date, decentralization has been implemented in 27 towns (see chart below). Fifteen Local Corporations (LCs) have been established by Presidential Decree; there are 17 branches attached directly to the LCs; and a further 13 autonomous utilities have been established, of which 11 are affiliated to LCs and two (al Mahweet and Ataq) are autonomous under NWSA.



Source: MWE/TS

Network coverage has expanded rapidly, and service standards have improved whilst costs for most connected consumers remain highly affordable. Nonetheless considerable challenges remain:

- Despite a 50% increase in connections in the last five years, urban public network water services have not kept pace with population growth and urban expansion. Very large investments would be needed to reach the NWSSIP Update targets.
- The decentralized utilities are still only partly autonomous managerially and remain dependent on government subsidy for their investment programs.
- Private service providers play an important role in water supply, yet they remain unregulated to date and are not generally factored in to planning. Partnership arrangements are rare.
- Water sources are sometimes not sustainable, particularly in the highlands, and water is becoming high cost and hard to find. There is no equitable institutional mechanism for rural-urban water transfer.
- Despite a pro-poor tariff system, the benefits of public subsidy are not equitably distributed, and poor households not connected to the network, including many poor and very poor households, may have to source water supplies from much higher cost private vendors.

Responses to these challenges are being developed and implemented under NWSSIP, but sub-sector reform remains very much work in progress.

### **The PSIA response**

In 2007, a Water Poverty and Social Impact Analysis (Water PSIA)<sup>1</sup> was conducted to assess the poverty and social impacts, equity and political economy of Yemen's National Water Sector Strategy and Investment Plan (NWSSIP) in groundwater/ irrigation and rural water supply and sanitation. The Government of Yemen considered this a useful exercise to promote water sector reform and proposed to expand the methodology to the urban water sector in order to seek responses to the challenges outlined above.

The Urban Water Supply and Sanitation Poverty and Social Impact Analysis (UWSS PSIA) was therefore initiated in early 2008, and conducted between April-November 2008. Lead support was provided by GTZ for study design, analysis and review of report, and dissemination, with technical assistance from the World Bank.

### **PSIA objective**

The purpose of the UWSS PSIA is to examine NWSSIP progress with particular focus on assessing and addressing equity and political economy issues, and to identify areas where further support is needed to enhance the reform agenda and to improve NWSSIP implementation. The analysis focuses on sector and sub-sector policy, investment and capacity building, delivery performance, and impacts, and contributes to the ongoing update of NWSSIP<sup>2</sup>.

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<sup>1</sup> Government of Yemen, World Bank, GTZ, 2007.

<sup>2</sup> PSIA is defined as 'analysis of distributional impacts of policy reform on the well-being or poverty of different stakeholder groups, with particular focus on the poor and vulnerable'. In the expanded PSIA approach, used here, the distribution of power relations is also examined. By assessing and addressing issues of equity, political risks and reform ownership, policy reforms can be designed which are both, technically feasible as well as politically acceptable. See also World Bank 2003, World Bank 2008

Urban water supply in Yemen is seen as a prime area where the nation would like to move rapidly towards universal access to safe water and sanitation. However, the requisite expansion of water supply and sanitation services has to be done in a way that is affordable to the nation and to consumers, and equitable towards all citizens, particularly the poorest. The challenge is well expressed by the three outcomes proposed for urban water and sanitation in the *NWSSIP Update*:

- Water and sanitation services are sustainable financially and in terms of available water resources
- Urban population has access by end 2015 in line with the national definition of safe, affordable, available and regulated water supply and sanitation services
- Poor consumers have affordable access to lifeline water consumption

There is a potential for tension between the business approach implicit in financial sustainability, rapid affordable expansion, and protection of the poor. The overall objective of the PSIA is therefore to check how far these three outcomes are being achieved as well as could be at present, and to make recommendations on how to improve NWSSIP Implementation.

The UWSS PSIA was designed with stakeholders during the April 2008 design workshop in Sana'a. It builds on existing knowledge (summarized in the *Inception Report and Desk Review*, April 2008<sup>3</sup>). New information has been collected through a customer satisfaction survey (Interaction 2008a-d) covering 760 households, key informant interviews (40 in total), and focus group discussions (30 in total) in the three sites of Sana'a, Ibb and al Mahweet. The preliminary study findings were discussed at a Stakeholder Consultation Workshop held in Sana'a in October 2008, and many valuable ideas have been incorporated into the report. No further comments were received when the revised report was circulated to stakeholders in Arabic in January 2009.<sup>4</sup>

## B. Urban Water Utilities as a Business

### i) Increasing Efficiency

#### 1. Service delivery performance

Since decentralization, performance of the urban water sector has improved considerably. In particular, smaller towns that have had external support and coastal towns where there is no pressing water constraint have achieved excellent service standards. By contrast, some large towns in the highlands are encountering problems in providing even limited services especially where the population has been growing fast, where systems are old and high cost, and water resources are in increasingly short supply (see Box 2).

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<sup>3</sup> Ward, 2008

<sup>4</sup> The methodology comprised five analytical tools, i.e. (i) Stakeholder Analysis to identify key stakeholder characteristics, interests, incentives, and degree of influence in regard to the UWSS reform at national, governorate, town, quarter and household level; (ii) Institutional Analysis to analyze the structure and dynamics of the formal institutions and informal practices of the different organizations at the different governance levels in order to understand the political economy that characterizes the reform; (iii) Social Impact Analysis to examine the expected positive and negative impacts on different socio-economic groups and geographical locations using the Transmission Channels, i.e.: (a) access to water and land; (b) assets (incl. utility ownership, water and land ownership and utilization); (c) authority (power relations, decision-making on e.g. access to water, land); (d) prices; (e) transfers and taxes; and (f) employment; and (iv) Social Risk Analysis to examine the risks *to* and *from* the different reform options. This was combining with far-reaching stakeholder dialogue during two workshops and extensive fieldwork.

