Financing Water Infrastructure and Services:

An introductory guide for practitioners in developing countries

Working Draft

EUWI Finance Working Group
EU WATER INITIATIVE

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Preliminaries & Overview

Policy background

This guide is a non-technical introduction to finance for water infrastructure and services[1]. It is relevant to countries at various levels of development and complements earlier reports of the EUWI Finance Working Group[2] and programmes of the Global Water Partnership and World Water Council[3]. The policy context is the target of the Millennium Development Goals:

> "by 2015, to reduce by half the world's population without access to safe water and sanitation."

The latest *Human Development Report (2006)* reports that the world as a whole is on track to meet the MDG water goal (halving the proportion of people without access to water) thanks to strong progress in India, China and other populous countries. But the world as a whole is off-track on sanitation. This scenario has strong regional variations. On current trends sub-Saharan Africa is likely to miss the water target by a full generation and the sanitation goal by two generations. South Asia is reported to be on track to attain its water goals (thanks largely to progress in India) but is lagging on sanitation. East Asia and the Pacific are on track for sanitation, but slipping behind on water.

Target readers

Target readers for the Guide are practitioners in developing countries - politicians, officials, professionals, private business people, members of civil society organisations and laypersons who are involved in different ways in providing water infrastructure and services. It tries to reflect the viewpoint of administrations that have the actual responsibility for investment and services, which increasingly are at a sub-sovereign, decentralised level. These are typically municipalities, regional and local utilities, local districts and communities, and in some cases private operators.

The judgements and opinions contained below are intended to reflect the viewpoint of the target readers. Benefits, costs and risks of different financing options are presented as water authorities and operators may see them, not necessarily as financiers or donors would view the issues.

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[1] Web Site addresses for key references or sources of advice are given throughout the text. Where they do not appear, readers can normally access them via an internet search engine such as Google, using the name of the organization required. Bibliographic references appear in Chapter Seven, by categories.
[2] http://www.euwi.net finance pages
[3] www.gwpforum.org & www.worldwatercouncil.org

Scope: water and sanitation

"Water" spans everything to do with management of the basic *resource* (storage, transportation, catchment & environmental protection, and infrastructure entailed by this) as well as *services* involved in providing water to consumers and removing wastewater safely. Although the Guide takes a broad view of the water sector, in an MDG context there is particular focus on water supply and sanitation.

The type of service envisaged is typically:

In *urban* and *peri-urban* areas:

- for domestic water supply, providing household connections and/or local public standpipes, providing or rehabilitating distribution networks to upgrade services and extend them to unserved populations, plus associated treatment facilities;
- for sanitation, facilities for safe household disposal of excreta and household wastewater, and, for more developed networks, connections to mains sewerage.

In rural areas: enhanced access to safe water of various kinds, e.g. household water points, community taps & wells, standpipes, etc.; for sanitation, various kinds of latrine (pit, VIP, pour-flush etc), community latrines, etc.

Why is water "a problem" to finance?

Water is generally considered to be the part of public infrastructure posing the greatest financing challenge in developing countries. Water and sanitation services are at the boundary between *economic* infrastructure (e.g. transport, electricity, telecommunications) and purely *social* infrastructure (e.g. health, education). In economic infrastructure there is either a high degree of user charging (e.g. power, public transport, ports, telecoms) or substantial public budgetary provision (roads). In social infrastructure there is also heavy reliance on public finance.

W&S falls between these cases; politicians and water users alike are ambivalent how far water should be treated as a basic right, to be provided free or with a subsidy, or whether it is a scarce economic product to be charged for. The result is often an uneasy compromise where water services are priced below economic levels and the sector is chronically under financed. Other features of W&S which hamper its financing are:

- Water is often a public monopoly, and there is political interference in its supply and pricing
- Some of the benefits of water are not reflected in its price[4]

[4] For three reasons: it is in some respects a "public good " (certain services are not profitable for private firms to supply, because they cannot exclude free-riding consumers from benefiting); it is a "merit good"

- The infrastructure required for water services is costly, and amortised over long periods. Once built, it is a sunk cost with little or no alternative value.
- Water revenues normally accrue in local currency – which entails a devaluation risk where debt and equity have to be serviced in foreign exchange.

Water does not have to be the neglected orphan of the financial world. Well run and financially solvent water undertakings (private or public) have little difficulty attracting finance on suitable terms. In some developing countries public water service providers have become commercially and financial successful, though they are still the exceptions.

Are water supply and sanitation separate issues?

Ideally, urban and peri-urban household sanitation should be planned, implemented, managed and financed in an integrated manner along with water supply. However, in reality it is common for sanitation to lag behind water supply, and to have its own institutions, management systems and sources of finance.

One basic reason is that sanitation is often a household decision, implemented and funded by individual households. This is determined by the available technological options - disposal of wastes can either be on-site (into septic tanks or pits) or into public drains. On-site facilities may be self-regulating or may need to be emptied (e.g. by municipal or private tankers). However, the use of water-borne sewerage through public drains takes the problem onto a different level, where sewerage networks have to be installed, the resulting accumulation of wastewater treated centrally, and the residue (sludge) disposed of. Where population densities or other local factors make public water-borne sewerage and wastewater treatment necessary, major financial resources are called for.

Many specialists now think that sanitation has suffered from its traditional link with water: it has been overshadowed, treated as a "poor relation", and its needs not sufficiently differentiated. It may be time to treat sanitation as a separate subject, deserving its own analysis, institutions and policies. For example, the traditional approach to sanitation has focussed on *supply* and financing has been viewed largely as an issue of *subsidising technical solutions*. This has led to the wrong kinds of facilities being provided, that are unused, neglected or even diverted for other purposes (e.g. storage). A more promising approach is to:

- examine the real demand for sanitation in specific locations[5];
- promote this demand through individual incentives or community pressure,
- devise appropriate and cost effective solutions;

(users enjoy benefits they don't fully perceive, hence there is a public interest in raising general consumption); and there are external benefits - as well as disbenefits - (e.g. benefits to public health and environment).

[5] WSP, *Who buys latrines? Where and Why?* 2004 is a fascinating discussion of the many aspects of this topic.

- use grant funds to leverage private and community contributions.[6]

Compared to water supply, the benefits of which are largely private, the safe disposal of human waste and household wastewater has large external benefits to society, which would of itself justify either high charges to households (on the Polluter Pays Principle) or – more realistically - public subsidies for sanitation targeted at poor communities.

Some basic principles of water finance

Key issues in determining a financing strategy are:

- A country's system of finance for W&S does not have to be monolithic and may contain various financing sources. The important thing is that all major parts of the sector should be adequately and sustainably funded and that, where public finance is needed, it is reliable and adequate.
- Sanitation is likely to need a different approach to water services.
- Subsidising water for social reasons is a national political decision which should be respected. However, where the national treasury cannot or will not provide the required funds the water sector becomes starved of finance. The offer of free or cheap water may be a populist gesture that benefits the rich, impoverishes water infrastructure and services, and makes their proper financing impossible.
- Water and sanitation have social and cultural overtones in many societies, and cannot be regarded purely as economic services. However, there is a strong case for addressing social needs through properly budgeted direct measures (e.g. targeted subsidies, free or cheap basic water quotas, support of promotion of sanitation demand, etc). Within this policy framework, services should be conducted on businesslike principles, and users treated as customers.
- The ideal kind of commercial finance for water infrastructure is a long-term, low-interest loan available in local currency to sub-sovereign borrowers. These desiderata have influenced the agenda for recent reforms

The approach summarised

1. The approach recommended in this guide is, in a nutshell,
2. prepare the ground for water financing by putting essential governance measure in place
3. make careful and realistic estimates of the costs of water development, broken down into recurrent and investment outlays, and choosing cost effective solutions
4. assess what can be afforded, and ways of spreading the costs amongst different parties.

[6] Mehta & Knapp, 2004

5. make the best use of available government resources, especially for public goods and services with strong external benefits; using subsidies judiciously, and targeting them as much as possible to deserving causes.
6. take up external grants and NGO finance, using them where possible to leverage other sources of funds.
7. draw on loans from IFIs as first port of call for commercial finance.
8. consider innovative means to raise additional finance for the water sector.
9. take on other kinds of commercial finance, including equity, where the national macroeconomic position allows, and for projects where this form of finance is appropriate; explore all possible options for private sector participation.

The main steps involved in drawing up a national financing strategy for W&S are illustrated in ***Figure 1***. Each of the steps involves choices between strategic options.

National governments, when preparing planning documents (e.g. IWRM plans, National Development Plans for achieving the MDGs or Poverty Reduction Strategy Papers) could include a section on financing drawing on points raised in figure 1 that are relevant to their national situation. A financing strategy should avoid being a "shopping list" of projects but should instead contain a strategic set of priorities that set out changes needed to administrative systems, laws, regulations and institutions that both attracts more finance (grows the pot) and makes financing more effective.

