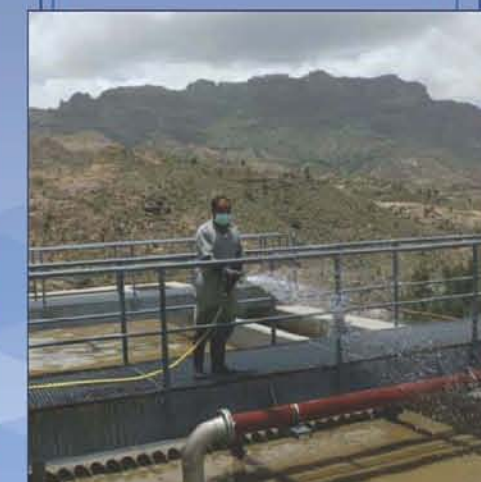
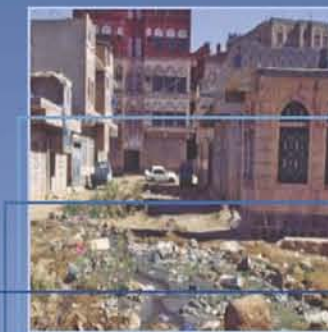


EQUITY AND EFFICIENCY IN YEMEN'S URBAN WATER REFORM –

A SECTOR STUDY AND POVERTY AND SOCIAL IMPACT ANALYSIS

HIGHLIGHTS & RECOMMENDATIONS



MARCH 2009

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



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Main Report

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ACRONYMS

AU	Autonomous Utility
CBO	Community-Based Organization
CSS	Comprehensive Subscribers Survey
DCMMS	Customer Complaints System
GIS	Geographical Information System
GTZ	Deutsche Gesellschaft fuer Technische Zusammenarbeit (GTZ) GmbH
HBS	Household Budget Survey
HRIS	Human Resource Information System
ICT	Information Technology System
IWRM	Integrated Water Resource Management
JAR	Joint Annual Review
KfW	Kredietanstalt fuer Wiederaufbau (KfW Development Bank)
LC	Local Corporation
MACS	Management and Consulting Services
MDG	Millennium Development Goal
MoF	Ministry of Finance
MWE	Ministry of Water and Environment
MoLA	Ministry of Local Administration
MoPIC	Ministry of Planning and International Cooperation
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
PPP	Public Private Partnership
PSP	Private Sector Participation
PTOP	Provincial Towns Open Program
PWP	Public Works Program
RWSSP	Rural Water Supply and Sanitation Project
SBWMP	Sana'a Basin Water Management Project
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 m³ 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.

Executive Summary

PSIA objective

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 recent updating of the National Water Sector Strategy and Investment Program (*NWSSIP Update*):

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

The purpose of the Poverty and Social Impact Analysis of Yemen's Urban Water Sector Reform Program (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 implementation. The analysis focuses on sector and sub-sector policy, investment and capacity building, delivery performance, and impacts.

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. Today, 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. Decentralization has been implemented in 27 towns. 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.

Increasing Efficiency

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, systems are old and high cost, and water resources are in increasingly short supply.

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. **Recommendations** are:

- Where utilities suffer from major constraints, Business Plans (which are required under NWSSIP) should prioritize “low hanging fruit” - actions within the power of management that will quickly and effectively improve service.
- All support to utilities should be based on the Business Plan - preferably developed with some measure of public participation to help develop social accountability - and should comprise a comprehensive package disaggregated and tailored 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 (see below); 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”, which are monitorable performance results that trigger further support, should be agreed upon, linking management support and institutional development with investment finance.
- Benchmarking should be introduced promptly, adapted to the constraints and potential of each utility. The Business Plan should set out the proposed benchmarks, and the PIIS should be improved to monitor performance, and managers and Boards of Directors should be trained in the use of the PIIS as a management tool.

Water quality

Water quality is variable, generally good – but consumers are reluctant to drink network water, which they perceive as low quality. Several large towns score poorly on effluent quality, and sewage treatment is a priority. *Recommendations* are:

- Introduce benchmarking and regulation for water quality
- Correct the disconnect between customer perception and actual water quality by publication of test results and 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.

Management and human resource development

Management improvements are underway and new tools are in use, but performance is uneven. 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 for all utility employees. A significant effort has been made at training – but training levels remain quite low. Overall, utilities are moving erratically and only slowly towards an enterprise culture where there is investment in staff on the basis of professional standards.

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.
- 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.

Consumer relations

The utilities have made a major investment in consumer 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. Good customer relations have proved good for business. However, some managers remain unconvinced. *Recommendations* are:

- Carry out a participatory review of the customer relations program to show ways to improve its effectiveness, to increase the confidence of managers, and to enhance social accountability between utilities and customers.
- 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 customer relations as part of a business approach, and 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.

Financial viability

Tariffs

Since decentralization, tariff adjustments have been more frequent and more responsive to utility needs. Most utilities are 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. Tariff adjustments are sometimes still very hard to obtain, and in some cases limited utility revenues, in part due to low tariffs, inefficient management, high losses, etc. are having a negative impact on services and investment. Overall, network tariffs remain low compared to non-network alternative 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 for most people getting connected to the network is far more important than tariff levels. However, tariff levels are high for towns like al Mahweet where supply is very costly. Overall, higher tariffs, accompanied by other utility revenue enhancing measures, would allow utilities to perform better and to invest in asset replacement. **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 cost plus electro-mechanical depreciation; (4) charge every consumer by eliminating payment exemptions, (5) allow the utility to increase its cost recovery progressively, first to the NWSSIP Update 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. 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. The studies should relate tariff increases to tangible increases in service levels.
- Program progressive tariff increases in the Business Plans, linked to other parallel measures to improve services (including efficiency gains, increased collection ratio, elimination of payment exemptions, decrease of losses, etc.). Local councils and the population should be kept constantly involved and any concerns should be addressed through the customer outreach and public participation 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.

Financial viability

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, and 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) lower cost technical solutions with higher customer co-pay (e.g. decentralized sanitation); (2) increased cost sharing in capital investment, through higher connection charges, with provision for the poor; (3) financial management actions to improve cash flow; (4) partnerships with private providers etc.

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, fiscal decentralization is not yet complete and 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, such as: acquire and/or implement the existing improved financial management systems, develop modern enterprise accounting systems, financial capacity building and incentives for 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 restructuring into public companies (see below) and the continued decentralization processes.

Governance

The governance structure introduced under decentralization has worked well where utilities are able to provide a good service responsive to local needs, but 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 (due to incomplete fiscal decentralization) requires intergovernmental transfers and 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. Advantages and

disadvantages of the model were raised at a practitioners' workshop in May 2008, and open questions include: shifting of responsibility to the lower 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 financial instruments. Regarding establishment of the regulatory function, preparatory studies are complete but establishment is 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.

Increasing Access

There has been very rapid increase in access (up 50% nationally 2002-7), and some towns have moved from donkey cart service to 100% network coverage in just a few years. Rates of coverage vary widely - many coastal towns count 100% coverage, 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), improved supply and demand management to mitigate structural supply shortages, and innovative business models like service or management contracts, concessions, partnerships with private vendors, and output-based aid – see example in the box below.

Non-conventional options have been identified for expanding services in Sana'a, including: (i) regulating private wells selling water, (ii) regulating the tanker fleet and providing certificates to hygienically suitable tankers, (iii) providing water to tankers from specific municipal wells, (iv) regulating construction of cesspits (technical assistance and specifications), (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.

- 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.

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
- Align all investment financing on the demand-driven approach being introduced under the Provincial Towns Open Program (PTOP). 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, that is tracked and released against achievements of milestones.

Low cost technology

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. **Recommendations** are:

- Encourage the utilities - as socially responsible businesses - to engage with local stakeholders in the testing and upscaling of these innovations, and to market them as business opportunities. The options and an action plan should be set out in the Business Plans.

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”. There is no equitable model for rural-urban resource transfer, and utilities basically appropriate water when they drill new wells. **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* 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”.

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. However, there have been some successful localized partnership approaches (e.g. at Ibb) 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. **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 service or management contracts or 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. A participatory process should be adopted that includes an information and communication program to inform both public and private stakeholders and address their concerns, to start changing perceptions and to dispel political resistance to partnerships between public and private sector.

Protecting the poor

Protecting the poor has been a key objective of the sector. 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 poor who are not connected to the network.

The “connected” poor are to an extent 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 the household expenditures. This is much less than typical expenditures on qat (about 7%). However, some poor people, particularly those sharing meters and large families, consume more water and are thus paying 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 their expenditures, although generally within the 5% accepted as “affordable”. The very poor, unconnected households, generally have access to informal water sources, such as free water from mosques or charities in quantities about equal to the WHO health threshold of 20 l/c/d. However, these supplies carry a high transaction cost. The fact that the very poor have this informal support net does not relieve government of its duty to target water supply and sanitation provision to poor households because the provision of safe water and sanitation services is a key component of poverty reduction

A very high proportion of consumers (up to three quarters), including many non-poor, are only paying the lifeline tariff, and even those consuming more than 10m³ 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 that also benefits the better-off consumers.

The poor connected to the network generally have access to the “target livelihoods need” set by the Yemeni water sector of 50 lpcd, although in water short towns they may get only half of that from the network. In areas not served by any network, water costs (e.g tanker supplied) are much

higher, and households cope with reduced consumption, even below the WHO health threshold of 20 l/c/d.

There are clear health impacts of water supply connection e.g. considerable reduction in diarrhea. However, hygiene and health education need strengthening. Gender and education benefits are also clear: 55% of households reported women's chores reduced, one quarter reported more time for children to attend school.

Recommendations are:

- Set tariffs for consumption above the 10m³ a month lifeline without subsidy, with larger consumers cross-subsidizing the lifeline tariff consumption of the poor. In the studies for tariff adjustment (see above), utilities should build in protection of the poor whilst retaining business targets. This could mean, for example: (1) keeping the low lifeline tariff for the first 10m³, gauged so that it would count for no more than 5% of the expenditures of the poor; (2) billing all water consumed above 10 m³ 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 who currently share meters to connect individually, for a modest charge. Utilities could also study the local feasibility of a voucher system, underwritten 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
- Enhance hygiene and health education programs, 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 operating subsidy.

Dealing with the political economy aspects

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 incentives and a progressive and comprehensive approach in the proposed Business Plans to enhance social accountability, to improve services, expand coverage, to move towards financial viability, and to protect the poor. Ideally, these Business Plans should be developed in a transparent manner 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 to illustrate the respective benefits to stakeholders.

- Ensure that key business decisions – particularly on tariff increases - are reached with an appropriate measure of public involvement through the public participation and consumer outreach programs that help to identify and address stakeholder concerns.
- Give priority to the development of fair and equitable measures for rural-urban water transfer, including national dialogue in the proposed *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.

Risks and Risk Mitigation

PSIA typically analyses risks to the reform agenda and proposes mitigation measures, and a summary risk analysis of the Yemen urban water and sanitation reform programme together with associated mitigation strategies has been conducted. The main risks and possible mitigation measures are:

- The *risk that the MDGs are unattainable*. The difficulty of reaching the MDGs¹ is clear. Clearly a strategic mix of public and private initiatives will be essential. However, there is a risk that the capital costs will be unaffordable, that institutional capacity will be inadequate, and that services may be too costly for the poor. Mitigation: NWSSIP Update has been adjusted to reflect this risk, providing for greater involvement of the private sector, innovative technology and business models to bring costs down, improvements in public sector implementation capacity, and a combined package of physical investment and institutional development.
- The *financial resources risk*, that donors do not support the program adequately and financing is insufficient. Mitigation: Government is using the NWSSIP Update as the framework for attracting and locking in more donors financing, and the core donors have agreed to adopt a sector-wide approach to sector financing. A Medium Term Expenditure Framework is being prepared.
- The *implementation risk*, that service standards and cost effectiveness do not improve. Mitigation: the NWSSIP Update provides for a significant investment in institutional strengthening, and a system of benchmarking to ensure that utility performance gradually improves. This approach has been integrated into the PTOP and WSSP approach.
- The *political economy risk* that tariffs cannot be raised to the level needed for utilities' financial autonomy due to the continued dependence of utilities on government transfers

¹ The NWSSIP Update found the MDG criteria for determining water supply coverage too general, and the definition of coverage too limited. The NWSSIP Update therefore defines coverage as access to safe, affordable, available and regulated water supply, and accepts also tanker water if it meets the criteria.

and to the politicization of tariffs at the local level. Tariff increases have to be proposed as part of an integrated package that also includes efficiency gains and investment, and have to be agreed through an open and transparent consultation process (see Annex 1).

- The *risk that further pro-poor approaches may not be feasible*. There is a risk that further cross subsidy from the better off or from businesses may be hard to negotiate. Rising connection charges and monthly fees may prove prohibitive for the poor, and there is a persistent risk that the poor – and certainly the poorest of the poor – cannot afford network access. So far, there has been little success in identifying appropriate lower cost technology that might benefit the poor. **Mitigation:** the NWSSIP Update provides for a more comprehensive approach to developing pro-poor strategies, including acceptance that utilities are socially accountable, the inclusion of a pro-poor strategy in the business plans, pro-poor revision of the tariff schedules, and piloting of pro-poor business models and technology. The WSSP also includes output-based aid approaches with subsidies for household connections.
- The *water resource* risk that adequate water cannot be sourced to meet growing demand, or that water transfer arrangements from rural to urban uses are inequitable and unsustainable. **Mitigation:** this is perhaps the greatest risk in the longer term, and the NWSSIP Update provisions have to be implemented – water resources prospection, and development of equitable models for rural-urban resource transfer.

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 program is clearly largely on track and is beginning to bear fruits. The NWSSIP Update greatly strengthens 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 customer orientation, with strong emphasis on customer outreach. Tariffs need to be set at levels that promote efficiency and improve 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.

Part I. The Reform Agenda and the PSIA

Yemen is a poor and water scarce country. Freshwater availability is one of the lowest in the world with per capita availability of just 135 m³ 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.

Urban water reform

Until the mid-1990s, urban water 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

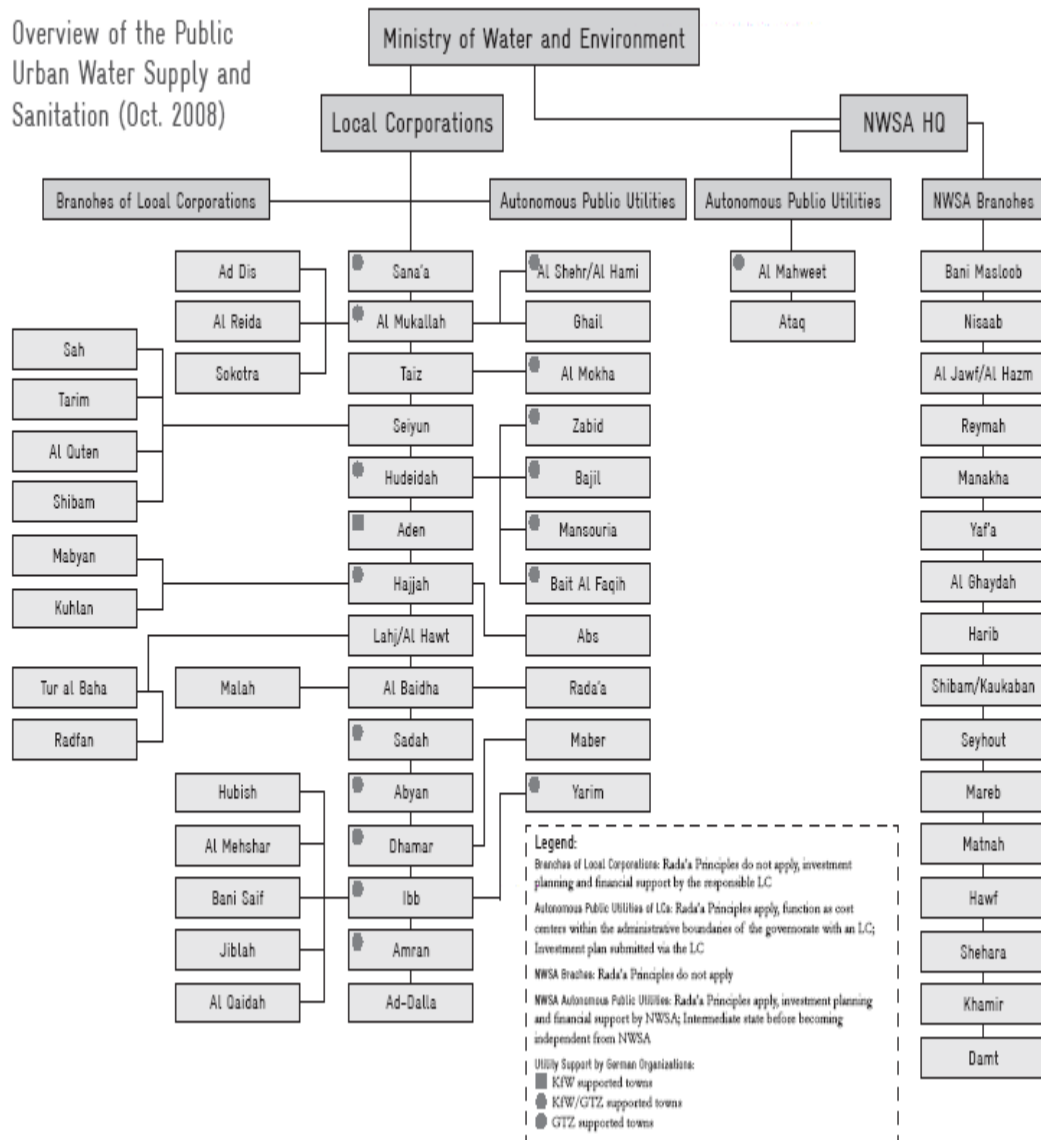
Reforms designed to make water and sanitation services affordable

- 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 services have not kept pace with population growth and urban expansion. Very large investments would be needed to reach the NWSSIP Update targets for public network services.
- The decentralized utilities are still only partly autonomous managerially. Due to incomplete fiscal decentralization, they also 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 into planning. Partnership arrangements remain 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 the households not connected to the network, including many poor and very poor, 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)² 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 also 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 and analysis, and for review and dissemination of reports, with technical assistance from the World Bank.

The purpose of the UWSS PSIA is to examine NWSSIP progress, 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 NWSSIP³.

² Government of Yemen, World Bank, GTZ, 2007.

³ 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 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, 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, 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 2008⁴). New information has been collected through a customer satisfaction survey (covering 760 households and businesses in nine towns throughout the country), key informant interviews (40 in total) and focus group discussions (30 in totals) 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, where many valuable suggestions were made that have been incorporated into the report. No further comments were received when the revised report was circulated to stakeholders in Arabic in January 2009.

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Organization of the report

The remaining parts of this report summarize the results of the PSIA data collection, analysis and evaluation, and present conclusions and proposals for next steps. Parts II to IV present the detailed findings and analysis, organized in three parts and twenty sections. Part II reviews issues related to the role of the water utilities as businesses, looking in turn at measures promoting increased efficiency, prospects of financial viability, and the governance of the utilities. Part III discusses evidence concerning increased affordable access by the population to services, including alternative ways to expand coverage. Part IV reviews the success of measures to protect the poor and reviews options for increasing access and affordability. Part V then analyses stakeholder interests and the political economy of the urban water reform program and the constraints and influences that affect outcomes. A final part (Part VI) summarizes findings and recommendations and examines risks and ways to mitigate them.

⁴ Ward, 2008

Part II. Urban Water Utilities as a Business

Part II looks at progress with the reform measures put in place to achieve the sector objective of running utilities for financial sustainability i.e. on a business basis. It examines first how far sector reforms have enabled the utilities to improve their efficiency in delivering services, by assessing current performance, water quality, improved management, human resource development, and consumer relations. A second section looks at issues that affect the financial viability of utilities, looking at tariffs and utilities as businesses, financial viability, and financial management. A final section on governance reviews how well the legal status and governance structure of the utilities have supported their development as businesses, and reviews progress on establishment of the regulatory function.

A. Increasing Efficiency

This section looks at how far sector reforms have enabled the utilities to improve their efficiency in delivering services.

1. Current performance

Key questions: How well are the utilities performing? What is the level of consumer satisfaction?

Progress on reform

NWSSIP and the entire reform program aim for efficient and accountable service-oriented utilities providing a quality water and sanitation service.

Recent performance monitoring has provided a positive picture on utility performance. The performance monitoring system (PIIS), which allows comparison over time and between utilities, is showing improvements on a number of parameters: 18 out of 23 utilities reporting under PIIS provide water on a daily basis (PIIS 2006:13), and water availability averages 58 lpcd, above the NWSSIP target domestic supply level of 50 lpcd (2007 figures). The reports presented to the 2008 Joint Annual review of the water sector (JAR III) link this performance to the ongoing decentralization process, which has been implemented rapidly: by 2007, 95% of the urban population connected to public networks was being supplied by autonomous utilities.

The PSIA Customer Satisfaction Survey showed two clusters of performance. In small towns where heavy investment and

	% getting water daily	% getting water 18-24 hours*	% satisfied
Bait al Faqih	100%	99%	98%
Zabid	100%	99%	88%
Mokha	100%	99%	94%
Shehr	100%	99%	70%
Zinjibar	82%	76%	58%
Ibb	6%	71%	42%
Sana'a	6%	3%	31%
Mahweet	1%	0	44%

Source: Customer Satisfaction Survey (Interaction 2008 a-d)
* On days when water is supplied

institutional support have been given and where there is no over-riding constraint such as lack of nearby quality water resources or difficult topography, households and businesses connected to the public network rated performance as excellent and are very satisfied: Bait al Faith 98%; Mokha 94%; and Zabid 88% (see Table 1). By contrast, in towns where the service was poor, for instance in Ibb, satisfaction (“very” or “somewhat” satisfied) was only 42%, in Sana’a it was 31% and in al Mahweet 44%. The principal reasons for dissatisfaction were inadequate supply (primarily insufficient quantity of water), the frequent interruptions in supply, and low pressure. Interestingly, cost of water was not often cited as a reason for dissatisfaction by connected consumers, but was the chief cause for dissatisfaction among unconnected consumers who pay up to ten times the piped network price for private provision (e.g. Sana’a).

Some towns have thus achieved excellent results, others lag behind from a combination of physical, structural and institutional constraints. Basically in the three towns with high satisfaction (Bait al Faqih, Mokha and Zabid), the water supply service is excellent – all day, every day. In these towns, the network supply system and the local utility have been built up more or less from scratch with strong investment and institutional support as an integrated package from German development cooperation sustained over many years. As a result, the utilities are well managed, they provide a good service, and they are seen as transparent and accountable, providing good information on services etc.

...other towns suffer from a combination of physical and structural problems and lower levels of outside support, and have not shown the same improvements in management. Amongst the problems reported from the four less well-performing towns are: (1) physical problems, particularly inadequate, poor quality and fast depleting water sources; (2) structural problems, including fast urban growth placing impossible demands on the supply, and lack of water resources; (3) less investment and support; and (4) weak governance and inadequate management capacity to keep pace with mounting demand and to overcome the “harsh technical, administrative and financial conditions” (Dorsch 2007: 9).

This pattern of varied performance is reflected across the country. MWE’s Performance Indicator Monitoring System (PIIS) report for 2006 reveals considerable differences between utilities, and the consequent need for utility-specific solutions (see Table 2 below). For example:

- Staff per 1000 connections range from 6 to 17
- Non-revenue water is as low as 10% and as high as 39%
- Some utilities provide water all day, every day. Others can manage supplies less than once a week
- Total cost coverage varies between 37% and 98%
- Collection efficiency in one utility is just 78%, in another 100%
- Average domestic consumption ranges between 25 lpcd and 111 lpcd
- Public water supply network coverage rates range between 36% and 100%

Table 2: Performance indicators for selected utilities

Utility	Staff/ 1000 connect.	Non- revenue water	Continuity	Total cost coverage	O&M coverage	Collection efficiency	Avge. domestic consumption	% of population served
<i>Bait al Faqih</i>	6.6	16%	Daily	98%	171%	90%	43 lpcd	100%
<i>Zabid</i>	5.6	10%	Daily	No data.	115%	79%	46 lpcd	100%
<i>Mokha</i>	13.2	24%	Daily	95%	114%	95%	50 lpcd	100%
<i>Ibb</i>	6.1	20%	Weekly	69%	95%	108%	61 lpcd	42%
<i>Sana'a</i>	7.6	39%	Weekly	67%	116%	96%	54 lpcd	40%
<i>Mahweet</i>	14.4	25%	< Weekly	50%	71%	90%	25 lpcd	50%
<i>Mukalla</i>	10.2	32%	Daily	77%	130%	70%	85 lpcd	100%
<i>Aden</i>	10.4	33%	Daily	92%	120%	103%	111 lpcd	79%

Source: PIIS 2006

Some of the problems can be affected by management initiative, if well supported, and by enhanced social accountability, but others require change from outside. Mahweet, for example, where satisfaction was low (see Box 2), has the most constrained water supply in the country – and most of the problems stem from the structural constraints, such as low level of water resource availability and the very high cost of transporting it to the town. However, certain improvements are within the power of the utility to act on, such as announcement of the expected schedule of water supply; the accuracy of meters and meter reading; and improvement in customer relations and information. Further improvements could be made, if social accountability between utilities and customers is strengthened. If utilities pay more attention to information and communication and respond to needs, consumers would more likely pay as responsible customers.

Box 2: Performance at al Mahweet

Overall, only 57% of respondents to the Customer Satisfaction Survey said they were satisfied with the service, compared to an average of 90% in the Tihama towns. The main complaints were that water came only at intervals of between three weeks and a month; pressure is low; “water distribution is not fairly scheduled”; meter reading is not accurate; and the utility has a “bad way of dealing with customers”.

Source: Customer Satisfaction Survey (Interaction 2008 a-d), Key-informant interview, August 2008

Customer satisfaction also depends on the alternative source of water - and its cost. Despite the poor service, over one third of connected customers in poorly served towns were nonetheless satisfied because the alternatives to network water are so much worse (as generally more expensive and of lower quality), for instance private and expensive water vendors, or springs. In Mahweet, for example, the overriding concern of customers is to get water from the network because it is cheaper and safer quality. Where this occurs, customers are not so unhappy (see Box 3), as piped water is much less expensive than water from tankers or bottles, and when spring water is available it has to be carried back to the house (see Box 27 in Part IV below).

Box 3: Despite the high cost, the Mahweet Tourist Hotel is happy with the network service

Aziz, the hotel manager, says “Everybody complains – but we are generally happy with the service.” Indeed, in this very water short town, where the supply interval is three to four weeks, Mahweet’s top tourist hotel gets special service, with two lines, one normal and one direct from the tank. Generally they get water twice a week, but they up to four times a week on demand. They do not need tankers. They are paying about Rls 120,000 a month (\$600). The unit cost is very high, Rls 1,400/m³ (\$7/m³) – almost the cost of a tanker, but the convenience of network supply is what counts in the hotel business.