**Box 2: The Customer Satisfaction Survey revealed two main clusters of utilities – and related levels of customer (dis)satisfaction**

The Customer Satisfaction Survey carried out as part of the PSIA showed two clusters of performance. In small towns where heavy investment and institutional support have been given and where there is no overriding constraint, consumers rated performance as excellent and are very satisfied: Bait al Faqih 98%; Mokha 94%; and Zabid 88%. By contrast, in towns where the service was poor, satisfaction was lower. In Ibb satisfaction (“very” or “somewhat” satisfied) was only 42%, in Sana’a 31% and in al Mahweet 44%. The principal reasons for dissatisfaction were inadequate supply, the frequent interruptions in supply, and low pressure. Interestingly, cost of water was not often cited as a reason for dissatisfaction.

*Source: Interaction 2008a-d*

Projects to support service improvement have worked best where there has been an integrated package of institutional development and physical investment. However, experience shows that even in the most constrained utilities, there is always *something* within the power of the management that can be done to improve services. This fact was confirmed by the many suggestions made at the October 2008 Stakeholder Workshop. **Recommendations** are:

- All support to utilities should be based on the Business Plans (which are to be prepared by all utilities under the NWSSIP Update). The Plans should be grounded on the principle of social accountability and should comprise a comprehensive package adapted to the (highly variable) situation of each utility. The package should include: (1) institutional development and capacity building to equip utilities with management tools and capabilities; and (2) a linked physical investment program targeted at improving key operational parameters and service levels. Business Plans should also include action plans, prioritized and sequenced, to improve key indicators. “Milestones” should be agreed, linking management support and institutional development with investment finance. Milestones are monitorable performance results that trigger further support.
- Benchmarking should be introduced promptly by MWE, adapted to the constraints and potential of each utility. The Business Plan should set out the proposed benchmarks. The MWE’s Performance Indicator Information System (PIIS) should be improved to include benchmarking, so that it can be used more effectively to monitor performance. Managers and Boards of Directors should be trained in the use of the PIIS.
- Where utilities suffer from major constraints, Business Plans should prioritize “low hanging fruit” - actions within the power of management that will quickly and effectively improve service (see Box 3 below).

**Box 3: Even in cases as difficult as Sana'a and Ta'iz, management effort can improve performance**

Sana'a has some poor performance indicators: non-revenue water is the highest in the country. Most people get water only once a week. Yet the utility has made an effort to work on improvements within their control. They have set up a repairs hotline, for which the PSIA focus groups had nothing but unstinted praise. A customer relations department is trying to explain the constraints and what the utility is doing, for example, how rehabilitation of the networks and improved repair service have brought non-revenue water down from 40% to 36%.

In Ta'iz, despite the huge challenge, some management actions could have a rapid impact on the situation:

- Implement and use the management systems and tools
- Restabilize the GIS Unit and ICT services
- Start the revenue improvement program,
- Control network construction quality
- Develop and implement an active leakage control strategy

Sources: PSIA interviews and focus groups; March 2008 MWE/GTZ Assessment Report of Ta'iz LC

## 2. Water quality

Water quality is variable, but generally good. The Customer Satisfaction Survey showed that three quarters (74%) of households in the sample were satisfied with water quality. In Bait al Faqih, Zinjibar and Mokha this figure reached 90%, and in Zabid 100% of respondents reported drinking straight from the tap. However, in most towns, consumers are reluctant to drink network water, which they perceive as low quality. Regarding wastewater, several large towns score poorly on effluent quality, and sewage treatment is a priority. **Recommendations** are:

- Introduce benchmarking and regulation for water quality and track this in the PIIS
- Correct the disconnect between customer perception and actual water quality by a customer relations campaign conducted by each utility
- Prioritize sewage treatment and improved effluent quality and quality control in all towns. Priority towns for investment in sewage treatment are Sana'a, Aden and Ibb.

## 3. Management and human resource development

Utility management is of varying standards. The October 2008 Stakeholder Workshop showed the commitment and enthusiasm of many utility managers, but also revealed a sense that they are not fully empowered. Management improvements are underway and new tools are in use: benchmarking, performance bonuses, management support programs etc. However, progress is uneven (see Box 4). At the Stakeholder Workshop, managers were enthusiastic about the power of these tools, but stressed that the tools were only of use if they were accompanied by sustained capacity building and support. Utilities are making progress on human resource management – but slowly and with wide variations between the best and the worst. Staff numbers are generally quite high and staff mix is still dominated by lower level and unqualified staff. Performance-based incentives are bringing remuneration up towards market levels, but these incentives have rapidly become an entitlement. A significant effort has been made at training – but training levels

remain quite low, and utility managers consider that training is not adequately linked to career development. Overall, utilities are moving erratically and only slowly towards an enterprise culture where there is investment in staff on the basis of professional standards. Staff often feel insecure in the new “business” environment, and reforms can create internal difficulties.