Figure 1: Elements of a national water financing strategy

These correspond to chapters in the Guide

One: create basics of governance & set financing principles	• Decide on the appropriate level of decentralisation & subsidiarity
	• Set clear financial objectives for service providers
	• Decide on system of independent regulator for both public & private operators
	• Set systems for secure tariff income
	• Establish mechanisms for accountability to customers
	• Adopt an Integrated Water Resource Management approach
	• Draw up financing principles
	• Determine reforms needed to institutional structures and laws
	• Decide on degree of decentralisation and ensure systems and capacities are in place to make it work.
Two: estimate financial needs	• Separate recurrent and capital costs
	• Identify key factors affecting costs
	• Estimate investment requirements
	• Include costs of maintaining & modernising existing systems
Three: assess affordability, cost sharing & cost recovery	• Consider cost of doing nothing. Determine if costs can be shared with other sector programmes.
	• Explore scope for inputs in kind
	• Consider role of private operators
	• Assess affordable standard of service
	• Design suitable tariff; refer to affordability yardsticks
	• Determine scope for using cross-subsidy
	• Determine evidence of Willingness to Pay
	• Set out a clear strategy for subsidies
Four: decide structure of national Government finance	• Decide policy on central government financing: how much finance, for what, through which channels
	• Decide if sovereign guarantees be available
	• Decide on level of subsidies available through annual central budgetary transfers? On what terms and for how long?

	• Assess the degree of under-spending present, the reasons for it and how it can be reduced.
	• Decide if a specialised public financial intermediary should be used (or created).
Five: Take up external aid & NGO partnership contributions	• Select donor partner(s) and NGOs to fit national requirements.
	• Determine best modalities for ODA – budgetary aid, central channels, or decentralised operations.
	• Establish mechanisms for donor harmonisation and reduce transaction costs
	• Determine use of specialised water financing facilities
	• Set out various sources of specialist advice, including peer group networks and twinning
Six: decide how much commercial finance to take on, and what types	• Assess use of Bank loans: corporate or project finance (eg use of BOTs).
	• Determine best use of loans from IFIs
	• Assess feasibility of bond finance; is municipal pooling possible?
	• Assess if private equity feasible. Are other kinds of private participation possible?
	• Determine whether guarantees can be used

One: Basics of Governance & financing principles

Water Governance

Water Governance is the shorthand term for the way the water sector is organised and how it relates to government authorities, the general public, its customers and workers and – in the case of private companies – owners and shareholders. Its keynotes are efficiency, public accountability and transparency. A badly run, insolvent water authority operating with confused objectives and responsibilities, with an opaque relationship to central and local governments will have difficulty raising the right kind of finance.

Some key themes are,

- For W&S services governments may decide to decentralise responsibility to state, municipal or district level. The principle of *subsidiarity* is that a central authority should only perform those tasks which cannot be performed at a more local level. But financial powers should be delegated to match as well as capacities built (e.g. control over tariffs, ability to borrow, freedom to sub-contract services). Otherwise, the delegated authorities will not have the financial autonomy or strength necessary to fulfil their responsibilities – a common situation.
- The financial status and objectives of the water provider should be clear and sustainable. In some countries this is set out in statutes, in others it is laid down in performance contracts between the provider and its government sponsor. Is it required to cover its costs, and how are these defined? Should it make a profit or a specified return on capital? Has it freedom to set tariffs and can it borrow in its own right? Is the state willing to cover operating deficits; will it finance capital items with grants, loans or guarantees? External financiers and credit rating agencies will scrutinise such details closely.
- An independent regulator is desirable to safeguard public interests in such matters as service delivery, level of investment, and tariffs. This applies to both public and private W&S providers (it is equally necessary to hold public undertakings to account since it is easier to conceal their shortcomings). Utility regulation is an evolving art and in practice has many imperfections – but the absence of regulation is even worse.
- Water providers must have their own secure source of income from tariffs. This is necessary to finance essential functions and to ensure some freedom from political interference. Whether tariff income should cover full costs (however defined) is a matter for public policy; if subsidies are to be provided they should be transparent, reliable and predictable[7], otherwise the water authority will be condemned to a hand-to-mouth existence. This is further discussed in chapter Three.

[7] The (Camdessus) Report of the World Panel on Financing Water Infrastructure, 2003 advocated "sustainable cost recovery" which allows for budgeted subsidies in justifiable cases.

- Accountability to customers is highly desirable. Treating water users as customers and aiming to improve service standards is an important step towards creating a good corporate ethic which is essential to the transformation of a public utility into an efficient, autonomous and creditworthy service provider.
- Countries should incorporate Integrated Water Resource Management into their governance structures. This has been defined as: "*a process which promotes the coordinated development and management of water, land and related resources in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems*". IWRM is a mindset which tries to view the water sector as a whole and take account of the interactions between its different parts. It is also important to understand how the water sector is affected by trends in other sectors, e.g. agriculture, tourism, housing. The various elements of IWRM are described in the ToolBox accessible *(Ref: www.gwpforum.org).*

There is no blueprint for an "ideal" system of water financing, just as there is no blueprint for a model organisation of a water sector. Every country is different. With this in mind, the following are some of the *financing principles* which may be found useful in specific situations.

Financing principles

Coherence, uniformity or variety.

Countries organised along statist lines may opt to fund all water services through central government, with or without contributions from consumers. Others may find this solution unaffordable or undesirable., and opt for a hybrid system. Some countries (e.g. France) adopt the view that "water should pay for water", meaning that water consumers and polluters should provide the bulk of finance for water services. This is one approach to financial sustainability, though there are others. Financing of the whole water sector should be coherent, but different parts of it are likely to need different financial solutions (as in South Africa – ***Box 1***). The sector should "hang together" financially - since the impoverishment of one part can seriously affect others. A variety of sources and solutions can be a healthy sign, provided it results in all important parts being adequately funded.

Box 1: South Africa: coherent but varied water financing

The policy framework for national water resources was stated in 1997, enacted in 1998 and completed with a strategy statement in 2002. The state is custodian of water, but licences for its use are issued for up to 40 years. Land ownership is de-linked from access to water. There is a high level of user finance: bulk water is priced to cover the costs of infrastructure development, return on assets, resource management and economic scarcity, while metropolitan and industrial water and single user developments are generally fully funded, and draw finance from commercial sources. Exceptions to

"user pays" include poor farmers (where tariffs to cover O & M costs are being phased in over 5 years), environmental protection and international obligations.

Water resource development in South Africa is expensive and there are no cheap and easy solutions at the current stage of development, but funding has largely been successful, due to the large historic level of public investment, the level of economic development, and the large internal capital market.

For water services, rural programmes are funded by a combination of user payments, cross-subsidies, and transfers from the central budget to weaker municipalities. People are generally willing to pay for water, but many could not afford the amounts required for basic minimum needs, and were resorting to unsafe supplies to avoid payment. Hence the decision to supply all households with a free quota of 6 kl (6m3) per month, with a stepped tariff applying to consumption in excess of this. Within economically-stronger municipalities the service is funded by cross-subsidies from larger water users and industry: for others, the majority, the Equitable Revenue Act provides for central revenue sharing to defray costs. A small number of municipalities have operating agreements with private companies.

The Government provides various financial support mechanisms. Grants are available for feasibility studies, training for Water User Association leaders and for enabling poor farmers to buy water licences. Funds are also provided for infrastructure (subsidies for on- and off-farm irrigation infrastructure, direct investment in major works, etc. The Government can subsidise "social" elements of a project, comprising costs of users who cannot afford to pay. DWAF guarantees some water lending by the Land Bank and commercial banks.

Sources: presentations to the Camdessus Panel by Rt Hon Ronnie Kasrils and Mike Muller, November 2002; presentation by Barbara Schreiner to Working Group on Financing Water for Agriculture, Pretoria, 2005.

Public finance for public goods.

There are good reasons for public budgets to prioritise *public goods* and activities with strong external benefits. A public good is a good or service that can only be provided by public authorities, since it is not profitable for a private agent to supply it (e.g. because it is not feasible to charge, or because no-one can be denied access to it because of non-payment). Examples would be flood protection and the clean-up of polluted rivers. Goods and services with external benefits include clean water, sanitary disposal of waste, promotion of household hygiene, sewage collection and treatment, etc. All these cases confer wider social benefits, such as improved public health and the avoidance of epidemics. There are also external costs arising from the use of water (e.g. pollution) which can be penalised through taxes and charges according to the Polluter Pays Principle. This principle states ….. etc

Financial delegation & subsidiarity.

Delegating financial powers to sub-sovereign agencies to match their responsibilities is increasingly common. But it needs to be subject to national macroeconomic imperatives (e.g. avoidance of unaffordable local debt) and to be within the administrative and financial capacity of the sub-sovereign agencies concerned.

Self-financing of water providers.

Projects and institutions that are potentially self-financing should take steps to generate or attract their own funds. Authorities should create policies that enable them to do so. Systems should be designed or reformed so that the water sector is made more attractive as a borrower from local banks and other local sources of savings.

Cost recovery from users.

The Rio-Dublin Conferences of 1992 recognised that water is an economic and social good and has to be paid for. Cost recovery from users should, however, be subject to affordability, with appropriate use of tariff structures, targeted subsidies and cross-supports to reduce any hardship amongst vulnerable populations. Some people consider water a 'human right' but recognise that this does not preclude payment for services.

Co-financing for trans-national projects.

Co-financing from neighbouring countries and international funds should be sought for transboundary schemes and projects with a cross-border dimension.

Cost sharing for multipurpose projects.

Cost-sharing with agencies in related sectors should be considered for multipurpose schemes where water functions are mixed with other products and services. Services can be "bundled" together in a multi-functional agency, with the profitable parts cross-subsidising others.

Partnerships to tap new sources of finance.

The public sector can form partnerships with private firms and other organisations from civil society to raise funds for specific projects and programmes. Public-Private Partnerships are widely used for financing public services in some countries, wherever they can demonstrate comparative advantage by the respective partners, efficient risk allocation between them and clear accountability for the results.