Source: Key-informant interview, Mahweet, August 2008

There does appear to be a real value in communications and information sharing between utilities and customers, even in difficult supply situations. Where a 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, outreach programs are not a substitute for improvements in service. In cases where the supply situation is very difficult, even a reputedly strong outreach program may come in for criticism (see Box 4).

Box 4: 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

Projects to improve performance have mixed results, working best where there is an integrated package of investment and capacity development. GTZ has worked with a number of utilities (Ibb, Hodeidah, Sana’a, Aden, Ta’iz) to improve performance under the Operation Management Systems (OMS) sub-component of the Water Utility Support Component. Generally, OMS has been an excellent mechanism, equipping utilities with management tools. It has worked well in focus towns, but only somewhat in Ibb. Results in Ta’iz were so disappointing, that the project was abandoned. It appears that where OMS has been the partner of a well-structured investment program, with a consumer relations program, and has been closely supported over a number of years, the results have been good. By contrast, in towns like Ta’iz, where management support has not been a part of an overall program of support including a comprehensive investment program, results have been disappointing. In Ta’iz, it appears that the situation was complicated by two different technical assistance approaches supported by different donors (see Box 6 below).

Efforts to improve utility performance can make a difference. At Ibb, despite very difficult conditions, the management team has been making improvements. According to the PIIS, technical efficiency parameters would make Ibb LKC one of the better performers: non-revenue water of about 20%; and just six staff per 1000 connections. There is evidence that management has worked on efficiency improvements. There is a predictable published water supply scheduling (so that residents know which day water is provided). There is a fair distribution of water (once a week to the highest areas, twice in the middle, and thrice in the low, easy access areas). The branch has set up three repair teams, working 24 hours. Three disconnection teams are getting a good (revenue) response. As a result, connected customers seem generally happy with service and value for money. Even in Sana’a, management effort can improve performance (see Box 5).

Box 5: Even in Sana’a, 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, that rehabilitation of the networks and improved repair service have brought non-revenue water down from 40% to 36%.

Source: Key informant interviews and focus group discussion, Sana’a, May 2008

Assessment

Even where there are structural problems -like lack of water-, management can still do much to improve performance. For example, at Ibb and Sana'a information technology and GIS systems installed under GTZ OMS Phase I support are being implemented and are having an impact on performance. But management does not always appear to have incentives to do the right thing. At Ta'iz, newly installed systems have fallen into disuse (see Box 6).

Box 6: Management weaknesses and differences in approach of external support hold back efficiency improvements at Ta'iz

Ta'iz LC has received a lot of support but a recent evaluation mission found that the systems installed, staff trained and equipment donated were greatly underperforming and were in some cases neglected by management. Operational performance that the systems were supposed to improve was in fact deteriorating.

- Comprehensive Subscribers Survey (CSS) has been installed and staff trained but it is largely in operational
- The GIS Unit has been set up but is understaffed and only very partly operational, and is not used by management
- The customer complaints system (DCMMS) has been set up and staff trained but the system is not being used: complaints received are recorded on pieces of paper instead. On the ground, repair times are increasing again.
- The information technology system, (ICT) has been equipped and staff trained but operations are very weak, and key data are very vulnerable
- Water network renewal is going on, but installation is proving difficult and many leaks (5-6 complaints a day) are already coming in
- The revenue improvement programs and task force action were installed by the OMS project, but have not been followed up, and accounts receivable are on the rise

On the management and human resources front, the evaluation mission found no organizational structure or job descriptions. There has been a rapid rise in employment, up from about 300 to 717 staff. This equals 16 employees/1000 connections, the highest in the country. *"The LC is more or less a social security institution"*, the evaluation mission commented laconically.

The mission concluded that pure consultancy and advisory services will not have a measurable impact, and found a need to work "hands on" to implement procedures and improve management. GTZ OMS support stopped because LC Taiz and the Dutch (Vitens) concluded a separate support program (PPP) without prior consultation and conceptual coordination with the German side and the World Bank. GTZ OMS support is ongoing in Ibb, Hodeidah, Sana'a and Aden.

Source: Key-informant interviews May 2008, MWE/GTZ Assessment Report March 2008

Overall, decentralization has improved performance but institutional development and capacity building together with physical investment combined in a package are needed to consolidate results and to effect further improvements. Close management, donor attention, technical assistance and recognition of the need for social accountability between utilities and consumers help improve utility performance, and most utilities need investment to improve performance too. The best results – as in the Tihama towns – are achieved when physical investment and technical support are provided together in a common integrated approach.

Options

Management could start to act on whatever will be the quickest and most cost effective way to improve service. At the October 2008 Stakeholder Workshop, the working groups came up with quite a long list of key areas where, despite all the constraints, they considered utilities themselves could improve performance:

- Adopt programs for capacity building of technical, financial and administrative services
- Activate the developed administrative programs (e.g. the CSS, DCMMS, PIIS etc)
- Reduce unaccounted for water and improve network efficiency and energy consumption
- Review of tariffs in relation to provision of good services and service and protection of the poor
- Explore partnerships with the private sector
- Search for alternative water resources
- Improve and develop relationships with local councils

Even in very difficult cases, “low hanging fruit” may exist (see Box 7). For example, announcing the expected schedule of water supply, improving the accuracy of meter reading, and improvements in customer relations and information.

Box 7: What can be done right away at 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
- Re-stabilize the GIS Unit and ICT services
- Start the revenue improvement program,
- Control network construction quality
- Develop and implement an active leakage control strategy

Source: March 2008 MWE/GTZ Assessment Report

Institutional development and capacity building to equip utilities with management tools that include social accountability could be packaged together with an investment program, all linked to ‘milestones’ and aimed at improving key operational parameters and service levels. The situation of each utility is different and no one set of solutions fits all utilities. Each utility would best concentrate on improving its own performance in areas where it is weakest. Business Plans that are customer-oriented could comprise comprehensive action plans, prioritized and sequenced, to improve key indicators. The Milestones Concept (see below, Section 13, Box 21) seems to be an appropriate way of linking management support and institutional development with investment finance, and with monitorable performance results as triggers. The adoption of the Milestones Concept for all utilities would ensure that investments are prioritized and financing allocated according to consistent criteria, and that utility managers have clear incentives to meet performance targets.

Benchmarking could be introduced promptly by MWE, adapted to the constraints and potential of each utility. A utility’s Business Plan could set out the proposed benchmarks and detail the investments and management improvements required to achieve its benchmarks e.g. lower water losses. The accuracy of the PIIS and the speed of its reporting could be improved. The system could also be expanded to cover benchmarking. This would encourage competition among utilities and allow tracking of performance against improvement targets in a structured manner.

Where the key constraint is low and dwindling water resource availability, as it is for many highland towns, the Business Plan could give priority to solutions. Water resources prospection, alternative water sources, partnership with private providers are some of the solutions discussed later in this study.

2. Water quality

Key question: How safe is network water?

Progress on reform

The NWSSIP Update aims to bring “safe water according to WHO guidelines” and spells out a range of supply systems that are acceptable, provided they are regulated (see Box 8).

Water quality, according to standard testing, is variable. MWE’s PIIS monitoring report 2006 provides only limited information as some of the utilities do not supply data, and some utilities like Mahweet do not even test the water. The partial results are quite variable, with some quality reported as excellent (including Sana’a and al Mokha) and some quite poor (including Amran and Ta’iz).

Box 8: The seven water supply systems accepted for the NWSSIP Update

- Household connection
- Public standpipe
- Borehole
- Protected dug well
- Protected spring
- Rainwater collection
- Tanker supply

However, the Customer Satisfaction Survey showed that three quarters (74%) of connected 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. Nonetheless, many households used purchased filtered or bottled water as their primary source for drinking, particularly for qat sessions (see Box 9).

Box 9: In Sana’a, there is low confidence in the tap water – despite good results reported from tests

In Sana’a, the LC says “80% of people are drinking from the tap...quality is better than the desalination shops”. However, despite the LC’s confidence and the good results reported to the PIIS, there is quite low confidence in water quality. Only 40% of respondents are “satisfied”, and only 11% say they drink tap water. The focus groups confirm that people do sometimes drink from the tap, after filtering, but there are problems of smell, colour etc. But for qat sessions, Sana’anis always buy water from shops. One problem may be old or corroded pipework leading off the main, beyond the point at which the utility controls water quality.

Source: Customer Satisfaction Survey and focus groups, May 2008

Where problems arose, they are either a fault of the source – for example, the high level of nitrates in Ta’iz water – or a problem of technical management. In Ibb, for example, disinfection is “rudimentary” using an unreliable manual chlorination system. Nonetheless, quality at Ibb is generally very good, although it is reported that “once or twice each year, severe pollution occurs in one of the zones usually due to a breakage of the network and infiltration of wastewater” (Dorsch 2007: 65).

By contrast, towns score poorly on effluent quality. Only 12 of the 23 utilities reporting to PIIS have wastewater treatment plants and only four reported on effluent quality to PIIS. For 2006, Sana'a and Aden performed poorly. At Ibb, quality was described in one report (Dorsch 2007) as "alarming".

Assessment

The situation is variable by town and solutions have to be locale specific. There is a mismatch between the reported quality of water and consumer perceptions, particularly in Sana'a. Action on sewage treatment and effluent disposal is an environmental must in some cities.

Options

Water quality could be better captured in the PIIS, and benchmarking and regulation need to be introduced.

The gap between perception and actual quality could be corrected by better consumer relations. In towns where consumers wrongly perceive quality to be poor, a consumer relations campaign could help correct understanding and save people money. Campaigns like this are already being carried out by Community Mobilization Teams, supported by GTZ, in a number of towns (see Section 5 below). In addition, water quality studies could be conducted regularly and results could be publicized in newsletters, on the water bill, or in radio and TV broadcasts. In addition, checks could be made to ascertain whether there is a problem within the household distribution system beyond the control of the utilities.

Sewage treatment and improved effluent quality are priorities. Action is needed on environmental aspects of sewage treatment and effluent quality, particularly in Sana'a, Aden, and Ibb.

3. Improved management

Key question: What scope is there for improving management performance of utilities?

Progress on reform

NWSSIP targets utility performance improvement, including development of a cadre of professional, competitively recruited managers.

Management improvements are certainly underway and new tools are in use. The quality of utility managers is on the whole good, but with variations. In one utility (Ibb), the general manager has been changed three times in one year. One key informant reported to the PSIA mission that "managers of utilities in general are quite disengaged, acting like civil servants administering a government service and investment program. They tend to look on projects as MWE projects."⁵ The picture is, however, variable, and in some cases utility managers are energetic, innovative and keen to solve problems. For example in Sana'a, management is well advanced in introducing and using various management systems (CSS, DCMMS, PIIS, GIS etc.),

⁵ Key-informant interview with a senior World Bank water expert, May 2008

and is sharing responsibility and changing approaches to achieve better customer service and satisfaction.

Utility managers do not yet feel fully empowered. 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. In answer to the question, *what constraints do you face in developing a Business Plan*, managers agreed in a group to mention the following:

- inefficiency of management and staff, and general lack of capacity
- an incoherent governance structure
- absence of accountability
- limited authority of the LCs to take decisions
- instability of financial resources to support Business Plans

Although these constraints may vary by utility, and some of them could be debated, the self-assessment by the managers present at the Workshop is revealing of a general feeling that they are not yet fully empowered to do what needs to be done to run their utility as an efficient public service business.

At middle management level and below, utilities have restructured to become more efficient, with mixed results. Consistent support is needed. For example, Ibb LC has reorganized and is training and recruiting, with more attractive remuneration. However, some parts of the transition process prove easier than others. At Ibb, the 2007 evaluation (Dorsch 2007) concluded that the organization chart did not adequately promote efficiency. There were “unclear hierarchical relations” and “middle management is out of the loop”. The evaluation also criticized “superfluous divisions – there is no sense creating an Afternoon Maintenance Division”. Plainly each utility is facing its own particular challenges, and what is required is effective management and appropriate incentives within the utility combined with high quality, long term external support.

New management tools are available in some utilities. They need to be generalized, with long term external support. Progress in applying the new tools for management purposes is uneven (see Box 10). At the October 2008 Stakeholders Workshop, utility managers generally welcomed the introduction of these new tools, which are developed and employed at varying levels in the LCs of Sana’a, Ibb, Ta’iz and Hodeidah. However, the managers stressed that these systems can only be of value if they are accompanied by consistent capacity building and coaching to ensure their proper use, with particular emphasis on using the tools to increase customer orientation and social accountability. The Workshop recommendation was to include the adoption of these systems in all Business Plans, matched with the needed capacity building -to enhanced social accountability- and financial support.

Box 10: At Ibb LC, progress in applying the tools for management purposes is uneven.

A recent 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: Key-informant Interviews, May 2008; Dorsch 2007

Assessment

Uneven management performance may stem from the uncertain job tenure, unclear reporting accountabilities, the interventionism of MWE and MoF, and lack of support from the Board. Lack of management skills and of human resource development also plays a role. More broadly, where utilities are unlikely in the short term to become viable businesses, it is hard to criticize utility managers for not being dynamic and motivated managers.

However, as the example of several utilities such as Sana'a shows, even under very difficult conditions, managers can effect improvements. What is needed is to establish clear institutional goals and provide consistent training and support to utility managers to help them to move progressively towards those goals.

Options

A number of management improvements are being introduced, and these all seem appropriate responses to the situation: benchmarking, performance bonuses, management support programs etc. These could be integrated into the utility Business Plans, with provision for necessary external support, as part of a comprehensive package of investment and institutional development. However, it is unlikely that the simple application of modern management tools will alone affect the needed shift to a customer-oriented business approach. Further empirical research, piloting of social accountability tools, and stakeholder dialogue are suggested in order to develop enhanced programs and incentives to bring about the needed behavioural change.

PIIS could be made more comprehensive and reliable, and be better used by managers. The PIIS is a prime management tool that could be put to much better use. MWE could 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. This option received strong support in the October 2008 Stakeholders Workshop, where participants also saw the PIIS as a key tool in the future for the independent regulator (see Section 10 below).

4. Human resource development

Key question: How can utility staff be best selected, trained and managed for good performance?

Progress on reform

Under their establishment decrees, the utilities can create a “commercial job classification system”. Below general manager level, utilities can also conduct their own recruitment. Finally, they can apply performance related incentive systems. The NWSSIP Update provides for a human resource development strategy in the urban water supply and sanitation subsector (by the end of 2009), and a comprehensive capacity development program. A performance-related incentives system or a special pay structure is to be implemented for the utilities (NWSSIP Update 2.4.1-2).

Staff numbers are generally quite high – a national average of about 11 per 1000 water and sewage connections, compared to the typical range in the region of 3-8 per 1000 connections. The range is broad, however (see Table 2 above), with Zabid, Bait al Faqih, Ibb and Sana’a counting less than 8 staff/1000 connections, whilst Mahweet and al Mokha have more than 13. In one case (Ta’iz), staff numbers have increased dramatically since decentralization, from 250 to over 700, equivalent to 16 staff per 1000 connections.

Staff mix is generally still dominated by lower level and unqualified staff. At Ibb, for example, more than 60% of employees are illiterate. The share of professional staff in all utility personnel nationwide was only 13% in 2006. There are, however, many excellent middle managers and dedicated technical staff. Ibb is a good example of such committed and hard-working staff.

LCs have introduced performance-based incentives that bring total remuneration up towards market levels. However, these incentives have rapidly become an entitlement (see Box 11). At Ibb, it was reported that “most staff still have other jobs”⁶.

Box 11: Salaries are boosted by allowances – and incentives are rapidly incorporated into the salary

At Ibb LC, base salaries are low: an engineer earns Rls 41,000 (\$205) a month, although with allowances this can reach Rls 100,000 (\$500). Administrative staff may get a total of Rls 52,000 (\$260) a month, a technician 38,000 (\$190).

The Ibb LC introduced performance based incentives. However, these have been virtually incorporated into the salary. In March 2007, more than 90% of the staff got 100% of the available bonus. Only 3% got less than 75%, And no one got less than 50%.

Source: Dorsch 2008

A significant effort has been made at training – but training levels remain quite low. At Ibb, for example, about 30 utility staff have received training each year, for an average of five days each. The PIIS tries to track training expenses as a percentage of personnel costs but in 2006 only one utility could provide the information – Sana’a, which spent under 1% of its personnel costs on training, against a NWSSIP guideline of 5%. It is hard to assess the adequacy of the training actually provided, but one indicator is that the rules specify that no more than 21% of staff should

⁶ Key-informant Interview with Ibb utility representative, Ibb, May 2008

be trained each year, which translates into just one training every five years for the average staff member, a very low number. At the October 2008 Stakeholder Workshop, utility managers expressed the view that training was not adequately linked to career development, and that ‘LC Boards don’t discuss this issue’.

Efforts have been made to improve personnel management, but much remains to be done. This has included the introduction of the computerized Human Resource Information System (HRIS). However, its use is not systematic. At Ibb, the 2007 evaluation described the recruitment process as “not straightforward”, and the HRIS is not currently in use.

Political economy constraints

Staff feel insecure, and reforms can create internal political difficulties. Attempts to slim down staff in Ta’iz “have led to sabotage”. Staff may appreciate the somewhat higher overall pay levels, but these are still well below private sector salaries. Yet the move to an enterprise basis may remove the old attraction of a public sector job, as in theory, utility staff are not civil servants. They may thus lose the attractions of job security and guaranteed pensions.

Old ways persist, and the reforms are only slowly bringing change. The ability of MWE to change a utility’s general manager (in some cases, several times in quick succession) creates incentives for a conservative management style, that is reactive more than proactive. The delegation of recruitment to general manager level does not appear to have improved staff quality, and may lead to excess, as at Ta’iz. The lack of interest in modern human resource management tools is equally a symptom of well-ingrained traditional approaches.

Assessment

Utilities are making progress on human resource management – but slowly and with wide variations between stronger and weaker performers. Overall, utilities are moving erratically and only slowly towards an enterprise culture which would manage and invest in staff on the basis of professional standards.

Options

The reform program needs to encourage a more rapid growth of enterprise culture, but also provide for staff needs for job security, fair remuneration and the possibility of promotion:

- a better salary and incentive structure with a sizable performance-related element
- recruitment on objective grounds based on qualifications, job descriptions, transparent hiring procedures
- use of modern tools for personnel management and human resource development
- structured training programs, massively increased and tailored to the different job functions
- A career management system that encourages a commercial orientation and high standards of professionalism.

These points are essentially those in the *Guiding Principles for Human Resource Development*, agreed at a 2008 workshop between MWE and the utilities. What remains is to formally adopt the principles – and to put them into practice. At the national level, the human resource development strategy and sector-wide training facilities are essential. At the local level, each utility could include its human resource development plan as part of its Business Plan. The Plan

could also provide a significant budget for training, equal to or greater than the NWSSIP target of 5% of total personnel cost by the end of 2010.

5. Customer relations

What measures are in place to ensure good customer relations?

Progress on reforms

Decentralization is intended to create accountable utilities striving to improve services for responsible customers. However, the transition process is not yet complete. Many utilities can offer only intermittent service, and quality is not always good. Equally, consumers may be disaffected, or even hostile. The concept of social accountability – of utilities to customers and vice-versa- is still weak. The reforms therefore promote customer outreach to ensure that consumers are aware of the constraints under which utilities operate and are ready to participate appropriately in solutions.

Established Customer Relations Units are having an impact on consumer awareness – although utility managers do not always value them highly. There are now Customer Relations Units in 12 of the 15 LCs to inform consumers and handle complaints. Under a GTZ-supported project initiated in 1997, community mobilization workers have been deployed in eight provincial towns to sensitize and educate the population through public awareness and information campaigns. The (largely female) community mobilization workers explain the service and charges to customers, and carry messages back on service standards, poverty problems etc. The utilities are also setting up computerized complaints tracking systems to improve the quality and timeliness of service responses. Results are mixed, largely positive. The Customer Satisfaction Survey revealed quite successful outreach of the Customer Relations Units and community mobilization teams. The Tihama towns run effective Customer Relations Units where the employees work with customers to resolve their complaints about services. Even in al Mahweet, where service conditions are probably the most difficult in the country (and where some customers expressed highly negative views – see for example Box 2 above - , half the respondents thought the utility provided enough information on service provision. However, “too often key utility staff don’t consider customer relations important.”⁷ Also, links to operations are not always as strong as they are in the Tihama towns. It is reported, for example, that at Ibb consumers go direct to billing or maintenance departments, as they see it as quicker than working through the Customer Relations Unit.

Campaigns have been successfully conducted in support of specific changes. The customer outreach program has been successfully employed at Bait al Faqih to support a campaign to win endorsement for a needed tariff adjustment.

Consumers are also represented at the governance level. The LC Boards include not only representatives of the local councils but also direct representation from consumers, including business consumers. For the Autonomous Utilities, Advisory Committees representing local consumers have been set up to consult on key issues like expansion plans, the block tariff and lifeline rates.

⁷ Key-informant interview, May 2008

Political economy aspects

Utility managers face difficulties in adjusting to the need in a business approach for good customer relations. Utility staff may retain old attitudes of centralized public service provision, and have problems adapting to a service orientation. The “engineering” mentality sometimes still prevails over a consumer-oriented business mentality. Managers of supply-constrained utilities face frequent criticism and they may see customer relations as too weak an instrument to deal with the very difficult service delivery challenges the utility may face. They prefer to concentrate on improving supply with technical solutions. There may also be a gender bias, as virtually all managers are men and most consumer relations staff are women: men engage in “hard” activities like supplying water, and women engage in “soft” activities like human contact and public relations.

However, many utility managers do see the value of customer relations and would like to improve outreach. At the October 2008 Stakeholder Workshop, a working group recommended improving customer satisfaction by increased use of customer outreach programs. The group linked this approach to the objective of increasing utility revenues. Amongst the specific recommendations of the group (in addition to improving the level of service) were the following measures designed to ‘increase the level of trust of customers’:

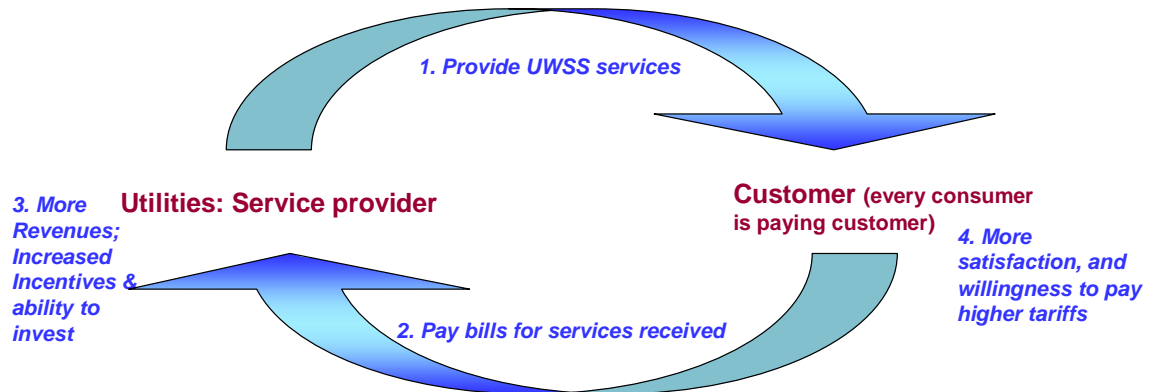
- establishing a platform of dialogue in dealing with customers
- speeding up repairs of technical defects, and checking any mistakes in bills in a transparent way
- taking readings regularly and distributing bills on the right time each month
- intensifying awareness campaigns and making them a permanent service of the utility
- selecting staff that are good in dealing with customers and training them in communications skills
- using incentives to reward good staff-customer relations, and to sanction bad cases
- notifying customers on the times and hours of water distribution especially during water shortages
- distributing bills through the customer services unit, and seeking to engage the social responsibility of customers

Assessment

Good customer relations are good for business. The Customer Satisfaction Survey responses show that the outreach effort is helping create an environment in which customers understand the constraints of the utility, and are more ready to pay their bill and to cooperate in solutions.

Utility management 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 accountability to consumers (see Figure 1 below). Go-ahead managers such as those participating in the Stakeholders Workshop readily grasp the links between improved customer relations and the improvement of business operations.

**Figure 1: Social Accountability:
A Vision to Realign Incentives / Rights & Responsibilities**



Source: Authors' compilation

Options

A participatory review of the customer relations program could help show ways to improve its effectiveness and to increase confidence of managers. The findings of the Customer Satisfaction Survey would be a good place to start. The review could look at best practice to determine the areas for future focus. These might, according to location, include: awareness to conserve water; options for extending sanitation coverage with lower cost technology; or the role of tariff adjustments as part of a program to improve service. The review could be carried out in a participatory way, to help managers understand how customer relations can be “part of the solution” to contribute to enhancing utility revenues and move to a socially accountable business approach.

Utilities could continue to invest in customer relations and build consumer relations into their *Business Plans*, particularly where there is a need to get customers “on their side” on difficult issues, such as tariff adjustments or major works. Approaches to enhance social accountability could be piloted in a few utilities as part of the further empirical research and dialogue on the ‘business plan’ model that were suggested above (Section 3). MWE could make a clear policy commitment on the need for customer relations management, and should encourage utilities to give priority to sound customer relations.

B. The Financial Viability of the Utilities

This section looks at the issues that affect the financial viability of utilities, such as tariffs, financial viability and financial management.

6. Tariffs and utilities as a business

Key question: What is the relationship between tariffs and utilities as a business?

Progress on reform

The tariff adjustment process has improved, but there are still problems

Utilities are free to set their own tariffs, with the benchmark of recovering operation and maintenance costs plus a share of depreciation. According to their establishment decrees, utilities have “financial autonomy” and can set their own tariffs, subject to MWE approval. In the case of an LC, the Board, chaired by the Governor, proposes a tariff, and MWE confirms it. Current targets are set by the NWSSIP Update: recovery of 100% of operation and maintenance costs and 50% of electromechanical depreciation by 2010, and recovery of all electromechanical depreciation by 2015.

Within these parameters, utilities set tariffs according to cost recovery targets and an affordability rule of thumb. In practice, utilities apply two rules to judge appropriate tariff levels: (1) a cost recovery rule, to move towards the NWSSIP benchmarks; and (2) an affordability rule, to cap the total cost of water and sanitation services at a maximum of 5% of the household budget. Block tariffs are used by all utilities, with a low lifeline rate applied to the first 10m³ a month (about 45 lpcd).