**Box 4: At Ibb LC, progress in applying the tools for management purposes is uneven.**

A recent evaluation report describes how Ibb LC has received support under the OMS sub-component, and is operating several of the new systems:

- The Comprehensive Subscriber Survey (CSS) has been implemented: it has guided meter reading routes and shown up illegal connections
- The DCMMS system for complaints has been successfully implemented, and it is being used for logging and progress chasing. In a further stage, the evaluation noted, DCMMS could be used for prioritizing and planning rehabilitation investments.
- Performance indicator reports (PIIS) are being circulated, although there is little evidence that they are being used as yet. The management team seemed unaware of the PIIS during the PSIA visit.
- GIS systems have been installed, but are not yet performing to design level.

Overall, the evaluation concluded that the utility has successfully installed the systems but that follow up is needed to coach management in their use and train staff in their operation.

*Source: PSIA Mission Interviews, Ibb, May 2008; and Dorsch 2007*

**Recommendations** are:

- Integrate management improvements systematically into Business Plans as key elements of the comprehensive package of institutional development and investment (see above). These improvements could include: benchmarking, performance bonuses, career development, opportunities for promotion, management support programs like the GTZ-supported Operations Management Systems (OMS), human resource information systems etc.
- Encourage a more rapid growth of enterprise culture, but also provide for staff needs for job security, fair remuneration and the possibility of promotion by adopting and implementing the Ten Guiding Principles for Human Resource Development, agreed in 2008.
- Make PIIS more comprehensive and reliable, and ensure that managers and Boards are trained and required to use it. The PIIS is a prime management tool that could be put to much better use. MWE should improve the coverage and accuracy of PIIS reporting and follow up to ensure that utilities and their Boards consider the PIIS results in their decision making and management.
- Beginning in 2009, develop and implement the sector-wide human resource development strategy and sector-wide training facilities proposed in the NWSSIP Update, and reflect this at the level of each utility in a human resource development plan as an integral part of the Business Plan, providing for progressive increase in the proportion of professional staff and with a significant budget for training in line with the NWSSIP target of 5% of total personnel cost by the end of 2010.

#### 4. Customer relations

The PSIA found that there is a real value in communications and information. Generally, where the utility has a good outreach program, this can help to improve customer satisfaction. The Customer Satisfaction Survey found that in towns where a strong customer relations program had been set up, 70-80% of people believed the utility provided sufficient information (Interaction 2008a: 30). However, in cases where the supply situation is very difficult, even a reputedly strong outreach program may come in for criticism (see Box 5).

**Box 5: Even a good outreach program cannot compensate for poor service**

Mahweet shopkeeper Muhammad says “service is always bad, always excuses – water comes once a month – every twenty days at best. There is no timetable for the water to come, it comes suddenly, unexpectedly.” The quality he says is bad. Does he complain? “*Why complain? It won’t do any good!*”

*Source: Key-informant interview, Mahweet, August 2008*

A number of utilities have made a major investment in customer relations and this has proved its worth as a mechanism for a socially accountable utility to engage with concerned customers. Customer outreach has already helped prepare for tariff adjustments, for example at Bait al Faqih. Overall, where they have been intelligently managed, good customer relations have proved good for business. At the October 2008 Stakeholder Workshop, many managers recommended improving customer outreach and linking it to improving utility revenues. However, some managers still need to be convinced that customer relations are a vital part of the business approach. There is a need to change the perception of utilities away from old top down approaches and an engineering bias towards a commercial business orientation with social accountability to consumers.

**Recommendations** are:

- Carry out a participatory review of the customer relations program to show ways to improve its effectiveness, to increase confidence of managers. Approaches to enhance social accountability between utilities and customers should be piloted in a few utilities for subsequent scaling-up.
- Conduct further empirical research and dialogue on how to improve the customer-orientation of the ‘business plan’ model, and pilot approaches to enhance social accountability in a few utilities.
- MWE should make a clear policy commitment to enhance social accountability and for utilities to include customer relations as part of a business approach. Utilities should continue to invest in customer relations and build consumer relations into the Business Plans, particularly where there is a need to hear and address customers’ concerns on difficult issues like tariff adjustments or major works.

## ii) Financial viability

### 5. Tariffs

Since decentralization, tariff adjustments have been more frequent and more responsive to utility needs, in sharp contrast to the previous national tariff system where tariffs had not been changed for up to eight years. Most utilities are now recovering at least O&M costs. However, movement towards the NWSSIP Update target of recovery of O&M and all electromechanical depreciation by 2015 is erratic. Some tariffs have not been adjusted since 2001 (for example at Sana'a LC), and tariff adjustments are sometimes still very hard to obtain (see Box 6). In some cases low tariffs are having a negative impact on services and investment.

#### **Box 6: Utilities do not always get the tariff adjustment they request**

At Ibb, tariffs were adjusted in 2002 and again in September 2004. However, costs escalated and coverage of O&M declined from 100% in 2005 to 87% in 2007. The LC prepared a new tariff proposal in 2007. The proposal was rejected by the Board which asserted that previous increases had been conditional on an improvement in service which the LC had not delivered, including the development of a sewage plant. This put LC management in a bind, as the financier of the sewage plant (KfW) was saying the plant could only go ahead if tariffs were raised. This deadlock was only solved in mid-2008 after the personal intervention of the minister. This was a huge expense of political capital for what should have been a business decision taken by the Board.

*Source: PSIA interviews and focus groups, Ibb, May 2008*

Overall, tariffs remain low compared to alternative non-network sources of supply. Tariffs in most towns are easily affordable, and consumers above the lifeline block could pay more. Willingness to pay is generally quite high, except for sanitation, and getting connected to the network is more important for most than tariff levels. In the Customer Satisfaction Survey, very few people cited the price of network water as a concern. Businesses are generally more interested in reliable supply than in costs (see Box 7), although very high tariffs may push businesses to seek alternatives. However, tariff levels are high for towns where supply costs are high. Mahweet, one of the poorest towns in Yemen, now has a lifeline tariff six times higher than Aden, one of the richest towns.