Two: Estimation of financial needs

Water services incur both regular and one-off financial costs, requiring separate financing provision:

> Recurrent costs are the continuous expenses involved in operating water systems, including wages & salaries, fuel, electricity, chemicals, spare parts and minor capital items necessary to maintain and repair systems. Some recurrent costs are overhead items which are fixed and do not vary with the level of service (e.g. administration salaries, office rent, research, monitoring, meter reading, routine maintenance). Other items are variable and rise and fall with the level of service provided (e.g. chemicals for treatment, electricity used for pumping). The most sustainable source of finance for *variable* costs is user charges, including cross-subsidies between different consumer categories (see below). Where governments are willing and able to subsidise water services, funding can also be made through annual budgets.
>
> Capital costs are for large items of investment, including major repairs, modernisation and rehabilitation. These normally need specific financing provision. In a mature and well-run water system capital costs are also met from present or future user charges. In developing countries government grants, soft loans and ODA are commonly used. Other financing options are discussed later.

Ultimately, W&S is paid for by consumers or taxpayers – charges recovered from water users, or subsidies received from national governments or external aid agencies[8]. All loans and private equity investments have to be serviced from future revenues or taxes – they are not alternatives to tariffs and subsidies, merely ways of deferring the impact of these financial costs on society.

The context of investment is vital. The key factors affecting investment in water services include: geographical & hydrological features -climate, water resources (surface or ground); the level of economic and social development; the size of settlement to be serviced; quality of raw water & gradient from source; status of existing infrastructure and services; whether urban, peri-urban or rural situation; level of service to be provided-individual household or communal, etc.

There are many estimates of "investment requirements" for W&S, particularly in the context of the MDGs [9] Different estimates tend to vary by large margins, and depend on:

[8] Voluntary charitable contributions from individuals channeled through NGOs is another source which is minor in overall size, but important for specific projects and some countries.
[9] These are reviewed in Jeremie Toubkiss, *Assessing the cost of meeting MDG Target 10: a comparative study of 11 estimates*. World Water Council, March 2006.

- The chosen standard of service and mode of delivery (e.g. individual household connections, or village wells and public standpipes; whether wells are lined/unlined, hand operated or motorised, etc.);
- Local geographical and hydrological conditions (presence of adequate amounts of water, how far it needs to be transported, availability of groundwater at reasonable depth, quality of water and need for treatment, need for storage, etc).
- Amounts allowed for per capita use (20 litres/head/day is often quoted as a basic needs minimum, but much higher figures are often planned, requiring more elaborate distribution networks. Also, in rural households water has multiple uses, including for livestock, agriculture and rural crafts, implying a need for higher volumes).
- Definition of "access". Some countries adopt their own definition of access which differs from that used internationally (e.g. by the Joint Monitoring Programme). Changing the target definition (e.g. from 1 km walk to a safe water point, to 200 m) can make a dramatic difference to costs and performance towards goals.
- There are economies of scale in water supply. Unit costs are likely to be less in urban and peri-urban locations than in remote and dispersed rural communities.
- Costs can be spread out over time by moving towards a target level of service by increments staggered over time, rather than all at once. This avoids incurring large initial debts which weigh heavily on finances, and allows time for consumers to get used to paying for improved services. As consumers' incomes rise, they will demand better services, and be more willing to pay for them.
- Upgrading well developed but ageing infrastructure is particularly costly. This is a widespread problem in the EECCA region, where there are extensive water and sewerage networks that have been badly maintained, and which can no longer deliver reliable safe water and sanitation. Service coverage data is seriously misleading in these situations. Studies done in EECCA conclude that many such systems are now oversized and unaffordable, leaving policymakers with an unenviable choice between large expenditures, or reducing the standard of service.

Estimates such as these are typically concerned with the cost of *expanding* water systems to provide for previously *unserved* populations. What they omit is the cost of maintaining and modernising *existing* systems. Water infrastructure *depreciates* over time. In order to keep it functioning as intended money has to be spent on routine repairs, servicing and replacement of worn parts. These items, which are easy to postpone, are widely neglected and under-provided for. The result is infrastructure which deteriorates and fails to provide regular clean water to those who are nominally receiving the service. As countries make progress in overcoming the deficit of the unserved populations, it is common to find that service standards for those nominally connected are in decline – a case of two steps forward, one step back. The solution is either to increase O&M budgets to adequate levels, or to replace unaffordable installations with something more appropriate.

In rural areas the neglect of O&M budgets and cost recovery are some of the reasons for the high rate of *non-functionality* observed in many systems. In Ethiopia a recent survey of almost 7,000 rural water schemes found that 30-40% were non-functional, due to various causes, not all financial.

In urban areas too the presence of infrastructure does not mean that households necessarily use it: in Addis Ababa only 4% of households are thought to be connected to mains sewers. The implication of this is that the cost and affordability to households of *connection* should be tackled head on when extensions or improvements to systems are being planned.

Three: Affordability, cost sharing & cost recovery

Large estimates of financial requirements can be intimidating. But it is difficult to grasp the size of the challenge they pose without considering how the costs are shared between different parties.

The distinction between recurrent and capital costs is important. A number of donors now offer aid to directly support the national budgets of recipient countries. However, it is risky to rely on this as a permanent means of support. The same is true of national subsidies, which could fall prey to budgetary cuts at any time. The main source of finance for *recurrent costs* (O&M) in the long term is likely to be user payments, though some donors are willing to provide assurances of budgetary support for basic services extending to 10 years in certain cases.

Capital costs, which are usually larger and less frequent, can be funded from a larger range of sources, including contributions in kind, charges levied on users and their communities, full cost recovering tariffs, governments, external donors, NGOs, banks, etc. The range of options will be explored in the rest of this Guide.

3.1 Who bears the cost?

- The impact of costs depends on the following factors:
- Doing nothing itself has a cost, in worsening public health and environmental problems. For example, carrying water over long distances and boiling dirty water has a heavy cost in the health, time and energy input of women and children, and in the latters' educational deprivation. Recognising this, it may be feasible for water authorities to share the cost of W&S improvements with other departments of government (e.g. sanitation programmes with Ministries of Health, wastewater collection with Environment).
- Certain kinds of system lend themselves to inputs in kind from the beneficiaries – e.g. construction, or self-help schemes. The condominium system of sewerage[10] in some large cities keeps cost down and permits cost-sharing with communities and contributions in kind.
- Private operators can provide services, using their own funds and recovering costs from users. Examples include building village tube wells and selling water to neighbours, construction of local piped distribution systems, private firms with their own water sources selling water to households in the vicinity, emptying latrines, etc. The widespread presence of small-scale local private water operators is now widely recognised[11]. They are increasingly seen as part of the

[10] A system in which local communities at district level take responsibility for planning and implementing their sewerage networks using low cost and appropriate technology.

[11] The Water and Engineering Development Centre (WEDC) at the University of Loughborough has produced a series of African country studies of small-scale local private water operators (www.Lboro.ac.uk/wedc/).

solution. One possible service model is for a public water utility to "wholesale" water to local private operators, who would sell it on to users by tanker or their own pipe networks. This would incur less initial cost to the public authorities, though the operations of their sub-contractors (especially price and quality) would need close regulation.

- The prospects for cost recovery vary between different types of project. Cost recovery from users is more difficult for wastewater collection and treatment than for water supply. It is common for wastewater services to be charged through a surcharge on freshwater tariffs.

Ultimately water has to be paid for from users, taxpayers or philanthropists. A prior question is therefore whether a desired standard of service, or a new piece of infrastructure, can be afforded within the financial means that are likely to be available. Projects that are not perceived as affordable by potential financiers will not be able to attract funds. Over-designed and ambitious projects will either run out of money or become White Elephants which drain budgets at the expense of more sensible schemes. The water landscape is littered with projects that are unfinished or which have failed because of their excessive appetite for maintenance.

Models are now available for estimating financing requirements and funding gaps from different policy scenarios. These models have the advantage of treating the W&S sector as a coherent whole from the financing point of view. They are iterative, which allows the testing of different policy targets for their financial implications. The models also give some flesh to the notion of affordability, and can rank different financing options for filling the funding gaps[12].

3.2 Tariffs

Water tariffs have three main purposes:

- Cost recovery: generating revenue for the efficient operation of water services and contributing to their cost of investment and ensuring long term functioning of the service.
- To reflect costs of provision, giving signals to users about the true scarcity of water and the costs of supplying it. Volumetric tariffs give users an incentive to use water carefully.
- Environmental protection. Encouraging conservation, and penalising the discharge of untreated wastewater

This section is mainly concerned with the first of these purposes. *A flat rate tariff* (which does not vary with use) will suffice to raise revenue, but a volumetric tariff (which varies with the amount consumed) is necessary to fulfil the other purposes above. A

[12] Two of the best known are the Sector Wide Financing and Investment Tool (SWIFT) developed by the World Bank's Water and Sanitation Programme (www.wsp.org) and FEASIBLE , developed by OECD (www.oecd.org/env/eap.

volumetric tariff requires metering (or other cruder methods of measuring usage), which may not be necessary or feasible in every situation – such as rural connections or the supply of low volumes to poor urban users.[13]

The most common form is the *two-part tariff*, consisting of a flat rate charge (to cover the fixed overhead costs of supply) and a variable part based on the amount consumed. The variable element can be the same for all units, or it can be *progressive*, in which case it rises for successive increments of consumption. A further refinement is to provide a basic amount of water (e.g. 20 m3 per household per month) free of charge, and introduce the volumetric rate for amounts exceeding this.

