Financing basic utilities for all- a survey of issues

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Financing options at the international and national level

It is virtually impossible to obtain a precise aggregate figure of funding requirements for the achievement of the Millennium Development Goals (MDGs) in water and sanitations and to achieve universal access to electricity. Such numbers depend on a wide variety of factors including the technologies to be adopted, the level of services aimed for, and a country’s social, political and economic conditions. Yet, all existing estimates determine a large funding gap. The World Bank calculates a gap of approximately US$10 to US$25 billion per annum for the MDGs in water and sanitation. In a more conservative estimate, the UN Millennium Project Task Force on Water and Sanitation estimates a funding gap of US$6.7 billion per year (Lenton & Wright, 2005). For electricity, the numbers are staggering as well. The International Energy Agency (IEA) estimates that almost $700 billion of investment will be required to bring electricity to an additional 1.4 billion people (IEA, 2003).

Part of the reason for the large financing gap is that the level of cost recovery for both water and electricity utilities is very low. Consequently, governments cover the biggest share of new investments with the remaining balance coming from foreign aid and international loans and to a much smaller extend from private investments (Winpenny, 2003). More specifically, it is estimated that in the 1990s, 70% of infrastructure investment came from governments and public utilities, 22% from Official Development Assistance (ODA) and 8% from the private sector (World Bank, 2004).
In developing countries, public funding for water has been stationary. While increased investment in water and electricity is called for by surveys such as participatory poverty assessments (PPAs), little resources are allocated to these sectors because of their weak position within national planning strategies, the lack of consensus among different stakeholders in different sub-sectors, weak sector information and cost estimates. For what concerns ODA for water and sanitation, commitments have fallen in recent years to US$3.1 billion in 1999-2001 (Winpenny, 2003). Likewise, for electricity, ODA has been declining to US$3 billion in 2001 (De Castro, 2003). In addition, ODA for basic utilities tends to be allocated to countries less in need of it than others. For instance, the European Union estimates that countries in Sub-Saharan Africa with the least access to water, i.e. Mauritania, Ethiopia and Guinea receive much less of European Commission’s aid for water than Ghana, Burkina Faso and Tanzania (European Union, 2003). Loans from the main multilateral financial institutions to the infrastructure sector have also been decreasing by 47% from 1993 to 2002. This is mainly due to diminished lending by the World Bank (World Bank, 2004).

Meanwhile, private investment in water and electricity in developing countries is declining. In the 1990s, transnational water companies invested about US$25 billion in projects related to water management, especially in Latin America and Asia. This amount is lower than expected for many reasons, including perceived high risk involved in investing in poor countries, risks related to the capital intensive and long term nature of infrastructure. In addition, private investment has been concentrated in a handful of countries, which are not the most in need of improved access to water and electricity. Moreover, in recent years foreign corporations have started to back off as they have become more aware of the risk-reward tradeoff. This development was also a result of pressure by governments and social movements, as in the case of Aguas Argentinas (controlled by France-based Suez) and Suez in Bolivia, where disputes arose related to prices and quality of services. Also, legislation that prevents foreign corporations’ participation
in the water sector, as implemented in Uruguay, has discouraged foreign investments (UN World Water Assessment Programme, 2006; Van Hofwegen, Paul, 2006). For electricity, the trend has been very similar. While from 1990 to 1997 private sector investment in the power sector in developing countries has reached US$200 billion it has been on the decrease ever since (De Castro, 2003). Comparable considerations apply to commercial bank lending for both sectors, which has been declining in recent years (Winpenny, 2003). The problem is exacerbated by the fact that the ability of low–income country governments to raise funds domestically or on international capital markets is severely constrained due to poor credit ratings.

There seems to be a consensus that public budget resources, while insufficient, are likely to remain the biggest source of investment in basic utilities. International attention is thus focusing more and more on exploring and adopting innovative and more efficient and effective uses of existing national and international public resources (Ministerial Declaration of the International Conference on Freshwater in Bonn, 2001).

**Programmatic approaches**

Several proposals have been put forward for a more efficient use of ODA. In this regard, calls have been made for bilateral ODA to finance already existing international initiatives such as the African Water Initiative, the African Development Bank’s Rural Water Supply and Sanitation Initiative, or the Global Environment Facility (GEF). At present, instead, a good share of aid assistance is provided via bilateral grants with limited coordination between different donors, although steps have been taken to achieve a higher level of coordination (Van Hofwegen, 2006). In this regard, the Paris Declaration on Aid Effectiveness attempts to improve the alignment of assistance and monitoring, build institutional capacities, reduce transaction costs, and eliminate bureaucratic procedures.
Generally, for both national resources and development aid there is a tendency to shift from financing of individual projects to sector wide approaches (SWAPs). For national government resources this translates into a sector expenditure plan as part of a macro-framework. For donor support this means budget or basket support (often phased) linked to performance on agreed policy an institutional reform (Mehta, 2003). Different financing instruments exist for programmatic approaches.

All these different instruments are in line with the more recent concept of output based aid whereby both commitments and disbursement of resources are strictly linked with achievement of outcomes (Van Hofwegen, 2006). This follows the growing consensus that investments must be complemented with policy and regulatory reforms and institutional capacity building. There also seems to be agreement on the need to improve regulation and legal systems protecting creditors and investors’ rights, introduce reliable cost recovery schemes and implement effective systems of subsidies. Yet, there is an important trade-off: ODA channeled to policy and administrative reforms in basic utilities end up being much higher than funds effectively used for investments. In the case of the European Commission, for instance, two and a half as much aid goes towards policy reform than to water projects in developing countries (Hall, 2003). The World Bank reports that between 1993 and 2002 its infrastructure investment lending declined by 50%, while infrastructure components in adjustment loans increased 104%. At the same time, International Finance Corporation (IFC) investments rose by 88% and the number of Multilateral Investment Guarantee Agency (MIGA) guarantees increased by a factor of 30.² IFC and MIGA infrastructure business are still on the rise (World Bank, 2005).