After tariff increases at the start of decentralization, tariff adjustments have continued, although they have sometimes proved irregular. Decentralization brought initial tariff increases to move towards cost recovery, which is in sharp contrast to the previous national tariff system where tariffs had not been changed for up to eight years. Subsequently, a variable pattern has emerged. For some utilities, quality service and good customer relations have made needed tariff increases relatively easy – at al Shehr, for example. But in other cases, tariff adjustments have not been implemented. Some tariffs have not been adjusted since 2001 (the Sana’a case), and sometimes utilities do not get the adjustment they request (see Box 12).

Box 12: Utilities do not always get the tariff adjustment they request

At Ibb, tariffs were adjusted in 2002 and again in September 2004. Faced with escalating costs, the LC management 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.

In the end, a tariff rise was negotiated after a year of wrangling, donor threats to withdraw, and 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.

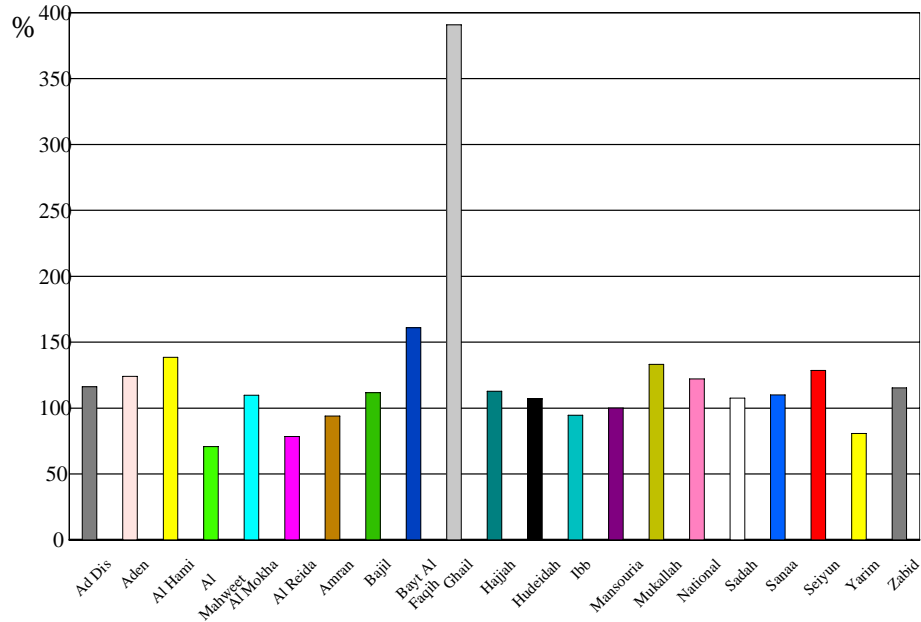
Source: Key-informant interviews and focus group discussions, Ibb, May 2008

Figure: Operational actual cost coverage (Source: PIIS 2006)

A number of utilities are meeting the NWSSIP

Update targets but some are not yet covering O&M cost.

PIIS data for cost recovery are incomplete. For 2006, only nine utilities (out of 23) reported enough data for PIIS to assess "total actual cost coverage" as a percentage of total O&M and



and depreciation, and only two utilities were reported to have recovered more than 100% [PIIS 2006: Table 7]. Rather more utilities (twenty out of 23) reported enough data to calculate recovery of only O&M costs: 15 of the 20 utilities appear to have recovered at least 100% - but Mahweet, Ibb and Yarim did not (see the Figure above, from PIIS 2006).

At least one utility has been getting further away from the NWSSIP Update targets. At Ibb, coverage of O&M declined from 100% in 2005 to 87% in 2007.

Overall, tariffs are quite low – and consumers could pay more

The lifeline tariff provides very cheap water, and network water is much cheaper than all alternatives. The lifeline tariff provides 10m3 of water to all consumers, including commercial consumers. The water bill for those paying the lifeline tariff is typically very small indeed (at Ibb RIs 289, \$1.40 a month), although there are one or two higher cost exceptions like al Mahweet. Everywhere network water is much cheaper than any alternative, except charity. In Sana’a, network water costs one tenth the cost of tanker water.

All consumers benefit from the lifeline subsidy, allowing the more affluent, connected households, to benefit, while the poor, who are not connected, lose out. They also do better than nearby rural households. Many non-poor pay only the lifeline tariff, and the lifeline tariff provides a subsidy for all consumers. In Sana’a, almost two thirds of utility customers are in the 0-10m3 “lifeline” category, and all customers benefit from the lifeline tariff for the first 10m3 of their consumption. At Aden, the lifeline tariff is set at little more than a quarter of production cost and is applied to 72% of domestic consumption. Poor communities in nearby rural areas are paying six times as much.

Willingness to pay amongst domestic consumers is typically well above the lifeline tariff levels for water supply, but less so for sanitation. People are happy to pay for fair service at current or even higher prices. In Ibb, for example, PSIA focus group sessions found that generally willingness to

pay for fair service is high. People would accept a tariff increase if it were well explained to them, particularly if it could be accompanied by an improvement in service levels. In Sana'a, the PSIA focus group discussions revealed a high willingness to pay for network water, reflecting the high price of water from tankers, and also reflecting awareness of water resources shortages.

The Customer Satisfaction Survey showed that very few people cited price of network water as a concern. For those who were not connected, getting connected was their number one priority. By contrast with water supply, the Customer Satisfaction Survey found that sanitation may be seen as pricey and not a necessity.

Businesses are generally more interested in reliable supply than in costs, although very high tariffs may push businesses to seek alternatives. For commercial customers, rates are typically well above the accounting cost of supply, but this is nonetheless seen by most businesses as fair – they are more interested in reliable supply (see Boxes 13 and 14). However, in towns where businesses can drill their own wells or where commercial rates are already very high, there is a risk that further tariff increases will push business customers into finding their own supply.

Box 13: Business customers in two districts of Ibb

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 PSIA team interviewed three very colourful elderly landlords. One gentleman owns two apartments with 10 people living in them. He gets water twice a week, never buys a tanker and pays Rls 6,000 (\$30 a month). He is quite happy with all this. Another gentleman owns a building with 12 apartments. He also gets water twice a week, and pays Rls 60,000 (\$300) a month to the LC, which he thinks a very good price. However, the water is not always enough, and once or twice a month he has to buy a tanker. All three say they could pay more and would be willing to do so if justified. *“But the poor could not afford it.”*

Ismail pays the high commercial rate and the bill for his restaurant is 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 commercial tariffs 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: Key-informant interviews, Ibb, May 2008

Box 14: In Mahweet, businessmen are concerned about poor service, not price

Even as business customers, two Mahweet restaurant owners - Ali and Mujahid - get water only from time to time. Every two days they have to bring a tanker – at Rls 4,000 (\$20) per truck this costs them Rls 60,000 a month (\$300). They say, *“We do complain – but nothing happens - the rich still get all the water”*. The cost of sanitation almost doubles the cost of water, so they refused to connect to the main sewer line. They use a cess pit instead.

Source: Key-informant interviews, Mahweet, August 2008

Some tariffs are relatively high, with potential impact on the poor.

Average tariffs vary considerably between towns, due to different cost structures and pricing policies. Although this does not necessarily result in prices unaffordable by the poor – and there are many safeguards (see Part IV below) – there could be possible negative impacts on the poor. For example, Mahweet, one of the poorest towns in Yemen, has a lifeline tariff six times higher than some of the bigger utilities.

Political economy constraints

Opinions and evidence varied on the nature of the political economy constraint to tariff setting, and on whether things were improving. Some PSIA informants 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 informants 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 informants, 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. As local government has a major say in LC Board decisions, this can create a stalemate between management and their governance structure. Boards, wishing to avoid headline price rises, may tend to take a populist pro-consumer (and pro-electricity) stance and neglect their obligations to pursue the reform goals of moving utilities towards cost recovery, financial autonomy, and commercial operations. With the advent of elected governors, it may be that the Board chairman will take the same stance.

What lies behind these stances? Again, opinions vary. One report said scornfully: “Everyone voices concerns of a public uprising – a mythological situation” (Dorsch 2007: 83). An outside supporter of reform says: “The poor are used as an excuse for vested interests of other client groups which can easily afford fair and realistic prices for water”. A more balanced view is that decentralization is a complex, incremental and long-term process. The transfer of responsibility and shift in accountability of the partners (utility management, utility boards, local and central government, consumers) will grow slowly. It will need to be aided by continuous dialogue, the growth of understanding, recognition of transitory challenges, and also by palpable improvements in service levels.

It is clear, too, that tariff adjustments are easier when service is good. As discussed above (Section 1), there are towns with plentiful water, a new network and trained management that can deliver 24 hour water service: in these towns, unsurprisingly, tariff adjustments are relatively smooth. In towns where service is poor, water is short and costs are high, tariff adjustments prove more difficult.

Education and communication can certainly help overcome some of the resistance to tariff adjustment. There are reports of a successful process at al Shehr, for example, where, with the support of its community relations officers, the utility worked to educate opinion leaders and convince consumers. The process was clearly aided by the excellent service standards of the utility, which provides a seven day 24 hour service. By contrast at Ibb, a similar process of customer outreach was initiated but “was not seen as a priority by LC management and was stopped” (Dorsch 2008: 83). The difficulties that then accompanied then tariff increase proposal are documented in Box 12 above.

Assessment

Low tariffs undermine the viability of the utilities and even harm the poor. Low tariffs hinder the attainment of sector objectives because:

- Tariffs that yield revenue below the cost of production bring utilities into loss and eventually turn cash flow negative, threatening the survival of the business.
- Below-cost tariffs dull incentives to improve efficiency, as whatever the utility does it cannot make a profit.
- Low tariffs discourage utilities from expanding the network, as establishing more connections means bigger financial losses. As access to network water is the most pro-poor option open to utilities (see Part IV below), low tariffs are in effect anti-poor.
- Low tariffs prevent utilities from accumulating a financial surplus for investment, or from demonstrating creditworthiness to access market finance.
- Utilities are unable to attract private participation and financing to run the business or to build and operate new infrastructure.
- Low tariffs provide no incentive to consumers to conserve water.

Reaching NWSSIP Update targets would allow utilities to invest in asset replacement – and the tariffs could still be affordable. The NWSSIP Update sets full recovery of O&M costs and electromechanical depreciation for 2015. If, as expected, this is combined with asset revaluation, then these cost recovery levels will go a long way towards enabling utilities to invest in asset replacement. Expansion would still have to be financed by subsidy or loan funds and by consumer charges. Yet the higher tariffs implied by these targets need not be ruinous. At Ibb, to recover O&M and 80% of depreciation, a household staying within the lifeline tariff would pay a maximum of Rls 600 a month (\$3.00), equivalent to little more than 2% of the food poverty line.

Despite improvements brought about by decentralization, political constraints to tariff setting remain. As mentioned above, the current movement towards decentralization has made tariff setting more transparent and responsive to local conditions, and has increased the accountability of utilities to give “value for money”. However, utility Boards plainly do not yet feel fully responsible, and this responsibility may only come if and when full ownership of the utility is decentralized (see Section 9 below).

Higher tariffs above the lifeline block would be equitable and there is willingness to pay. In many towns, most households fall into the lifeline category, and all consumers benefit from the lifeline subsidy for the first 10m³, so revenue collection is too low, and most of the subsidy goes to the non-poor (58% at Ibb, see below, Section 19). Higher tariffs could be applied if utilities and their Boards went about implementing increases in a way that was seen as fair. If higher tariffs permitted asset replacement and network extension, new customers would be more than willing to pay – at least for water supply. However, for highland towns, the water resource constraint may still be the most significant bar to expansion of access.

Sequencing is key. When visible service improvements are made before tariffs are increased, customers are more willing to pay the higher tariffs for the better services they receive.

Additionally, customers tend to more willing to pay higher tariffs when these are part and parcel of an integrated package of efficiency improvements and revenue enhancement measures.

Options

The adoption nationwide of key principle for tariff setting could help. Key national principles might include the requirement that tariffs should: (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 cost” (O&M plus electro-mechanical depreciation); (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.

The principles would need to be implemented through a separate tariff study for each utility. These principles could be translated into practice through professionally-assisted tariff studies for each utility, building on the tariff simulation models developed for Aden and Ibb LCs. The studies could be done in a participatory way, involving the LC Boards and a broader panel of customers e.g. through focus groups and/or town hall meetings. The idea of these studies was supported by the utility managers at the Workshop, with the proviso that tariff increases have to be linked to improvements in service and to reduction in costs through efficiency improvements.

Tariff adjustments could be planned and progressive, form part of a comprehensive approach to improve service, and be accompanied by dialogue and information. Ultimately, completion of decentralization will be required. Utility Business Plans could include provision for progressive increases in tariffs. Tariff simulation models (as used at Ibb and Aden) would help set out scenarios, and a measure of automaticity could be introduced by agreeing phased increases. Tariff adjustments have to form part of a broad approach within the Business Plan to improve service and value for money, including efficiency gains. To overcome the political economy constraint, the utilities and their Boards could sustain political dialogue and consumer awareness and education to accompany increases, as has happened successfully at al Shehr and the Tihama towns. At the Stakeholder Workshop, utility managers agreed that tariff increases need to be “explained transparently to the beneficiaries” and “local councils need to be persuaded” in a process of open dialogue and transparency. In the long run, the political economy constraint to setting adequate tariffs needs to be solved by completion of decentralization, with ownership and financial responsibility transferred to the local level.

The approach needs to be adapted to local conditions. Special consideration might be given to poor, high cost towns such as Mahweet, where some measure of central government support might be considered.

7. Financial viability

Key questions: How far do utilities enjoy financial viability? How far can key factors affecting utility financial performance be improved?

Progress on reform

The overall long term goal of NWSSIP is to create business-like, financially viable utilities. Government continues, however, to finance all capital costs of development on a grant basis.

For some utilities, costs are going up faster than revenues, with consequent impact on cost recovery targets. At Ibb, for example, costs rose 63% 2002-6 to Rls 154/m³ (\$0.76/m³), while revenues rose only 38% to Rls 100/m³ (\$0.50/m³). As a result, at the time of the PSIA visit, the utility was having trouble meeting the monthly payroll. The situation in Sana'a is no better (see Box 15).

Box 15: The Sana'a business dilemma

The Sana'a LC is barely covering O&M, and is in negative cash flow. There has been no tariff increase since 2001, when a 300% price hike created political problems. On the cost side, many factors, including choice of expensive technologies and scarce water resources, make Sana'a LC a high cost operation. When the diesel price was raised last year, the LC was a double loser as energy costs increased – but the President promised no increase in the water price.

Potential for hiking business rates is limited. Big firms and big water users have their own wells, with very cheap water. Hence there is loss of revenue to the LC – and sometimes the businesses are even pumping sewage to the system without charge.

The LC is very far from a position where it could contract to service and repay debt. Financial autonomy is very limited: according to the LC, the tariffs are set “by government”; the investments are financed by government; and the LC cannot manage its cash balances by buying T-Bills or FX.

There are major problems with MoF, which is blocking depreciation reserves in cash accounts at the Central Bank, and deducting loan repayment instalments. A recent rearrangement of the way of dealing with the budget was described by the LC as “*the MoF removed the handcuff and put it on our neck*”.

Source: Key-informant interview, Sana'a, May 2008

Political economy constraints

*There has been some capital bias in investment programs. Utilities, central government and donors have sometimes shared a fondness for engineering solutions that are capital and contract intensive. This has burdened the cost structure of several utilities. Examples often cited include the very high cost supply solution for Hajjah, and the mechanical sewage treatment plant in Sana'a. The result for some utilities has been high depreciation and operating costs, and in the case of Sana'a, high interest charges. Initially, the Sana'a LC received a compensating operating subsidy, but this has now ceased.*⁸

Assessment

In some towns, there is the possibility of the efficiency gains needed to achieve financial viability whilst keeping tariff adjustments to reasonable levels. This could be the case, for example, in towns with low cost supply and a prosperous consumer base, such as Aden, where the large commercial clientele contributes 60% of utility revenues. Aden LC has, in fact, been able to accumulate \$5.5 million in depreciation reserves, held in cash in dedicated depreciation accounts at the Central Bank. There is probably scope for further increasing the revenues from commercial customers.

⁸ Here, as throughout this report, it is important to point out that the problem applies only to certain utilities, and that many utilities suffer from “legacy” problems of this kind which pre-date the reform program.

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. At Mahweet and Ta'iz, raw water costs are so high that it is hard to see viability without wholesale restructuring.

Overall, achieving financial viability requires action on efficiency as well as on revenues, and some of these actions are within the power of utility management. All utilities face considerable challenges (described throughout this report). Some of these could be acted on by utility management (see Box 5 on Sana'a), and there are options listed below for what a "good" manager can do, despite the constraints. Other problems are physical – lack of water, high cost topography, antiquated networks – or structural, stemming from the governance and incentive system established for the utilities. For an assessment of these governance problems, see Part C below.

Options

There are a number of 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: (1) lower cost technical solutions with higher consumer co-pay e.g. rainwater harvesting, decentralized sanitation solutions; (2) increased cost sharing in capital investment, through higher connection charges, with provision for the poor; (3) financial management actions to improve billing and collection, cash flow etc. At the October 2008 Stakeholder Workshop, the working group on finance suggested that utilities should develop longer term financial plans as part of their Business Plans, and should begin to plan for investment on their own resources.

8. Financial management

Progress on reform

According to the decrees establishing the utilities, they are commercial enterprises with "financial autonomy under the supervision of MWE". A key feature of that autonomy is that an utility should have control over its own resources, and should be able to take all measures needed to manage its working capital effectively.

Utilities have benefited from considerable support to improve financial management and have been equipped with advanced financial management systems and procedures. This has helped improve cash flow and debt recovery from the public sector. There are, however, still many private "untouchables", and average payment times remain very long (see Box 16). In some utilities, the new systems and procedures are not being used to anything like their full potential.

Box 16: Average time taken by customers to pay their water bill at Ibb LC

- Domestic 79 days
- Government 508 days
- Commercial 112 days

Source: Dorsch 2007

Despite notional utility autonomy, the Ministry of Finance (MoF) intervenes in financial management to a considerable extent. All utilities remain dependent on transfers from government for their capital investment, as capital cost recovery is very low and LCs are unlikely to meet criteria for loan financing. This brings inevitably the intervention and supervision of MoF on utility finances. Deprecation reserves have to deposit at the Central Bank, and can only be released by approval of MoF and MWE. Sana'a LC would like to put the money in high interest Treasury Bonds or foreign exchange deposits - but cannot (see Box 15 above). MoF has

intervened to appoint financial managers in the utilities. In addition, utilities become tied into the cumbersome procedures of public finance. In 2007, the Sana'a LC could get disbursement of only 75% of the approved investment budget because, the LC asserts, budgets were released by MoF too late.

Political economy constraints

Financial management is constrained by the governance structure and by dependency on central government financing. The LC Boards, for example, sometimes show little commitment to backing up utility initiatives to pursue slow payers. And because utilities are dependent on grants of public money, the MoF sees them as under its supervision, and does not hesitate to intervene and to control.

Assessment

Despite some improvements, utilities are not yet able to manage their finances on an enterprise basis. With sub-standard services and still weak social accountability, utilities have not achieved full cost recovery and remain dependent on financial transfers. Clearly financial autonomy cannot be complete as long as central government subsidy continues. However, the transition towards local control and accountability is increasing incentives for a business-like approach and for responsible financial management, and should in the longer run reduce the need for central government transfers.

Options

Some improvements may lie within the power of utility management, and these could become “milestones” against which to measure progress. Clearly decentralization and improvement of utility performance are an incremental process and a long term project. Results cannot be expected overnight. What is needed is a roadmap for each utility with “milestones” which can measure progress on improvements which are within the powers of each utility to accomplish. Utilities can, for example, implement the existing improved financial management systems (e.g. CSS, the GIS-based subscriber procedures etc.) They can also develop modern enterprise accounting systems and build in to human resource development the appropriate capacity building and incentives. Plans and targets on these areas where utility management can make a difference could be integrated into the Business Plans, and progress against targets could become “milestones” to accompany any investment.

Other improvements require changes in the governance and financing structure of the utilities. The financial powers and accountabilities of the utilities and the rights and duties of the Boards could be revised and clarified in any restructuring (see Section C below). To delink the utilities from MoF intervention could best be accomplished by complete decentralization and establishing genuine financial viability of utilities, i.e. running the utilities as self-financing businesses able to cover recurrent and capital costs, and to contract and to repay loans. At the October 2008 Stakeholder Workshop, the working group on finance suggested that decentralization to utilities needs to be accompanied by decentralization within MoF to the governorate level.

C. Governance Issues

This section reviews how well the legal status and governance structure for the utilities has supported their development as businesses. It also looks at the establishment of a regulatory function.

9. Legal status and governance

Key question: How could the legal structure and governance of the utilities best be improved in pursuit of sector objectives of affordable services, expanded access and a business-like approach?

Progress on reforms

A central reform pillar has been to progressively decentralize responsibility for service provision by setting up autonomous local corporations (LCs) reporting to a local Board of Directors, and Autonomous Utilities (AUs) attached to LCs and guided by local Advisory Committees. The current decentralized structure of the sector is described in Part I above. Policy, regulation and investment finance decisions have remained with MWE. The NWSSIP Update proposes a variant on the LC model, initially on a pilot basis, in the form of a “public company” as the final status of the decentralized public utilities.

Decentralization has gone ahead rapidly, and networks have expanded and service standards generally improved. The utilities are, however, far from financial self-sufficiency, and this has been attributed in part to their legal status and governance structure. MWE has implemented the decentralization program with great vigor and already 95% of the urban population is served by the new entities. All LCs are set up on the same decentralized model under a local board, but with significant powers retained by the centre (MWE and MoF). In particular, the Board can be overruled by a ministerial decision of MWE, and the general manager is appointed by central government (MWE). Accompanied by considerable investment, the decentralization program has helped expand coverage and improve service standards. Experience has, however, been mixed (Box 17). While some of this can be put down to “transition problems”, several utilities continue to see persistent structural problems, particularly of financial and management performance, and the trend is not yet improving.

A complication has been the attachment to the LCs of a number of branches and autonomous public utilities. The LC decree provides for all utilities within the administrative boundaries to come under LC mandate. In reality, when the LC is not able to cope with its responsibility at first, some utilities are still supported by NWSA. This has led to the somewhat complex transitional organization of the sector shown in the chart in Part I above. There are some problems attached to this structuring, particularly financial ones: at Ibb, for example, the branches are loss making and represent a significant drain on finances.

Political economy of decentralization

The political economy of utility decentralization in Yemen is complex. There is essentially a consensus that decentralization is the best option, but there are many concerns. These concerns focus around:

- Consumer and local government concerns that decentralization will bring excessive tariff increases without commensurate improvements in services. Consumers and local government do have an opportunity to present their views in the utility Boards, and in the case of towns such as al Shehr and the efficient Tihama utilities, there has been an effective mechanism for linking tariffs to improvements in service levels. However, this has not everywhere yet been so successful (see Box 17).
- MWE concerns – MWE is the driver of decentralization and thereby of service improvement, but still has concerns about loss of control over the sector.
- MoF concerns about fiduciary responsibility for the huge sums invested, and worries about the likely large future transfers of public money to autonomous entities
- There is also some internal resistance to change within the utilities

These concerns, together with suggested ways to handle them, are discussed fully in Section V below and in Annex 1.

Box 17: Problems with utility governance: the example of Ibb

The Ibb LC was established by Republican Decree in 2001, so has had seven years of track record.

The Board has broad powers, including the power to propose tariffs to the minister, to enter into contracts for private sector participation etc. However, a recent evaluation found that the Board was not fulfilling its monitoring and controlling role. It had met only 13 times in four years (instead of monthly) despite monthly fees paid to Board members. Despite financial losses, the Board was reluctant to discuss – let alone propose - tariff increases. The Board had not discussed the accounts or the audit report, and had not followed up on the investment program. At the executive level, the General Manager was not following up on Board decisions.

It appears that at Ibb, local responsibility for LC affairs remains limited. A mechanism to strengthen the commitment and accountability of the Board needs to be devised.

Source: Dorsch 2007

Assessment

After several years of experience, both positive and negative lessons on utility governance are emerging. In some cases – again al Shehr and the Tihama towns are cited – decentralization has brought genuine accountability of the utility and real local responsibility. In other cases, particularly where supply conditions are difficult and high cost, utilities have not been able to deliver such palpable improvements in services, and local councils and consumers have been reluctant to take responsibility. In these cases, Boards tend to be less than fully effective; tariff adjustments without service improvements have been held up by local opposition; central government has continued to exercise close control and supervision, weakening the efficiency gains expected from decentralization; financial viability has been limited; and implementation of investment programs has strained utility capability, and been constrained by the “cumbersome” public budget system.

Key issues are: (1) the split between asset ownership and corporate governance; (2) the split between the regulatory function and the supervision function; and (3) the lack of financial

autonomy. A recent assessment study (GTZ MACS 2008) identifies three problems related to legal status and governance of the utilities:

- (1) the split between asset ownership (vested in MWE) and corporate governance (nominally vested in the Board) divides and weakens responsibility of the utility
- (2) the split between MWE functions of policy and regulation and Board functions of supervision of business planning and execution has been ill-defined and has led to too much intervention from the centre, not enough supervision and business orientation at Board level, and confused signals and weak incentives at the level of utility management.
- (3) the inability of utilities to cover their costs and to become self-sufficient financially makes them dependent on central government transfers and investment, and hence subject to central government supervision and control.

A further step in decentralization (beyond the LC model) is being proposed, decentralizing both ownership and authority over the utilities to local level institutions. Based on the above analysis, the GTZ MACS study proposes that LCs would become public companies, owned by the local authorities. Ownership would be separated from management. Quite a complex web of governance and supervision arrangements would be set up (see Box 18), involving MWE, District Councils, the Regulator, and a General Assembly which would include voting community representatives. The companies would be expected to cover their costs and move towards repayable capital financing. The results expected are: (1) minimized political interference; (2) enabled professional management; (3) management and not the owners responsible for the quality of service; and (4) management accountable for financial results. Sector stakeholders have broadly endorsed this model, which is expected to be introduced on a pilot basis.

Box 18: MACS report proposes complex governance and supervision arrangements for the public companies

With the objective of ensuring clarity of governance and supervision arrangements, the MACS study proposes quite a complex web of responsibilities:

- *MWE:* definition of investment priorities (target areas and financing instruments) and monitoring
- *District/ Local Councils:* political supervision (with ownership of the assets)
- *Regulator:* supervision of financial viability and quality of service provision (including agreement on tariffs)
- *General Assembly:* supervision of the implementation of a “business policy” including:
 - Appointment of management board
 - Appointment of auditor
 - Organization chart and job descriptions
 - Business plan and tariff proposals
- *Community representatives:* voice of the consumers in the General Assembly

Source: MACS 2008a

The model may raise questions: clarity of responsibility, local willingness to pursue a business-like approach; and the ability of water utilities to support loan financing – and of MoF to consider innovative financing instruments. There are questions that could be posed regarding this proposed new public company model. On governance and supervision, a very large number of entities would have powers and responsibilities over the company, and it is not completely clear how the model would resolve the current problems of diffuse responsibility and central

government interventionism. On financial viability, the proposal depends critically on the General Assembly's financial responsibility and discipline, including willingness to set tariffs at higher levels, yet a key problem has been the reluctance of local Boards to take such a business-like approach due to the political implications of tariff increases. It is proposed that most investment finance would be on a MoF-subsidized but repayment basis – is this feasible, given the weak financial performance of the utilities? Is MoF prepared to consider innovative financing instruments and how should these be structured?