Where wastewater services (sewerage, wastewater treatment and/or removal of sludge[14]) are provided, their costs are normally recovered through a surcharge on the tariff for drinking water. This is partly because the volume of wastewater is highly correlated with the use of clean water, and partly because of consumer resistance to paying for wastewater services separately.

The Government or municipality may decide that it can afford to *subsidise* water or sanitation on a permanent basis from the public budget. Subsidies are, however, notorious for having perverse side effects. They may distort the market in favour of inferior or unwanted solutions or they may even discourage demand[15.] They may be misused ("subsidising toolsheds not toilets"[16]) or misappropriated through corruption. Subsidies are difficult to sustain in poor countries, nor can donor agencies always direct budgetary aid accurately to their intended beneficiaries.

The choice of whether, how, and how much to subsidise should be taken pragmatically. The need for subsidy can be minimised by the choice of low cost technology and providing credit lines to satisfy affordability. It is significant that one of the most successful programmes of latrine construction (the Community Led Total Sanitation movement in Bangladesh, Ethiopia and other countries) uses little or no direct public subsidy.

In short, if subsidies are used, they should be:

- Predictable – so that the water authority can plan its investment and operations ahead, and plan finances accordingly;
- Transparent – so that the subsidy appears clearly in the public accounts, and can be accounted for by the Minister of Finance;

[13] Conventional meters can cost upwards of $100.
[14] The residue after wastewater treatment – which is either dumped, used on fields, or in road construction.
[15] The Ethiopian National Sanitation Strategy reports that subsidized latrine slabs create unrealistic local expectations. Unless subsidised slabs are made available to all, they will depress demand (since disappointed potential buyers will wait to get their cheap slabs).
[16] Kolsky & Perez, 2007

- Targeted – aimed at sections of the population considered to be in most need of relief, rather than spread across all consumers 17;
- Sufficient – covering all the necessary costs of water provision not funded by the tariff.

It is also normally desirable, in the interest of sustainability and sound public finance, to design *tapering* subsidies, which diminish over time. These would give the provider time to introduce tariffs which gradually rise to the economic rate.

3.3 Affordability

Affordability is based on the potential for local cost recovery, plus whatever national subsidies and external grants are likely to be available.

There are various ways to make tariffs affordable to poorer consumers:

- Cross-subsidies can be effective, for example, where richer consumers pay more for services than the poor.
- Progressive tariff where charges increase with the volume consumed
- Varying tariffs for different consumers for example, industrial and commercial users.
- Ideally, to avoid any distortion in consumption, the water bills of poor households should be covered from social security payments, but this is not feasible in many countries.

In setting tariffs, it is common to take an "affordability" yardstick of 3-5% of average household income for W&S. In practice wealthier people (with connections) normally pay less than this, and poorer people (who supplement their consumption from informal providers) more. There is no objective "ability to pay" for something as essential as water, and no empirical foundation for the above yardstick, though it is widely used for planning purposes.

There is, however, growing evidence of Willingness To Pay (WTP) for access to water or improved levels of service. A WTP survey assesses the views of consumers and the evidence of what they currently spend on water from different sources. WTP surveys are expensive to do properly, but can provide useful information to water policymakers if they are well designed and if their results are credible and avoid bias. Apart from WTP for regular water bills, consumers currently unserved may also be willing to pay towards the cost of making new household connections. These payments can either be in cash or in the form of labour or materials.

[17] because a general subsidy will be of most benefit to high consumers and those already with connections, such a subsidy will be regressive in its impact.

Four: National government finance

4.1 Central government as financial provider.

In this common model central governments channel finance (grants, soft loans, proceeds of bond issues) for capital spending on water to local authorities or public water companies. Where foreign aid is available, it is usually provided to central government before being passed on to local government or public authorities. Tariff revenue from the provision of water may either be retained by the local water undertaking, or returned to the Treasury to general public coffers. Central governments may also provide *sovereign guarantees* to sub-national agencies to assist their financings.

One surprising and disturbing trend is the high level of unspent budgets for W&S. In a survey of a number of countries, WaterAid found that actual disbursements of water budgets were routinely only a fraction of the allocated amounts[18]. This may reflect a difference in priorities between the central and local levels of administration, bureaucratic blockages in the system, or the presence of other, non-financial, constraints to higher spending. In such cases, finance may not be the most urgent problem to deal with.

The pros and cons of this model are summarised in Box 2.

Box 2. Central Government as provider and guarantor

Benefits	Disadvantages
Related to national financial capacity ; avoids local over-borrowing & debt problems;	Decisions on water funding become more politicised
National Treasury can get better terms in financial markets;	May give lower priority to water sector than local governments;
Can set national priorities and steer funds towards urgent/priority cases;	Funding may be unreliable, a hostage to national fiscal situation;
Can ensure equity between richer and poorer parts of the country	Local service providers prevented from developing financial self-sufficiency;
Foreign exchange risk of foreign loans is borne by central government	External donors/financiers unable to develop close contacts with actual providers.

Central governments may prefer to provide finance to minimise the risks of financial decentralisation. Local indebtedness can get out of control, through incompetence, political opportunism and irresponsibility. This then gives central governments a

[18] Redhouse, 2005

dilemma, whether to bail out insolvent local authorities or to let then face the consequences of their actions, with the resulting hardships to local residents (and electors). Loans contracted in foreign currency are particularly risky for projects whose revenues are in local currency, which includes most infrastructure. Central governments have greater means, and more diverse revenue sources, to offset risks of this kind.

Central governments can normally raise funds on more advantageous terms than local bodies (though some cities have a credit standing equal to sovereign). The expertise and experience available to central governments can stand them in good stead when dealing with international bankers and prospective private investors, while local bodies might strike poorer deals. The reverse side of the coin is that local negotiators tend to be more familiar with the projects to be financed, and hence have greater credibility and commitment in arriving at a deal.

There are various ways in which the central government's annual budget can be used to support the *recurrent costs* of W&S:

- To cover recurrent overhead costs of public water services (e.g. salaries, vehicles, offices).
- To provide the variable costs of operating water services (power, chemicals etc). This is more problematic: wherever possible, such costs should be covered by user charges.
- To underwrite any financial deficits incurred by local water undertakings. If this becomes a "blank cheque" it removes any incentive on the undertaking to improve its finances.
- To provide subsidies to cover stated and specific purposes (e.g. free water for deserving cases, the cost of a sanitation programme, emergency provision for drought areas, etc.). *Targeted* or *smart subsidies* (see section 3.2) avoid some of the disadvantages of general subsidies, particularly if they are predictable and transparent.

4.2 sub-sovereign finance

Triggered by the Camdessus Report and other underlying trends, there has been a major growth of interest in financing water at the *sub-sovereign* layers of administrations – regional & state governments, municipalities, specialised infrastructure financing agencies, utilities, etc. It is recognised that this is the level of society at which decisions on water are normally made, and in the majority of countries responsibility for water services is effectively devolved to sub-sovereign layers of administration.

The IFIs have been revising their policies on sub-sovereign risk and their attitudes to sub-sovereign lending and guarantees. EBRD has a well established portfolio of loans to sub-sovereign administrations and utilities. The Municipal Department of the World Bank and IFC has been set up for this purpose, and other development banks have also taken steps to facilitate sub-sovereign operations.

The feasibility of injecting more finance at sub-sovereign levels depends crucially on the status of the sub-sovereign institutions concerned. A number of countries have decentralised entities with sufficient financial standing to attract loan finance or even issue their own bonds, and a significant proportion of the unserved population lives in such countries. However, such cases are rare in sub-Saharan Africa or poorer countries elsewhere. Municipal finance is recognised to be crucial in local anti-poverty strategies. The agenda of actions for capacity building in pro-poor municipal finance includes revenue raising, targeting expenditure, budgeting, and financial management.[19]

Central governments are, however, becoming more reluctant to offer *sovereign guarantees* for borrowing and bond issues by sub-sovereign agencies, since these represent a *contingent liability* which counts against government borrowing and affects national creditworthiness.

Some governments (e.g. Mexico) offer a form of guarantee to sub-sovereign authorities through the use of *fiscal intercepts*. This arrangement in effect uses normal budgeted fiscal transfers from central to local governments (or states) to underwrite debt servicing by the latter: if a default happens, part of the normal fiscal transfer is used to make the payment.

4.3 Specialised national financial intermediaries.

There are many examples of financial agencies occupying an intermediate position between central governments and local service providers. They may be national development banks, infrastructure development corporations, water banks, municipal development corporations, environmental funds, or other types of intermediaries. They funnel "wholesale" money down to regional and local borrowers. They offer specialised knowledge of local or sectoral borrowers and experience of dealing with them. Faced with an urgent need to develop specific sectors many politicians are tempted to create a new specialized financing institution. ***Box 3*** discusses the pros and cons of these institutions.

Box 3. Specialised national financial intermediaries:

Benefits	Disadvantages
Able to get wholesale finance on good terms because of government backing & sovereign guarantees	Many of these bodies have a poor track record
Diversified sources of funds	They are prone to become politicised & bureaucratic
Closer to grass roots than central	If no value added, an unnecessary layer

[19] Blore, Devas & Slater (2004)

government	between government and service providers
Can develop expertise in specific sectors & experience dealing with local clients	Poor choices & bad management leave them insolvent; funds fail to revolve
Can get access to commercial expertise, in equity & management	
Credit repayments can revolve back into sector, with aim of self sufficiency	

A successful financial intermediary can exert real financial muscle and exploit synergies from other municipal sectors (***Box 4***)

Box 4. Ho Chi Minh City Investment Fund for Urban Development, Vietnam.