² See www.worldbank.org/infrastructure
**Special fund mechanisms**

In the last two decades, resources to foster institutional reforms have been often channeled through special fund mechanisms. These special funds allow the overcoming of several factors such as a lack of acceptance by governments, vested interests of existing institutions, as well as a lack of capacity, transparency, and accountability of public funding systems. Special fund mechanisms are indeed independently managed and strictly linked to reforms. These funds are capitalized through public or donor resources and generally operate as revolving funds covering operational costs through interest earnings. Some of these schemes are established at the local level, others at country, regional or global level. At the local level, community development funds are active in providing finance to the poor and supporting good governance. One example is the Community Organization Development Institute (CODI) fostering institutional development to address urban poverty in Thailand. The Urban Reform Incentive Fund (URIF) in South Africa covers transaction costs of comprehensive reforms for the restructuring of large cities. At the global level, the Public-Private Infrastructure Advisory Facility (PPIAF) meets the design costs to explore private sector participation in delivery of infrastructure services (Metha, 2003).

**Capacity building**

It should also be considered that, currently, actual ODA disbursements are only half of the sums that have been pledged. Two of the main obstacles to increased funding are a lack of effective program structuring and project design. Enhancing local capacity becomes thus a priority (Van Hofwegen, 2006). The EU Water Facility for African Caribbean and Pacific as well as the EU Energy Initiative attempt to enhance capacity by giving access to international funding directly to local actors through a call for proposals. This strengthens the capabilities for project development and structuring by enhancing sectors’ preparedness to absorb greater resources and
by increasing their ability to use it more efficiently and effectively to achieve set targets (EUWI). The Camdessus Task Force on financing water has proposed the creation of a revolving fund to finance costs of preparation of complex projects. An alternative proposed for capacity building purposes is the use of public-public partnerships (PUPs) based on shared understanding of public services objectives, also known as ‘twinning’ (Hall, 2003).

Public resources to leverage additional funds

The efficient and effective use of existing public resources can attract extra financing from other sources. Much of the international attention is paid to the use of multilateral assistance to leverage private capital in water and electricity. The World Bank Infrastructure Action Plan, the European Water Initiative, the European Energy Initiative, Camdessus’s and Gurria’s Task Forces on Financing Water for All, all give high priority to the use of international loans and grants to attract private investment. This is envisaged through the introduction of innovative mechanisms to reduce risks faced by private sector both nationally and internationally. Emphasis in these reports is also put on exploring financing mechanisms and regulations to support decentralization. The Social Investment Fund (SIF) of the World Bank is one example of support provided to provincial-level initiative with the main purpose of increasing local investment (Mehta, 2003).

Calls are also made for official sources to be channeled into enhancing community contributions and enabling local service providers: aid could be used to support pro-poor tariffs thus enhancing collection capacity (Komives & Prokopy, 2000), to develop small providers financing and credit schemes, to provide technical support for demand-focused programmes and to build capacity of community groups and local private providers.
Innovative financing mechanisms

Proposals have been put forward also for innovative mechanisms to raise new finance for public providers. One example is the suggested creation of an international risk pooling mechanisms for public service providers in developing countries to borrow from international financial investors. These mechanisms would be similar to those intermediary mechanisms already used at the national level for financing municipality. Furthermore, the role of investment funds in developed countries is emphasized, which could specialize in raising funds and spreading the risk by investing in many different public water operations. Pension funds, attracted by long-term operations, may show some interest in such proposal (Hall, 2003; EUEI).

The Use of Conditionalities

The widespread use of programmatic approaches and output based aid generally involves the use of ‘trigger’ conditions. The IMF and World Bank are fostering the inclusion of privatization and liberalization of trade in services reforms in developing countries PRSPs. Also decentralization is at time prescribed as a condition for access to credit. In Indonesia for instance, structural adjustment loans supported the amendment of the national legal framework to allow private participation in water schemes. Similarly, privatization has been fostered for electricity distribution in Latin America (Balyss, 2001). In India, access to World Bank credit is dependent on implementation of a legal framework promoting administrative and fiscal decentralization (Alexander, 2005).

Conditionalities also include allocation of water to different users depending on the profitability of water use, departure from cross-subsidization, and reforming of tariff structures. These types of reforms are prescribed to developing countries through a series of mechanisms, such as the World Bank Country Assistance Strategies or the European Union National Indicative Programmes. This approach is shared also by the IMF, by most national development banks, and
by some bilateral donors. The IMF, signals countries as ‘off-track’ to private and official investors for lack of compliance on privatization (Alexander, 2005). Similar conditionalities are attached to debt relief initiatives such as the Highly Indebted Poor Countries initiative launched in 1996 by the World Bank and the IMF, now supported by the Multilateral Debt Relief Initiative. These initiatives allow countries to enter debt swaps as means to increase local currency funds available for social projects, including financing of basic utilities. Also, many recently created funds are only active in countries following the privatization, decentralization, liberalization mantra. The Private Infrastructure Donor Group of UK, Sweden, and Netherlands, for instance, provides capacity building and financial guarantees to countries and operators, yet it is mainly available for privatization concessions (Hall, 2003).

Opponents of conditionalities, argue that ‘one size fits all’ prescriptions should instead be replaced by local political decisions on governance issues. (Hall, 2003). In addition, the prescription for privatization is seen as a new version of tied aid as international investment in utilities is dominated by western multinationals. For instance, the water sector is dominated by Suez, Veolia Environment, and Saur (French); RwE (German) and Bechtel Corporation (US). Thus, it is believed that the specific reforms introduced to favor privatization tend to benefit only multinationals and not the local operators (Hall, 2003).

Financing options at the municipal level

Over the last decades the financing needs of municipalities to provide basic utilities have increased dramatically for at least three reasons. Firstly, rapid urbanization has become a global phenomenon. According to World Bank estimates, some 60 million people move into urban areas
of the developing world each year. This rate of movement is predicted to continue over the next 30 years. Urbanization has led to greater demand for investment in water systems, wastewater collection and treatment, electricity, and other facilities. At the same time, decentralization strategies in public utility provision have become more popular which has shifted much of the responsibility for this investment to local governments. Lastly, fiscal subsidies from central governments to municipalities have become fewer (Peterson, 2000). Yet, despite these facts there is only very little research available on the long-term-financing arrangements of municipal governments in developing countries (Martell, 2003). Further study is needed to explore how municipalities can attract cheaper and a greater amount of capital. Financing options include, inter alia, traditional municipal bank lending, municipal bond markets and pooled financing arrangements. There are a number of features associated with these different financing mechanisms that should be taken into consideration when discussing the role of municipal finance in the provision of basic utilities.