Advantages and disadvantages of the model were raised at a practitioners' workshop in May 2008. Advantages perceived included absence of interference in daily business, operations on a commercial basis, and independent decision taking. Constraints raised included the difficulty of dealing with overstaffing, the challenge stemming from inadequate water resources, and the likelihood that “decision taking on tariff amendments will be more difficult, and that members of the General Assembly may interfere in daily operations” (GTZ MACS 2008b).

Options

These questions might benefit from open discussion, the problem diagnosis might be deepened, and other options might be analysed. A feasibility study could be carried out on one pilot case, to be tested beginning in 2009, and a study could be conducted on the scope for innovative MoF financing models.

10. Setting up the regulator

Key question: What progress is being made with setting up a regulatory function?

Progress on reform

In tandem with decentralization, NWSSIP provides for a strengthening of key essential central government services, notably the setting up of a regulator.

*The preparatory studies and design to set up the regulatory function are complete. The final study (IPA MACS 2007) recommended an independent water supply and sanitation regulatory agency outside MWE. The regulatory office would be established by law and adopt a legal form (“*jihaz*”) that maximizes the regulator's independence and operational flexibility i.e. free to recruit staff, be responsible for its own financing, and have powers of enforcement. Under a director general, the *Jihaz* would report to parliament through Parliament's Water and Environment Committee. It would have departments for tariff regulation, service quality control, and communications and customer relations. A “Regulatory Council” would comprise the director general, the department directors, and two stakeholder representatives of utilities – for example, from the Chambers of Commerce and the Consumers Protection Association. Whilst the necessary legislation is being passed, an Interim Unit is proposed, to carry out preparation for the permanent Regulator.*

Political economy constraint

*The establishment of the regulator has been held up by political hesitations. The powers and reporting relationships of the proposed *Jihaz* are unusual, if not unique, in the Yemeni context. Within the sector, utility managers and staff consulted by the PSIA largely consider the*

establishment of the *Jihaz* as a vital step towards a professional, commercialized water industry, but there are inevitably fears of change and expectations that vested interests (particularly on employment issues) will be affected. In general, sector stakeholders are supportive as independent regulation will bring transparency and balance between providers and consumer interests, and will depoliticize issues. This view was expressed at the Stakeholder Workshop, where the working groups called for “speeding up the establishment of the regulator”. There are, however, hesitations within the Ministry of Legal Affairs.

Assessment

In a decentralized structure, regulation is essential to support and oversee the functions of tariff setting, to supervise service standards, and to ensure protection of the consumer. At present, MWE is performing this function but is not set up to do so.

Options

High level decisions need to be taken in order to carry forward the process of establishing the regulatory function. A decision is required to begin the essential process of establishing the regulatory function, initially through the Interim Unit to build up capacity and policies for the permanent structure. At the same time, the draft law to establish the independent regulator proper could be presented to Parliament.

Part III. Expanding Provision of Affordable Services

Part III looks at current access to water supply and sanitation services, at how investment is financed, at securing water sources, and at the scope for innovations in both technology and service delivery models.

11. Current Access

Key question: How fast has Yemen expanded access to water and sanitation services, and what is the outlook?

Although short of NWSSIP I targets due to high urban growth and a shortfall in investment financing and implementation capacity, water supply connections increased rapidly 2002-7, with coverage up from 2.4 million urban residents to 3.6 million. Sanitation coverage increased from 1.3 million urban residents in 2002 to 2.0 million.

	Base year 2002	Actual 2007	NWSSIP I target 2009
Water supply	47%	56%	71%
Sanitation	25%	31%	52%

Source JAR III

Water supply coverage averages around 60%, ranging from 40% to 100%. For sewerage, coverage ranges from negligible to 100%, with most utilities reporting about one third coverage.

National coverage rates mask very striking geographical differences in coverage amongst the largest cities, ranging from 80% and above in Hodeidah, Aden and Mukalla to only 40% in Sana'a and Ibb. Sanitation coverage ranges from 33% to 78% for the same cities. Some smaller towns like Bait al Faqih, Zabid, al Mokha and al Shehr now enjoy 100% network coverage, where only a few years back all water had to be bought from donkey carts.

City	Coverage in 2007	
	Water supply	Sanitation
Sana'a	41%	33%
Aden	79%	68%
Mukalla	100%	78%
Ibb	42%	33%
Hodeidah	96%	55%
National average	60%	31%

12. Investing in increased access

Progress on reform

The objective is to increase access for the urban population. However, the rapid rate of urbanization, high costs and implementation constraints have led to lowered targets in the NWSSIP Update. The Update targets 5.34 million urban residents covered by 2015, up from 3.60 million at present. Coverage of the (growing) urban population is expected to increase slightly from 56% in 2007 to 60% in 2015: in effect, the expansion of public networks will just keep ahead of the pace of urban population growth. The sanitation targets have also been reduced, and now aim at increases from the current 31% to reach 38% by 2015.

The PSIA Customer Satisfaction Survey confirmed that network coverage for piped water is varied, and that many consumers cannot rely on it for all their water needs. In the Customer Satisfaction Survey, in towns with modern networks and daily water service, recourse to non-network water was confined to purchase of small quantities of high quality drinking water. In Zabid, 100% of customers affirmed that they used no other water source than the network. By contrast, only 27% of Sana'a consumers stated the network as their sole source, and 13% used very expensive tanker water as their main source. It is estimated that 85,000 households in the capital (about 45% of total households) are not connected.

Network expansion is constrained by the structural issue of lack of water in several towns, including Sana'a, Ta'iz and Mahweet. Coastal cities have been able to reach very high levels of coverage, in part because the quantity and costs of water resources are less of a constraint. In the highlands, by contrast, limited water resources are becoming a growing constraint to expanding access. In Ibb, where only 42% of households are connected, network expansion has been stopped more by lack of water than by lack of finance.

The cost of increasing access is high. The average cost per household connection in 2007 was \$2,382, more than the entire annual income of a household on the poverty line (RIs 36,669 or \$2,200). The investment required to expand access is truly huge: in Sana'a, for example, to increase public network water and sanitation coverage to reach the MDGs (71% for water, 52% for sanitation) would cost almost \$2 billion. Fortunately, the private sector is very active, and in the NWSSIP Update innovative proposals have been mooted for forms of public private partnership to help improve access at lower cost within the regulatory framework.

And for most utilities, expanding the network would not keep pace with urban growth rates – and would increase their losses. The Sana'a LC, for example, is expanding the network in the south and west of Sana'a but cannot even keep up with the 6% growth rate of the city. The Sana'a LC says it is “being pushed to invest in the higher cost and poorer upland areas”, which will further weaken the revenue base, as poor households are unable to afford cost recovery tariffs.

The expansion of service areas has created further problems. For example in Ibb, the recent expansion of the city limits has brought many peripheral communities into the LC's mandate, which are not currently served by the LC. Some have rural water supply-type local schemes.

This high cost has led to a proposed “policy shift”, which consists of the following:

- scale down NWSSIP targets,
- emphasize improvement in service levels,
- invest in 355,000 new connections 2008-2015 and in 148,000 rehabilitated connections,
- bring currently unregulated private operators progressively within the regulatory framework, and
- work with the private sector on innovative ways to increase access. Innovations proposed include private sector participation in water supply for poor areas (possibly on the basis of output-based aid), and decentralized sanitation systems.

Capacity for implementation in the utilities is to be increased. The NWSSIP Update proposes the establishment of procurement and implementation units in the main LCs, beginning by 2010 with Sana'a, Aden, Hodeidah, Ibb and Mukalla.

As discussed in Part II, those not connected are prepared to pay for connection to the network. In Ibb, for example, despite the supply problems, the Customer Satisfaction Survey found that

Table 5: Percentage of those in Ibb “not connected” who would be happy to pay charges to get connected

	%
Water supply connection charges	90%
Network water supply charges	89%
Sanitation connection charges	87%
Network sanitation charges	96%

Source: Customer Satisfaction Survey

almost all of the 80 “not connected households” interviewed would be prepared to pay for both connection and service, at least at the relatively low current tariffs (see Table 5). In Sana’a, the Customer Satisfaction Survey found that 83% of the unconnected said they would be happy to pay for a water supply connection, and 59% would be prepared to pay for a sewage connection.

Assessment

The main constraints to expansion are the huge volume of investment required, lack of potential profitability, project implementation capacity, and – for several large towns – the structural water resource constraint.

Willingness to pay is unlikely to be a problem, except for sanitation. At current tariff levels, unconnected households are ready to pay at least for water supply connections and service. The much higher cost currently paid by unconnected households for non-network water indicates a willingness to pay well in excess of current tariff levels.

The structural water resource constraint may be as critical as the financial constraint. In Sana’a, the LC says, it is “following the plan laid down in SAWAS”.⁹ However, LC management admit the outlook is not good, with drawdown of 6 metres a year, and an average of five wells being closed down annually.

Options

Lowering costs of access to water and increasing supply with innovative technologies and management could boost coverage rates. Lower cost technologies that can be decentralized and implemented with higher consumer contributions could help increase access. Examples of technology such as rainwater harvesting¹⁰ and small bore sewage pipes are discussed below (Section 14). Improved supply and demand management would help mitigate structural supply shortages (see also Section 15 below on Sourcing Water).

Developing innovative business models like concessions and output-based aid could also boost coverage rates. These models could provide a good place for utilities to work with the private sector - on this see Section 16 below.

Rather than always “catching up”, expansion of water supply and sanitation could form part of comprehensive urban planning which integrates water and sanitation services. This option is

⁹ The 1996 study Sources of Sana’a Water Supply (SAWAS) identified eight options for future supply of the capital, beginning with exploitation of new well fields in the vicinity, then water transfer from nearby basins, and ending up with the “nightmare option” of desalination at the coast and pumping up at a cost of \$8/m3.

¹⁰ Household level rooftop rainwater harvesting would reduce demand for water from the constrained utilities and so allow expansion of services to more households.

essentially for the longer term, as comprehensive urban planning is not currently being practiced in Yemen. The one initiative started, for Sana'a, has got bogged down and is unlikely to produce results in the near term.

Higher co-pay by consumers on investment in network expansion could be considered. On this issue, see Section 13 below.

Overall, in towns where costs are high, water is short and the private sector is active, alternative strategies involving innovative forms of contracting and partnership with the private sector could be the best solution¹¹. See, for example, one possible approach for Sana'a LC described in Box 19. Each utility could make proposals along these lines in their Business Plan.

Box 19: Alternative ways to increase access in Sana'a

The example of Sana'a shows that Yemen has to make some very hard choices. Current network coverage is only 40%, and meeting the MDG coverage target through expansion of the public network 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. Costs are higher than public network services

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. LC Sana'a is one of the few utilities which is already considering decentralized sanitation.

Non-conventional options for expanding services include: (i) regulating private wells selling tanker water (including pro-poor tariff structure), (ii) regulating the tanker fleet and providing certificates to hygienically suitable tankers, (iii) providing water to tankers from specific municipal wells, (iv) regulating construction of cesspits (technical assistance and specifications), (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

13. Investment finance and subsidies

Key questions: What is the stability and coherence of the investment financing available to utilities? How can the predictability of financing and the efficiency of budget implementation be improved?

Progress on reform

The NWSSIP Update is intended to provide a framework linking policy reform to investment finance. In addition, a rolling three year Medium Term Expenditure Framework (MTEF) will be prepared, bringing together all public resources allocated to the sector and driving the annual investment program. The NWSSIP Update is also expected to drive the WSSP approach.

¹¹ Data on private providers was expected from a separate, parallel study on private sector water supply in Yemen, which has not yet been conducted. Once this study is complete (during 2009), data on current and future poverty and social impacts of private sector provision to poor urban groups will become available.

The current lack of finance, bureaucratic problems and weak implementation capacity have constrained expansion.

Table 6: Target and actual spending on urban water and sanitation 2005-7 (\$ millions)

	Approved	% of NWSSIP target	Disbursed	% of NWSSIP target
NWSSIP I target	150		150	
2005	64	43%	45	30%
2006	100	66%	76	51%
2007	117	78%	83	55%
2005-7 average	94	62%	68	45%

Source: JAR III

The most important factors that have constrained the expansion of access have been limited investment finance and the associated institutional capacity to implement investment programs (see Table 6). Actual disbursements 2005-7

never reached half of NWSSIP I target levels, so it is not surprising that coverage targets were not achieved.

Assessment

Up to now, donor financing has encountered problems on both donor and Yemeni sides. The major problems have been:

- slow disbursement of both donor financing and local counterpart funds
- an overall weak performance on the government side in budget planning, approval and execution
- Weak planning and implementation capability at the level of MWE and the utilities.

Direct financing of utilities on a repayable basis would spell much higher tariffs. Moving to the basis of a soft loan on lent or directly lent to the utility has been mooted, including in the GTZ MACS study (MACS 2008a), and the World Bank has shown interest in this approach. However, this would require a significant tariff adjustment (see Box 20).

Box 20: In Sana’a, expanding the network on soft loan terms would raise tariffs sharply - Or bankrupt the LC.

For Sana’a, it has been calculated that investing in water supply network expansion on a soft loan basis would cost Rls 1,700 (\$8.60) per month per household in capital repayments and interest. To this would be added the cost of supply, bringing the average bill to over Rls 2,000 a month (\$10). This represents about five times the current average monthly bill. Yet some consumers might be happy to pay these prices, as tanker water is almost double the cost.

But if these investments were financed on a grant basis, households would receive an equivalent **subsidy** of Rls 1,700 (\$8.60) per month.

Investing in sanitation on soft loan terms would be even more problematic, as the investment cost per household is double, and willingness to pay and current tariffs are lower.

Source: Key-informant interview with KfW Director, Sana’a, May 2008

Higher levels of capital cost recovery would put the utilities on a business footing and allow the networks to expand faster. It would also reduce the inequity between urban network customers and other citizens. In Sana'a, for example:

- Urban connected households benefit from an initial capital subsidy of about \$2,000 - and pay a water bill of just \$2-3 a month
- Urban unconnected households receive no capital subsidy and pay up to \$20 a month for water through private tankers, etc
- Nearby rural connected households benefit from a lower initial capital subsidy of about \$1000 and pay up to \$7 a month for water

At the October 2008 Stakeholder Workshop, utility managers supported the idea of higher levels of cost recovery and suggested that this be made national policy through issue of a by-law. The working groups also suggested that longer pay back periods could be allowed, with special provisions for the poor.

Political economy constraints

There are outstanding questions on both government and donor sides about a sector-wide approach. Movement to a sector-wide approach could be constrained on the government side by apprehensions that program financing might actually reduce donor aid, and that it might also lead to loss of central government control. The November 2008 appraisal of WSSP has gone some way to persuading government of the value of a sector-wide approach, but some doubts remain. On the donor side, whilst core donors have agreed on the principles of harmonization and alignment within a sector-wide approach, non-core donors have not yet indicated their interest in joining a sector-wide arrangement.

The political economy of capital cost recovery is problematic. As discussed in Part II above, there is political and consumer opposition at the local level to higher tariffs without service improvements, and this would include higher connection charges. At the central level, opinion is likely to be more divided, but with some formidable opponents. Amongst the opponents may be numbered: parliament, big business and the MoLA, which are sensitive about costs either as a political issue or as a business concern (see Part V below and Annex 1). The only powerful stakeholder likely to be altogether in favor of such a reform is the Ministry of Finance, benefiting from the reduced need for subsidies.

Whether MWE and MoPIC could push through higher capital cost recovery is an open question. It would require considerable political will, as the price rises involved could provoke both political and popular opposition. Donor encouragement and financial support would be very important. However, even within MWE and MoPIC there are doubts about the wisdom of moving to higher capital cost recovery.

Options

A thorough review of co-pay options, including capacity and willingness to pay connection charges, could be made as part of the preparation of the Business Plans which the utilities are to prepare. At the Stakeholder Workshop, utility managers showed that they would clearly welcome higher capital cost recovery, but they consider that this would require a national review and policy in addition to ascertaining local level feasibility. The local level review could then form part of the tariff studies for each utility proposed under Section 6 above.

An attractive approach to financing urban water is that proposed under the Provincial Towns Open Program (PTOP). Based on more than a decade of experience of German financing of urban water utilities, PTOp is essentially a competitive fund where utilities present their business plans and investment projects for financing. They receive a structured and integrated mix of institutional development, capacity building and investment finance. “Milestones” (see Box 21) are set to show results. This approach is reported to have worked at al Shehr, but is proceeding with less convincing results for the Abyan utility.

Box 21: 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 parallel 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, water resources management, and capacity building. 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 developed further for the proposed PTOp/WSSP into a two step demand-driven process to allow utilities to access financing from a fund on a competitive basis.

Step 1. Application and evaluation: Applications will be accepted from utilities on a demand-driven basis, and will be evaluated according to agreed criteria related to the utility and its performance and capacity, the local demand, water resources availability, and project quality.

Step 2. Approval and milestones: Applications that are approved will be subject to milestones that the LC or AU has to accomplish at stages of preparation and implementation.

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 interview with GTZ staff of the Yemeni-German Technical Cooperation/Water Sector Program, Sana’a, August 2008

14. Low cost technology and alternative service delivery models

Key question: What alternative technologies and service delivery models are available that could lower costs or help increase access, particularly for the poor?

Progress on reform

Several promising initiatives have been tested in water supply. Rainwater harvesting has been piloted. For example, the Social Fund (SFD) coordinates with utilities to support rooftop rainwater harvesting in slum areas. PWP and RWSSP have also financed rainwater harvesting. The Ta’iz basin committee has decided that licenses should not be granted for new buildings in the Ta’iz urban area unless they have an underground tank to store rainwater harvested from the

roof. NWRA told the PSIA mission that in India, rooftop rainwater harvesting is viable as a complementary source everywhere above 250 mm precipitation. At the October 2008 Stakeholder Workshop, it was suggested that local councils could build on the Ta'iz model and introduce regulations requiring the construction of rainwater harvesting facilities for new buildings.

Standpipes could be acceptable to consumers in some areas. In the Customer Satisfaction Survey, the question was asked: Would you be willing to use a standpipe to have access to water. In Sana'a, 50% of the unconnected said they would be happy to use a standpipe.

In sanitation, decentralized systems have been piloted. In sanitation, the high costs and low willingness to pay have limited expansion. In addition, practical and economic difficulties have been encountered with network sewerage and centralized treatment systems due to the difficult Yemeni topography and the low flow of waste water. These problems have led to consideration of decentralized systems – typically septic tanks with small borehole gravity outlets to the network. This approach has been piloted at al Mahweet, where it has proved the safest and most cost effective solution. Decentralized systems are given prominence in the NWSSIP Update.

Political economy constraints

The utilities may be resistant to decentralized and innovative solutions. Utilities may have a bias towards major investment contracts and conventional network approaches, as utility staff are familiar with standard approaches and see them as easier to design and manage. Utilities may also be resistant to standpipes, for fear of abuse and loss of revenue.

...but many go-ahead managers see utilities as socially responsible services that should engage with civil society on innovative approaches. The risk that utility managers will be reluctant to innovate diminishes considerably in cities where the utility management is more business-oriented. In Sana'a and Ibb, for example, utility management are quite open to innovation, which they see as enhancing business opportunities, rather than threats to their business. At the Stakeholder Workshop, the working groups accepted that utilities should have a “socially responsible role towards communities regarding innovative solutions”. The groups also accepted that utilities should share ideas – and responsibility – with local councils, civil society etc. and were enthusiastic about possible options, including:

- Installing stand pipes, in partnership with community associations, NGOs and the private sector
- Introducing in-advance water meter payment
- Activating cooperation between utilities and private partners, for example LCs selling bulk water to private network operators
- Easing the process for obtaining permissions for house connections
- Allocating specific service areas to private investors
- Developing participatory approaches with communities, schools etc.

Assessment

A range of promising alternative technologies is possible. The interests of the utilities have to be considered – or they would have to be convinced. Key questions include:

- Rainwater harvesting: can this be done through the basin committees and local councils working with SFD and NGOs/CBOs, with technical assistance from NWRA and the utilities?
- Standpipes: could the arrangement be structured so that it was revenue-neutral for the utility and was genuinely limited to the needy? At the October 2008 Stakeholder Workshop, it was suggested that utilities could work with the private sector a local communities to manage stand pipes.

Options

It will be key to engage the utilities as socially responsible businesses together with local stakeholders in the testing and upscaling of these innovations. Utilities could be involved in developing low cost alternatives or alternative service delivery models in areas where they cannot expand conventional networks. The pilot phase could be conducted together with NWRA, which intends to promote alternative water supply sources, including rainwater harvesting, under the NWSSIP Update (IWRM Output 1.2.5). The debate could also be broadened to include local stakeholders, particularly the local councils and citizen groups. At the planning level, utilities could agree with the local councils on the service area which the utility could reasonably supply, and on the strategies involving NGOs or private suppliers that might be encouraged to supply the areas not covered by the LC (see Box 23 below for one example of the process in action in Ibb).

These innovative approaches could be reflected in the Business Plans. Utilities could include in their Business Plans a program to test, develop and scale up innovative techniques and alternative service delivery models, and to engage with local council regulations for construction regarding rainwater harvesting.

15. Sourcing the water

Key question: What are the options for securing future water sources for urban supply?

Progress on reform

Sourcing sustainable and adequate water supply has become an increasing problem. Under the NWSSIP Update, utilities will work with NWRA on identifying resources and on developing equitable and sustainable models for resource transfer. Major investment (\$13.1 million, Outcome 2.2) will be made, in partnership with NWRA, to identify resources and to develop equitable and sustainable models for resource transfer. Although priority is accorded to water supply for human use, resource transfer arrangements will respect existing rights and the principle of “no uncompensated harm”. All new water sources and transfer arrangements have to be licensed by NWRA, as part of its regular function of promoting resource sustainability. Desalination options will be studied for coastal cities.

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” (Dorsch 2007: 71). The utility is experiencing a rapid decline in well water levels, which dropped by an annual average 16 meters in the three years 2002-5 (Dorsch 2007: 75) In Sana’a, the LC has a well structured master plan (SAWAS) which it is trying to follow. However, the outlook is not good, with drawdown of 6 metres a year, and an average of five wells being closed down annually.

Implementation of licensing and regulation is proceeding unevenly, and water rights are not clearly defined. According to the 2007 PSIA (GoY/WB/GTZ, 2007, Section 4.2.2), NWRA's institutional weaknesses prevent it from effectively intervening, the Water Law is not clear and by-laws are still lacking, and Local Councils are helping little. Water rights are defined largely by capture and historical usage, and they are not registered or regulated (although there is a small pilot to register water rights in al Dhabbab in Taiz). At the local level, some water user associations in Taiz and Sana'a are effectively recognising water rights by controlling each other's drilling and extraction, but coverage is limited to a small area.

Utilities basically appropriate water when they drill new wells. In Sana'a, the LC conducts an implicit water transfer programme through the development of new well fields. The Basin Committee has considered purchase of agricultural wells as a more equitable means of transferring water, but this idea has gained little traction. There is however, a high cost to appropriation of water as it arouses intense local opposition (see Box 22). There are almost no cases of utilities paying for water, although Aden LC "pays" for water it takes from Abyan by providing the Abyan LC in Ja'ar/Zinjibar with free water.

Box 22: 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. The search was complicated by the problems experienced over the previous water transfer project in al Haima, which had led to desertification and impoverishment of the local population. 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 Local Corporation in Ta'iz is equally bitter. The Director General of the LC said that water from the wells in Habir costs \$1.50/m³, 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 says:

Whenever we made locks, they are being broken for the sake of irrigating qat. We are supposed to receive 170 m³ per hour but actually the tanks only receive 60-70 m³ per hour.

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

Weak regulation has allowed drilling in the well field protection zones. Sana'a LC is plagued by illegal wells within the city. By contrast, in Ibb the local authorities have worked with the LC to prohibit the export of well water for qat cultivation outside the city limits.

Political economy constraints

Considerable problems arise from the political economy of water rights. Public acceptance of water rights and of the associated regulatory framework is weak. Government measures to enforce the law are inadequate and ill-coordinated. In many locations, the rich and powerful drill and extract water in areas dedicated to public water supply. The utilities have adopted an opportunistic approach to resource transfer, essentially exploiting aquifers where they find limited opposition and where they can drill deeper than other contenders. Mahweet AU, experiencing high costs and local opposition around its present well field, is searching for a new site where they hope to appropriate water without local opposition.

Assessment

The current ad hoc situation is inequitable and confrontational, and cannot provide sustainable resources for urban supply. Sourcing water for cities has become increasingly difficult, and is a massive challenge for major cities such as Ta'iz and Sana'a. Old sources are depleting, new sources are hard to identify. Social and political opposition to their extraction from source area communities is fierce. No equitable and sustainable model for rural-urban water transfer has been developed, and the utilities are essentially mimicking the private sector in proceeding by resource capture.

Without a clear and equitable regulatory basis for water transfer, utilities cannot secure water sources. They may even fail to obtain the support of local councils and of their own board.

Options

The proposed work under the NWSSIP Update on identifying resources and on developing equitable and sustainable models for resource transfer could provide an entry point for improvement. The Update cites the two principles of respecting water rights and “no uncompensated harm”, which is a good start. A recent study (*Yemen: Issues in Decentralized Water Management*, Wadi MENA 2008) identified conditions for efficient and equitable transfer by rural communities organized into self-regulating WUAs and contracting with urban utilities. The study pointed to several possible models for urban areas to purchase water from rural areas e.g.: (1) bulk delivery to a fixed point; (2) delivery to a conveyance line; (3) rent payment on a volumetric basis; and (4) a regulated concession. The study also identified three important areas for study and piloting, i.e.: on water rights, on water user associations, and on monitoring and regulation, critical to resource sustainability.

The agenda on water rights and equitable water transfer could be reviewed and refocused through the proposed National Conference on Community Water Management and Water Rights, to be held in the first half of 2009. At this forum, all current Yemeni and international experience on decentralized water management, establishment of water rights as the basis for water resources management, water user associations for IWRM etc would be shared and a clear agenda for pursuing this approach under NWSSIP would be agreed, ready for implementation.