#### **Box 7: Business customers in Ibb are concerned about getting water more than about price**

The al-Taifa Hotel has 33 rooms and the hotel is usually full. They get water twice a week, once from the reservoir and once by direct pumping. This is enough for the hotel. Even in summer they have never had to buy a tanker. The monthly bill is Rls 18-25,000 (\$90-125). The manager says: "*The price is good.*"

The owner of a popular downtown restaurant, Ismail pays the high commercial rate and the bill comes to Rls 8-12,000 (\$40-60) a month. He serves 100-120 covers a day. The water is not enough, and on average he buys three tankers a month at a cost of Rls 1,200-1,500 each (\$6-7.50). He is not satisfied with the service, but only because he cannot source all his water from the network. He does think the tariffs the utility charges commercial customers are "unfairly high", but it is quantity not price that is his first concern. The water quality he considers excellent – "better than Shemlan". He drinks the tap water himself, and serves it to his customers. He has a water cooler with taps and he reckons that more than 60 people come in each day only to drink without charge. Many but not all of them are poor.

*Source: PSIA focus group discussions, Ibb, May 2008*

Low tariffs undermine the viability of utilities, and even harm the poor. Reaching NWSSIP cost recovery targets would allow utilities to invest in asset replacement – and the tariffs could still be affordable. Higher tariffs above the lifeline block would be equitable, and there is willingness to pay. Overall, higher tariffs would allow utilities to perform better and to invest in asset replacement.

Opinions and evidence varied on the how far the reform program has helped with tariff setting, and on whether things were improving. Some PSIA respondents concluded that decentralization has improved the transparency of tariff setting and has established the link in local people’s minds between service and price. These resource persons saw decentralization leading progressively to local responsibility and utility accountability, with the expectation that service levels will improve and tariff setting will become increasingly a business decision. Evidence in support of this view comes from al Shehr and several Tihama towns, where progressive tariff adjustments are being made, and “the utilities are doing good business”.

Other PSIA respondents, however, pointed to evidence that decentralization may have left tariff adjustments a political issue – but at the decentralized, local level. In some cases (Ibb, for example), it is local government that has been most opposed to tariff increases, and as local government has a major say in decisions in the utility boards, this can create a stalemate between utilities’ management and their governance structure.

A balanced view is that decentralization is a complex, long-term process in which the responsibility and accountability of the partners (utility management, utility boards, local and central government, consumers) will grow slowly, and will need to be aided by continuous dialogue and the growth of understanding, and by palpable improvements in service levels.

***Recommendations*** are:

- Adopt nationwide key principles for tariff setting that (1) protect the poor; (2) eliminate “free riders” by charging all water at the highest block rate reached; (3) charge all water above the lifeline rate at least at full O&M and electro-mechanical depreciation cost; (4) charge every consumer by eliminating payment exemptions, (5) allow the utility to increase its cost recovery progressively, first to the NWSSIP targets, and then to genuine financial self-sufficiency and creditworthiness; and (6) promote water conservation, particularly by commercial, industrial and high end domestic use.
- Implement the principles through a separate tariff study for each utility, using the tariff simulation models developed for Aden and Ibb LCs and linking tariff increases to improvements in service levels. The studies could be done in a participatory way, involving the utility boards and a broader panel of customers e.g. through focus groups and/or town hall meetings. This participatory and transparent approach was endorsed by stakeholders at the October 2008 Workshop.
- Program progressive tariff increases in the Business Plans, linked to other parallel measures to improve services (including efficiency gains, reductions in unaccounted for water, increase in collection ratio, elimination of payment exemptions, etc.). Local councils and the population should be kept constantly involved and any concerns should be addressed through the customer outreach program.

- Adapt the approach to local conditions, with special consideration to poor, high cost towns such as Mahweet, where some measure of central government support might be considered.

## 6. Financial viability

A key NWSSIP objective is that utilities should move progressively towards financial viability. Progress is being made, although for some utilities such as Ibb and Ta'iz, costs have been going up faster than revenues. In some towns (for example, Aden), there is the possibility of the efficiency gains needed to achieve financial viability whilst keeping tariff adjustments to reasonable levels. In other towns, efficiency gains are limited by technical or physical factors. Sana'a, Ibb and Hajjah, for example, are burdened by high cost technology. Mahweet and Ta'iz have very high raw water costs. Overall, achieving financial viability requires action on efficiency as well as on revenues. Some of these actions are within the power of utility management. **Recommendations** are:

- Include in the Business Plans all actions the utilities may be able to take to increase revenues, reduce investment and recurrent costs and improve management of both profit and loss accounts and balance sheets, for example: (1) efficiency gains such as reduced unaccounted-for water and lower staff: connections ratios; (2) lower cost technical solutions with higher customer co-pay (e.g. decentralized sanitation); (3) increased cost sharing in capital investment, through higher connection charges, with provision for the poor; (4) financial management actions to improve cash flow; (5) partnerships with private providers etc.