Municipal bank lending

Like traditional bank lending, municipal bank lending is characterized by the principles of relationship banking, delegated monitoring, and bundled pricing (Peterson, 2000, Diamond 1984). In most of modern financial intermediation theory literature, banks have been described as relationship lenders, that develop close relationships with their borrowers over time. These long-standing relationships between borrowers and lenders have been generally viewed as helpful in overcoming problems of asymmetric information by greatly facilitating monitoring and screening. For instance, in the history of Western Europe, municipal development banks, owned and/or regulated by the government, played an important role in satisfying long-term financing needs for specific economic sectors.

3 http://youthink.worldbank.org/issues/urbanization/
Municipal banks typically have long-established and stable relationships with local patrons. Due to their favored access to long term savings of central banks these institutions are able to lend to municipalities at below-market rates. As a result, they can provide valuable financial support for municipalities that are starved off commercial sources of finance. Moreover, a bank that is shielded from commercial competition can more easily establish a long-term relationship with the municipality. It can help with concrete tasks such as loan applications and it can assist in the structuring and formulation of investment projects.

Delegated monitoring has been analyzed as another benefit of municipal bank lending arrangements (Diamond, 1984). Where the municipal bank has privileged knowledge of the municipality’s finance and budget or even access to its accounts, it can support the handling of its payment system. It can also play a supportive role in budget management and assist in loan restructuring before it is too late and thus prevent actual debt defaults from happening.

One aspect of municipal banking with potentially market-distorting effects is the phenomenon of bundled pricing or the provision of bundled services. In relationship banking, credit-worthiness of the municipalities will not be reflected in price differentiation of services. It has been shown theoretically that bundled pricing generates welfare losses, both in terms of social welfare and in terms of consumer surplus (Aaron; Wildman, 1999).

In many developing countries the role of municipal bank lending has diminished substantially due to increased financial deregulation promoted by IMF and World Bank loan and credit programs. One of the specific targets of financial sector deregulation has been the abolition of preferential access of municipal banks to central government lending. This reasoning rests on the belief that there is often a lack of appropriate investment appraisal requirements on the side of
the municipal bank’s government loan provider (whether is the central bank, government loan boards or other government lenders). Borrowing on the commercial markets may be more expensive for municipal banks than taking out government loans. However, it may have a positive effect on the quality of the investment if commercial lenders require local authorities to properly plan, control and account for their expenditure (Murphy, 2005). On the other hand, as a result of increased exposure to commercial lending competition, municipal banks have to move away from providing long term lending and are forced to apply more short term lending strategies. Yet, typical commercial bank loans are on three to five year terms and often do not meet the needs of infrastructure investors, whose borrowing needs are better matched by the 15-30 year horizons of municipal banks. Consequently, many municipalities have experienced trouble repaying short term loans from internal revenue generation.  

4 The advantages and disadvantages of commercial bank lending versus government subsidized municipal banking critically depend on the level of financial sector development in a given country. Where a well functioning financial sector does not exist, state subsidized bank lending might represent one of the very few viable option to for municipalities to finance basic utilities.

**General constraints in developing national and sub-national bond markets**

Long-term bonds issued by local governments and local government-owned enterprises are usually referred to as "municipal" bonds. The successful experience of the U.S. in developing municipal bond markets has led many countries to believe that these markets can be a critical source of revenue for urban governments. Municipal bonds have the potential to enable local authorities to finance critically needed infrastructure with domestic private capital, as an

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4 As a result of a more competitive market environment many financing arrangements are facing increased volatility. This happened in the case of ICICI LTD in India, where a municipality used real estate lending (based on highly uncertain future prices of land) to finance construction costs (Peterson, 1999). These cases show that guarantee schemes do not seem to be an adequate substitute for farsighted project analysis and planning that comes along with relationship banking.
alternative to sovereign borrowing by national governments. However, the poorest countries often lack the financial infrastructure to recreate this experience, at least in the short run (Leigland, 1997). What is the potential of municipal bonds in developing economies and what innovative financing mechanisms can be used to make municipal bond markets more effective? In order to answer this fundamental question, it is helpful to identify some of the key constraints developing countries face in trying to establish a sub-national debt market.

At least seven types of constraints can be distinguished: (i) moral hazard; (ii) unreliable credit rating mechanisms due to a lack of market transparency and unsound financial management (iii) weakness of market governance; (iv) distortions in the framework for competition among market participants; (v) the lack of capacity for financial management by sub-national entities and, most importantly, (vi) a general scarcity of capital (Noel, 2000, Peterson 2000). As discussed above, municipal bank lending rests upon a privileged relationship with the central government based on access to preferential market rates. Moral hazard can arise where municipal lenders and borrowers rely on the possibility of being bailed out by the government in case of default. If municipalities can expect the central government to cover arrears accumulated on fiscal obligations there might be an incentive for suboptimal and excessive borrowing. However, it is important to reiterate here the potential benefits of delegated monitoring and relationship banking as discussed above. If the municipality receives budget management and loan restructuring support from municipal banks, moral hazard can be effectively limited. Where this type of relationship banking does not exist the timing and modalities of the intervention by the central government with the municipality is critical. A timely intervention can avoid an actual debt default and proper terms of conditionalities for future borrowing can further reduce the risk of moral hazard.
The lack of market transparency poses another severe constraint on the development of sub-national credit markets. A lack of disclosure and weaknesses of budgeting processes for local governments, as well as frail accounting, auditing and regulatory frameworks severely constrain the work of credit rating agencies. This is decisive as credit rating agencies are essential for the success of bond markets at all levels. In fact, almost all successful municipal bond financing markets rely on credit agencies. Yet, where these agencies are constrained by a lack of reliable data on local budgets, debt service obligations, and intergovernmental fiscal flows they can hardly make solid recommendations to market participants. One crucial element for successful development of municipal bond markets is thus the introduction of public disclosure guidelines. This would also help avoid economically unhealthy vested interest relationships between underwriter, credit-rating agency and issuer.

An effective judicial framework, including a government bankruptcy framework at the local level, helps protect the rights and obligations of borrowers and debtors at the sub-national level. Such a framework is often weak or absent at the municipal level in developing countries. Moreover, in many cases these institution are already weak at the national level and as result investors and financial intermediaries might be even more reluctant to enter the sub-national market. An issue that deserves particular attention might be the question of a lack of enforcing covenants on local government revenues pledged as collateral assets (Noel, 2000).

Capital grants, directed and subsidized credit to municipal lenders and borrowers is critical where there are no alternative financing sources available to fund essential public utilities. However, these special fiscal and/or financial privileges also have distortionary effects on resource allocation among competing sub-national investments. Maintaining the vital role of municipal financing institutions in financing essential utilities and services for the poor while at
the same time attracting commercial banks to infrastructure investment is a true challenge and deserves further research.