16. Working with the private sector

Key question: What options exist for greater involvement of the private sector?¹²

Progress on reform

Working with the private sector has been an objective since the start of the reform program. The NWSSIP Update provides for MWE to work with the utilities on identifying alternative service provision models and providers. NWSSIP Update also provides for each utility to develop a strategy for public-private partnership (PPP) and for private sector participation (PSP) by 2010. PPP management contracts or concessions are to be developed wherever possible, and private suppliers will be progressively brought within sector planning and regulation. The Update also provides for all utilities to develop a plan for outsourcing selected functions, such as billing and collection.

In a number of towns the private sector is an important provider of water supply and sanitation services, and in several major cities, including Sana'a, the private sector is the major supplier. In view of the very high cost of achieving the MDGs through the extension of public-supported networks (see Section 12 above); the potential for further harnessing private sector energies and capital is being explored as a part of the NWSSIP Update.

Early attempts at large scale partnership with the private sector proved impossible in the Yemeni context. Beginning with a 1998 workshop on private involvement in urban water supply, several initiatives have been undertaken to try to involve large-scale, international private sector, including proposed management contracts for Sana'a and Aden. However, these initiatives failed to produce any workable outcome, because the international firms found the scale of problems too great.

There have, however, been some localized partnership approaches. In Ibb there is an interesting partnership between the LC and local private network suppliers. The LC has innovated with water supply by contracting with a private well owner to convert from selling water to tankers for qat production to a locally metered private network supply with control on price and water quality. The price to consumers is about the same as the LC cost of supply. Everybody, including residents, seems very happy with this whole arrangement (see Box 23).

In Sana'a, a partnership with a private operator or NGO for water supply to poor areas is to be tested. A scheme of partnership with the private sector has been proposed for 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.

¹² A separate, parallel private sector study was expected to provide data on private providers for the PSIA. However, this study has not yet been conducted. Once this is done, options for involving the private sector in water supply and sanitation will become clearer.

Box 23: 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 Rls 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: Rls 120/m³ up to 10 m³ a month, and Rls 130.m³ above 10 m³ 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: Focus Group Discussions, Key Informant Interviews, Ibb, May 2008

There is also involvement with the private sector in the form of regulation. NWRA has commenced a pilot program in one district of Sana’a to licence and regulate wells. An inventory was completed in 2007. However, regulation has to be handled with care, as it is an easy source of corruption (see Box 24).

Box 24: Service, charity – and corrupt regulation at a water purification shop in Ibb

This shop is a popular operation in a dusty working class area, unconnected to the network. There are six workers in the shop, smartly dressed in matching red uniforms. School is just out and small boys cluster around the water cooler where the shop allows people to drink for free. There is a cage around the cooler, though, so that you cannot fill a jerry can.

The shop sells purified water for Rls 20 to those who bring jerry cans. They also supply local groceries where the same product costs Rls 30. They sell about 350 jerry cans a day. They also fill small plastic sachets with ice cool water, another popular line.

Although the general neighbourhood is not connected to any supply, the shop *is* connected - to a private well and gets water continually seven days a week, the essential raw material for the operation.

The staff say: “We are sometimes visited by inspectors from the Public Health Department. They don’t do anything. They just ask for bribes to go away”.

Source: Focus Group Discussions, Ibb, May 2008

Political economy

Government and the private sector have up to now been mistrustful of each other and have cooperated little. The involvement of the private sector has long been on the reform agenda, and now occupies a prominent place in NWSSIP. Yet on both public and private sides there is little confidence as yet that mutually advantageous arrangements can be worked out. Government and the utilities see urban water services as a government responsibility, and much of the development of the sector has consequently crowded out the private sector. The private sector has responded by keeping a low profile, avoiding contact, and selling water profitably to households.

However, the organized private sector may be willing to cooperate. The PSIA found private sector respondents not averse to more cooperation with the utilities, provided that it did not undermine their business. In Sana'a, for example, where the local private sector supplies half of the market and is the natural partner of the LC, several medium and large private investors said they were willing to enter into a formal contract relation with the LC, if the terms were right. Some had, however felt they had got their fingers burned in the past (see Box 25). Tanker drivers in general are very wary. During the PSIA visits, whenever government was mentioned, tanker drivers would melt away from the focus group.

...and the utilities seem ready to meet the private sector half way. At the October 2008 Stakeholder Workshop, utility managers recognized the contribution of the private sector to meeting the supply deficit and suggested that future partnerships could be built on a strategy that would bring the private sector within the regulatory framework and provide support like "easy access to permissions and definition of respective zones of intervention". The private sector, for example, may have a comparative advantage in the peri-urban and nearby rural areas.

Box 25: Private water providers in Sana'a

Abdul Karim had private wells next to the old British Embassy in Hadda. In the 1960s, there were three shallow dug wells serving his farms, and also connected to a network. In the 1980s he drilled a tube well to 450m and built an extensive network, within a 1.5 km radius, serving 1,200 houses and businesses. Then the LC came, drilled to 950m and developed its network. Everybody connected to the LC, his clientele dwindled, and he focussed more on the tanker trade, serving 45-80 tankers a day. His farm shrank from 500 libna to 50 libna, as construction proceeded apace.

Around the year 2000, his customer base was too small; and he closed the network. Then the well yield plummeted, "until the final days of the well in 2002". He blamed the LC for drilling deeper, "draining his well".

Abdul Karim considers that the LC competed unfairly, appropriating his water rights and undercutting private tariffs with subsidized prices.

Source: Focus Group, Sana'a May 2008

Assessment

Ideas for working with the private sector fit well with the possible agenda on innovative technology. Most of the possible technical innovations in Section 14 above could be linked to partnership with the private sector: for example, rainwater harvesting, decentralized sanitation, water filtering, connection of private networks to public mains etc.

Outsourcing is a possibility for selected functions and is an easy place to engage with the local private sector. The most likely candidates include billing and collection, and certain maintenance functions.

Options

Several transaction models could be suited to partnerships between public and private sectors. Deals would have to be structured carefully to be transparent and equitable. Several models look promising: (1) local area contracts or concessions to the Yemeni private sector; (2) outsourcing of discrete functions; (3) bringing private wells, networks and tankers progressively within the regulatory framework in return for security of access to markets and water resources, together with possible support; (4) bulk delivery of water to the private sector; and (5) output based subsidies to private contractors, NGOs and community associations. An obligation to serve the poor and/or the very poor could be written in to contracts. A possible larger scale arrangement could be a performance contract to run an entire utility.

Support could be provided to utilities to develop their own agenda for working with the private sector. Under the NWSSIP Update, utilities are to develop strategies for partnership with the private sector by 2010. Plainly there are a number of ideas, but utilities themselves will not have the capability to develop them. There could therefore be a national study and a series of workshops, complemented by local level technical assistance to utilities during 2009 as they develop their own proposals for working with the private sector. The proposals could form part of the Business Plans. These ideas were endorsed by utility managers at the Stakeholder Workshop.

Some of the resistance to the private and public sectors working together could be dispelled by information and communication, as well as private sector regulation. There needs to be a clear focus, centrally-led but locally-designed and implemented, on forms of PPP and innovative technology that can help increase access. The models developed so far – for example, local area concessions in Ibb and rainwater harvesting in Ta'iz - need to be written up and publicized nationwide. The kind of idea that has been proposed for Sana'a (see Box 19 above) could be openly debated with all stakeholders, both public and private. The experience of other countries – e.g. output-based aid should be studied. See the discussion on this in Part V below. As private sector provision is currently unregulated, some regulatory framework would need to be developed and private providers brought progressively within it.

Part IV. Protecting the poor

A key question that the PSIA is designed to answer is to assess pro-poor urban water supply and sanitation, and to identify areas where poverty reduction impacts could be improved. Part IV discusses what is already known about these relationships in Yemen, what new the PSIA discovered, and what options there may be to improve pro-poor impacts.

17. Basic needs

Key question: Do the poor have access to the basic minimum of water.

Progress on reform

The NWSSIP Update states: *“the most pro-poor policy is expansion of coverage, especially as many poor people currently rely on expensive tanker delivered water. However, the tariff-system needs to be evaluated to be more pro-poor.”*

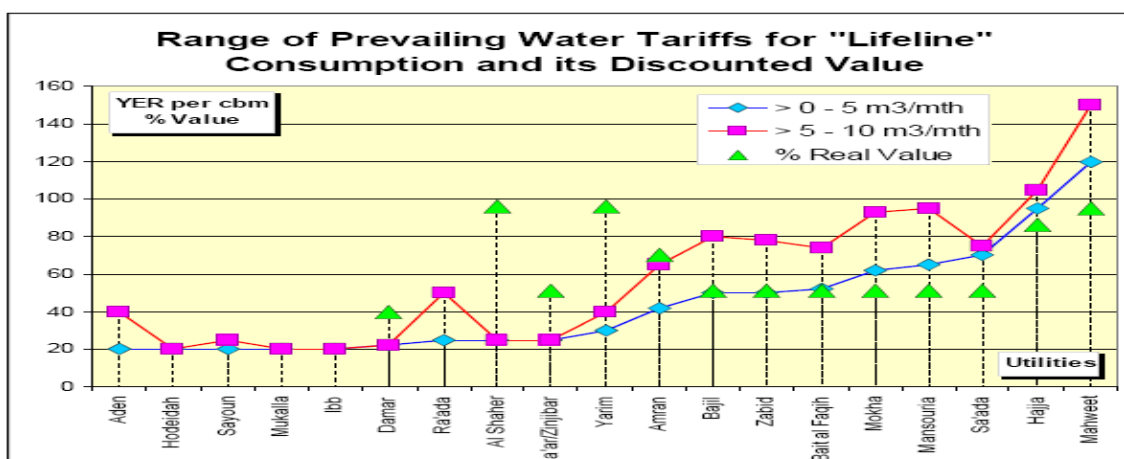
The NWSSIP Update provides for: (1) a block tariff system, with a “lifeline” block defined so that only poor consumers fall within it; and (2) tariffs for the lifeline block set so that the costs of water and sanitation services for the poor will not exceed 5% of the household budget.

Pricing the first 10 m3 each month at a low, highly subsidized rate gives access to lifeline quantities (about 45 lpcd) to the poor who are connected. Current practice – that the first 10 m3 each month is priced by the utilities at a low, highly subsidized rate – has been examined in two studies¹³. Findings are that the current system benefits the poor who are connected – the lifeline tariff covers only 40-50% of the costs in most cases. However, because all domestic consumers benefit from the subsidized tariff on the first block, the system also benefits the non-poor. The access of such a large part of the customer base to the low lifeline tariff impairs the revenue raising capacity and thus cost recovery of the utilities.

But the subsidy does not necessarily go to the poorest towns. Mahweet, one of the poorest towns, has the highest tariff level in the country and the lifeline tariff there recovers 100% of cost (see chart below).

¹³ **CPAS 2005**. Poverty Orientation of Yemeni-German Urban Water and Sewerage Projects. Report by Dr Solveig Buhl for the Advisory service on Conflict Transformation and Poverty Reduction. Eschborn. July 2005; and **GTZ/KfW 2005**. The Poverty Relevance of Interventions in Urban Water and Sanitation Projects. GTZ/KfW, August 2005.

Range of prevailing lifeline tariffs



Source: GTZ - KFW (2005). *Poverty Relevance of Urban Interventions*

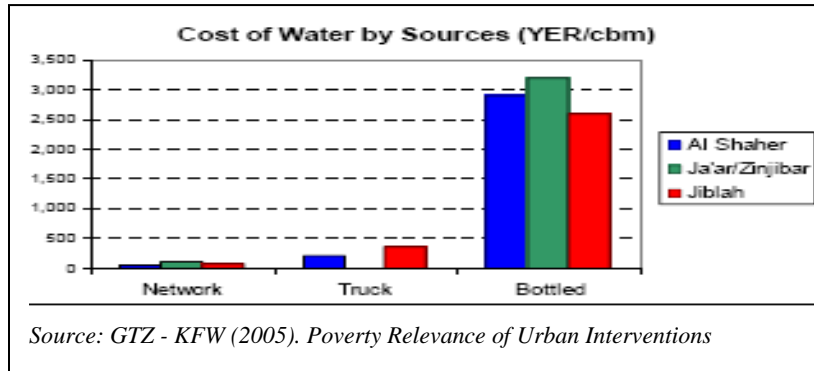
The public utilities supply, on average, more than the “target livelihoods need” of 50 lpcd. There is a wide range, however. According to the PIIS (2006:25), average domestic network supply ranges from 22 liters per capita per day (al Mahweet) to over 80 liters in the hot coastal towns. There are no data on satisfaction of basic needs of unconnected households.

In water short areas, consumption from the network is constrained. In Mahweet, for example, average consumption of network water is only 7m³ or about 30 lpcd. For those consuming less than 10m³, average consumption is only 10 lpcd, which is half of the generally accepted health threshold (WHO standard). About 11% of the utility’s customers in that block reported receiving no water at all from the utility during the previous month.

The PSIA throws light on the question whether the poor are predominantly concentrated in the <10m³ block. One indicator is whether households share a water meter. This in itself could be a sign of poverty, and two households on one meter would find it very hard to stay below 10m³. In Sana’a, 32% of households reported to the Customer Satisfaction Survey that they shared a water meter, including 28% of those consuming less than 10m³, and 35% of those consuming more than 10m³ (Interaction 2008b: 13). If sharing a meter is a sign of poverty, then up to one third of the poor are consuming more than the 10m³ lifeline, and thus paying regular block tariffs.

In all cases examined by the PSIA, the very poor unconnected households obtain water through informal channels by having access to free water in quantities about equal to the health threshold. In Ibb, for example, water for drinking is widely available for free but in small quantities – from mosques, restaurants, private water purification shops, water supply wells. Observation by the PSIA suggests that quantities obtained from free sources are constrained and carry a high transaction cost, and that quantities are no more than 20 lpcd (the “health threshold”). See Box 26: *Private sector provides free water for the poor in Sana’a*.

Water costs from the piped network are generally the cheapest. Water costs from the piped network are probably everywhere significantly lower than costs from alternative sources and this was confirmed in the eight towns studied by KfW (see chart Cost of Water by Source). In Zabid,



1 m³ provided through a donkey cart was around Rls 200 (in 2005), compared to the price of water from the utility which ranged from Rls 50 in the lowest consumption bracket to Rls 125/m³ in the highest (CPAS: 13). In Sana'a, 2008 data suggest that tanker water costs Rls 300-500/m³. "If

households use the lifeline consumption of 45 lpcd only (about 10 m³ monthly), their bill each month for tanker water would be Rls 3000-5000. The same water provided through the network would cost Rls 400"¹⁴

Health, gender and education impacts

There was a clear finding from the Customer Satisfaction Survey about health impacts of water supply connection. In the Survey, 51% of people cited "reducing water borne diseases" as one of the benefits of water network connection. The incidence of the leading water borne illness, diarrhoea, is higher in towns poorly served by the network than in those where network coverage is high. In Ibb, for example, which has only 42% network coverage, 58% of respondents reported diarrhoea affecting children. In towns where network coverage is 100% (Bait al Faqih, Zabid, Mokha, al Shehr), incidence of diarrhoea affecting children was less than 10%. However, at the Stakeholder Workshop, participants considered that hygiene and health education programs need strengthening.

Gender and education benefits were also evident. Another finding of the Customer Satisfaction Survey is that most recently connected households (55%) reported that women's chores had reduced since connection. One quarter of households also reported that there was more time for children to attend school as they no longer have to spend time fetching water.

¹⁴ Key-informant Interview, KfW Director Sana'a, May 2008

Box 26: 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 with obtaining water from here.

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 lpcd 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: Focus Group Discussion, Sana'a, May 2008

Assessment

Charitable and private provision of free water to the poor does not reduce the responsibility of government to target water supply and sanitation provision to poor households. Quite the opposite would be the case, as access to water and sanitation as defined in the NWSSIP Update is an important component of poverty reduction, with vital impacts on health, women's livelihoods and well-being, and children's education.

The real losers are the poorer people not connected to the network. Clearly all domestic consumers supplied by the network, including the poor, are benefiting from very cheap water. In Sana'a, however, most of the poor are not connected. Even amongst the poor (except the very poorest), there is willingness to pay the cost of public or private network supply, which is less than half the cost of a tanker, and much more convenient. According to the study, it seems that network access is more important to the poor than price. This would underline the logic of more local private sector involvement in network connections, if that were the means to connect more poor households at affordable costs.

18. Alternative access and coping strategies

Key questions: What other access to subsidized or low cost services may be open to the poorest? What are household coping strategies?

Progress on reform

Connection to the network is the best coping strategy for the poor, but charity is an alternative for those without access and who cannot afford private tanker water. A 2006 study conducted in Bait al Faqih took households receiving benefits under the Social Protection Fund as a proxy for the poor. The study found that out of 217 such poor households in the town, about 43% (92 households) were subscribers to the network services, some 38% (84 households) took water from the network with an account and meter registered in the name of another subscriber, and the

remaining 19% (41 households) got water from relatives, neighbours, charity, mosques or vendors.

According to the PSIA Customer Satisfaction Survey, people reduce their water consumption to stay within the network lifeline tariff. In Ibb, 18% of respondents say they reduce their consumption to remain within the 10m3 block, in Sana'a the figure is 32%.

However, especially in water constrained towns, all connected consumers – including the poor – may be obliged to access alternatives. The Customer Satisfaction Survey found that in Mahweet, 40% of households fetch at least some water from a source: 11% went more than once a day, and 19% took more than an hour a day on the task.

Price was very rarely cited as a reason for not being connected the water supply network – but it was an important reason for not connecting to the sanitation network.

Table 7: Reasons for not connecting to sanitation

	Connection fee too expensive
Bait al Faqih	41%
Amran	33%
Overall (7 towns)	23%

Source: Interaction 2008a: 21

In the Customer Satisfaction Survey, very few respondents said they were not connected to water supply because the connection fee was too expensive. By contrast, about a quarter of residents were not connected to the sewage system because of the cost of connection. It appears that network sanitation is not so highly valued as network water supply.

Assessment

The poor do cope, but the cost is high. The cost of alternatives for the poor can be high in non-monetary terms. The social and educational cost of children fetching even the minimum of water from a spring or common tap can be high (see Box 27).

Box 27: Girls spend up to half a day to get the minimum of water

In Mahweet, the mission met a small group at the spring. The main respondents are men, answering “on behalf of” the girls fetching water from the spring

The girls and young women 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. So it takes half a day to supply the household with less than the basic minimum of 20 lpcd.

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!

The men there 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.

The men say “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 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: Focus Group Discussions, al Mahweet, August 2008

The private sector – thought to be so profit-motivated – is in fact pro-poor. In Sana’a, a well owner supplies a small private network. He charges Rls 2-3,000 a month if people are in wage-earning employment, but charges less for low-income households. He allows people in temporary financial difficulties to settle bills later, and gives water for free to the mosque and the unemployed. He knows his customers, who are his neighbors - there is mutual trust and social accountability. This is a pattern repeated everywhere - the private sector has pro-poor provisions.

Options

Each utility, as a socially responsible business, might be given a pro-poor mandate, and requested to come up with a pro-poor component in their business plan, as part of broader pro-poor efforts, including the implementation of the WSSP and the NWSSIP Update. Such a pro-poor program need not be revenue-losing: concessions on output-based aid basis in poor areas; cooperation with SFD, charities, the private sector or NGOs on rainwater harvesting, stand pipes, or spring improvement, limiting the lifeline only to poor households through targeting mechanisms. However, utility initiatives need to be accompanied by a broader reform effort for more pro-poor interventions, and the full implementation of the WSSP and NWSSIP Update to promote more pro-poor results. 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.

19. Equity and efficiency of the subsidy

Key question: How can the equity and efficiency of the subsidy be improved?

Progress on reform

What is the share of water in household budgets?

The 2006 Household Budget Survey showed water as counting for a surprisingly low share of household budgets of the poor. In Sana’a, for example, where the poverty line (2005) for a seven person household is Rls 36,669 (income poverty line) or Rls 25,067 (food poverty line), water counted for less than 2% of expenditures, or 3% if sanitation is included (see Table 8).

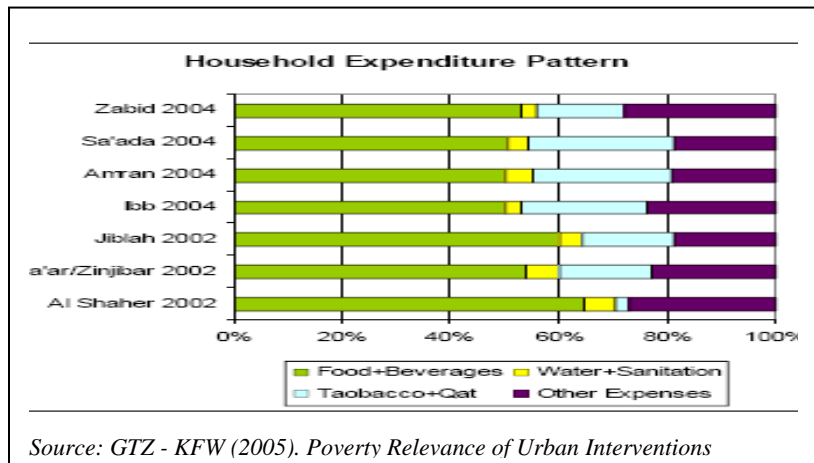
Poverty line	Cost of water	Cost of sanitation
Poverty line (poor)	1%	1.9%
Food poverty line (very poor)	1.6%	3%

Source: HBS 2006

This finding confirms the earlier findings from a 2004 survey. A KfW study of eight towns found that water and sanitation costs were typically only a small share of household expenditures on average (see chart Household Expenditure Pattern), and under the 5% typically reckoned to be “affordable”.

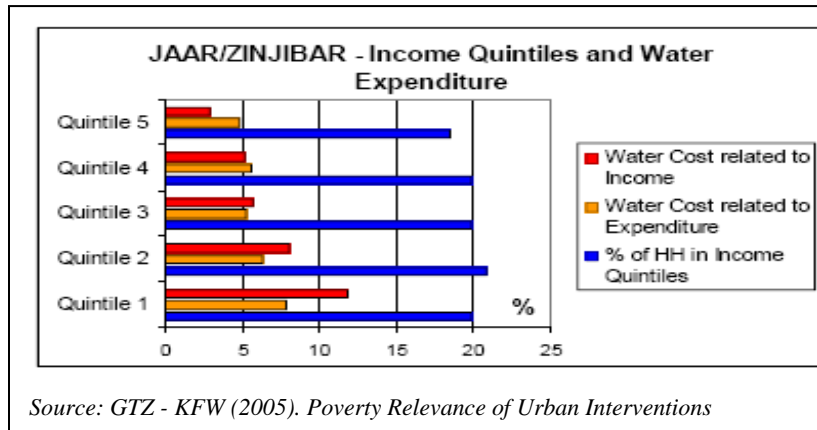
For the poor who can source 10m³ of water from the network (equivalent to 45 lpcd), the cost

looks affordable in most towns. In Sana'a, for example, 10m³ at the lifeline tariff costs only Rls 250, less than 1% of the poverty line. In the Customer Satisfaction Survey, almost nobody complained that the network tariff was too high.



Source: GTZ - KfW (2005). Poverty Relevance of Urban Interventions

In some towns, however, incomes are lower, and the incidence of poverty higher. As a result, water costs may be a higher share of the incomes of the poor. A 2005 GTZ-KfW study of eight provincial towns found that the share in household expenditures of the poor was 3-7%. In one case (Ja'ar/Zinjibar) the share was about 8% (see chart). These towns are amongst the poorer towns of Yemen, with a high share of poor population and a high percentage of clients in the 10 m³ lifeline block.



Source: GTZ - KfW (2005). Poverty Relevance of Urban Interventions

The network lifeline tariff certainly does cross-subsidize the poor – but with important differences between towns. According to GTZ-KfW 2005, the lifeline tariffs covered only 40-50% of the utilities' costs in most cases. But this subsidy does not necessarily apply in the poorest towns: Mahweet, one of the poorest towns, has the highest tariff level in the country and the lifeline tariff there recovers 100% of cost.

There is scope for further cross-subsidy by pro-poor adjustment of the block tariff. It is likely that in many towns there is further scope for cross-subsidy by pro-poor adjustment of the block tariff. The 2005 GTZ-KfW report argues that in Ibb, for example (one of the utilities with the lowest tariffs countrywide), out of each 1000 clients, 530 benefit unnecessarily from lifeline consumption subsidy (< 10m³/month): 330 are in the 10-20 m³ range, and 200 in the >20 m³ range. As the lifeline applies to everyone, the large consumers benefit throughout various tariff ranges, for instance: clients consuming up to 30 m³/month are actually saving about 43% on their water bills, and the 41% of consumers who use up to 20m³/month are only charged for their above lifeline consumption as compared to paying maximum tariff for their total consumption. Consequently, the report states, that eliminating the subsidy portions in the water bill for large consumers would substantially increase utility revenues without affecting the poor.

Some of the poor use more than the lifeline allowance and hence pay a higher tariff. A 2006 household survey in Bait al Faqih found that of 1,007 households receiving support from the Social Protection Fund, average household water consumption was 7.7 m3 per month, but that 22% of these households consumed more than 10 m3 a month (Source: Customer Satisfaction Survey - Concept and Implementation Guidelines). The PSIA Customer Satisfaction Survey (Interaction 2008a:6) found that 90 (out of 680) connected households were on Social Welfare. Of those households on Social Welfare, 61% used less than 10m3 a month, and 39% used more than 10m3 a month.

Overall, according to the 2006 Household Budget Survey, water costs are only 1% of average household expenditures – compared to 7% for qat.

Water and qat as a share of household monthly expenditures			
	Urban Households	Rural Households	Average
Water cost	1.4%	0.9%	1.1%
Qat cost	8.2%	6.7%	7.3%

Source: Household Budget Survey 2006

Poorer towns, especially those lacking prosperous households and businesses, may be unable to cross-subsidize the “lifeline” rate in the block tariff system. A key element in the pro-poor tariff policy is the possibility for the better-off households to cross-subsidize the lowest tariff block for the benefit of the poor. However, there is a wide variation in the prosperity of Yemeni towns. In some, like Aden or Sana’a, there is a prosperous middle class and business sector. By contrast, in some provincial towns like Mahweet there is a high proportion of poor people and a lower proportion of better off households or businesses that provide a revenue base for cross-subsidy. Given the objectives of running utilities on a business-like basis, utilities cannot be expected to provide a subsidy that cannot be paid from their own revenue base.

Assessment

Being connected is best for the poor, although those sharing one connection may face higher tariffs. For most of the poor, the cost of network water is not the issue. The challenge is to get connected, and to access the basic needs quantum through the public network. However, the poor who share a connection reach consumption levels above the lifeline block and thus pay more.

The poor in a poor town may also face higher tariffs, particularly if supply is high cost. The poor in high cost supply areas like Mahweet also pay more, and the utilities in poor towns cannot be expected to subsidize the poor if revenue generation is not adequate.