## 7. Financial management

Utilities have benefited from support to improve financial management and some have been equipped with advanced financial management systems and procedures. However, despite notional utility autonomy, the Ministry of Finance (MoF) intervenes in financial management to a considerable extent, and financial management is constrained by the governance structure and by dependency on central government financing. Overall, despite some improvements, utilities are not yet able to manage their finances on an enterprise basis. **Recommendations** are:

- Include in the Business Plans a multi-year financial management roadmap for each utility (with milestones) for measures within the power of each utility. Measures could include to acquire and/or implement the existing improved financial management systems, develop modern enterprise accounting systems, provide capacity building and incentives for financial management staff etc.
- Revise the financial powers and accountabilities of the utilities, the rights and duties of the Boards and the relationship with MoF in the proposed adjustments to utility governance (see below).

### iii) Governance

The governance structure introduced under decentralization has worked well where utilities are able to provide a good service responsive to local needs. However, where service is poor or coverage is low, tensions have emerged between management, Boards of Directors, and central

government. Key issues are: (1) the split between utility ownership and corporate governance saps responsibility; (2) the split between the regulatory function and the supervision function is ill-defined and creates confusion and interventionism; and (3) the lack of financial autonomy leads to dependency.

Now a further step in decentralization (beyond the LC model) is being proposed, decentralizing both ownership and authority over the utilities to local level institutions. A new model of the “public company” would be created, owned by the local authorities and with ownership separated from management. Advantages and disadvantages of the model were raised at a practitioners’ workshop in May 2008, and open questions include: shifting of responsibility to the local level, and clarity of responsibility at that level, local willingness to pursue a business-like approach; and the ability of water utilities to support loan financing, together with the readiness of MoF to develop innovative financing instruments.

In tandem with decentralization, NWSSIP provides for a strengthening of key essential central government services, notably the setting up of a regulator. The decentralization model requires some mechanism of government control to protect the public interest and government investments, supporting and overseeing the functions of tariff setting, supervising service standards, and ensuring protection of the consumer. At present, MWE is performing this function but is not set up to do so. Preparatory studies for the regulatory function are complete. At the October 2008 Workshop, utility managers expresses strong support, as independent regulation would bring transparency and balance between providers and consumer interests. Establishment of the regulatory function is, however, being slowed up by political hesitations.

***Recommendations*** are:

- Conduct a study on the ability of MoF to provide innovative financial instruments, working with MoF and utilities to design realistic models.
- Pursue open discussion on the final legal status of the utilities including asset ownership, regulation and supervision, deepen the problem diagnosis, and analyse other options, whilst conducting a feasibility study on the establishment of one pilot public company, to be tested beginning in 2009.
- Push for an early political decision at Ministry level for establishing the interim regulatory unit for building up the capacity and policies for the independent regulator
- Push for early presentation to parliament of the law to set up the fully independent regulatory body.

## C. Expanding Provision of Affordable Services

### 8. Increasing Access

There has been very rapid increase in access to network water supply (up 50% nationally 2002-7), and almost two thirds of urban households are connected to mains water. Some towns have moved from donkey cart service to 100% network coverage in just a few years. Access to network sewerage is considerably lower (about 30% average for urban areas). Rates of coverage vary widely, with many coastal towns counting 100% network access, whereas some of the highland towns have only 40% coverage and cannot keep up with the rapid pace of urban growth. Although willingness to pay for connection is high (except for sanitation), expansion in the major highland cities is constrained by the huge size of the investment required, by the lack of profitability (utilities subsidize capital costs and may lose money on supply too), by inadequate implementation capacity, and (increasingly) by lack of water resources. **Recommendations** are:

- Develop, for inclusion in the Business Plans, solutions for increasing customer co-pay and lowering costs of connection with innovative technologies (rainwater harvesting, decentralized sanitation) and innovative business models like service or management contracts, concessions, partnerships with private vendors, and output-based aid – see example in the box below.
- Integrate expansion of water supply and sanitation into comprehensive urban planning (where this may exist)
- Increase utility project implementation capacity for utilities undertaking major investment programs, as proposed in the NWSSIP update.

#### **Box 8: Alternative ways to increase access in Sana'a**

The example of Sana'a shows that the Yemen has to make some very hard choices. Current network coverage is only 40%, and meeting the MDG coverage target would cost almost \$2 billion. In both water supply and sanitation, the private sector is currently filling the gap: in water supply through tankers, purification shops and local networks, and in sanitation through private cess pits and cess pit emptying.

The Sana'a LC could concentrate on teaming up with the private sector for the unconnected areas, and on consolidation of its current network systems rather than expansion, except for the sewage treatment plant, which is an environmental must. The Sana'a LC is one of the few utilities already considering decentralized sanitation.

Non-conventional options for expanding services include: (i) regulating private wells selling tanker water, (ii) regulating the tanker fleet and providing certificates to hygienically suitable tankers, (iii) providing water to tankers from specific municipal wells, (iv) regulating and supporting construction of cesspits, (v) providing sewerage network feeding points for vacuum trucks (against fees), (vi) stimulating private investment in small water networks and eventually decentralized cluster sewerage solutions, (vii) provision of output-based aid approaches, and (viii) promotion of rooftop rainwater harvesting.

*Source: NWSSIP Update, Key informant interview with KfW Director Sana'a, May 2008*

## 9. Financing expansion

Network expansion is constrained by shortage of investment funds and weak financial management and implementation capability. Direct financing of network expansion on a loan basis would push up customer charges to levels that could be unaffordable and difficult politically (up to \$10 a month, five times the existing tariff levels). Nonetheless, there are both willingness and capacity to pay higher connection charges than at present. **Recommendations** are:

- As part of the utility-level tariff studies (see above), examine capacity and willingness to pay connection charges, and include proposals for higher customer co-pay in the Business Plans. This idea was supported by utility managers at the Stakeholder Workshop, with the additional recommendation for a prior national level review and policy.