Finally, developing countries face a general scarcity of capital resulting from a shallow financial sector and underdeveloped or often non-existent insurance, pension and mutual funds. This type of constraint will hamper the successful development of the sub-national markets as much as it constrains the development of the overall credit market. Pension funds, in particular, have the potential to support the development of municipal bond markets. Through the purchase of government or municipal bonds, pension funds, who are generally the largest holders of long-term savings, can cater to the long term financing needs of municipalities. Indeed, more and more pension systems around the world are attracted by the long-term revenue streams of infrastructure investments, treating it as an asset class in its own right. Further research is necessary, however, on strategies to effectively utilize this mechanism in developing countries. Major challenges persist where pension systems are dramatically underdeveloped as is the case in Sub-Saharan Africa and many other least developed countries. In countries with a large informal sector, low levels of contributions and fiscal problems, fully funding pension systems is a particularly daunting task. At the same time, investing pension reserves is especially tricky when the economy is weak with an underdeveloped financial sector that provides very limited investment opportunities. Moreover, attempts by pension funds to become financial intermediaries in least developed countries were often unsuccessful and weakened the financial institutions even further (Barbone, Sanchez B., 1999). It would be critical to explore the factors that could make the relationship between infrastructure projects and pension funds a positive sum game. The ultimate goal must be to safeguard the value of pensions while not hindering investments in viable and profitable infrastructure projects (Vives, 1999).
**Constraints and challenges specific to developing sub-national bond markets**

Having discussed some of the basic impediments developing countries face in developing sub-national debt markets, one can turn to the more specific factors that are critical for the successful development municipal bond market. For a municipal bond market to thrive it is critical that issuers and investors are attracted in a sustainable fashion. From the viewpoint of the municipal bond investor the following factors are critical: (i) investor familiarity and confidence; (ii) the ability to trade securities in secondary markets; (iii) freedom to invest; (iv) acceptable investment return; (v) strong credit quality; (vi) transparency of risk; (v) assistance in interpreting information. From the viewpoint of the issuer, the following features are vital: (i) tolerable borrowing costs; (ii) long-term debt amortization; (iii) assistance for small borrowers; (iv) facilitative formal oversight.

It is beyond the scope of this paper to discuss these concepts in detail (see Leighland, 1997 for an elaboration) but it does not require much imagination to see the significant challenges some of these factors pose on emerging and developing economies. Those countries where infrastructure investment needs are the most severe often do not have the legal and procedural protections in place that are characteristic of major developed economies like the US. Much less have investors the opportunity to sell off their securities prior to maturity in these countries since secondary markets do not exist. Moreover, absence of government controls and tax exemptions can be especially painful requirements in countries where infrastructure needs are particularly great in certain areas while the general tax base is already very small. Similarly, tax-supported debt poses a major problem in most developing countries as local governments typically do not have sufficient tax revenues to pay back considerable levels of debt.

Challenges posed by the supply side of municipal bonds abound as well. Borrowing costs are usually high as investors demand a high compensation for high credit risk. Moreover, a lack
of experience and competitive pressure among financial firms in issuing bonds lead to high underwriting costs which further increases borrowing costs. Further research, based on concrete country experiences should explore how issuance costs could be reduced. Possible approaches could be to not require the underwriters to commit their own capital to the full purchase of the issued bonds or to directly place bonds with investors instead of offering them to the public competitively. Long-term maturities pose another challenge as uncertainty about timely debt payments by the issuer increases the reluctance of investors to commit in the long term.

**Pooled financing arrangements**

In concluding, even the most advanced market economies are bound to encounter severe challenges in building up successful municipal bond markets. Yet, these markets can play an essential role in complementing (and not necessarily replacing!) municipal bank lending. The crucial question is how developing countries could overcome some of these impediments. A possible solution could lie in some sort of collective approach to bond issuance.

Municipal development funds (MDFs) have been used successfully in the developed world, in particular outside the U.S. for local government debt financing. These funds access national bond markets for capital and then lent it on to local governments. There are a number of examples of MDFs in developing countries that either draw on national or international capital markets: For example, in Tamil Nadu (India), the Urban Development Fund (TNUDF) approves the applications of municipalities’ to draw on a World Bank US$80 million line of credit. In South Africa, a private intermediary fund, INCA, lends money to infrastructure providers, which it borrows money from capital markets. Investors appreciate its AA credit rating, diversified risk, and its own system for credit-rating municipalities (Hall, 2000).
Bond banks could be another alternative. A credible intermediary, such as the national government could establish a bond bank that collects all the borrowing needs of municipalities and issues a single class of bond backed up by a diversified pool of loans to municipal utilities. This would offer investors access to a diversified, geographically dispersed portfolio of borrowers, thus limiting exposure to narrowly-focused credit problems. Since the bond bank relies on its member municipalities to repay their individual loans, such an institution works better where the degree of diversification is higher, i.e. the defaults of some municipality could be offset by timely and reliable payments by others.

**Financing options at the local level**

In many countries of Sub-Saharan Africa, as well as South Asia informal small-scale service providers (SSPs) account for a large share of the serviced population. (Harper, 2000; Mehta & Virjee 2003). SSPs come in many forms: community-based small service providers especially for water and electricity/power schemes in rural areas; private small service providers particularly for water, sanitation, and electricity services in peri-urban areas; households as self-service providers for sanitation and household-level water facilities.

There is a clear understanding that small-scale provision and financing arise as a temporary solution to inadequate public utilities. A number of studies have concluded that people are willing to pay for alternative services. Briscoe and Garn (2005) show that in many peri-urban areas the poor pay up to 20-30% of their income for water. In addition, community initiatives are often justified based on the shared nature of the resource base requiring community awareness, appreciation, control, and benefit (Nigam & Rasheed, 1998). Also, small providers offer huge
savings in extending service coverage, as community-built utilities are less costly than those systems built by governments. (Snell, 1998).

Moral questions subsist on whether people at the local level should invest and spend in order to get and maintain basic utilities. The willingness to pay approach fails to fully take into account the ability of poor households to pay for utilities when they have to pay for other basic needs. Also, one should take into account other factors such as the dynamics of household decision-making to evaluate the ability to pay (Reddy & Vandemoortele, 1996; Nigam & Rasheed, 1998).