HIFU is a state-owned financial institution directed by the City's People's Committee. It was founded in 1997 as a way of making more effective use of the state budget, and to mobilise funds from other sources for all the main types of urban infrastructure. HIFU has equity capital of around US$40 million.

The City has assigned part of state capital to HIFU with the object of converting the previous urban infrastructure subsidies into fully repayable loans, in line with official policy. The Fund has lent to projects of clearance, building and urban regeneration, and has taken over management of the city's Pollution Minimisation Fund. Through its loan syndications, HIFU has drawn other lenders into financing large infrastructure development projects, with an average leverage of 1 to 4. It has also set up a subsidiary Infrastructure Investment Company for taking up operating concessions, BOTs, etc. HIFU was authorized to raise US$127 million in municipal bonds in 2003, repeated in 2004. These bonds offer long-term stable funding at affordable cost, on terms matched to the maturity structure of infrastructure projects.

HIFU's agenda for the future includes work with international financial partners, developing credit rating, increasing its capital base, developing capacity to meet international standards - spearheading improvements in national financial management, accounting, transparency, autonomy, etc.

Source: presentation by Giao Thi Yen at IADF International Conference on Financing Municipalities and sub-National Governments, 2004.

Five: Official Development Assistance (oda) & NGO partnerships

Grants or concessional[20] loans are available for W&S from a wide variety of international agencies. As a general principle, it is sensible for developing countries to maximise their uptake of Official development Assistance (ODA), which is grant money, before contemplating commercial finance for this sector. However, even grants may have significant transaction costs and inconveniences, and attracting aid from many different sources can tax the management abilities of national authorities.

ODA is discussed in 5.1. A number of specialised water and infrastructure funds and facilities also exist, discussed in 5.2. The coordination of donor programmes through Sector Wide Approaches to Planning are discussed in section 5.3. The treatment of loans from International Financial Institutions (IFIs) is postponed to chapter Six.

For programmes in water and sanitation outside networked urban systems there is a major presence of non-Governmental Organisations (NGOs) and other civil society bodies. These are discussed in section 5.4.

5.1 Official development assistance (ODA)

Following a decline since 1998 in the (five-year moving average) commitments of ODA to W&S, data from the Development Assistance committee (DAC) indicate a sharp rise in 2004 to US$2.6bn from bilateral and $1.3bn from multilateral agencies[21]. Allowing for the long lead times between commitments and actual disbursement, this promises some increase in ODA spending in W&S in the near future.

Members of the DAC do not in general give water a high priority in their programmes[22]. The share of aid to W&S in the total ODA of DAC members allocated by sector has remained at 6% since 2001. However, certain development agencies regularly give water priority. ***Box 6*** lists the biggest donors to the water sector in real cash terms (broadly defined, not just W&S). Donors with the highest *share* of their aid going to W&S in 2001-04 are Luxembourg, Denmark, Germany, Japan, Ireland, Spain, Netherlands and Finland, all with 4% or more[23]. With the current high international profile of water other potential donors are emerging (e.g. the Gates Foundation).

It is normally rational to maximize the take-up of ODA available for water. However, the decision to take up aid is not totally straightforward (***Box 5***).

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[20] a concessional loan is one that is available on better terms than those provided by private financial markets – lower interest, longer maturities, and/or grace periods before interest or repayments are due. In order to qualify as oda recognized by the OECD's Development Assistance Committee, concessional loans have to contain a "grant element" of at least 25%. In technical terms, the grant element is the discounted value of the loan's repayment stream, at the DAC's standard discount rate, expressed as a % of the face value of the loan.

[21] OECD: *Measuring aid for water*. www.oecd.org/dac/stats/crs/water

[22] see also the EUWI Annual Report 2006

[23] UNDP *Human Development Report, 2006*

Box 5. ODA: looking a Gift Horse in the Mouth

Advantages	Disadvantages
Transparent and simple: no repayment obligations, no debt overhang.	May carry political and commercial obligations, explicit or implied
Technical assistance & informal advice normally available	Each donor has a different procedure, which can be onerous, and prolong the disbursement period. They also use different technical products, which complicates procurement & spares.
Can be blended with other kinds of finance to produce a suitable financing package for a particular project	Part of grant absorbed in consultancy and administrative costs
	Can create aid dependency
	Donors may insist on their own institutions and special project units independent of national systems; hard to integrate, & re-entry problem when aid ceases.
	Appraisal requirements and conditionality more onerous than for commercial loans

The *European Development Fund*, administered by the European Commission in partnership with ACP countries under the Cotonou Agreement, is also an important source of grant aid for W&S. The EDF agrees a National Indicative Programme for each ACP state which stipulates two priority sectors, one of which may be water. In the current multi-year EDF9, 16 ACP countries have designated water as a priority sector, and have been allocated c. EUR 500mn for it. For EDF10 (**2008 to 2013**) indications are that more countries will target water as a priority, but that the overall allocation will be less – implying that EDF water aid will be spread more thinly. However, up to half of the EDF10 budget will be allocated as budgetary aid, which is potentially available to support the recurrent costs of W&S.

Output-Based Aid (OBA) is often advocated as an appropriate solution for the water sector. OBA has been defined as "… a strategy for using explicit performance-based subsidies to support the delivery of basic services where policy concerns would justify public funding to complement or replace user-fees. The core of the OBA approach is the contracting out of service delivery to a third party, usually a private firm, where payment of public funds is tied to the actual delivery of these services". More information is available on the website of the Global Partnership for Output-Based Aid (www.gpoba.org).

In the past it has often been difficult to justify W&S projects according to the required *cost-benefit* criteria. Now, thanks to empirical and methodological developments, the case for W&S projects can be better grounded in public health, social, and economic benefits[24].

5.2 Water & infrastructure funds and facilities

There are few sector-specific funds or facilities wholly devoted to W&S, and relevant for developing countries. Most existing water funds[25] buy shares in water companies and utilities that are listed on public stock markets. Unless the shares are part of an IPO[26] this is not new money. There are very few water or infrastructure funds that are willing to place funds in developing countries[27], and very few of these countries have suitable securities to offer.

The ACP-EU Water Facility is the largest dedicated water fund for ACP countries, though at the time of writing it is fully allocated and no decision has been taken to continue it under the next European Development Fund (europeaid-water-facility@ec.europa.eu). Another fund with similar aims is the African Water Facility administered by the African Development Bank (www.africanwaterfacility.org). The AWF also uses a Call for Proposals procedure, but builds up its pipeline of projects over time, rather than in single adjudications of competitive bids. AWF works with both central governments and sub-sovereign partners. Both the ACP-EU and African Water Facilities require co-funding from sponsors, partners or recipients.

External grants can, and should, be used in combination with other sources of funds to maximise financial flows into water. Grants can, for instance be used to soften project finance terms in accordance with local affordability, as guarantees for commercial loans and bonds (see section 6), as part of trilateral partnerships (with NGOs and private companies), to cover the threshold costs of project finance transactions or privatisation contracts, etc.

5.3 Sector Wide Approaches to Planning (SWAps)

It is becoming more common for national governments to collaborate with external donors in programming aid for basic services through SWAps. SWAps have been described as:

"…pooling of resources to support a single sector policy and expenditure programme, under government leadership, by adopting common approaches across the sector and progressing towards relying on government procedures to disburse and account for funds." (WSP/Kenyan MWI, 2007)

[24] As e.g. in UNDP *Human Development Report 2006*
[25] E.g. Pictet. Macquarie, Goldman Sachs and other investment funds have large sums available for buying water companies.
[26] Initial Public Offering
[27] SNS Reaal in the Netherlands is an exception.(www.snsreaalgroep.nl)

In a SWAp all important investments should be consistent with a Sector Investment Plan and a Sector Information System should be developed. Donors are encouraged to harmonise with each other, to relate their activities to the SIP, and to move towards the use of common channels of finance and procedures over key matters like procurement and technical standards. Progress in these areas will reduce the administrative load on recipient administrations and diminish the transaction costs of aid. An aim of the SWAp is to progressively attract aid in programme rather than project form.

SWAps are further described in the multi-donor *Guide to Joint Financing Arrangements* produced by DANIDA, downloadable from www.um.dk.

5.4 NGOs & civil society partnerships.

In developing countries a high proportion of W&S programmes in rural and peri-urban areas are undertaken with the involvement of NGOs (a broad term that would include Community Based organisations, church groups, charities and other philanthropic bodies). Some of the most active NGOs in this sector are UN agencies such as UNICEF, or branches of the International Red Cross. Some NGOs specialise in W&S and have extensive programmes and experience e.g. Eau Vive (www.eau-vive.org) and WaterAid (www.wateraid.org).

Although most of the largest NGOs have an international origin, most of them have strong local "ownership". Most of them act as channels for decentralised donor funds (e.g. they have been major recipients of funds from the EU Water Facility). Several international networks of NGOs exist that could advise on potential partners in specific countries: PsEau (www.pseau.org); International Secretariat for Water/Secretariat International pour l'Eau; Women for Water Partnership (www.womenforwater.org).