Options

The basic pro-poor strategy for the utilities would be to expand network access as far as possible, and to ensure that at least the lifeline minimum of 10 m3 is available to each household each month. Measures discussed in Part III to improve cost recovery would allow utilities to improve their business performance whilst protecting the poor.

Mechanisms to allow poor households separate meters – and to encourage them to connect to sanitation networks when available – could be envisaged. At the October 2008 Stakeholder Workshop, participants in the working groups endorsed this idea.

Some form of support may be indicated for high cost poor towns. Where water supply is very high cost, as at al Mahweet, government could consider a strategy to bring costs down either through investment or through operating subsidy.

20. Equitable treatment of customers

Key question: How equitable is utility treatment of its customers?

The PSIA found no strong evidence that the poor get disconnected more than the rich. The CPAS study found anecdotal evidence that poor households, that did not pay their bill, were being disconnected, and argued that “influential households or offices seem to find ways not to be disconnected” [CPAS: 14]. At the October 2008 Stakeholder Workshop, the case of al Mahweet was cited: “poor people pay their bills, and rich people and government offices don’t”. The PSIA in fact found plenty of evidence of slow paying, but no pattern of differential treatment between rich and poor was evident. Anecdotal evidence does suggest that there are rich and influential people who manage to avoid disconnection, but this was not raised as an issue in any of the responses to the Customer Satisfaction Survey. In fact, the Customer Satisfaction Survey found that only 12 households out of 680 were disconnected, of which only six for non-payment. According to the DG, Sana’a LC only disconnects the poor “if they haven’t paid for 1-2 years”.

The most significant inequities occur in connection rates and quality of service between richer areas and poorer areas of town. In Sana’a, for example, the network in rich Hadda has recently been renewed and service is excellent. By contrast, other areas of town are either not connected at all or suffer from poorer quality water and indifferent supply.

Part V. Stakeholder and Political Economy Analysis

Part V discusses the conclusions of the stakeholder analysis and the implications for the three major reform areas (decentralization and utilities as a business, increasing access, and protecting the poor).

A. Overall support or opposition to the reform program

The detailed stakeholder analysis (Annex 1) shows that, overall, there is strong or very strong support for the reform program from most organizations. The main areas of reticence or opposition are:

- There is concern that reform will bring **tariff increases** for consumers, or that increases will not be accompanied by ‘better value for money’ in the form of improved services. This concern is strong among consumers themselves, and also amongst organizations such as the local councils that represent them.
- There is concern within central government, particularly MoF, that decentralization will bring **loss of control** over utilities that have received – and continue to receive – large transfers of public money.
- At the same time there is concern from central government that actual **financial self-sufficiency** of utilities is still a long way off, and improvements in service and expansion of coverage towards the MDGs will place a long term burden on the nation, as utilities continue to be dependent on central government subsidies. This concern will continue until decentralization is complete, and financial decisions are taken by utilities run as businesses. During the current transition, however, there are tensions between local councils wishing to keep tariffs down and central government wishing to reduce subsidies.
- The utilities themselves are generally supporters of reform, but within the utilities there is **internal resistance to change**. Managers may have old habits and an investment bias rather than consumer-oriented service approach. Staff may fear the loss of their jobs or increasing pressures to show efficiency or to perform new functions, which many often see as additional tasks that are not compensated. At the October 2008 Stakeholder Workshop, participants showed their support for reform – but also colourfully described their *Three Pillars of Fear*: that reform, if badly managed, could result in **high costs, high tariffs, and unavailability of central support**.
- The **involvement of the private sector** has long been on the reform agenda, and now occupies a prominent place in NWSSIP. Yet on both public and private side there is little confidence as yet that mutually advantageous arrangements can be worked out. Lack of regulation of private water service providers is also an issue of contention.

B. Support or opposition to running utilities as a business

The stakeholder analysis shows that, whilst **MWE** and **donors** are strongly pushing for decentralization and a business approach and **local stakeholders** are interested in getting a more cost-effective and responsive service, some other stakeholders are more reticent, or are both

drawn to reform and put off by some aspects of it (see Annex I and especially the Stakeholder Influence and Support Maps). **MoF**, for example, would like to support decentralized, autonomous utilities, but does not want to surrender control where there is still public subsidy. **Parliament** and **local councils** similarly want the reform to succeed, but are afraid of a reform program that may “lead with negatives” such as price rises, whilst service improvements may be a long time coming. **Consumers** welcome the prospect of a locally responsive and efficient utility, but are fearful of possible price rises – and not yet confident that local control and accountability will improve service standards. All stakeholders are concerned with the structural problem - the dwindling water resource situation - and there is concern that a business orientation may save water but a commercial approach to sourcing water could impact on water rights and on the water balance.

Given these stakeholder stances, the following are possible accompaniments to improve the implementation of the reform program:

- Further reforms need to respond to these concerns by developing a **progressive and comprehensive approach built into the utilities’ customer-oriented business plans** and comprising balanced doses of support to management improvement, investment in improving existing services and network expansion, and business measures to achieve financial viability (including tariff rises, elimination of payment exemptions, increase in the collection ratio, decrease in unaccounted for water, etc.). These business plans could be made public – or could even be developed through public participation in town hall meetings etc. to include consumer needs and concerns. Utilities could make consumer relation units fully functional, and deploy consumer outreach mechanisms and a communications strategy to enhance social accountability and stakeholder understanding of utility and consumer roles and responsibilities.
- The reform program needs to **identify and publicize successes**, where the reform package has succeeded in decentralizing authority and responsibility, in improving services and in persuading consumers that even if tariffs have gone up, value for money has resulted through tangible service improvements. The cases of certain secondary towns, such as Bait al Faqih, could be written up and disseminated to help build a constituency in support of balanced and phased reform. Public awareness and a targeted communications strategy could then be mobilized.
- Changes in the tariff schedule need to be seen as **fair and politically acceptable** whilst maximizing revenue. Essentially this means gaining acceptance through consumer outreach and customer relations work, public meetings and participation, communications strategy etc. to the changes in tariff setting mechanisms that are proposed in this report (see Section 6 above).

C. Support or opposition to increasing access

The PSIA analysis shows that all stakeholders – with the exception of some private operators – support increased access - this coincides with the MDGs and is plainly the most pro-poor measure available to the sector. This support is strengthened by the evident capital investment bias of **government, donors and utilities**, all of whom want “something to show” for the large investment in the sector. However, **donors** and government, particularly **MoF**, are increasingly concerned at the high cost of expansion, and the **utilities** themselves may be concerned that every new connection will increase their losses, given the current tariff structure. There is concern too that the marginal cost of new supplies will prove more expensive for **private businesses** and for

the **general public**, and may begin to drive customers away to alternative providers. Donors are eager to promote solutions involving the private sector, but most Yemeni stakeholders are sceptical, in part because of the historic equation of modern water supply with the public service model, and in part because there is so little track record of viable public-private partnerships. Finally, there is very real concern about water resources, both the lack of sustainable new sources, and the absence of an equitable rural-urban transfer model

These stakeholder concerns are very real, and can only be mitigated by demonstration and communication:

- The sector has to demonstrate that **increased access is a viable business proposition**, through improved implementation efficiency and higher capital and recurrent cost recovery (possibly with special provision for the poor). The apparently high willingness to pay (see Section 6 and Part IV above) represents an asset that needs to be tapped.
- Donors, government and utilities need to also **invest in institutional development and capacity building in parallel to physical investment** to enhance utilities' capacity to operate and maintain such investments.
- There needs to be a clear focus, centrally-led but locally-designed and implemented, on forms of **public private partnership and innovative technology** that can help increase access to safe water and sanitation. The models developed so far – for example, local area concessions in Ibb (see Box 23 under Section 16) and rainwater harvesting in Ta'iz (see Section 14) need to be written up and publicized nationwide. The non-conventional options proposed for Sana'a (Box 19) should be debated. The experience of other countries – e.g. with output-based aid (see Section 16) - should be studied.
- The utilities need to link up with NWRA to conduct water resource surveys, and efforts to develop **fair water transfer mechanisms from rural areas** need to be studied, publicly debated, and adopted.

D. Support or opposition to protecting the poor

Despite universal lip service, the poor have very little constituency and no powerful backer. The lifeline (10m³ per month per household or 45 l/c/d) serves as pro-poor proxy, but there is a general feeling that pro-poor water supply does not fit with a business approach. There is no pro-poor model within the new business paradigm. Little of the current public subsidy goes to the poor, as most are not connected to the network, and thus do not benefit from the lifeline. Further pro-poor adjustment of the block tariff system could in some towns push up business rates, which may cause political problems and encourage switching to private sources.

These strong and well-justified stakeholder concerns may have some partial resolutions:

- **Tailored business models or technologies** could be developed for poor areas, for example the output-based aid approach (see Section 16) and standpipes or semi-decentralized sanitation (see Section 14).
- The **revisions to the tariff schedule** proposed (Sections 6 and 19) would reduce the proportion of the subsidy going to the non-poor, and could channel the resources available for subsidizing the lifeline tariff for poor households.

- Even though the utilities are destined to become financially viable businesses, they still have a **public service mandate** – they have been, after all, very heavily subsidized, and they should be socially accountable. They have a responsibility to ensure that water services are delivered within the network in an equitable way, and they also have a responsibility to try to ensure equitable and least-cost supply throughout their service area, even outside the network. Utilities could, for example, include in their business plans how non-network water services are provided outside the network, and what steps may be taken for improvements, including information on the innovative business models and technologies that they might employ, together with regulation etc.

Part VI. Summary, Risk Mitigation and Conclusion

A. Summary of Findings and Recommendations

Increasing Efficiency

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 where water resources are in increasingly short supply.

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. **Recommendations** are:

- Where utilities suffer from major constraints, Business Plans (which are required under NWSSIP) should prioritize “low hanging fruit” - actions within the power of management that will quickly and effectively improve service.
- All support to utilities should be based on the Business Plan - preferably developed with some measure of public participation to help develop social accountability - and should comprise a comprehensive package disaggregated and tailored 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 (see below); 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”, which are monitorable performance results that trigger further support, should be agreed upon, linking management support and institutional development with investment finance.
- Benchmarking should be introduced promptly, adapted to the constraints and potential of each utility. The Business Plan should set out the proposed benchmarks, and the PIIS should be improved to monitor performance, and managers and Boards of Directors should be trained in the use of the PIIS as a management tool.

Water quality

Water quality is variable, generally good – but consumers are reluctant to drink network water, which they perceive as low quality. Several large towns score poorly on effluent quality, and sewage treatment is a priority. **Recommendations** are:

- Introduce benchmarking and regulation for water quality

- Correct the disconnect between customer perception and actual water quality by publication of test results and 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.

Management and human resource development

Management improvements are underway and new tools are in use, but performance is uneven. 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 for all utility employees. A significant effort has been made at training – but training levels remain quite low. Overall, utilities are moving erratically and only slowly towards an enterprise culture where there is investment in staff on the basis of professional standards.

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.
- 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.

Consumer relations

The utilities have made a major investment in consumer 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. Good customer relations have proved good for business. However, some managers remain unconvinced. **Recommendations** are:

- Carry out a participatory review of the customer relations program to show ways to improve its effectiveness, to increase the confidence of managers, and to enhance social accountability between utilities and customers.
- 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 enhancing social accountability between utilities and customers, and to improved customer relations as part of a business approach, while 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.

Financial viability

Tariffs

Since decentralization, tariff adjustments have been more frequent and more responsive to utility needs. Most utilities are 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. Tariff adjustments are sometimes still very hard to obtain, and in some cases limited utility revenues, in part due to low tariffs, inefficient management, high losses, etc. are having a negative impact on services and investment. Overall, network tariffs remain low compared to non-network alternative 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 for most people getting connected to the network is far more important than tariff levels. However, tariff levels are high for towns like al Mahweet where supply is very costly. Overall, higher tariffs, accompanied by other utility revenue enhancing measures, would allow utilities to perform better and to invest in asset replacement. **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 cost plus electro-mechanical depreciation; (4) charge every consumer by eliminating payment exemptions, (5) allow the utility to increase its cost recovery progressively, first to the NWSSIP Update 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. 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. The studies should relate tariff increases to tangible increases in service levels.
- Program progressive tariff increases in the Business Plans, linked to other parallel measures to improve services (including efficiency gains, increased collection ratio, elimination of payment exemptions, decrease of losses, etc). Local councils and the population should be kept constantly involved and any concerns should be addressed through the customer outreach and public participation 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.

Financial viability

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, and 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) lower cost technical solutions with higher customer co-pay (e.g. decentralized sanitation); (2) increased cost sharing in capital investment, through higher connection charges, with provision for the poor; (3) financial management actions to improve cash flow; (4) partnerships with private providers etc.

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, fiscal decentralization is not yet complete and 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, such as: acquire and/or implement the existing improved financial management systems, develop modern enterprise accounting systems, financial capacity building and incentives for 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 restructuring into public companies (see below) and the continued decentralization processes.

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 (due to incomplete fiscal decentralization) requires intergovernmental transfers and 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. Advantages and disadvantages of the model were raised at a practitioners' workshop in May 2008, and open questions include: shifting of responsibility to the lower 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 financial instruments. Regarding establishment of the regulatory function, preparatory studies are complete but establishment is 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.

Increasing Access

There has been very rapid increase in access (up 50% nationally 2002-7), and some towns have moved from donkey cart service to 100% network coverage in just a few years. Rates of coverage vary widely - many coastal towns count 100% coverage, 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), improved supply and demand management to mitigate structural supply shortages, and innovative business models like service or management contracts, concessions, partnerships with private vendors, and output-based aid – see example in the box below.

Non-conventional options have been identified for expanding services in Sana'a, including: (i) regulating private wells selling water, (ii) regulating the tanker fleet and providing certificates to hygienically suitable tankers, (iii) providing water to tankers from specific municipal wells, (iv) regulating construction of cesspits (technical assistance and specifications), (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.

- 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.

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
- Align all investment financing on the demand-driven approach being introduced under the Provincial Towns Open Program (PTOP). 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, that is tracked and released against achievements of milestones.

Low cost technology

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. **Recommendations** are:

- Encourage the utilities -as socially responsible businesses- to engage with local stakeholders in the testing and upscaling of these innovations, and to market them as business opportunities. The options and an action plan should be set out in the Business Plans.

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”. There is no equitable model for rural-urban resource transfer, and utilities basically appropriate water when they drill new wells. **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* 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”.

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. However, there have been some successful localized partnership approaches (e.g. at Ibb) 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. **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 service or management contracts or 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. A participatory process should be adopted that includes an information and communication program to inform both public and private stakeholders and address their concerns, to start changing perceptions and to dispel political resistance to partnerships between public and private sector.

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 poor who are not connected to the network.

The “connected” poor are somewhat 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 the household expenditures. This is much less than typical expenditures on qat (about 7%). However, some poor people, particularly those sharing meters and large families, consume more water than the lifeline accounts for and are thus paying 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 their expenditures, although generally within the 5% accepted as “affordable”. The very poor, unconnected households generally have access to informal water sources, such as free water from mosques or charities in quantities about equal to the WHO health threshold of 20 l/c/d. However, these supplies carry a high transaction cost. The fact that the very poor have this informal support net does not relieve government of its duty to target water supply and sanitation provision to poor households because the provision of safe water and sanitation services is a key component of poverty reduction

A very high proportion of consumers (up to three quarters), including many non-poor, are only paying the lifeline tariff, and even those consuming more than 10m³ 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 that also benefits the better-off consumers.

The poor, connected to the network, generally have access to the “target livelihoods need” set by the Yemeni water sector of 50 lpcd. However, in water short towns they may get only half of that from the network. In areas not served by any network, water costs (e.g tanker supplied) are much higher, and households cope with reduced consumption, even below the WHO health threshold of 20 l/c/d.

There are clear health impacts of water supply connection e.g. considerable reduction in diarrhea. However, hygiene and health education need strengthening. Gender and education benefits are also clear: 55% of households reported women’s chores reduced, one quarter reported more time for children to attend school.

Recommendations are:

- Set tariffs for consumption above the 10m³ a month lifeline without subsidy, with larger consumers cross-subsidizing the lifeline tariff consumption of the poor. In the studies for tariff adjustment (see above), utilities should build in protection of the poor whilst retaining business targets. This could mean, for example: (1) keeping the low lifeline tariff for the first 10m³, gauged so that it would count for no more than 5% of the expenditures of the poor; (2) billing all water consumed above 10 m³ 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, who currently share 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 hygiene and health education programs, 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.

Dealing with the political economy aspects

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 incentives and a progressive and comprehensive approach in the proposed Business Plans to enhance social accountability, to improve services, expand coverage, to move towards financial viability, and to protect the poor. Ideally, these Business Plans should be developed in a transparent manner 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 to illustrate the respective benefits to stakeholders.

- Ensure that key business decisions – particularly on tariff increases - are reached with an appropriate measure of public involvement through the public participation and consumer outreach programs that help to identify and address stakeholder concerns.
- Give priority to the development of fair and equitable measures for rural-urban water transfer, including national dialogue in the proposed *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.

B. Risks and Risk Mitigation

PSIA typically analyses risks to the reform agenda and proposes mitigation measures. A summary risk analysis with associated mitigation strategies of the Yemen urban water and sanitation reform programme has been conducted. The main risks and possible mitigation measures are:

- The *risk that the MDGs are unattainable*. The difficulty of reaching the MDGs¹⁵ is clear. Clearly a strategic mix of public and private initiatives will be essential. However, there is a risk that the capital costs will be unaffordable, that institutional capacity will be inadequate, and that services may be too costly for the poor. Mitigation: NWSSIP Update has been adjusted to reflect this risk, providing for greater involvement of the private sector, innovative technology and business models to bring costs down, improvements in public sector implementation capacity, and a combined package of physical investment and institutional development.
- The *financial resources risk*, that donors do not support the program adequately and financing is insufficient. Mitigation: Government is using the NWSSIP Update as the framework for attracting and locking in more donor financing, and the core donors have agreed to adopt a sector-wide approach to sector financing. A Medium Term Expenditure Framework is being prepared.
- The *implementation risk*, that service standards and cost effectiveness do not improve. Mitigation: the NWSSIP Update provides for a significant investment in institutional strengthening, and a system of benchmarking to ensure that utility performance gradually improves. This approach has been integrated into the WSSP/PTOP approach.

¹⁵ The NWSSIP Update found the MDG criteria for determining water supply coverage too general, and the definition of coverage too limited. The NWSSIP Update therefore defines coverage as access to safe, affordable, available and regulated water supply, and accepts also tanker water if it meets the criteria.

- The *political economy risk* that tariffs cannot be raised to the level needed for utilities' financial autonomy due to the continued dependence of utilities on government transfers and to the politicization of tariffs at the local level. Tariff increases have to be proposed as part of an integrated package that also includes efficiency gains and investment, and have to be agreed through an open and transparent consultation process (see Annex 1).
- The *risk that further pro-poor approaches may not be feasible*. There is a risk that further cross subsidy from the better-off or from businesses may be hard to negotiate. Rising connection charges and monthly fees may prove prohibitive for the poor, and there is a persistent risk that the poor – and certainly the poorest of the poor – cannot afford network access. So far, there has been little success in identifying appropriate lower cost technology that might benefit the poor. Mitigation: the NWSSIP Update provides for a more comprehensive approach to developing pro-poor strategies, including acceptance that utilities are socially accountable, the inclusion of a pro-poor strategy in the business plans, pro-poor revision of the tariff schedules, and piloting of pro-poor business models and technology. The WSSP also includes output-based aid approaches with subsidies for household connections.
- The *water resource risk* that adequate water cannot be sourced to meet growing demand, or that water transfer arrangements from rural to urban uses are inequitable and unsustainable. Mitigation: this is perhaps the greatest risk in the longer term, and the NWSSIP Update provisions have to be implemented – water resources prospection, and development of equitable models for rural-urban resource transfer.

C. 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 program is clearly largely on track and is beginning to bear fruits. The 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 customer orientation, with strong emphasis on customer outreach. Tariffs need to be set at levels that promote efficiency and improve 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.

**Stakeholder and Political Economy Analysis:
Political Will, Constraints and
Implementation Capacity**

Stakeholder and Political Economy Analysis: Political Will, Constraints and Implementation Capacity

One of the three key building blocks of the expanded PSIA approach is a stakeholder and political economy analysis. This Annex summarizes the analysis conducted, presenting a summary of the influence and reform stance of stakeholders with significant influence over the reforms. The stakeholder analysis is supported by four matrices analysing in tabular form the influence and support or opposition to reform of stakeholders. Four “Influence and Support Maps” present the stakeholder analysis in diagrammatic form.

1. Influence and reform stance of stakeholders

A number of different stakeholders are likely to have significant influence over the UWSS reforms, and they may support or oppose the reforms in different ways and degrees.

The **Ministry of Finance (MoF)** is extremely powerful, as it authorizes public investment and other subsidies. It protects the public fiduciary interest by overseeing the application of public funds. It also reserves the right to intervening in the financial, affairs of the utilities to ensure that these heavily subsidized bodies behave in a financially prudent and accountable way. MoF is likely to support a business-like approach as this is expected over time to reduce public transfers, but is likely to remain interventionist as long as central government money is being given to the utilities. MoF is by contrast likely to be more reticent about expanding access, as this involves – on the present model – very high levels of public investment and subsidy.

The **Ministry of Planning (MoPIC)** is somewhat less powerful, but still has great influence over the sector as it manages the public investment program and is the counterpart for donor financing agencies. MoPIC is a strong supporter of the economic reform program, including utility decentralization and moves to a business-like approach, and is responsive to similar commitments amongst the donors. However, MoPIC is likely to be more reticent about the price impacts of rising levels of cost recovery. Regarding expansion of access, MoPIC is the “custodian of the MDGs” and so is strongly in favour, but is likely to have strong concerns about the high cost and fiscal implications of the current model. MoPIC, as the agency responsible for the PRSP, will strongly support all pro-poor initiatives.

The **Ministry of Water and Environment (MWE)** is the government agency responsible for designing and implementing the reform. MWE inherited the reform program from its predecessor ministry and strongly supports it. MWE is, however, a new small ministry and is not a major force in cabinet. It is also weak on policy analysis and implementation. These weaknesses, however, are mitigated by the strong GTZ-financed **Technical Secretariat for Urban Water Reform (TS)**, which is recognized as the driving force of sector reform, receives strong donor support, is well-resourced, and has over the years track record of successful pro-reform implementation. MWE and the TS are fully committed to decentralization and the business-like approach, which is the very *raison d'être* of the TS. However, it is likely that some managers within MWE retain a preference for subsidized public service provision. MWE and the TS strongly support network expansion, but they also see the need to pace expansion with institutional development and improvements in service levels, and to ensure that the utilities are consolidated as viable businesses and are not over-extended.

The **National Water and Sanitation Authority (NWSA)** still plays a role in the sector by supervising 13 branches and providing some common services. However, further

decentralization and the creation of the Regulator are likely to lead to the phasing out of NWSA, and it is not considered a major player in the analysis.

The **Local Corporations and Autonomous Utilities (“the utilities”)** were set up to be decentralized autonomous utilities, locally accountable to their Boards of Directors. The extent to which they have fulfilled this expectation varies considerably, depending largely on the composition and understanding of the Board, the skills of managers, and the extent of real financial autonomy. Most remain dependent on government and donors for their investment capital and on several masters for tariff increases (the local councils, the governor, other Board members, MWE...). The utilities vary in their attitude towards decentralization and the business-like approach. They are mandated to run on a business footing and are judged on that criterion, but managers also vary a lot, some go-ahead, others sometimes slow to change their outlook. Managers and staff may have fears about impacts on their old practices and on job security. Some utilities have trouble covering their operating costs due to high cost structures and difficulty in raising tariffs to adequate levels. Generally utilities are in favour of expansion, as they are under considerable local and central pressure to do so, and have in any case a bias towards capital investment programs. However, for some utilities expansion conflicts with the business imperative, as each new connection may increase losses, and business-minded managers may be reluctant to expand. Similarly, utilities accept in principle a pro-poor mandate, but managers are concerned that this may result in inadequate cost recovery and so undermine the emerging business model.

Local government bodies are becoming increasingly powerful, and although generally pro-reform, they have some particular stances that may impede the implementation of a business-like approach. The **Ministry of Local Administration (MoLA)** is powerful in the cabinet and influential over the local councils. It strongly supports the shift of authority for service provision to the local level and to local councils and the expansion of access – especially as the investment costs are only very partially borne by the consumer. MoLA does, however, have concerns about quality of service and about tariff levels and whilst accepting that utilities should have a pro-poor and gender-sensitive mandate is unwilling to accept increased cross-subsidy as this could push up prices for business, reduce local employment and antagonize general consumers who form an important political constituency. **Governors and local councils** are all now elected, and have a more populist than hitherto. They are influential as the representatives of local interests on the Boards of Directors. They welcome the shift of authority to the local level and the potential political gains, but only if services improve, and they are very reticent about possible price impacts. They naturally support increased access subsidized by central government.

Civil society is represented not only by local councils but also by parliament and by citizens’ groups. **Parliament** is influential both as representative of local and national interests and as the organ of final decision on the financial resource allocation, able, for example, to question the budget and vary donor projects and financing agreements. Parliamentarians have important, visible and vocal urban constituencies for whom efficient and affordable water and sanitation services are a priority. Thus parliamentarians tend to be very supportive of high government investment, and of improvements in service and access, but they are very concerned about price rises. They would accept a “pro-poor mandate” but are generally more responsive to the more influential urban segments. They may take a populist stance against partnerships with the private sector. **Citizens groups** are typically relatively weak in Yemen. The sector has tried to give consumers more voice through various mechanisms, including, for example, consumer representatives on LC Boards. Where there are Autonomous Utilities, *Advisory Committees* have been set up, including women (according to Rada’a principles, see GTZ 2005:4) to represent consumers and to consult on key issues like expansion plans, the block tariff and lifeline rates.

These committees have proved very supportive of improvements in services and access, but they typically oppose changes in the tariff schedule.

Donors in the sector are few (Germany, Netherlands, World Bank, Islamic Bank.....). Donors are likely to continue their strong support of the program, which is seen as fairly successful by the standards of development programs in Yemen. There is strong coordination between the NWSSIP **core donors** (Germany, Netherlands, World Bank), amongst whom there is agreement on the basic principles of reform and on the main lines of the utility model being promoted. However, views vary on how successful the reforms are so far, on how to complete the reform programme, and on the final institutional structure of the sector. There have also been discussions about the balance to be adopted between project/PIU models and the promotion of more programmatic approaches. These issues have been largely resolved during the preparation and appraisal of the WSSP. In addition, during the NWSSIP Update the extreme difficulty and cost of reaching the MDGs through a classic network supply model has been highlighted. Core donors now tend to advise caution over expansion because of its high cost and the need to focus in some towns on rehabilitation and improving service delivery. Core donors are also interested in further involvement of the private sector in order to achieve targets. They are also concerned about the sustainability of water resources and the lack of a working rural-urban transfer model. Core donors are ambivalent about poverty reduction as this is their “over-arching goal” but are concerned that a pro-poor bias may frustrate the attainment of the business goals. **Other donors** – particularly the regional donors – have less interest in policy reform and are quite comfortable with the classic subsidized public service model.