While the right of basic services for all clearly stands, cost-sharing by communities for such services remains nevertheless a reality when there is a gap in utilities provision. Clear government policies on community contribution and capital subsidy associated with a notion of basic service levels is required. Yet, in cases where communities are required to pay a high share or when communities or households develop water schemes through their own funding, sustainable access to finance would enable the development of more efficient, cheaper, and higher quality services without any adverse impact on affordability. For instance, in China where financing mechanisms for local rural providers are more developed, bills for water provision by local water utilities are lower than average, at 3.5% of household income.

**Small-scale service providers limited access to needed finance**

One of the main constraints with respect to the quality and the expansion of services by small-scale providers is the lack of access to financing (Collignon & Vezina, 2000). SSPs’ finance comes from earnings, savings, loans from friends and families, and lenders, usually informal. Community and private schemes recover costs through membership fees, connection charges, and tariffs. However, additional financing is needed. The nature of the demand varies across different types of SSPs. The potential demand for financing appears greater for community-level providers and small scale private enterprises given the higher capital
requirements for initial investments, major repairs, expansion or augmentation. Clearly, there is a wide variation in investment levels, depending upon the level of technology. For instance, manual latrine cleaners call for small amounts of finance compared to suction tanker businesses. Also, capital required depends upon different regulatory environments and different levels of utility development and coverage. For what concerns community-level providers, in most countries government subsidies are available for new investments, but decentralization policies and demand responsive approaches are leading to a decline in financing made available. Also, government financing is in general not obtainable for meeting the costs of repairs or for rehabilitation or augmentation of services. For private providers, the lack of access to credit for capital investments is often one of the most significant barriers to entry, which in turn limits competition. At the household level, requirement for finance are smaller, primarily to meet costs of family water and sanitation facilities, or connection fees to a community or urban scheme. Yet, these are sizable investments for most poor households, and access to credit would enable more households to install such household-level facilities, especially as government policy is shifting emphasis away from household subsidies.

The main constraints to credit for SSPs include their creditworthiness related to the availability of collaterals and the viability of projects. Secondly, high transaction costs make commercial lenders unwilling to process small loans. Thirdly, there is the issue of required returns linked to the affordability to pay for final users of the facility. For households and community initiatives, affordability relates mainly to connection charges and the initial capital cost respectively. Yet, the constraints are mainly of cash-flow type (Cockburn, Dyson & Kenward, 2000).

**Microfinance as a financing option**

Microfinance is one way to provide SSPs access to finance. Microfinance institutions (MFIs) have appropriate financial products to target poor groups, have more flexible collateral
requirements, and engage in group lending thereby addressing the creditworthiness and transaction cost barriers. The Grameen Bank has provided loans for water and sanitation facilities since 1992 (Nigam & Rasheed, 1998). Also, enhancement of income generating capabilities by MFIs provides poor households with the ability to pay and maintain their services. A clear distinction must be made between granting of credit for household facilities or for households contributing to community level facilities and credit to community based organizations or small scale private providers. In the first case credit risk is related to household saving and credit history. Also, there is a direct incentive to repay due to the direct benefit for the household. In case of newly set-up community level facilities and private enterprises, a credit history is not available and common community benefits may lead to higher risk of delays and defaults. In ongoing community and private schemes, a history of user charge payments and the possibility of linked service improvements facilitate granting of credit. Also, the risk is lowered, or can be better assessed, as the MFI establishes a relationship and cash-flow history with the community or private scheme.

Successful cases of microfinance are spread all over the world and cover both electrification projects and water and sanitation schemes. Successful experiences come from rainwater tanks in India, household toilets in Vietnam, village micro-hydropower Sri Lanka, community water supply in Ethiopia and Kenya, rural electrification in Guatemala etc.

Nevertheless, if the use of microfinance for shelter related credit has been high (Prahalad, 2004), the same cannot be said of infrastructure related credit, which is still rare. Despite successful cases, it is still to be clarified whether MFIs are an effective medium for increasing access to basic utilities. Firstly, many MFIs restrict their loans to amounts that are sometimes too small to meet the cost of local infrastructure requirements and grant only short term lending. Certainly, larger-scale supply solutions such as power generation or reservoir construction are not amenable to such approaches, even if considerable groups could be put together to pool financial resources. Thus a MFI-led approach appear most applicable either to urban or peri-urban
communities who are in close proximity to existing infrastructure facilities or to rural communities whose requirements could be met at a relatively low cost, e.g. provision of a community borehole, pump, latrines, etc. Secondly, there is in general very little experience of MFIs with regards to loan size and need for project preparation. In many cases technical assistance must accompany MFIs financing generating further requirement for finance of government subsidies. Thirdly, the problem of refinancing of loan portfolios arises. Most MFIs engaging in financing for local utilities development are not refinanced by commercial banks at commercial rates, but by members own finance and public sector organizations. This raises the issue of sustainability of utility financing through MFIs sources and of the involvement of the wider financial community.

**Alternative options for financing small-scale service providers**

Leasing and hire purchase, enabling households to spread the cost of the system over a long period of time, represents an alternative to microfinance. Examples come from household photovoltaic (PV) solar power systems. Yet, the wealthier rural households tend to be the ones who benefit the most from this financing method. Consumer credit, whereby utilities extend credit to consumers, is another option. By spreading connection costs over a number of regular monthly payments, utilities may address cash-flow constraints for households. Also, the utility can profit by charging an interest to the consumer. If the utility is able to cut off consumer for non-payment, they have an effective collateral equivalent. This approach has been used in the Chilean rural electrification programme). Nevertheless, the assumption here is access to credit at reasonable rates for the community or private provider.