Partnerships usually involve two or more of the following: local government; community organisations; NGOs or charities; external donors; private companies; and banks or microcredit organisations. The functions of sponsorship, political advocacy and backing, professional steering, funding, implementation, etc have to be allotted on the basis of comparative advantage. Funding normally involves combining grants for seed capital, provision of security and guarantees, and the use of commercial finance often in a revolving pool format.

Box 6 sets out some of the considerations involved in encouraging civil society partnerships as sources of finance for W&S:

Box 6. Civil society partnerships: pro and con

Pro	Con
Operate in regions where official administrations are thin on the ground	However successful in their own terms, their projects may not be replicable (scaleable up)

	because they are privileged in various ways
Active in sectors such as sanitation that have lacked priority	Presence of foreign workers outside the direct control or accountability of national governments could cause suspicion or resentment
Flexible operators: can adapt to what the situation requires	May attract staff away from local institutions, thus weakening the latter
Able to form partnerships with disparate bodies depending on what the local situation demands & how risks need to be shared	May be a disincentive for the development of sustainable local institutions and financing systems.
Can bring in additional external funds through their "halo effect"	
Staff can work in situations that are effectively no-go areas for government officials or external official donor agencies.	

Six: commercial finance: loans, bonds, equity & risk sharing

6.1 Bank loans

Bank loans for infrastructure are of two main types, depending on how risks are born.

Corporate finance where the loan is made to a company or public corporation, which undertakes the servicing of the debt. (The loan may be used for spending on specific projects, but it is the overall balance sheet of the borrower that is the concern of the lender).

Project finance, where the loan is made to a "special purpose vehicle" undertaking the project, and the security for the loan is the expected cash flow from the project. Project finance is also referred to as *non-recourse* lending, because the lender cannot have recourse to the balance sheet of the sponsor in the event of a default.

The pros and cons of bank loans are summarised in ***Box 7***.

Box 7. Bank loans

Advantages	Disadvantages
In most countries banks have ample funds for lending to creditworthy borrowers	Banks normally need some form of security for their loans: water infrastructure is not ideal collateral
The terms of the loan can be tailored to the needs of the borrower	Interest rates may vary according to market conditions (though interest rate hedging is possible – at a price)
	In most countries banks are unwilling to lend long term without guarantees
	Loans need to be repaid – and many water undertakings don't generate enough cash flow
	Loans from external banks and development agencies are usually in foreign currency, hence expose the borrower to forex risk (though in some cases local currency-denominated loans are available)

Bank loans are suitable to cover short- and medium-term variations in cash flow. For periods longer than this banks would look for good liquid security or guarantees from external agencies or the borrower's balance sheet.

Project finance is typically used for identifiable stand-alone items such as water and wastewater treatment plants and major pipelines. (***Box 8***). The project may be implemented wholly through the public sector, or it may take the form of a public-private partnership. A common form of the latter is the Build, Own & Operate[28] type of contract, in which a private firm raises the finance, builds the project and recovers its costs from operating the project for period of years, before handing it back to the public sector sponsor.

Box 8. Project finance

Advantages	Disadvantages
Can raise large sums for major infrastructure	Heavy overheads on each transaction (legal & due diligence fees) means a high minimum size per deal ($50- $100 mn.)
Security consists of project revenues, without recourse to sponsor's balance sheet	If finance available in forex (a common situation) entails foreign exchange risk for borrower
	Despite contractual terms, risks are prone to "leak" onto balance sheet of sponsor

Some of the merits of *corporate finance* are the mirror image of the disadvantages of project finance, and *vice versa* (***Box 9***)

Box 9. Corporate finance

Advantages	Disadvantages
Borrowers can pool risks between different projects and different parts of their business, lowering overall risk	Unsuitable for new ventures
They have a track record & an existing cash flow, reducing risks to the lender & giving the option of cross-subsidy	Borrower may wish to protect its balance sheet and core operations from risks of a new project.
A corporate borrower with a good credit rating can in effect obtain credit for projects that would be risky on a stand-alone basis	
Several different projects can be wrapped into a corporate structure that is eligible for corporate finance, and which is above threshold size	

[28] Other variants are the Design Build Operate Transfer, Rehabilitate Operate Transfer, Transfer Operate Transfer, etc.

Microfinance is becoming increasingly important in financing infrastructure and facilities in smaller communities, particularly where the work is implemented by householders themselves, and involves local small scale artisans or the informal sector. A typical loan is well below $1 million. The Grameen Bank in Bangladesh is the best known microfinance agency, but many large commercial banks are now expanding their microfinance windows.

Microfinance agencies have a role in mobilising local savings for on-lending in small amounts on terms attractive to local borrowers. They are involved in some water development programmes though in global terms their exposure to infrastructure is minor. Some governments cap interest rates at unprofitable levels given the high transaction costs typical of this sector. Countries where microfinance has been successful in rural areas, such as Bangladesh, Bolivia and Indonesia, have allowed "policy space" to decentralised finance, have an adequate legal and regulatory framework, and possess the necessary density of market for its services.

In a rural context, microcredit overlaps with other credit sources such as credit unions, mutual/cooperative societies, village and rural banks, etc. Many of these operate on the fringes of the formal financial sector, and need an "enabling environment" distinct in certain respects from the regulations applying to commercial banks and formal financial institutions. In the past much money has gone from donor agencies to microcredit schemes, many of them operated by NGOs, in the form of recurrent subsidies. These have crowded out commercial finance and prevented microcredit schemes from becoming self-financing.

Such risks have been avoided in one innovative project in Kenya, where the World Bank is using output-based aid to provide a guarantee to a local commercial microfinance agency which lends to community piped water programmes. The OBA, equal to around half the loan value, is paid to the bank when the facilities have been satisfactorily built and have started operation: up to that point, risk is borne by the bank and the borrowing community. This "guarantee" avoids moral hazard[29] by giving the bank a positive incentive to see the projects are successfully completed on schedule.

There are a number of examples where microfinance is provided through revolving fund credit structures. As the name implies, as loans are repaid, the proceeds are lent out to new borrowers. Every commercial bank and IFI works on this basic principle, but in water revolving funds the loans are earmarked for specific water purposes, and the initial capital is often subscribed by IFIs or NGOs. External guarantees may also be made to cover a portion of outstanding loans.

[29] an action, designed to reduce the risk of an event, which has the perverse effect of encouraging the risk of that event happening. In this case, a guarantee offered to a bank to prevent losses from bad debts, may encourage the bank to drop its lending standards and thus increase the likelihood of debt default.

International Financial Institutions

Medium/long term loans are available from international development agencies (IFIs). Their terms are normally more favourable than those on offer from commercial sources and borrowers would be sensible to see what the IFIs can offer before opening discussions with commercial banks (***Boxes 10 and 12***).

Box 10 Main International Financing Institutions (IFIs) for water sector

International Development Association (IDA), Washington DC	Affiliate of the World Bank. Offers loans of up to 50 years at zero or low interest to poorest countries
African Development Bank, Tunis	Medium-long-term loans at interest rates to cover its own cost of borrowing plus administration. Can take equity & offer guarantees. Limited scope for dealing directly with sub-sovereigns.
Caribbean Development Bank, Barbados	Ditto
Inter-American Development Bank, Washington DC.	Ditto
Asian Development Bank, Manila	Ditto
European Bank for Reconstruction and Development, London	As above, with mission to lend to private investors as well as government agencies, and able to operate at sub-sovereign level
International Finance Corporation, Washington DC	Affiliate of World Bank with mission to promote private sector. Commercially oriented, with a variety of instruments. Can take sub-sovereign risk through new Municipal Department.
European Investment Bank, Luxembourg	Lends to ACP countries under Cotonou Agreement & elsewhere under other mandates. Range of instruments available, including risk sharing & local currency loans.
International Bank for Reconstruction and Development, Washington DC	Affiliate of World Bank for lending to higher-income developing countries
Islamic Development Bank, Jeddah	Operates in countries with an Islamic orientation using Islamic financial modalities

The IFIs listed in ***Box 10*** are international organisations whose shareholders are made up of national governments, and which operate widely in many different countries. Some of them are obliged by their statutes to lend only to national governments, others have the means to deal with private borrowers.

Alongside them are another group of development banks and corporations with aims and modalities similar to those of the international IFIs, but with a more limited range of bilateral or regional sponsors. This is a very numerous group, including the Nordic Development Bank, German DEG[30], Dutch FMO, French AFD, British CDC and Kuwait Fund, Southern African Development Bank amongst many others.

IFIs making a loan to a country may open up *participation* in the loan to commercial banks, giving the latter the same status and privileges as enjoyed by the IFI. In a *syndication*, the IFI will make an A Loan and commercial bank participants extend B Loans (***Box 11***).

Box 11 Preferred Creditor Status and Participations

IFIs such as the World Bank, IFC, and the leading regional development banks such as AsDB, AfDB and IADB, enjoy *de facto* preferred creditor status. This means:

- Governments having a treaty relationship with the respective institution grant the latter's loans preferential access to foreign exchange in the event of a foreign exchange crisis.
- These loans are exempt from automatic country risk provisioning applied by banking regulators
- Interest on the loans is exempt from tax, including withholding tax
- The loans are excluded from general country debt rescheduling as part of the London Club, and are not subjected to mandatory new money obligations under a general country debt rescheduling.