Align all investment financing on the demand-driven approach being introduced under the Provincial Towns Open Program (PTOP) and the Water Sector Support Project. PTOp is essentially a competitive fund where utilities present their business plans and investment programs for financing. They receive a structured and integrated mix of institutional development, capacity building and investment finance, tracked against milestones (see Box 9).

### **Box 9: The Milestones Concept**

Germany found that its investment projects in urban water were lagging, in part because of institutional weaknesses in the utilities. *“It became clear that if there was no progress in institutional development, there would be no progress in the investment component.”*

The Milestone Concept was then developed by KfW and GTZ. The milestones define crucial outcomes in a project cycle that include both institutional development, physical investment, financial aspects and water resources management. They are meant to facilitate the project and set clear goals for institutional development. The concept also serves to define the partnership arrangement between the donor and the utility.

The concept has been applied to two utilities to date: Abyan and al Shehr. The results have been mixed in Abyan and very good in al Shehr: “Abyan LC has not performed very well in the first year of collaboration. But at least the Milestones Concept has served to structure the change process and help to begin implementation of the needed institutional changes”. By contrast at al Shehr, all milestones have been met so far. GTZ explains that al Shehr benefits from dedicated management and a clear process and division of tasks. There has also been a substantial input by GTZ and sound coordination between the physical investment and institutional development sides.

*Source: Key informant interviews with staff of the GTZ Yemeni-German Technical Cooperation/Water Sector Program, August 2008*

## 10. Low cost technology and alternative service delivery models

Several promising initiatives have been tested (rooftop rainwater harvesting, decentralized sanitation with small bore gravity outlets to the network) and standpipes could be acceptable to currently unconnected consumers in some areas. The utilities, however, may be resistant to decentralized and innovative solutions, although the utility managers at the October 2008 Workshop in general accepted that utilities have a social responsibility and should work with local councils and civil society to develop programs. They suggested, for example, that utilities could work with the private sector and local associations to manage stand pipes, that local councils could introduce mandatory rooftop water harvesting for new construction, that utilities

could agree with local councils and the private sector on zoning of areas for private sector intervention etc. **Recommendations** are:

- Encourage the utilities as socially responsible businesses to engage with local stakeholders in the testing and upscaling of low cost technology innovations. The options and an action plan should be set out in the Business Plans.

## 11. Sourcing water

Sourcing sustainable and adequate water supply has become an increasing problem, and in some cities the resource situation is very serious. In Ibb, for example, it is reported that “new water connections are stopped due to lack of water sources”. Everywhere, implementation of licencing and regulation is proceeding unevenly, and water rights are not clearly defined. There is no equitable model for rural-urban resource transfer, and utilities basically appropriate water when they drill new wells (see Box 10). **Recommendations** are:

- MWE and NWRA need to develop equitable and sustainable models for resource transfer, using the proposed *National Conference on Community Water Management and Water Rights* to be held in the first half of 2009 as a forum for open discussion.
- Utilities should work with NWRA to identify resources and develop transfer programs integrating the two principles of respecting water rights and no uncompensated harm.

### **Box 10: Bad blood over rural-urban water transfer in the Ta'iz area**

From the mid-1980s, Ta'iz city was desperately searching for a new water source. Studies identified the Habir area as a promising source of new water supply. After a protracted negotiation with the population spreading over a decade, with much confrontation, imprisonment and shooting, and after four ministers had intervened, an agreement was finally brokered in 1995/6 with the sheikhs of the Habir area.

So what is the impact ten years on? A recent study showed that the citizens of Habir feel bitter about the Ta'iz LC, and the relationship between them and the Corporation is very tense. Some Habir farmers disrupted the water supply to Ta'iz in mid-2008. They wanted the Corporation to decrease the water abstracted from its wells, claiming that their own wells were being adversely affected.

The DG of the Ta'iz LC is equally bitter. He says that water from the wells in Habir costs \$1.50/m<sup>3</sup>, because the well yield is low and he is obliged to “give” 20% of the water back to local associations. In addition, a further 30-40% of the water is “lost”, by which he implies that it is stolen.

He has also to employ some 108 local people from the Habir area to operate and “guard” the eight wells. These employees cost him a massive RIs 147 million (\$750,000) annually. When the disruption arose earlier in 2008, he saw the Habir people as “trouble makers” and he wanted them arrested.

*Source: Wadi MENA 2008*

## 12. Working with the private sector

In a number of towns the private sector is an important provider of water supply and sanitation services, and partnership has long been a policy goal. Early attempts at large scale partnership with the private sector proved impossible, but there have been some successful localized partnership approaches (e.g. at Ibb, see Box 11) and a partnership for water supply to poor areas is to be tested in Sana'a. Government and the private sector have up to now been mistrustful of

each other, but the organized private sector may be willing to cooperate. Views expressed at the October 2008 Stakeholder Workshop show that utility managers are more than ready to meet the private sector half-way<sup>5</sup>. **Recommendations** are:

- Conduct a national study complemented by local level technical assistance to identify and develop (for inclusion in the Business Plans) transaction models suited to partnerships between public and private sectors. Several models look promising: (1) local area concessions; (2) outsourcing of discrete functions; (3) bringing private wells, networks and tankers progressively within the regulatory framework in return for security of market access and possible support; (4) bulk delivery of water to the private sector; and (5) output based subsidies.<sup>6</sup>
- An information and communication program should accompany a process of dialogue to dispel resistance to partnerships between the public and private sectors.