Other models are revolving funds for covering capital costs. The capital costs are recovered with regular repayments of the recurrent costs over a period of time. In such approaches the community mobilizes and manages the resources itself.
The broader framework for financing of small-scale service providers

Several issues shall be explored further when addressing mobilization of finance for local level utilities. To scale-up services, there is a clear need to create links between existing financial mechanisms and formal financial institutions. Greater information exchange and transparency should be promoted. Mehta (2003) provides the example of CLIFF, a partnership of UK based Homeless international and its Indian partners and local organizations.5 The initiative combines project development support, partial guarantees for risk mitigation and accessing market-based investment funds in the attempt to scale-up existing local utilities. Also, many raise the issue of financing space for leveraging community resources. Demand for, risks and outcome of local financing for basic utilities are related to government subsidy policy and associated culture. In China, micro-financing of local schemes seems to be successful due to the absence of a culture of subsidies. Other issues which require further exploring are information constraints and high transaction costs incurred by local financial institutions. Further development of credit rating agencies or rating of local infrastructure projects could address these matters. For new community or private schemes, experience teaches the importance of coordination with governments and facilitating NGOs, both of which can mitigate risk. In general, financial institutions need to further explore the possibility of local utility markets. Credit mechanisms specifically taylored for financing of utilities can be developed, while continuing the study of tariff setting, cost recovery policies, and connection costs. For instance, companies (e.g. New Infrastructure Development Finance Company – IDFC – in India) exist, which explore opportunities for financing the private sector for decentralized utilities. It is too early to access performance of these companies. Yet, careful monitoring should be ensured to expand evidence on what works, under which conditions,

5 Homeless International is a charity internationally supporting community-led housing and infrastructure related development in partnership with local partner organisations.
and why. More evidence is needed also on financing of community and household utilities (CREPA, 2000).

Realization and articulation of finance mobilization at the local level must of course be combined with the appropriate policy and regulatory frameworks. For instance, the legal basis of community organizations will influence the risk perception of the lenders (Harper, 2000). Also one should define clear and firm legal basis for group investment, transparent procedures for handling money and ensuring accountability, as well as guidelines for the role of local governments (e.g. monitoring and regulation). For private providers there is a call for transparency in contracts, efficiency in billing and collection systems, and regulation to ensure fair competition (Snell, 1998). SSPs cannot survive as enclave and thus need an appropriate sector framework providing necessary incentives and making sustainable access to credit possible (Chandavarkar, 1994).
Paying off the debt: ensuring the sustainability of access to utilities for all

Cost recovery

During 1990s frustration with inefficiency and low quality of services, as well as limited capabilities for expansion, led to condemnation of utility subsidies in favor of full or at least increased cost recovery. The notion of cost recovery refers to the practice of charging consumers for the cost of providing services. The idea of cost recovery rests on different arguments. Firstly, there is the fiscal rationale: the need for governments to reduce tax burdens. This pressure is more and more felt at the local level as municipalities face cutbacks in national transfers and compete to attract human and financial capital. Secondly, cost recovery is backed for sustainability purposes, i.e. to ensure availability of funds for infrastructure upgrade and extension. This would increase coverage to poor and costly areas as well as quality of services. Thirdly, a moral argument can be made, for the need for consumers to value the use of services appropriately.

Finally, it is believed that cost recovery promotes efficiency, accountability, and transparency by providing clear financial indicators of performance. (McDonald, 2002). Costs to be covered are diverse. They may include economic costs and benefits, for instance the lost value of water for other usage, gains from the productive use of electricity, environmental costs, or positive and negative externalities. In addition, information system development, monitoring, and regulation costs may be recovered. Yet, typically cost recovery includes only the costs of development of community institutions and capacity as well as systems construction, operation, and maintenance. More seldomly, cost recovery also includes systems rehabilitation and/or extension (Cardone & Fonseca, 2003).
Tariffs

Tariffs establish the level of cost recovery that utility providers achieve by directly charging end-users. Tariffs are generally set at the national level and, more rarely, at the community level. One main distinction among different types of tariffs is based on whether services can be measured in volumetric terms. Fixed charge tariffs, or single tariffs, are usually used when it is impossible to measure the service in volumetric terms. Under this type of tariffs, consumers pay a fixed amount independently of the volume of water or electricity used. This type of tariffs is very simple to administer, but it creates no incentives for conservation.

For services that can be measured in volumetric terms, the option is that of a constant volumetric tariff, whereby all the customers pay the same per unit of water used. These tariffs are more complicated to administer, yet they encourage resources conservation. For equity considerations, both fixed charge tariffs and volumetric tariffs can be adapted to charge different consumers differently. In the case of fixed tariffs, differential rates can be applied based on household income, property valuation, types of users, pipes diameters, number of taps etc. For volumetric tariffs, users may pay differently for different consumption levels. This means that a certain degree of subsidy is introduced.

Other typical tariff structures are seasonal, zonal and output-based tariffs. Seasonal tariffs may be applied for water utilities. In Chile, for instance, seasonal tariffs are widely used to encourage conservation during drier seasons. Zonal tariffs are related to resources availability per areas (e.g., in the case of water) and costs of providing services in different zones. This means that zonal tariffs are higher for areas with scarce water availability and in difficult to reach areas. Although zonal tariffs are not formally applied, remote communities do pay more because they purchase water from resellers, as they are not reached by official utilities. Finally, output-based
tariffs are new tariffs, not yet used, whereby users should pay based on a schedule of improvements of service promised by the utility.

The need for increased cost recovery contextual to privatization in the 1990s led to steep price increases in electricity and water and sewerage networks. As the poor spend a higher percentage of their income on these services than the better-off, they have been hurt the most. A number of studies have revealed that the amount and structure of these price increases have produced increased inequity, e.g., in Peru (Birdsall & Nellis 2002). Also, elimination of illegal connections by private utilities has hurt the poor disproportionately and has accounted for a significant amount of the increased price impact. The scale of illegal hook-ups to electricity is vast in poor areas: for example in Argentina 436,000 of first 481,000 additional subscribers were those with illegal connections (Birdsall & Nellis 2002). These people under privatisation went from a zero price to a price that was higher than the old state price for electricity supply. This has led to an increase in income inequality and exclusion of many of the poor from services. Also, utility privatization has led to network expansion only in urban areas. The rural poor have been generally left with the infinite price of no service at all. This is seen in Peru, Argentina, Bolivia, Mexico and Latina America in general (Birdsall and Nellis 2002).

At present, tariffs in developing countries are usually set well below the level needed to cover operation and maintenance costs. 39 percent of average tariffs for water utilities do not cover operation and maintenance costs. 30 percent of water utilities tariffs are too low to contribute to capital costs (World Bank, 2005i). In electricity, the tendency to under-price service is less prevalent, yet 50 percent of electricity utilities worldwide have average tariffs unable to cover operation and maintenance and 44 percent have tariffs which do not make any contribution to capital costs (World Bank, 2005i).

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6 Data from a Global Water Intelligence surveys covering 132 major cities worldwide.
In a nutshell, a substantial proportion of population in developing countries finds it difficult to pay the full cost of service, even if it may be able to pay consumption charges. Full cost recovery has practically failed even in countries with political will to pursue it (World Bank, 2005i). At present, the World Bank (2005i) estimates that to raise prices to achieve full cost recovery would on average increase poverty headcount by 2-3 percent.