An IFI making a loan can open up *participation* in that loan to other banks, in a *syndication*. A good example is IFC: loans made on its own account are termed A Loans, while B Loans are those made on the account of banks taking part in the syndication. B Loans have the same status as A Loans in the following respects:

- IFC is the "lender of record", administers the entire loan and collects all repayments from the borrower
- IFC is committed to distribute payments pro rata among itself and the participating banks
- IFC cannot be repaid in full unless and until all participants have been paid in full
- Any default to a participant is regarded as a default to IFC.

[30] an organization in the KFW banking group.

Source: IFC Syndications (undated) a regular publication; www.ifc.org/syndications.

IFIs offer advantages compared to commercial banks, but do have drawbacks (***Box 12***).

Box 12. Dealing with the IFIs

Advantages	Disadvantages
Loan terms better than commercial banks because can borrow with sovereign guarantees	Processing slower and more cumbersome than commercial lenders because of need for thorough appraisal and due diligence enquiries
Can provide impartial advice to borrower and arrange technical assistance & capacity building	Lending decisions may be subject to political influence from shareholder governments and NGOs
Confer prestige ("halo effect") on a project or borrower, which makes commercial banks more ready to co-finance (e.g. on syndications)	Loans usually carry more onerous conditions than those made by commercial lenders
A range of products and services on offer: financing package can be tailored to client's needs.	

6.2 Bonds:

A bond (or *fixed interest security*) is a method of raising a capital sum by offering the purchaser (bondholder) the promise of repayment at a specified future date, in the meantime paying a fixed rate of interest. The bondholder can sell the security at any time (unlike a loan) provided a market exists. Movements in the market rate of interest are reflected in changes in the price of the bond[31]. Pros and cons of bonds are mentioned in ***Box 13***.

Box 13 Bonds

Advantages	Disadvantages
In a well developed financial market, with sufficient buyers and sellers, a bond is a liquid asset, which can readily be cashed (though its future market price will vary). Its liquidity makes it attractive to buyers	The transaction is very transparent and credit rating agencies will scrutinise the financial affairs of the issuer very closely. (From another point of view, this is beneficial). Any deterioration in the issuer's finances (particularly anything that causes a loss of investment grade status) could make future

[31] A rise in interest rates causes a fall in the bond price and *vice versa*.

	bond issues more costly – requiring the offer of a higher interest rate.
Savings and other financial institutions like to hold part of their assets in fixed-interest securities, to balance their holdings of cash, property and equities.	The bond issuer has to have a good credit standing, which normally limits the use of bonds to larger and financially solvent cities (e.g. Johannesburg recently made a $150 mn. Local bond issue, with a Partial Credit Guarantee from IFC and DBSA). However, see below:
The terms of the bond (length of maturity – tenor – and any intermediate repayments) can be adjusted to match the expected cash flow of the issuer. Water investments typically have a lengthy payback period and predictable cash flow, which lend themselves to bond finance.	The overhead cost of making a bond issue implies that there is a minimum economic size of bonds (probably $50-100 million). Bonds are uneconomic for small and medium sized towns, unless they can pool resources with other similarly placed municipalities (which has happened recently in Tamil Nadu, India, and the Philippines, in both cases supported by a USAID partial guarantee).

Sub-sovereign bodies entering the bond market expose themselves to the scrutiny of *credit rating agencies*, of which the largest are Standard & Poors, Moody's and Fitch Ratings, and their local equivalents and affiliates. These agencies subject the financial status of bond issuers to rigorous and comprehensive assessment, in order to give the bond a rating, which is a key indicator used by financial markets and potential buyers. Bonds with an *investment grade* rating – BBB- or higher on the Standard & Poors scale – can legally be bought by local pension funds and other institutional investors with a legal responsibility to their savers. Credit rating adds greatly to the transparency of sub-sovereign finance, permits peer comparisons, and creates a market discipline on local officials and politicians.

A number of cities in emerging markets have started issuing bonds for municipal development. In Africa Johannesburg made a recent issue, with the help of guarantees (***Box. 14***). Section below takes up the topic of guarantees in more detail.

Box 14 Bond issue in Johannesburg with a Partial Credit Guarantee (PCG)

IFC is providing a PCG for the rand equivalent of $30.4 million for a 12-year domestic bond issue by the City of Johannesburg. The value of the whole bond issue is $150 million. The issue is also supported by a local currency PCG extended by the Development Bank of Southern Africa which raises the total PCG to 40% of the total issue.

The bond's proceeds will be used to fund essential investment in infrastructure, especially water. electricity and roads. Part of the bond proceeds will also be used to

restructure the city's existing debt to improve its debt profile. The joint PCGs will help the city to diversify its investor base by upgrading the bond's local rating by three notches in the Fitch scale, from A- to AA-.

Source: IFC

There are a number of recent cases where municipalities have combined to issue *pooled bonds*, with credit enhancement provided by external parties. The US Development Credit Authority is active in this area (***Box 15***).

Box 15. US Development Credit Agency (DCA) programmes

In *Tamil Nadu, India*, the investment programmes for water supply and sanitation of 14 Urban Local Bodies have been combined in a Water and Sanitation Pooled Fund, which has been given credit enhancement through a 50% DCA guarantee. The Fund has issued 15 year bonds totalling $7 million with a 9.2% coupon, initially subscribed by 5 leading financial institutions, and subsequently disposed of at a premium in the secondary market. The majority of the investment is funded from borrowing, and will provide for the upgrading of water supply to very poor urban communities.

Sources: DCA information briefings & presentations

6.3 Equity finance & private operation.

Equity is a form of finance in which suppliers ("investors") share the risks of the undertaking in return for the prospect of sharing its profits too (***Box 16***). Equity does not necessarily have to be private – shares can also be issued by a public corporation or one with majority public ownership (a *partial floatation*) and they can be held by public agencies as well as by private individuals and companies. Certain IFIs can take equity holdings (e.g. IFC, EIB, EBRD, AfDB.

Box 16 The charms & risks of equity:

Advantages	Disadvantages
Financial risks are shared with the equity holder. Dividend payments can be deferred in years with poor financial results.	Taking one year with another, shareholders will expect to earn at least the market rate of return on their shares – which will usually be higher than the yield on bonds or bank loans. Equity is an expensive form of finance for public infrastructure.
Equity acts as a financial "cushion"	Shares can be bought and sold, hence

between a corporation and its lenders: the latter draw comfort from the existence of adequate equity finance, which takes the brunt of bad results. A well-leveraged[32] concern can raise loan finance on better terms than one that isn't.	ownership or controlling interest can change. This may be a sensitive political issue for basic public services.
Equity issues make the corporation more transparent to financial markets. The regular scrutiny of credit rating agencies can act as a stimulus to good practice.	

Equity has attractions as a potential source of finance in certain situations:

- For water utilities with sound finances, good cash flow and a good credit standing. This usually means large urban utilities with financial autonomy and a large degree of commercialisation.
- Where full privatisation is being considered, involving either divestiture of infrastructure assets or the formation of a company to operate publicly owned assets.
- The local capital market should be of a sufficient size and liquidity to ensure adequate and diversified take-up of shares. Institutional investors such as pension funds tend to be key players.

Some of the advantages of private equity (access to additional funds, commercial orientation, market disciplines) can be obtained without ceding public asset ownership. If preferred, infrastructure assets can remain in public ownership, and private companies can be awarded contracts for operation and management. Alternatively, private capital can be involved in joint ventures (with minority or majority holdings) with public agencies for either (or both) asset ownership or operation.

A good *independent regulator* is highly desirable to ensure that private equity works in the public interest[33]. In practice, regulation is an evolving art even in mature economies, and many countries manage with imperfect forms. A second best alternative to a good independent regulator is regulation by contract, with appeal to an independent arbitrator or access to international law.

Apart from the direct injection of capital for the purchase of assets, private companies can facilitate financing in other ways. *Management contracts* with private operators can

[32] Leveraging is also known as gearing: the ratio of debt finance to equity capital (+ add ref for anyone who wants to know more.).
[33] As noted earlier, regulation and accountability are also needed for public enterprises

improve an undertaking's efficiency and finances, and should enhance its creditworthiness. System concessions typically entail the concessionaire using its own finance on essential maintenance and investment during the period of the concession. BOTs[34], a common way of funding single asset or Greenfield items (e.g. water and wastewater treatment works, or major pipelines), entail the private partners raising finance on their own account and recovering their costs from operating revenues, before handing the asset back to the public client.

There is a growing body of small and medium-scale local private water operators in developing countries, some of which are able to tap local sources of finance (***Box 17***)

Box 17 Small Private Operators in Uganda and Mauritania

Although the local private operators in Uganda's Local Government Contracts are relatively small (typically serving towns of 10,000+ population) the experience has positive lessons for larger-scale ventures. Local Governments are grouped into Urban Water & Sewerage Authorities, each of a minimum scale ("cluster") to make the arrangement viable. UWSAs sign performance contracts with LPOs, typically of 1-2 years, with management fees made up of 5 components: base fee, water sales, billing, network maintenance, and new connections. Despite teething troubles of some operators, the overall progress of this programme has been encouraging. The Government's strategy is to put more emphasis on demand-driven approaches, setting clear rules of the game and clarity of access to funds, placing local governments in the driving seat over design and procurement, and progressing from management contracts to leases.

In Mauritania towns over 20,000 population are managed by the national water company, SNDE. In smaller towns local operators are engaged under 3-year delegated management contracts with a central body ANEPA. Currently 300 independent operators serve more than half of the national population. These operators out-perform water services in larger towns on key measures and have extended the systems they run. They have invested over $5 mn in their networks, even though such investment is not factored in to the water tariff, and nearly all is recovered from tariffs.