**Box 11: Partnership with the local private sector in Ibb**

In Ibb, the PSIA mission visited a private network owned by the al Najjar family working under a contract arrangement with the LC and the municipality

The well and network are in a high density newly constructed area outside the reach of the current LC network. The owner used to sell water to the qat trade. However, the well ran dry and the municipality and the LC refused him permission to drill a new well unless he stopped selling to the out-of-town qat farmers and instead converted to network water supply. He agreed to do this. He received a licence and signed a three party contract with the municipality and the LC, under which the LC: (1) allows him a specific service area; (2) supervises water quality; and (3) agrees the tariffs.

The well owner invested in a distribution network to 180 households. Each household has a meter and paid RIs 10-40,000 (\$50-200) connection charge according to the size of the building. The tariffs have been set by the LC after a study of costs at: RIs 120/m<sup>3</sup> up to 10 m<sup>3</sup> a month, and RIs 130.m<sup>3</sup> above 10 m<sup>3</sup> a month (60-65 US cents). Customers complained to the LC, but the LC replied “It is up to you. We cannot serve you. The price is fair.” In fact, although the price is six times the LC’s lifeline rate, it is the same as the LC’s cost of supply, so is quite competitive. In the end, all households in the service area accepted and paid the connection fee. The well owner supplies the very large adjacent mosque for free and poor people can access water at the mosque.

The LC, the well owner, the local council and the local residents all said they were quite satisfied with the arrangement. Residents especially like the seven day a week, 20 hour a day service.

*Source: PSIA focus group discussions and key informant interviews, Ibb, May 2008*

<sup>5</sup> A separate, parallel private sector study was expected to private data on private providers for the PSIA. However, this study has not yet been conducted. Once this is done, data on current and future poverty and social impacts of private sector provision to poor urban groups will become available.

<sup>6</sup> In Sana’a, a partnership with a private operator or NGO for water supply to poor areas is to be tested at al Qabel village in the Sana’a environs. The project is to be tendered on the basis of “output based aid”. Essentially, the promoter will receive a capital subsidy on each new connection delivered, and will contract to be regulated on operations and price.

## D. Protecting the Poor

Protecting the poor has been a key objective of the sector reform. Because network water is much cheaper than other sources, getting connected to the network is the most pro-poor option and network expansion is still the best pro-poor strategy. The real losers are the poorer people not connected to the network.

The “connected” poor are generally protected by the lifeline tariff, which generally covers less than half the supply cost. Generally, water is affordable for the poor who have network access, just 1-2% of household expenditures. This is much less than typical expenditures on qat (about 7%). However, some poor people, particularly those sharing meters or with large families, are consuming above the lifeline and thus pay above the lifeline rate on a small part of their consumption. Also, for the poor in high cost towns, water is a larger share of expenditures, although generally within the 5% accepted as “affordable”.

A very high proportion of connected consumers (up to three quarters), including many non-poor, are only paying the lifeline tariff, and even those consuming more than 10m<sup>3</sup> a month currently benefit from the lifeline tariff for a large part of their consumption. There is no justification in equity or business for this substantial subsidy to better off consumers.

The poor connected to the network generally have access to the “target livelihoods need” of 50 litres per capita per day (lcd). However, in water short towns they may get only half of that from the network. In areas not served by any network, water costs are much higher and consumption is limited, even below the “health threshold” of 20 lcd.

The very poor not connected to the network generally have access to free water in quantities about equal to the health threshold (see Boxes 12 and 13). However, these supplies carry a high transaction cost. The fact that the very poor have this safety net does not relieve government of its duty to target water supply and sanitation provision to poor households because provision of safe water and sanitation services is a key component of poverty reduction.

There are clear health impacts of water supply connection e.g. considerable reduction in diarrhea. However, at the Stakeholder Workshop, participants considered that hygiene and health awareness programs need strengthening. Gender and education benefits are also clear: in the Customer Satisfaction Survey, 55% of households reported women’s chores reduced, one quarter reported more time for children to attend school.

### **Box 12: Private sector provides free water for the poor in Sana’a**

The Madhah quarter of Madinat al Layl in Sana’a is a mixed commercial and poorer residential quarter along the road above the university. At a private well supplying tankers, a group of about ten water fetchers, all children, has gathered around a tap where a thinnish stream of water can be collected for free by the poor. There is no registration or verification system but it is sufficiently inconvenient, time consuming and laborious that only the very poor would bother.

One girl of about eleven is filling a large bucket. She is wearing a dirty school uniform, although it is a holiday. She says that she is in second grade. As soon as her bucket is full, she hoists it onto her head and goes off towards a poor group of houses nearby. Then several children start filling a collection of small jerry cans. They say they live about a kilometre away, down by the roundabout. They say they come once a day and fill thirteen 10 litre jerry cans, which is for the household of six persons (i.e. just over the 20 lcd

threshold of minimum basic needs). The oldest child is a girl of about twelve who says she is in third grade. She too is wearing her school uniform.

Here, the poor do have charitable access, but they use very little water and the free provision for the poor is self-selecting.

*Source: PSIA focus group, Sana'a, May, 2008*

### **Box 13: Girls in Mahweet spend up to half a day to get the minimum of water**

At a small spring on the outskirts of Mahweet, girls and young women are fetching water. They are beautifully dressed and veiled. They do 6-8 trips a day with twenty litre cans on their heads. Ten minutes each way, ten minutes at the spring makes at least half an hour a trip. It takes half a day to supply the household with less than the basic minimum of 20 lcd.