Water resource organizations are not very influential in the urban sector. The **National Water Resources Authority (NWRA)** is the mandated agency for water resources planning, monitoring and regulation. It is thus responsible for planning and allocating resources for urban water supply, for monitoring resource availability, for declaring and regulating protection zones, for well licensing and for monitoring and regulation of drilling and abstractions. Despite strong donor support over the decade since its creation, NWRA remains quite weak, and the organization lacks the authority and resources to influence outcomes. Similarly the **basin committees** - and the basin plans – have a potentially important consultative role, but generally have little power over policy, water resource allocation, the investment program or tariffs. NWRA and the committees are in principle interested in an efficient utility that will not waste water, and they are concerned about impacts on water rights and the water balance. They also support regulation in the protection zones and innovation in new technology such as water harvesting and wastewater reuse. However, practical influence of policy and behaviour is very limited.

- The private sector is composed of large and small business consumers, and large and small private water suppliers¹⁶. Large **business consumers** have considerable influence locally – and even nationally. All business consumers are interested in an efficient service and are opposed to tariff increases. They support expansion of public supply, but often have alternative sources of supply to switch into if the cost or service standards of public supply are inadequate. In general business consumers are against pro-poor measures which are seen as putting up costs for business. Large **private water suppliers** are influential, particularly the bottling plants. Tankers and desalination shops are less influential. The entire sector is opposed to any reduction in business opportunities. Larger suppliers are cautiously willing to consider partnerships with public utilities. Smaller suppliers see only loss from government involvement, including in regulation.

¹⁶ Following the PSIA approach, disaggregated information is essential to assess and address issues of equity and power relations. Hence, the category of “consumers” and “suppliers” is disaggregated by size.

1. Stakeholder influence analysis

Type of stakeholder	Stakeholder	Power*	Explanation for power rating
Financial resource allocation agencies	Ministry of Finance (MoF)	5	Authorizes public investment and other subsidies
	Ministry of Planning (MoPIC)	4	Manages the Public Investment program and donor financing
Water sector agencies	Ministry of Water (MWE)	3	Not a major force in cabinet, weak on policy analysis and implementation
	Technical Secretariat (TS)	4	Supported by DCG with a modernizing reform mandate, well resourced, over 10 years successful pro-reform implementation
	National Water & Sanitation Authority (NWSA)	2	Poorly resourced, shrinking mandate
	Local Corporations (LCs) and Autonomous Utilities	2	No independent authority (many masters: local authority, governor, Board, MWE, TS, donors) No financial autonomy, dependent on government/donors for investment capital and on several masters for tariff increases
Local government	Ministry of Local Administration (MoLA)	4	Powerful in cabinet and influential over local councils
	Governor and local councils	4	Powerful political representatives of local interests, on the LC Boards
Civil society	Parliament	4	Has power to question the budget and vary donor projects/financing agreements
	Citizen's groups	1	Typically weak in Yemen
Donors	Donor Core Group (DCG)	5	Major financiers and strong backers of reform
	Other donors	3	Regional donors have little interest in or authority over policy reform but can influence decisions at the utility/project level
Water resource organizations	National Water Resources Authority (NWRA)	3	Responsible for water resource allocation and conservation but lacks the authority and resources to much affect outcomes
	Basin Committees	3	No real power over policy, water resource allocation, investment program or tariffs, but has a potentially important consultative role.
Private sector	Business consumers	4	Considerable influence locally and (large firms) nationally
	Private water suppliers	4	Large firms (bottling plants) are influential, tankers and desalination shops less so.

* 5= very powerful

2. Analysis of stakeholder support or opposition to utility decentralization and a business-like approach

Type of stakeholder	Stakeholder	Support *	Explanation for support rating (+ and -)
Financial resource allocation agencies	Ministry of Finance (MoF)	3	+ A business approach will reduce public subsidy - MoF does not wish to surrender control over public money entrusted to LCs
	Ministry of Planning (MoPIC)	4	+ Strongly supports economic reforms and is responsive to similar concerns amongst donors - Reticent about price impacts of full cost recovery
Water sector agencies	Ministry of Water (MWE)	4	+ Generally very supportive - Some managers retain a preference for subsidized public service provision
	Technical Secretariat (TS)	5	+ Decentralization and a business-like approach are the TS' essential objective - Reticence about the feasibility of full cost recovery
	Nat. Water & Sanitation Authority (NWSA)	3	+ NWSA is responsible for supervising 13 branches, so has a stake in a business-like approach - Further decentralization and autonomy may reduce NWSA's role
	Local Corporations (LCs) and Autonomous Utilities	3	+ LCs are mandated to run on a business footing and management are judged on that criterion - Staff have fears about impacts on old ways, on job security and on prices. - End of cross-subsidy between utilities makes covering costs a (difficult) imperative
Local government	Ministry of Local Administration (MoLA)	4	+ Supports the shift of authority for service provision to the local level and to local councils - Very reticent about possible price impacts
	Governor and local councils	4	+ Support the shift of authority for service provision to the local level and to local councils + Welcomes potential political gains (but only if service improves and prices do not rise) - Very reticent about possible price impacts
Civil society	Parliament	3	+ Supports improvement in supply - Very reticent about price impacts
	Citizen's groups	3	+ Support improvement in supply - Very reticent about price impacts
Donors	Donor Core Group (DCG)	5	+ Strong backers of reform – they are now harmonizing and aligning all support behind NWSSIP on the basis of a sector-wide approach – Some differences in approach between Germany and World Bank.
	Other donors	3	AFESD and others are comfortable with a classic subsidised public service model
Water resource organizations	National Water Resources Authority (NWRA)		+ Interested in an efficient utility that will not waste water - Fear that a commercial approach could impact on water rights and the water balance
	Basin Committees	3	- <i>same</i> -
Private sector	Business consumers	3	+ Interested in efficient service. - Strongly opposed to tariff increases.
	Private water suppliers	2	- Generally opposed to improvements that would reduce their business opportunities

* 5= strong support

3. Analysis of stakeholder support or opposition to public network expansion and increased access

Type of stakeholder	Stakeholder	Support *	Explanation for support rating (+ and -)
Financial resource allocation agencies	Ministry of Finance (MoF)	2	- Reticent because of the very high levels of public investment and subsidy
	Ministry of Planning (MoPIC)	4	+ Strongly supports expansion in pursuit of the MDGs - Concern about the very high public finance cost of the current model
Water sector agencies	Ministry of Water (MWE)	5	+ Strongly supports expansion
	Technical Secretariat (TS)	4	+ Strongly supports expansion but sees the need to pace expansion with institutional development and improvements in services and the consolidation of LCs as viable businesses
	NWSA	-	-
Local government	Local Corporations (LCs) and Autonomous Utilities	3	+ LCs have the mandate to expand coverage and are under central and local pressure to do so. + LCs have an investment bias - LCs lose money for each new connection, so may be reticent to expand
	Ministry of Local Administration (MoLA)	4	+ Strongly in favour of increasing access, especially as the investment costs are only very partially borne by the consumer - Concern that prices might go up or services deteriorate
	Governor, local councils	4	- same -
Civil society	Parliament	4	+ Strongly in favour of increased access - Concern about prices [and about equity with rural areas??]
	Citizen's groups	4	- same -
Donors	Donor Core Group (DCG)	4	+ DCG supports increasing access towards MDGs, and also have an investment bias - High cost of new expansion is leading DCG to emphasize rehabilitation and performance improvements on a par with or even ahead of network expansion. - Concern about sustainable water sources
	Other donors	5	- Other donors support classic network expansion projects
Water resource organizations	NWRA	3	- NWRA has concerns about (1) availability of sustainable water resources; and (2) the lack of an equitable "no uncompensated harm" model for rural-urban water transfer.
	Basin Committees	3	+ Support to expansion towards the MDGs - Concerns (as for NWRA) about sustainable resources and equitable transfer models
Private sector	Business consumers	4	+ Support expansion in public supply - Concern that a switch to public supply could prove more expensive
	Private water suppliers	2	- Opposed to any reduction in business opportunities

* 5= strong support

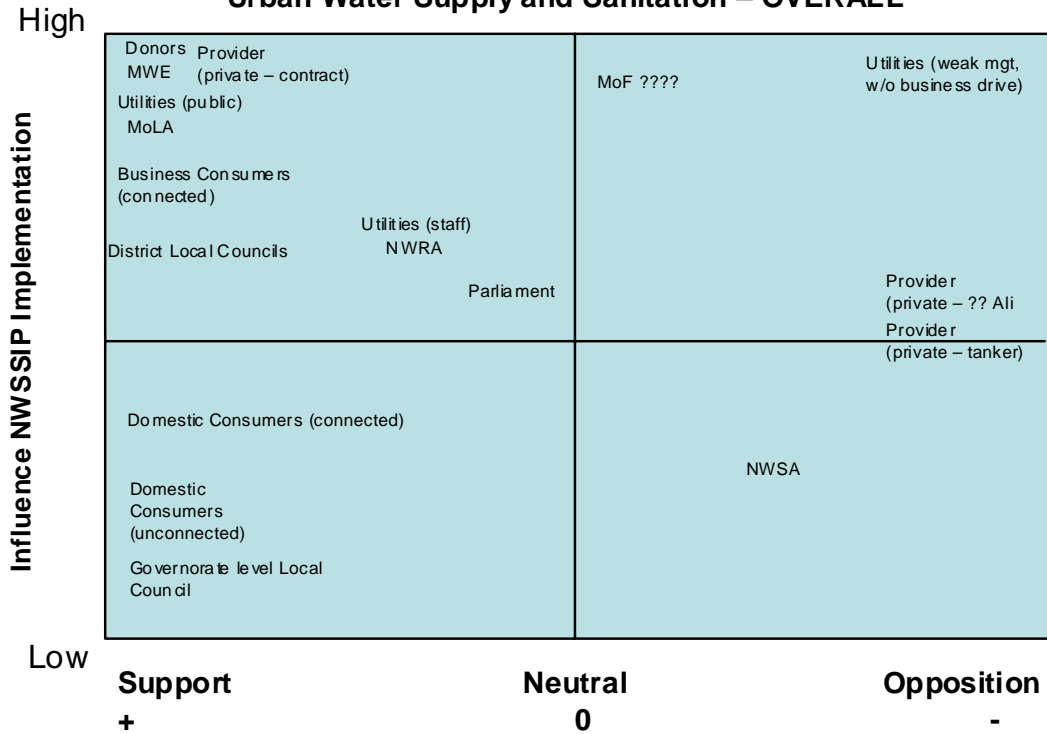
4. Analysis of stakeholder support or opposition to protecting the poor in urban water supply

Type of stakeholder	Stakeholder	Support *	Explanation for support rating (+ and -)
Financial resource allocation agencies	Ministry of Finance (MoF)	2	- Concerned that pro-poor access or tariffs will require subsidy
	Ministry of Planning (MoPIC)	4	+ Strongly supports pro-poor approaches, in line with PRSP
Water sector agencies	Ministry of Water (MWE)	3	+ Accepts a pro-poor mandate - Concern that pro-poor access or tariffs will undermine the business model
	Technical Secretariat (TS)	3	- same -
	NWSA	-	-
	Local Corporations (LCs) and Autonomous Utilities	2	- Pro-poor expansion and tariffs undermine the viability of the business model - Cross-subsidy increases rates for business and big users
Local government	Ministry of Local Administration (MoLA)	3	+ Accepts a pro-poor mandate - Unwilling to increase cross-subsidy as (1) this pushes up prices for business, reduces employment; (2) antagonizes the general consumers, who are the political constituency.
	Governor, local councils	3	- same -
Civil society	Parliament	3	+ Accepts a pro-poor mandate - ...but is generally more responsive to the “average voter” than to the poor in particular
	Citizen’s groups	2	- Generally respond to the average consumer, not particularly the poor
Donors	Donor Core Group (DCG)	4	+ Poverty reduction is their over-arching goal - Concern that increased access or block tariffs favouring the poor may undermine the business approach - Belief that other mechanisms may be better (Output based aid, social welfare...)
	Other donors	3	+ General poverty reduction purpose - Priority is increasing access for all, not particularly for the poor
Water resource organizations	NWRA	3	+ Priority to human consumption, which is pro-poor - Concern at possible negative impacts on the rural poor of resource transfer and rising rural resource costs
	Basin Committees	3	- same -
Private sector	Business consumers	2	- Pro-poor tariffs seen as putting up costs for businesses
	Private water suppliers	[2]	[- Pro-poor access or tariffs could reduce demand for private supply]

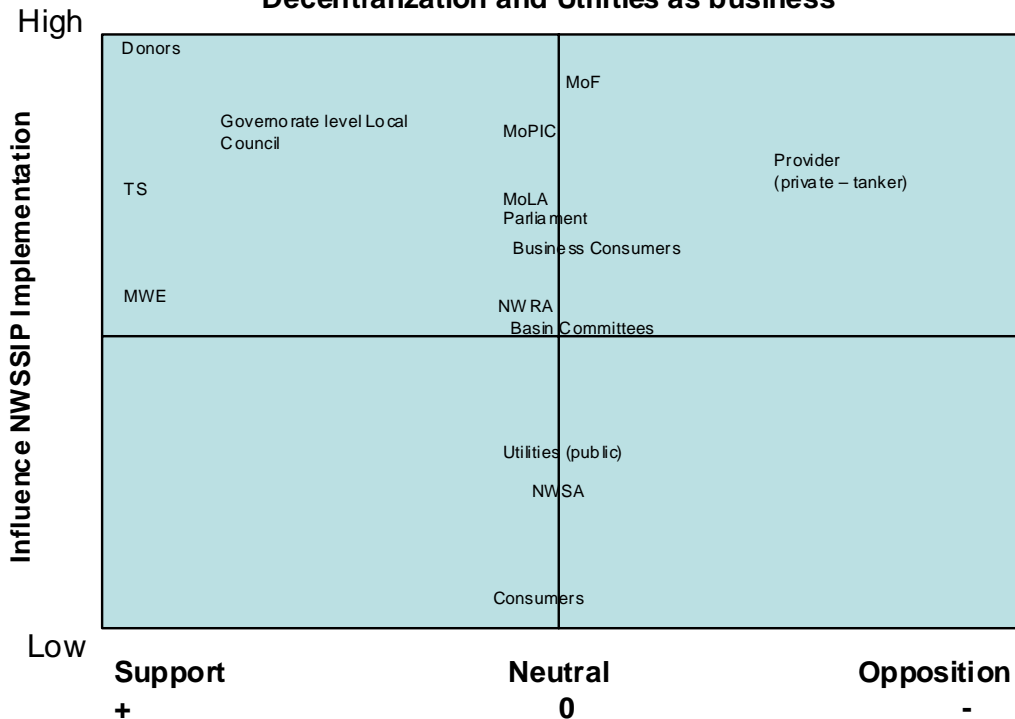
* 5= strong support

Power Maps

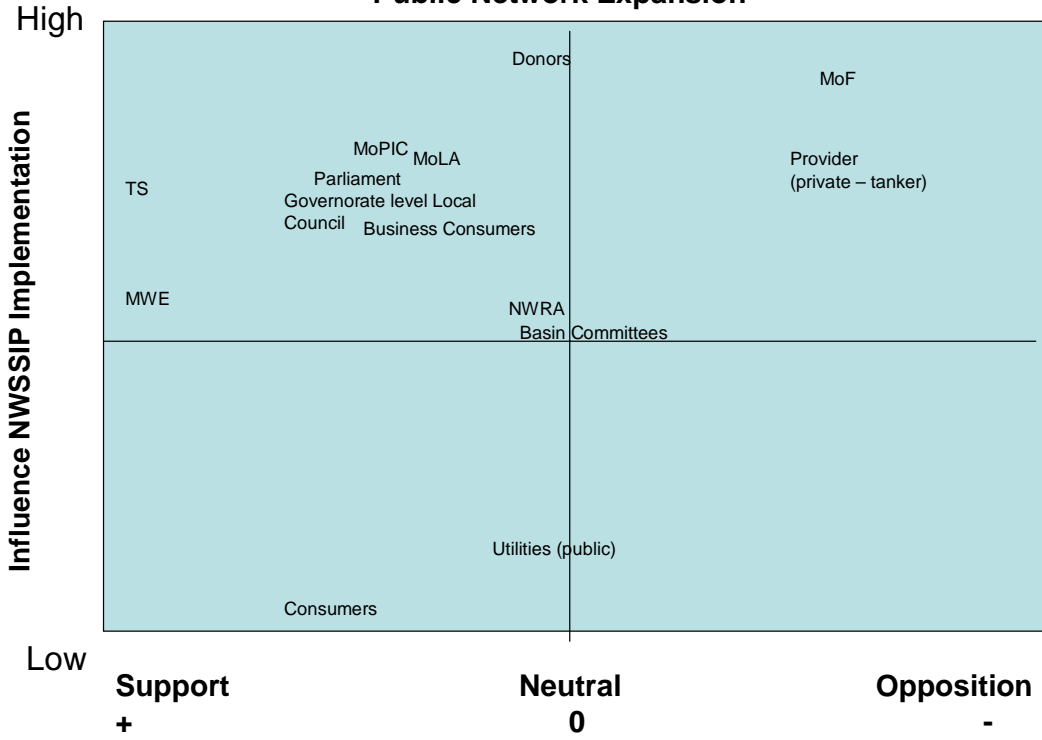
Support or Opposition for NWSSIP Implementation in Urban Water Supply and Sanitation – OVERALL



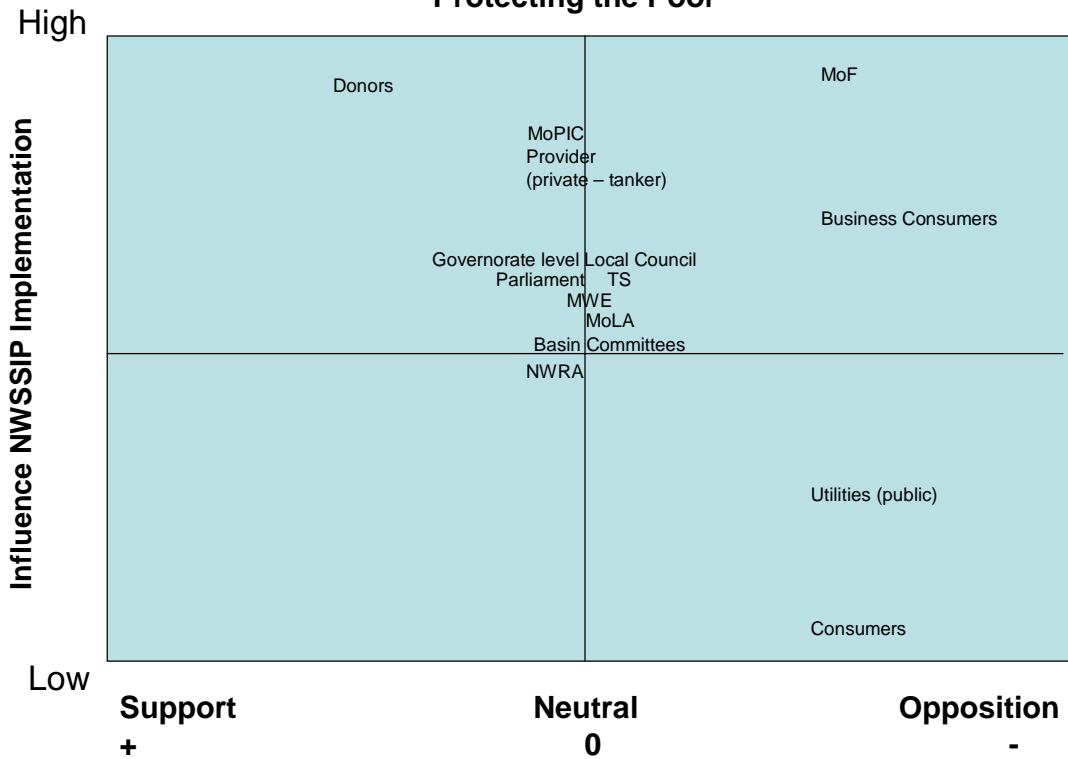
Support or Opposition for NWSSIP Implementation in UWSS Decentralization and Utilities as business



Support or Opposition for NWSSIP Implementation in UWSS Public Network Expansion



Support or Opposition for NWSSIP Implementation in UWSS Protecting the Poor



**Distribution of Livelihoods Impacts and
Poverty Focus**

Distribution of Livelihoods Impacts and Poverty Focus

One of the three key building blocks of the PSIA is a distributional and poverty analysis. The analysis is designed to find out what is the relation between urban water supply and sanitation and poverty reduction, and to pinpoint areas where poverty reduction impacts could be improved.

This annex summarizes what is already known about these relationships in Yemen, as background for the PSIA poverty analysis of urban water and sanitation in the main report.

A. Background

Poverty aspects in NWSSIP

Within NWSSIP 2004, there is no explicit mention of poverty reduction, or of reaching or even targeting the poor, apart from a proposal to revise the block tariff system from a pro-poor perspective (a review not yet carried out).¹⁷ However, in the description of the approach to be taken it is stated that both financial sustainability and poverty orientation should be achieved: *“the most pro-poor policy is expansion of coverage, especially as many poor people currently rely on expensive tanker delivered water. At present, there is a degree of pro –poor cross subsidy in the block-tariff structure, where an affordable “lifeline” rate is charged on the first block to benefit the poor. However, the better-off currently also benefit from the lifeline rate, and the tariff-system needs to be evaluated to be more pro-poor, based on experience in the region.”* (National Water Sector Strategy and Investment Program, 2005-2009, p 25).

Studies and empirical evidence on poverty and UWSS in Yemen

Useful baseline studies have helped improved the design of projects – but subsequent monitoring has been inadequate to assess the contribution of urban water and sanitation to poverty reduction. According to CPAS 2005, various projects have commissioned baseline studies and carried out a number of reports and studies. These studies certainly helped to improve the projects’ understanding of the poverty situation and led to a number of specific project measures. For example, one GTZ project carried out a study on the prevailing sanitary conditions in Mansouria and Mokha. The study led to the training of artisans on improving the construction, maintenance and upgrading of latrines. However, according to CPAS 2005, these studies did not always improve project design (see Box on Sa’ada below). Nor did they lead to a more systematic and transparent collection and analysis of data on poverty sufficient to assess the actual contribution of the water projects to poverty reduction. [CPAS 2005: 10]

¹⁷ CWRAS:59 also recommends that the tariff structure be reviewed from a pro-poor perspective, arguing that the current block tariff does not produce the desired effect as most water users fall within the lifeline tariff block.

Box: An opportunity missed to improve pro-poor design in Sa'ada

The baseline study “Socio-economic Household Survey” for Sa'ada (KfW, n.d.) provides useful information for the planning, implementation or improvement of the water supply systems in general. However, it fails to analyze the specific situation and needs of the poor.

Extremely interesting and useful information was collected on: present water supply and waste water practices; characteristics of the households and houses in terms of water and waste water; felt needs and expectations; willingness to pay for services; and health and hygiene awareness and practices.

In addition, fairly reliable expenditure data – as opposed to more sensitive and usually less reliable income data - was collected. Unfortunately, in the analysis of the data none of the above aspects were related to the economic indicators of households (expenditures).

It would have been extremely useful for the planning, implementation and monitoring of the project to provide survey-based information on the different expectation and status quo of the economically better and worse off. The only reference made to the poor was that they use less water, but no figures supporting this statement were provided in the report.

It seems that there was no consideration that the poor could potentially have different needs than better off parts of the population that should or could be considered in program implementation.

Source: CPAS 2005: 10

The CPAS 2005 report maintains that it is possible to use these socio-economic studies to better understand the situation and needs and capacities of the poor, to identify entry points for the poor, and to provide baseline information for a results-based monitoring system (see Box on four towns). [CPAS 2005: 11]

Box: A study of four towns provides an opportunity for improving design and monitoring outcomes

KfW commissioned a baseline study in 2004 covering the cities of Al Shehr, Jiblah and Ja'ar Zinjibar. The study sampled 905 urban and rural households (5% sample) and 6000 individual members. It collected information on: income and expenditure; economic and social structure; employment; water/wastewater usage patterns and attitudes; willingness to pay; and users' priorities and community participation.

The study was supposed to serve as a baseline for an ex-post evaluation on issues such as: poverty situation; infant mortality rates; other health issues – water borne diseases; educational enrolment rates; literacy rates and educational attainment; and gender issues

The contents and objectives of the study provided data on the needs and the present situation of the poor and other social groups. This was achieved by disaggregating study information in terms of economic status of households (e.g. using expenditure quintiles for analysing data).

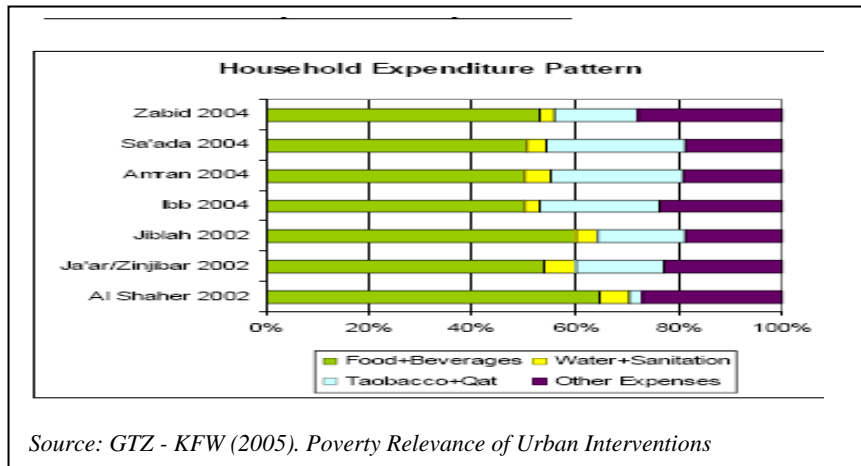
Source: Adapted from CPAS 2005:11

B. Water tariffs and the poor

Water costs as a share of household income

PIIS monitors water and sewerage expenses for the first 5 m³ as a percentage of the imputed incomes of poor households. A standard income of Rls 20,000 is assumed. The resulting percentages are very low compared to the rule of thumb that the poor can be paying up to 5% of

their income for water¹⁸. In 2006, the shares ranged from 0.5% to 2.2% for water, and from 0.1% to 1.1% for sanitation. [PIIS 2006: Table 12]

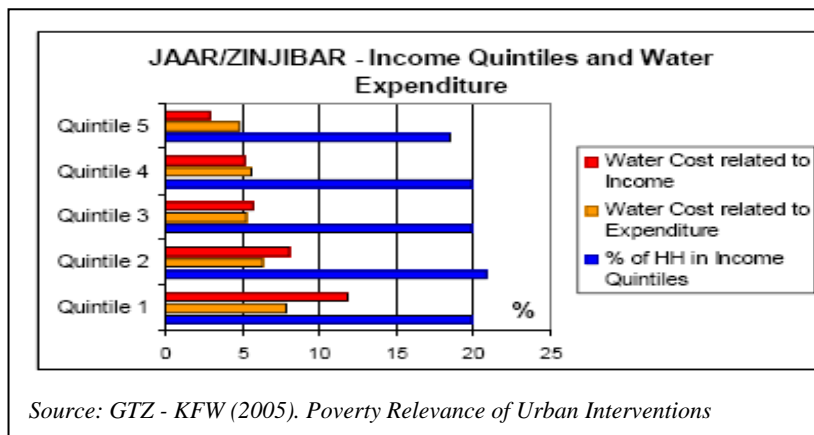


A KfW study of eight towns found that they were typically only a small share of household expenditures on average (see chart Household Expenditure Pattern), and under the 5% typically reckoned to be “affordable”. A recent analysis of the 2005/6 Household Budget Survey

confirms that water is a very small share of the typical total urban monthly household expenditure- about 1.42% or Rls 1.441 monthly (Source: Redecker e-mail April 28, 2008).¹⁹

Distributional impact of urban water tariffs

The distributional impact of urban water tariffs and subsidies is not known for Yemen as a whole but in the eight towns studied by GTZ-KfW, block tariff and lifeline rates provide significant protection for the poor. However, the share in household expenditures was higher than 5% for the poor in some towns (Shahr) and in one case (Ja'ar/Zinjibar) was about 8% (see table).