**Subsidies**

The use of subsidies is widespread for equity considerations. That is mismatch between the affordable tariff levels and connection charges and the costs of providing the service (Mehta, 2003). Subsidies are prevalent also due to characteristics of the cost structure of basic utilities. Firstly, providing basic utilities implies a relatively high proportion of fixed costs to total costs. This means that the economically efficient pricing solution (i.e., marginal cost pricing) does usually not lead to full cost recovery unless demand, i.e., the consumer’s ability and willingness to pay increases significantly. Secondly, there is a high percentage of common costs, which are difficult to allocate to different consumers. Thirdly, high capital intensity of water and electricity combined with long asset lives leads to under-pricing of services in the short and medium term.
### Average Water Tariffs and Probable Degree of Cost Recovery. Source: World Bank 2005i

<table>
<thead>
<tr>
<th>Grouping of water utilities</th>
<th>Average water tariffs (US$/m³)</th>
<th>Too low to cover basic O&amp;M</th>
<th>Enough to cover most O&amp;M</th>
<th>Enough for O&amp;M and partial capital</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Median</td>
<td>Min.</td>
<td>Max.</td>
</tr>
<tr>
<td>Global</td>
<td>0.53</td>
<td>0.35</td>
<td>0.00</td>
<td>1.97</td>
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<tr>
<td>By country income level</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIC</td>
<td>1.00</td>
<td>0.96</td>
<td>0.00</td>
<td>1.97</td>
</tr>
<tr>
<td>UMIC</td>
<td>0.34</td>
<td>0.35</td>
<td>0.03</td>
<td>0.81</td>
</tr>
<tr>
<td>LMIC</td>
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<td>0.22</td>
<td>0.04</td>
<td>0.85</td>
</tr>
<tr>
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<td>0.09</td>
<td>0.01</td>
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</tr>
<tr>
<td>By region</td>
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<td></td>
</tr>
<tr>
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<td>1.04</td>
<td>1.00</td>
<td>0.00</td>
<td>1.97</td>
</tr>
<tr>
<td>LAC</td>
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</tr>
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<td>0.15</td>
<td>0.03</td>
<td>1.17</td>
</tr>
<tr>
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<td>0.25</td>
<td>0.20</td>
<td>0.04</td>
<td>0.53</td>
</tr>
<tr>
<td>ECA</td>
<td>0.13</td>
<td>0.16</td>
<td>0.01</td>
<td>0.20</td>
</tr>
<tr>
<td>SAS</td>
<td>0.09</td>
<td>0.06</td>
<td>0.02</td>
<td>0.22</td>
</tr>
</tbody>
</table>


Note: Average tariffs are based on residential consumption of 15 cubic meters. Data are drawn from utilities serving 132 major cities worldwide, broken down geographically as follows: OECD, 47; South Asia (SAS), 24; Latin America and Caribbean (LAC), 23; East Asia and Pacific (EAP), 19; Middle East and North Africa (MENA), 12; Europe and Central Asia (ECA), 6. The same group of countries is broken down by income group as follows: high-income (HIC), 52; upper-middle-income (UMIC), 18; lower-middle-income (LMIC), 27; lower-income (LIC), 35. O&M = operation and maintenance.

a. Based on GWI 2004 (box 2.4).
Average Electricity Tariffs and Probable Degree of Cost Recovery. Source: World Bank 2005i

<table>
<thead>
<tr>
<th>Grouping of electricity utilities</th>
<th>Mean</th>
<th>Median</th>
<th>Min.</th>
<th>Max.</th>
<th>25th percentile</th>
<th>75th percentile</th>
<th>Too low to cover</th>
<th>Enough to cover</th>
<th>Enough for O&amp;M and partial capital</th>
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</thead>
<tbody>
<tr>
<td>Global</td>
<td>0.08</td>
<td>0.07</td>
<td>0.01</td>
<td>0.21</td>
<td>0.05</td>
<td>0.10</td>
<td>15</td>
<td>44</td>
<td>41</td>
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<tr>
<td>By income</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIC</td>
<td>0.12</td>
<td>0.11</td>
<td>0.06</td>
<td>0.21</td>
<td>0.09</td>
<td>0.13</td>
<td>0</td>
<td>17</td>
<td>83</td>
</tr>
<tr>
<td>UMIC</td>
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<td>0.06</td>
<td>0.04</td>
<td>0.14</td>
<td>0.05</td>
<td>0.09</td>
<td>0</td>
<td>71</td>
<td>29</td>
</tr>
<tr>
<td>LMIC</td>
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<td>0.05</td>
<td>0.03</td>
<td>0.14</td>
<td>0.04</td>
<td>0.08</td>
<td>27</td>
<td>50</td>
<td>23</td>
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<tr>
<td>LIC</td>
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<td>0.01</td>
<td>0.13</td>
<td>0.04</td>
<td>0.06</td>
<td>31</td>
<td>44</td>
<td>25</td>
</tr>
<tr>
<td>By region</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>OECD</td>
<td>0.12</td>
<td>0.11</td>
<td>0.06</td>
<td>0.21</td>
<td>0.09</td>
<td>0.13</td>
<td>0</td>
<td>17</td>
<td>83</td>
</tr>
<tr>
<td>LAC</td>
<td>0.09</td>
<td>0.09</td>
<td>0.05</td>
<td>0.14</td>
<td>0.06</td>
<td>0.10</td>
<td>0</td>
<td>47</td>
<td>53</td>
</tr>
<tr>
<td>ECA</td>
<td>0.06</td>
<td>0.04</td>
<td>0.02</td>
<td>0.14</td>
<td>0.04</td>
<td>0.08</td>
<td>31</td>
<td>38</td>
<td>31</td>
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<tr>
<td>EAP</td>
<td>0.05</td>
<td>0.05</td>
<td>0.01</td>
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<td>0.06</td>
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<td>SSA</td>
<td>0.05</td>
<td>0.06</td>
<td>0.03</td>
<td>0.08</td>
<td>0.04</td>
<td>0.06</td>
<td>29</td>
<td>71</td>
<td>0</td>
</tr>
<tr>
<td>SAS</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>0.05</td>
<td>0.04</td>
<td>0.05</td>
<td>33</td>
<td>67</td>
<td>0</td>
</tr>
</tbody>
</table>


Note: Data drawn from 84 countries worldwide, broken down as follows by region: OECD, 23; Latin America and Caribbean (LAC), 19; Europe and Central Asia (ECA), 18; Sub-Saharan Africa (SSA), 13; East Asia and Pacific (EAP), 8; South Asia (SAS), 3. The same group of countries is broken down by income group as follows: high-income (HIC), 23; upper-middle-income (UMIC), 18; lower-middle-income (LMIC), 26; lower-income (LIC), 17.