The spring comes out of an awkwardly positioned plastic tube so the girls have to bend right down to fill their cans. The surroundings are quite dirty and muddy. And what a weight on the head!

Men lounging nearby say “They enjoy the social life at the spring” but the girls are just standing there waiting their turn, looking fatigued. The younger ones say they do go to school, though. The men comment helpfully “We don’t use donkeys here!” The implication is that the girls might as well go on with the drudgery, no effort is needed to make their lives easier.

The spring provides a vital source for poorer households and for those who have simply run out of water. It is a painful chore and the men are not very interested to make it any easier. Having a network connection – or even just a simple technology like a donkey to transport the water – would make life a whole lot better for the women and girls involved.

*Source: PSIA focus group, Mahweet, August, 2008*

### **Recommendations are:**

- Set tariffs for consumption above 10m<sup>3</sup> a month without subsidy, with larger consumers cross-subsidizing the lifeline tariff. In the studies for tariff adjustment (see above), utilities should factor in protection of the poor whilst retaining business targets. This could mean, for example: (1) keeping the low lifeline tariff for the first 10m<sup>3</sup>, gauged so that it would count for no more than 5% of the expenditures of the poor; (2) billing all water consumed above 10 m<sup>3</sup> at the rate of the highest block reached; and (3) ensuring that the overall yield from all blocks would meet the utility’s cost recovery requirement.
- Develop specific pro-poor policies for the connected poor. Utilities could, for example, help households currently sharing meters to connect individually, for a modest charge. Utilities could also study the local feasibility of a voucher system (paid for by government) that would give entitlement to low cost or free water.
- Give each utility, as a socially responsible public enterprise, a pro-poor mandate, and require utilities to come up with a pro-poor strategy in their Business Plan. Priorities would be to expand coverage for poor communities through innovative business models such as output based aid (see above), or through cooperation with SFD, charities or NGOs on rainwater harvesting or spring improvement, standpipes etc. Key extra measures required are: (1) additional and clearly targeted financial support; and (2) studies and training to equip utility staff with the knowledge and expertise for piloting and eventually setting up appropriate solutions.

- Enhance health and hygiene awareness, with community participation.
- Where water supply is very high cost, as at al Mahweet, government should consider a strategy to bring costs down either through investment or through an operating subsidy paid by government.

## E. Dealing with the Political Economy of Water Sector Reform

The reform program is well thought out and is progressing, with palpable results. However, the process needs to be accompanied by actions to ensure that important constituencies are part of the reform process, and do not oppose it. Key *recommendations* are:

- Develop at utility level a progressive and comprehensive approach in the proposed Business Plans to enhance social accountability, to improve services, expand coverage, move towards financial viability, and protect the poor. Ideally, these Business Plans should be developed through public consultation, and they should certainly be public documents, available for interested stakeholders to consult.
- Identify and document key reform successes and opportunities (e.g. innovative technology, partnership approaches), and publicize them through a targeted communications program.
- Ensure that key business decisions – particularly on tariff increases - are reached with an appropriate measure of public consultation through consumer outreach programs.
- Give priority to the development of fair and equitable measures for rural-urban water transfer, including national dialogue in the proposed 2009 *Conference on Community Water Management and Water Rights*.
- Insist that utilities adopt a public service mandate (consistent with a business approach) towards the poor. This should include the obligation, as socially responsible public enterprises, to factor considerations of access and affordability for the poor into the Business Plans, to propose business models or technologies that target the poor, and to ensure that pro-poor considerations are integrated into tariff reviews.
- Complete decentralization, and clarify roles and responsibilities between central and local government, between utilities and consumers, between public and private providers.

## F. Conclusion

The PSIA has examined the progress with the challenging reforms that Yemen is undertaking in the urban water sector. In particular it has examined the tension between a business approach, affordable service provision and service expansion, and protection of the poor. Overall, the reform programme is clearly largely on track and is beginning to bear fruits. The upcoming

NWSSIP Update will greatly strengthen the institutional focus and set realistic targets for expansion and service improvement.

Key to improving the business approach will be the development and implementation of comprehensive Business Plans and the progressive adoption of the suite of management and human resource development tools that are available. Sustained external support for institutional development and capacity building is essential. Experience is showing too that utilities need to develop a socially accountable customer orientation, with strong emphasis on customer outreach. Tariffs need to be set at levels that promote efficiency and improve the utilities' financial performance. Financial management and autonomy also need to be strengthened in order to move towards financial viability. To make progress on utilities operating as businesses and on consumer satisfaction, there is need to develop social accountability between utilities and consumers, where utilities provide quality services and consumers pay a fair price. The governance structure needs strengthening at the utility level, and also at the national level through the creation of the needed regulatory function. Managers and their governance structures need to be empowered by completion of the decentralization process.

A number of solutions are available to help improve service provision and increase access. Low cost and innovative technologies and new demand-driven financing mechanisms will help, and partnerships with the local private sector have considerable potential. External support needs to be coordinated and harmonized around a single consistent long term program. Efficiency improvements should help improve both financial viability and service levels. An in-depth look at ways to source new water resources sustainable is required, and here the solutions are as much institutional as technical.

The utilities, as public bodies, have a social obligation to ensure the water needs of the poor in their service area, and each utility should develop a pro-poor strategy. This clearly should include provision for pro-poor tariffs, but also partnerships and the promotion of institutional and technical mechanisms to expand access of the poor to low cost safe water.

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## Map of UWSS in Yemen