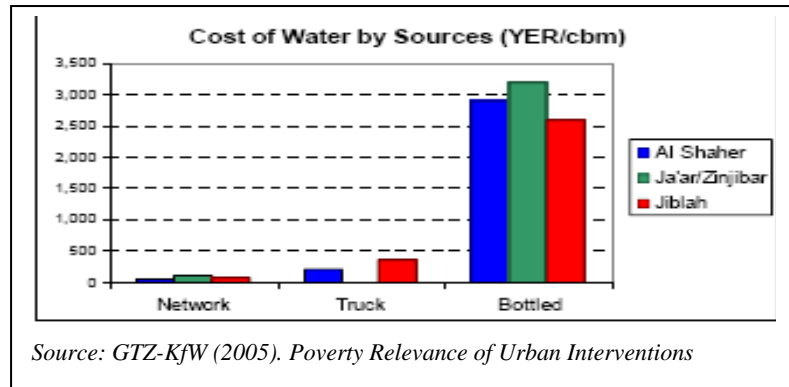
The 2005 GTZ-KfW report argues that the public network provision benefits the poor most in many situations due to the “counterfactual”: if there is no network supply, the poor must purchase water from the substantially higher cost alternative water sources.

¹⁸ Said to be a “recommendation of the WHO” [PIIS 2006:22]

¹⁹ The comparable share for rural areas is even lower (0.88%), to give a nationwide average of 1.10%. The share of water expenses in household expenditures contrasts with the 7-8% typically devoted to *qat*.

Costs for the connected and the unconnected

Water costs from the piped network are probably everywhere significantly lower than costs from alternative sources and this was confirmed in the eight towns studied by KfW (see chart Cost of Water by Source).



In Zabid, one m³ provided through a donkey cart was (in 2005) around Rls 200, compared to the price of water from the utility which ranged from Rls 50 in the lowest consumption bracket to Rls 125 in the highest. [CPAS: 13] In Sana'a, 2008 data suggest that tanker water costs Rls 300-500/m³. “If households use the lifeline consumption of 50 lpcd only (about 0.8 m³ monthly), their bill each month for tanker water would be Rls 3000-5000. The same water provided through the network would cost Rls 400.” [Redecker e-mail April 19, 2008]

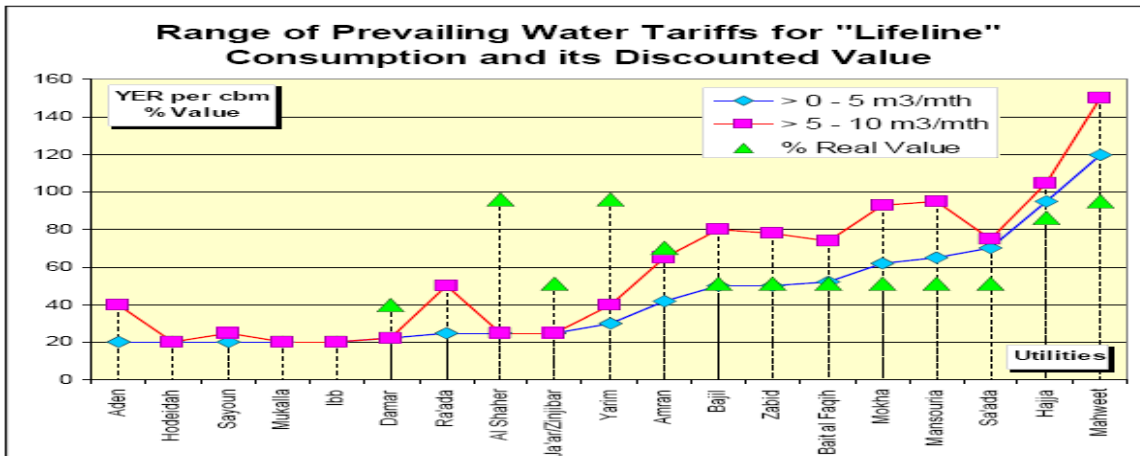
The 5% affordability “rule”

The 5% rule of thumb on affordability for the poor (see 3.1.3 above) may not always be a good guide. International studies have shown that the common understanding that even the poor can spend 5% of their income on water services and that they should be able to invest in the connection fees for water and sewerage does not always hold true for every locality (Bliss 2004:26 quoted in CPAS 2005). It is not clear how far this finding applies to Yemen, but clearly PSIA is an opportunity to find out.

Effect of the block tariff system on the poor

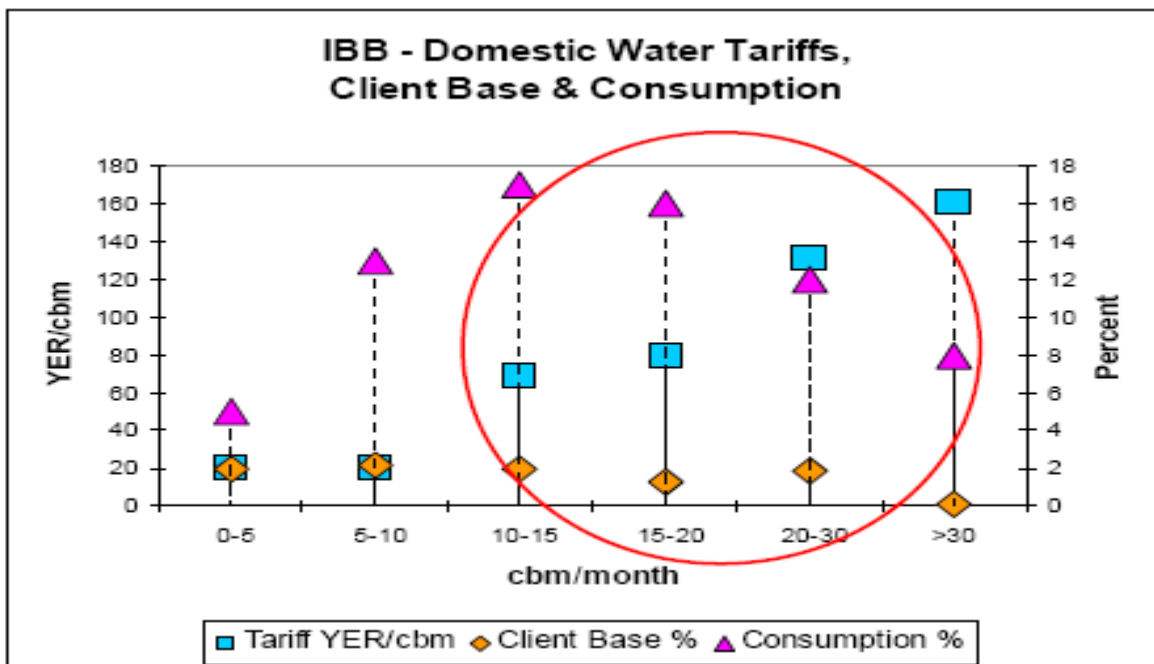
The block tariff system was introduced to cross-subsidise low consumption users. Significant cross-subsidy transfers do appear to take place: according to GTZ-KfW 2005, the lifeline tariffs covered only 40-50% of costs in most cases (see chart below). But this subsidy does not necessarily go to the poorest towns: Mahweet, one of the poorest towns, has the highest tariff level in the country and the lifeline tariff there recovers 100% of cost.

Range of prevailing lifeline tariffs



Source: GTZ - KfW (2005). Poverty Relevance of Urban Interventions

It is likely that in many towns there is further scope for cross-subsidy by pro-poor adjustment of the block tariff. The GTZ-KfW report argues (see graphic below) that in Ibb, for example (one of the utilities with the lowest tariffs countrywide), out of each 1000 clients, 580 benefit unnecessarily from lifeline consumption subsidy (< 10 cbm/month): 330 are in the 10-20 cbm range, and 200 in the >20 cbm range. The large consumers benefit throughout various tariff ranges. Clients consuming up to 30 cbm/month are actually saving about 43% on their water bills, consumers of up to 20 cbm/month still about 41%, as compared to paying maximum tariff for the total consumption. Consequently, the report maintains, splitting the first 10 cbm consumption into two tariff groups and eliminating the subsidy portions for large consumers would substantially increase revenue without affecting the poor.



It is assumed that those in the lowest consumption brackets are usually poor households economising water as much as possible. The lower tariff blocks are subsidised by those consuming more water. However, there is little empirical data on whether the assumptions are correct. One household survey in Bait al Faqih found that of 1007 households receiving support from the Social Protection Fund, average household water consumption was 7.7 m³ a month, but that 22% of these households consumed more than 10 m³ a month (Source: Customer Satisfaction Survey - Concept and Implementation Guidelines). It may also be that several households use one connection, and that their combined consumption pushes them beyond the lifeline rate (see the survey evidence for this in Bait al Faqih, for example, at 4.6 below).

Connection fees and the poor

The connection charge may be a deterrent to the poor. Despite the long-term savings that the provision of a house connection may bring to the poor, a poor or vulnerable household may not want to risk - or may not be able to afford - the relatively high investment for connecting their houses, even if the charge is paid in instalments. [CPAS 2005: 10]

One study did report that connection fees were a problem for poor and vulnerable households. In 1995 in Zabid, the connection charge was Rls 4000 per household water meter. The pipes and the connections inside the house cost an additional approximately Rls 3000. Similarly for sewerage in Zabid, connection fees for households were expected to reach Rls 7000 plus a further approximately Rls 3000 for the pipes and the connections inside the house. For a household with a regular income these costs are acceptable, especially as most utilities allow connection fees to be paid in instalments over a fixed time. However, for a poor or vulnerable household with no regular income and little possibility to save money for paying bills by the end of the month, these costs are tremendous. Community mobilisation workers tried to assist households in advising them to put aside some little money every day, in order to pay for the instalment and water rates at the end of the month. However, the study found that it was at least likely that poor households de-select themselves and do not participate because of the high entry and recurrent costs.

One approach tried successfully in Morocco (under the Morocco Water DPL) was Output-Based Aid that bridged the financing gap for individual household connections.

C. Access, discrimination and the poor

Access and the poor

In the eight towns studied by GTZ-KfW, 60% of the clients are considered poor and they consume 35-40% of the water. Apart from some SFD and PWP water supply and sanitation schemes in poor urban neighbourhoods, there is no track record of water or sanitation services targeted to the poor. The GTZ-KfW study of eight towns found that there were no clearly identifiable poverty pockets within urban boundaries, and so far infrastructure provision had not followed any poverty-related locational pattern. [GTZ-KfW 2005]

One study conducted in 2006 in Bait al Faqih took households receiving benefits under the Social Protection Fund as a proxy for the poor. The study found that out of 217 such poor households in the town, about 43% (92 households) were subscribers to the network services, some 38% (84 households) took water from the network with an account and meter registered in the name of another subscriber, and the remaining 19% (41 households) got water from relations, neighbours, charity or vendors.

The rich may not pay – and the poor may get disconnected

In the CPAS study, it was found that most poor households had actually paid their bills more or less regularly and were continuing to pay off their debts for the connections. It is rather some rich and influential households and governmental bodies that do not pay their bills, bills that are much higher than those of poor households. [CPAS: 14]

The CPAS study also found that poor households that did not pay their bill were being disconnected. By contrast, “influential households or offices seem to find ways not to be disconnected”. The empirical basis for this needs to be checked. [CPAS: 14]

The PSIA found no strong evidence that the poor get disconnected more than the rich. At the Stakeholder Workshop, the case of al Mahweet was cited: “poor people pay their bills, and rich people and government offices don’t”. The PSIA in fact found plenty of evidence of slow paying, but no pattern of differential treatment between rich and poor was evident. Anecdotal evidence does suggest that there are rich and influential people who manage to avoid disconnection, but this was not raised as an issue in any of the responses to the Customer Satisfaction Survey. In fact, the Customer Satisfaction Survey found that only 12 households out of 680 were disconnected, of which only six for non-payment. According to the DG, Sana’a LC only disconnects the poor “if they haven’t paid for 1-2 years”.

The most significant inequities occur in connection rates and quality of service between richer areas and poorer areas of town. In Sana’a, for example, the network in rich Hadda has recently been renewed and service is excellent. By contrast, other areas of town are either not connected at all or suffer from poorer quality water and indifferent supply.

Differential impacts of reforms in urban water supply and sanitation on different stakeholders

Stakeholders likely to be affected	Channels through which they will be affected					
	Authority	Labor market	Price	Access to goods and Service	Assets	Transfers and taxes
Central Government Financial Resource Allocation agencies	MoF: opposes loss of control over public money entrusted to LCs MoPIC: Strongly supports economic reforms, is responsive to similar concerns amongst donors.		MoF: Concerned that pro-poor access or tariffs will require subsidy MoPIC Is reticent about price impacts of full cost recovery	MoPIC: Strongly supports pro-poor approaches, in line with PRSP & MDGs, but concern about very high public finance cost of current model MoF: Reticent because of very high levels of public investment and subsidy		MoF: supports corporatization of LCs leading to public subsidy reduction.
Water sector agencies	MWE/ TS: Very supportive, NWSA supports LCs as businesses as supervising 13 branches, but opposes further decentralization as LC autonomy reduces NWSA's role LCs supportive of corporatization	LCs staff fear impacts on old ways, job security & end of utility cross-subsidy makes cost recovery a (difficult) imperative	MWE/ TS: Accepts a pro-poor mandate, but is concern that pro-poor access or tariffs will undermine the business model & is reticent about full cost recovery feasibility LCs staff fear impacts on tariffs, oppose as pro-poor expansion and tariffs undermine the viability of the business modeand end of utility cross-subsidy makes cost recovery a (difficult) imperative	MWE/TS: Strongly supports expansion & accepts a pro-poor mandate, but sees the need to pace expansion with institutional development and improvements in services and the consolidation of LCs as viable businesses. Concern that pro-poor access or tariffs will undermine the business model LCs: have investment bias:& lose money for each new connection: may be reticent to expand, as pro-poor expansion and tariffs undermine the viability of the business model, and cross-subsidy increases rates for business and big users. Have mandate to expand coverage and are under central and local pressure to do so		MWE/ TS: some managers oppose decentralization as preference for subsidized public service provision
Local Government	MoLA supports local service provision. Governors/ Districts: support local decision-making & service provision		MoLA very reticent about negative impacts of higher tariff. Concern that prices might go up or services deteriorate Governors/ Districts: opposes tariff increases	MoLA: Strongly in favor, especially as investment costs are only very partially borne by consumer. Accepts a pro-poor mandate, but unwilling to increase cross-subsidy as (1) this pushes up prices for business, reduces employment; (2) antagonizes general consumers, who are political constituency		
Consumers	Connected..... Unconnected		Business: Strongly opposed to tariff increases. Concern that a switch to public supply could prove more expensive	Business: Support expansion in public supply , as interested in efficient service, but pro-poor tariffs seen as putting up costs for businesses		
Providers	Public .Private		Private: Pro-poor access or tariffs could reduce demand for private supply	Private: Opposed to any improvements that would reduce their business opportunities - pro-poor access or tariffs could reduce demand for private supply		

<i>Water Resource Agencies</i>	<u>NWRA</u> : Interested in efficient utility w/o wasting water, but fears commercial approach has negative impacts on water rights and water balance			<u>NWRA</u> : Priority to human consumption (= pro-poor), but concern at possible negative impacts of resource transfer and rising rural resource costs on rural poor <u>Basin Committees</u> : Support expansion towards MDGs	<u>NWRA</u> has concerns about (1) availability of sustainable water resources; and (2) the lack of an equitable “no uncompensated harm” model for rural-urban water transfer <u>Basin Committees</u> : concerns about sustainable resources and equitable transfer models.	
<i>Civil society</i>	<u>Parliament</u> : Supports improvement in supply <u>Citizen groups</u> : <i>ibid</i>		<u>Parliament</u> : very reticent about tariff increase - concern about prices [and about equity with rural areas <u>Citizen groups</u> : <i>ibid</i>	<u>Parliament</u> : Strongly in favor of increased access, accepts a pro-poor mandate, but more responsive to the “average voter” than to the poor in particular <u>Citizen groups</u> : <i>ibid</i> - Generally respond to average consumer, not particularly the poor		
<i>Donors</i>	<u>Core donors</u> : strong backers of reform, harmonizing & aligned behind WSSP but with different approach (Germany, WB)		<u>Core donors</u> : Have an investment bias. A high cost of expansion leads donors to emphasize rehabilitation and performance improvements on a par with or even ahead of network expansion.	Core group: Poverty reduction and achieving MDGs are over-arching goals, but concern that increased access or block tariffs favoring the poor may undermine the business approach, and belief other mechanisms may be better (Output based aid, social welfare...)	<u>Core donors</u> : Concern about sustainable water sources	<u>Other donors</u> : AFESD comfortable w classic subsidized public service model

Source: Authors' compilation

**Assessing the Risks to Implementation of
the NWSSIP Reforms**

Assessing the Risks to Implementation of the NWSSIP Reforms

PSIA typically analyses risks to the reform agenda and proposes mitigation measures. A summary risk analysis with associated mitigation strategies of the Yemen urban water and sanitation reform programme has been conducted.

The main risks are:

- The *risk that the targets are unattainable*. The difficulty of reaching the service improvement and expansion targets is clear. Clearly a strategic mix of public and private initiatives will be essential, and there is a risk that the capital costs will be unaffordable, that institutional capacity will be inadequate, and that services may be too costly for the poor. Mitigation: NWSSIP Update has been adjusted to reflect this risk, providing for greater involvement of the privates sector, innovative technology and business models to bring costs down, and improvements in public sector implementation capacity.
- The *financial resources risk*, that donors do not support the WSSP adequately and financing is insufficient. Mitigation: Government is using the NWSSIP Update as the framework for attracting and locking in more donor financing, and the core donors have agreed to adopt the WSSP in order to transition to a SWAp approach. A Medium Term Expenditure Framework is being prepared.
- The *implementation risk*, that service standards and cost effectiveness do not improve. Mitigation: the NWSSIP Update provides for a significant investment in institutional strengthening, and a system of benchmarking to ensure that utility performance gradually improves. This approach forms part of the WSSP/PTOP approach.
- The *political economy risk* that charges cannot be raised to the level needed for financial autonomy to be achieved due to dependence of utilities on Government, and to the politicization of tariffs at the local level. Mitigation: tariff increases can only be part of a package that also includes efficiency gains and investment, and tariff increases have to be agreed through an open and transparent process (see Annex 1).
- The *risk that further pro-poor approaches may not be feasible*. There is a risk that further cross subsidy from the better off or from businesses may be hard to negotiate. Rising connection charges and monthly fees may prove costly for the poor, and there is a persistent risk that the poor – and certainly the poorest of the poor – cannot access the network. So far, there has been little success in identifying appropriate lower cost technology that might benefit the poor. Mitigation: the NWSSIPM Update provides for a more comprehensive approach to developing pro-poor approaches, including acceptance that utilities are socially accountable, the inclusion of a pro-poor strategy in the business plans, pro-poor revision of the tariff schedules, and piloting of pro-poor business models and technology.
- The *water resource risk* that adequate water cannot be sourced to meet growing demand, or that water transfer arrangements from rural to urban uses are inequitable and unsustainable. Mitigation: this is perhaps the greatest risk in the longer term, and the NWSSIP Update provisions have to be implemented – water resources prospection, and development of equitable models for rural-urban resource transfer.

Methodology

Methodology

Purpose and objective of the UWSS PSIA

The **purpose** of the UWSS PSIA is to assess reform progress and identify areas where further support is needed to enhance the NWSSIP agenda and to improve implementation. The analysis will focus on sector and sub-sector policy, investment and capacity building, delivery performance, and impacts, and will contribute to the ongoing NWSSIP Update, filling analytical, data and information gaps.

Definition: *PSIA analyses 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 acceptable²⁰.

Urban water supply in Yemen is seen as a prime area where the nation would like to move rapidly towards attainment of the MDGs. 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 clear tension between rapid affordable expansion, a business approach, and improving access by the poor. The overall **objective** of the PSIA is therefore to check whether these three outcomes are being achieved as well as could be at present, and to make recommendations on how to improve. The poverty focus of PSIA will be emphasized by keeping constantly in mind the overall **research question:** *What are the poverty and social impacts on different social groups in different geographical locations of (i) creating efficient and accountable utilities, (ii) increasing coverage, and (iii) keeping urban water and sanitation affordable?*

Specific PSIA steps

The UWSS PSIA will build on existing knowledge and collect new information (through a private provider survey, a consumer satisfaction survey, key informant interviews and focus group discussions) regarding public and private water supply and sanitation provision to:

1. **asses NWSSIP implementation progress in the provision of equitable and sustainable UWSS, especially in terms of:**

²⁰ For further details on the methodology, see World Bank 2003, and World Bank 2008

- The role and performance of service providers: this will cover the role of LCs/NWSA branches and private providers and their performance regarding self-sufficiency, cost recovery, service improvements, enhanced access, and social accountability within NWSSIP's decentralized service provision,
 - Consumer satisfaction with services: this will cover levels of satisfaction both of households (poor & non-poor), and private sector (small-large businesses) with the decentralized service provided by LCs/NWSA branches and private sector regarding UWSS service access, efficiency, quality (safe water, health issues), reliability, pricing (incl. options for low-cost technology)
2. **analyze the poverty and social impacts and equity of NWSSIP policies and their implementation** regarding both service providers (public and private) and service consumers (domestic and private sector), and the possibility for cooperative development, such as PPP, and public participation in private schemes.
 3. **examine the political economy of reform constraints and opportunities to the full implementation of NWSSIP** that arise from vested interests in UWSS; and
 4. **recommend concrete measures to address identified constraints** to enhance NWSSIP's focus. This will include recommendations on:
 - efficient and affordable expansion of services towards the MDG target, with a special focus on the role of private providers in improving outcomes
 - development of the utilities as autonomous and business-like corporations
 - improved focus on equity and gender, with specific focus on the poorest segments.

Difference from the earlier “Water PSIA”

The UWSS PSIA will complement the process and output of the earlier Water PSIA with some modifications that should provide enhanced focus. These modifications are:

- The UWSS PSIA will deal only with a single sub-sector, which is less heterogeneous than the three sub-sectors previously analyzed (water resource management, irrigation, and rural water supply and sanitation)
- More data and background work are available, particularly the extensive subsector analysis conducted by the German side (KfW and GTZ)
- There will be more quantitative and qualitative analysis
- The UWSS PSIA will be conducted during the NWSSIP Update process and so will benefit from interaction with that dynamic process of policy analysis
- The objectives are more sharply defined
- The nuts and bolts of the methodology (see Box) will be put in annexes, and only a summary of the analysis, lessons and recommendations will be included in the main text

Box: Five analytical tools

The methodology follows the PSIA approach and will use the following five analytical tools:

1. **Stakeholder Analysis** to identify key stakeholder characteristics, interests, incentives, and degree of influence in regard to UWSS reform at national, governorate, town, quarter and household levels. Stakeholders include:
 - Institutional stakeholders, e.g. MWE, MWE/TS, NWSA, MoLA, municipalities, public sector providers (LCs/NWSA branches), and other public water sector entities (at central, governorate and local level)
 - UWSS private providers
 - UWSS consumers (domestic, private sector)
 - Civil society, associations, including women's associations.
2. **Institutional Analysis** to analyze the structure and dynamics of the formal and informal institutions and practices of the different organizations at the different governance levels in order to understand the political economy that characterizes UWSS.
3. **Social Impact Analysis** to examine the expected positive and negative impacts from the implementation of selected reform options on the different socio-economic groups.
4. **Social Risk Analysis** to examine the risks *to* and *from* the different reform options.
5. **Transmission Channels Analysis** of distributional impacts, i.e.: (i) access to basic goods and services, incl. water and land; (ii) assets (incl. natural resources and right for water and land ownership, utilization); (iii) authority (power relations, decision-making on e.g. access to water, land); (iv) prices; (v) transfers and taxes; and (vi) employment.

Outputs

Specifically, using the five analytic tools mentioned in the Box above, the PSIA will produce three **outputs**: *two analyses*, leading to specific *recommendations*:

1. An equity analysis of UWSS: This will cover such questions as Which *social groups in which geographical locations benefit and do not benefit* from NWSSIP implementation in UWSS by public and private providers? *Who are the poor?* What are the *needs of poor groups* and *how can they be addressed?* How can any associated *negative impacts* be addressed? *What role do LCs and private sector play to support the poor?*
2. An institutional and political economy analysis. This will cover such questions as Which UWSS stakeholders, organizations, institutions and incentives may currently *impede the full implementation of NWSSIP?* What are stakeholder interests, incentives and degree of *influence on UWSS reforms?* What institutions ('rules of the game') and/or organizations *require adjustment?* What needs to be done, by whom, and in which sequence to *implement NWSSIP in urban water and sanitation equitably and sustainably?*
3. Recommendations to improve NWSSIP. This will summarize what are the concrete measures and priorities that should be included in the NWSSIP Update to ensure that Yemen moves towards the MDGs with the right balance of expansion of affordable coverage, least cost efficiency, and pro-poor equity.

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Map of UWSS in Yemen