6.4 Guarantees & risk sharing

Insurance and guarantees are available to cover political, contractual, regulatory and credit risk[35] from both multilateral and bilateral development agencies. These guarantees have a *development* motive, as opposed to export credit and investment insurance, limited to firms domiciled in the country offering the guarantee, which has a *commercial* aim. There is also a large and active *private* market offering insurance

[34] Build, Own, Operate contracts. Other similar types are the BOOT, DBOT, ROT, etc.
[35] The study also discusses exchange rate risk, but concludes that insurance against this is currently not a practical proposition, though pilot testing of a possible scheme is under way.

against political, contractual and credit risks. This section considers external guarantees, rather than the *sovereign* guarantees offered by *national* governments to their own citizens, companies or sub-sovereign bodies when they borrow or attract direct investment.

Certain other instruments have a *quasi-guarantee* status, such as the "umbrellas of comfort" which IFIs and other agencies erect over other lenders and investors through participations ("B loans") and Municipal Support Agreements.

One important aim of guarantee programmes of IFIs and bilateral donors is the promotion of local capital markets as safe outlets for local savings and sources of longer-term capital for local businesses, microenterprises and other purposes.

The main risks entailed by lenders and equity investors in developing countries are:

> *Political* (war, civil disturbance, terrorism, kidnappings, nationalisation, expropriation without adequate compensation, restrictions on the conversion and transfer of foreign exchange needed for the project); Insurance cover is available from MIGA[36], other IFIs (through B loans[37]), bilateral official agencies and private insurers. This is a large, well established and active market, with supply well matched to demand.
>
> *Regulatory & contractual* (breach of contract by public offtaker[38], adverse decisions by regulators or other public agencies due to political pressure); cover is available from MIGA Breach of Contract policies and the World Bank's Partial Risk Guarantee. Few policies have been issued so far. The product is case-specific, complicated to draw up and recovery is normally difficult.
>
> *Credit* (late payment or default on loans made, or goods and services provided, for commercial reasons); *Partial Credit Guarantees* (define) are offered by IFC & other IFIs, some bilateral donors have *Partial Loan Guarantees* (define), and insurance policies are also sold by private monoline companies (specializing in providing financial guarantees).
>
> *Foreign exchange* (devaluation which increases the local currency cost of debt servicing, dividend remittances and other commitments in foreign exchange). This is not widely insurable from either private or official agencies. A more realistic alternative is the use of local finance, assisted where available by local

[36] MIGA is a multilateral risk mitigator, promoting foreign direct investment into developing countries, www.miga.org.

[37] Syndicated loans organised by the IFIs, and offered for *participation* by commercial banks and other institutions, and guaranteeing the latter the same *preferred creditor status* as the IFI.

[38] The public sector sponsor or client for which the project is implemented, and which purchases the output of the project (e.g. water or wastewater treatment). These purchases may be guaranteed through a *take or pay* deal which indemnifies the operator in case demand is less than expected.

currency guarantees to enhance the status and rating of local borrowers and bond issuers (e.g. IFC local currency PCG, and the Guarantco.[39]

Guarantees work by:

- Mitigating specific risks which are the critical sticking points on a project
- Enhancing securities (e.g. bonds) to take them over a critical threshold of creditworthiness
- Improving the terms on which borrowers and project sponsors can get access to loans and investment
- Giving lenders and investors exposure to previously unfamiliar markets and products

Box 18 gives an example of a guarantee that enables local savings institutions to have the confidence to take up bonds to finance a water utility.

Box. 18 Indonesian local bond issues for water

USAID is reported to be working with a local investment bank to provide a partial guarantee for a fixed rate 10-year local currency bond to be issued by one of the major local water utilities. If successful, this bond to a value equivalent to US$19 million would be the first of a number of other municipal issues for this sector. The bond proceeds are intended to finance the post-construction activities of the company. The US Development Credit Agency is expected to guarantee 30-40% of the first issue and the local investment bank will underwrite the issue. Fitch Ratings is producing a shadow credit opinion on this issue in the expectation that it will be sufficiently attractive to appeal to local pension funds.

Source: Global Water Intelligence, Oct 2006.

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[39] A new scheme promoted by the UK DFID and other agencies targeted at low-income countries and offering guarantees and counter-guarantees to institutions and companies raising local currency finance

Seven: Where to get more advice and information

Useful websites

Water & Sanitation Programme (WSP) www.wsp.org
EU Water Initiative (EUWI) www.euwi.net
IRC (International Water and Sanitation Centre) Netherlands (www.irc.nl).
ACP-EU Water Facility Key Sheets (europeaid-water-facility@ec.europa.eu).
Global Water Partnership (www.gwpforum.org).
World Water Council (www.worldwatercouncil.org).

General information on water and sanitation & MDGs

AMCOW, ADB, EUWI, WSP, UNDP, World Bank: Getting Africa on track to meet the MDGs on water & sanitation. Dec 2006.

McIntosh, Arthur C., Asian water supplies: reaching the urban poor. ADB & IWA, 2003

UNDP: Beyond scarcity: power, poverty and the global water crisis. Human Development Report, 2006

UN Millennium Project: Health, dignity and development: what will it take? Report of the Task Force on Water and Sanitation, 2005.

General guidance on water financing

IRC: Thematic Overview Paper, "Financing facilities for the water sector" 2006

Mehta, Meera: "Meeting the financing challenge for water supply and sanitation". World Bank/WSP, 2003

Mehta, Meera & Andreas Knapp: The challenge of financing sanitation for meeting the Millennium Development Goals. WSP, 2004

NORAD: "Financing water and sanitation-lessons from recent international reports". Report 2004-103.

OECD/DANCEE: Financing strategies for water and environmental infrastructure. 2003

Redhouse, David: "Getting to boiling point" WaterAid, UK. 2004.

Van Hofwegen, Paul: Enhancing access to finance for local governments & financing water for agriculture. Report no 1 of the (Gurria) Task Force on Financing Water for All. WWC/GWP, 2006.

Winpenny, James (ed): Financing water for all: report of the World Panel on Financing Water Infrastructure (the Camdessus Report): GWP/WWC 2003

For other references refer to the website: www.financingwaterforall.org

Water governance & Integrated Water Resources Management

Global Water Partnership: ToolBox for Integrated Water Resource Management. Hard copy available from GWP, Stockholm. Electronic version c/o: www.gwpforum.org

OECD EAP Task Force: Urban water reform in EECCA: progress since the Almaty Ministerial Conference. 2003.

Plummer, Janelle & Piers Cross: Tackling corruption in the water sector in Africa. WSP, Aug 2006.

Advice from professional peer groups is available from a new programme, Water Operators' Partnerships, under the auspices of UN Habitat, Nairobi. Amongst other things, the WOPs organises twinning schemes between water utilities.

There are various databases enabling benchmarking between different water utilities to enable them to make comparisons of their performance with others. The Water Utility Benchmarking Association draws data mainly from its members in developed countries (www.waterbenchmarking.com). For developing countries the International Benchmarking Network supported by the World Bank and programmes operated by the Water and Sanitation Programme for Africa (www.wsp.org) have similar aims.

Estimation of financial requirements

Lloyd Owen, David: Financing water and wastewater to 2005: from necessity to sustainability. Thomson, 2006

Toubkiss, Jeremie: Assessing the cost of meeting MDG Target 10: a comparative study of 11 estimates. World Water Council, March 2006

Affordability, cost recovery, & tariffs

Kolsky, Pete & Eddy Perez: "Sanitation subsidies: defining some issues". Presentation at World Bank Water Week, Feb 2007

National government finance

Blore, Ian, Nick Devas & Richard Slater: Municipalities and finance: a sourcebook for capacity building. Earthscan, for DFID and GHK, 2004.

Official Development Assistance (oda)

Clermont, Florence: “Official Development Assistance for Water from 1990-2004.” World Water Council, March 2006

DAC (Development Assistance Committee): Measuring aid for water. OECD, 2006

DANIDA: Guide to Joint Financing Arrangements. (on behalf of 8 bilateral aid agencies). Download from www.um.dk.

DFID: Meeting our promises: a third update on DFID’s work in water and sanitation since the 2004 Water Action Plan. 2007

Commercial finance

Andrews, Charles & Almud Weitz, Small scale private water networks: helping local entrepreneurs to invest. ADB Water for All Series no. 13. 2004

Baietti, Aldo & Peter Raymond, “Financing water supply & sanitation investments: utilizing risk mitigation instruments to bridge the financing gap” World Bank/WSP, 2005;

Dardenne, Bertrand: “The role of the private sector in peri-urban or rural water services in emerging countries”. Paper for OECD Global Forum, Nov 2006.

Mehta, Meera & Kameel Virjee, Financing small water supply and sanitation service providers: exploring the microfinance option in sub-Saharan Africa. WSP, Dec 2003.

Winpenny, James: Guaranteeing Development? The Impact of Financial Guarantees OECD, 2005.

WSP: Mobilizing market finance for water utilities in Africa. 2006

Useful websites:
Public Private Infrastructure Advisory Facility (PPIAF): www.ppiaf.org
Private Infrastructure Development Group facilities: (PIDG): www.pidg.org
Community-Led Infrastructure Finance Facility (CLIFF): www.homeless-international.org.

Water and Sanitation for the Urban Poor (WSUP): www.wsup.com