O&M = operation and maintenance.
a. Based on Foster and Yepes 2005 (box 2.3).
**Who pays for subsidies?**

Subsidies may be paid by service providers through internal cross-subsidization. This happens when one group of customers pays a relatively high price for a certain service and thus enables another group to pay a relatively low price for the same service. The two most common forms of cross-subsidization are for industrial/urban customers to pay prices in excess of costs to subsidize residential/rural consumption, and for high-volume consumers to subsidize low-volume users. In Gabon, the national water and electric utility uses profits from urban electricity supply to subsidize water and electricity service in small towns and rural areas. Cross-subsidies allow utilities to achieve cost recovery without relying on central government transfers. However, cross-subsidization has its risks. Customers have the option of reacting to cross-subsidization by disconnecting themselves from the public network and by arranging their own private supply of water, or by relocating to a different service area. For instance, the cross subsidization scheme between urban and rural customers introduced in the Ivory Cost in the 1980s failed as industrial customers exited from the public network. (Mehta, 2003).

Subsidies may also derive from allocations by government (local or central) or donors. The total value of subsidies represents a large share of public expenditure and utility costs. The most prominent examples of government-funded subsidy schemes come from the countries of the former Soviet Union. Generally, power and water sector subsidies remain an important fiscal drain in many regions of the world. For instance, electricity subsidies in India and Mexico exceed 1 percent of GDP. Fiscal transfers for drinking water and sanitation tend to be smaller as a percentage of GDP: in India, for example, drinking water subsidies have been estimated at 0.5 percent of GDP (World Bank, 2005i).

The government subsidy can be provided directly to consumers or to service providers. In the first case, targeting may become an issue, while in the second case, problems may arise if resources transferred by the government to the utility will be absorbed in the form of inefficiency.
In any case, the risk is that the government may fail to deliver the necessary resources. This risk is borne directly by the customer or directly by the utility. In Chile, utilities not adequately reimbursed by the government are allowed to stop providing the service. Because such a move would be politically unpopular, this requirement provides strong incentives for government officials to ensure that transfers happen effectively. In many other countries, a lack of transfers from the government translates into lower quality of services.

It is important to note that only a subgroup of the general public ultimately pays for utility subsidies, in the form of higher taxes, higher utility prices, or deteriorating utility service. Which subgroup of the general public depends according to how taxes are raised, how cross-subsidies are structured, and how service restrictions are allocated across the population. Thus, funding mechanisms can play important roles in determining the distribution of the net benefits of the subsidy (World Bank, 2005i).

**Consumption versus connection subsidies**

There is one prominent dimension of subsidy design: consumption versus connection subsidies. Consumption subsidies attempt to make service less expensive to existing utility customers on a continuing basis. The defining feature of consumption subsidies is that they are available only to current utility customers. Consumption subsidies may operate through the tariff structure, may appear as a percentage discount applied to customer bills, or may take the form of a cash transfer to reimburse households for utility expenditures. Consumption subsidies are widespread both in water and electricity sectors. They may take different forms. Consumers may be charged differently based on their level of consumption (self-selection quantity targeting), they may be charged differently based on different type of service they use (self-selection service-level targeting), or may be selected administratively (e.g., social tariffs for the poor, geographically differentiated tariffs etc.). In the water sector, it is very common to find higher average prices for
urban areas than rural and thus cross-subsidization between the two classes of consumers. Most water tariffs structure are based on quantity targeting. Nevertheless, in Latin America, Europe and Central Asia social tariffs are also used, usually on the basis of means tests. In Africa and Asia, it is common to see service-level targeting, e.g. free water at public water taps. In electricity, differential pricing between urban and rural areas is less common than in the water sector, due to increasing liberalization of power markets and the sensitivity of industries to electricity pricing. However, the use of special social tariffs for lower income households is used extensively. Quantity targeting is also widespread, although less than in the water sector. Finally, service level targeting is quite rare.

Recent studies have shown that consumption subsidies hardly reach the poor. Most quantity based subsidies are highly regressive. The first main reason is that many poor households do not benefit from these programmes simply because they are not connected to the network. Also, application of quantity subsidies requires well functioning meters, which are unlikely to be found in poor households. Secondly, differences in consumption between poor and non poor are less relevant than thought. Thirdly, fixed charges lead to higher unit price for small consumers than large consumers.

One possible answer is the reduction of the subsidy threshold of quantity subsidies while raising the rate charged in the unsubsidized portions of tariff to more than the average cost. Yet, more radical solutions, such as expanding coverage and metering are also needed. Other consumption subsidies, such as administrative or service level targeting, are more progressive. In Chile, social subsidies based on means-testing were introduced in the 1990s to mitigate effects of increases in water prices. Utilities apply a discount to water bills of eligible households and then they are reimbursed by the government. This mechanism tends to be more effective in reaching the poor, yet it requires government capacity to administer means-testing.
systems. In Bangalore, subsidies are provided to those obtaining water from public taps: the shortfall here is that subsidies are relatively small and there is a large margin of exclusion error, i.e. many poor households have private taps in urban areas.

Connection subsidies, by contrast, are one-time subsidies that reduce or eliminate the price that customers pay to connect to the system. Thus, they are available only to unconnected households. These subsidies may come in the form of partial capital grants for rural schemes for instance. They are used both in water and electricity sectors. Connection subsidies do reach the poor more as they tackle the main problem of non-access to the network. Also, it is believed that while initial cost of connection may be an obstacle, many are able to pay regularly for water use. Yet, both financial constraints in expanding utility networks in all geographical areas and poor households non-financial obstacles to connection (e.g., legal title to the property they occupy) may reduce their impact (World Bank, 2005i).

**Targeting**

Another dimension to be taken into account is that of targeting. Subsidies may be untargeted, i.e. generalized under-pricing of service. Otherwise, they may be targeted to certain groups as seen above. Targeting subsidies to fewer households causes fewer distortions in consumption decisions. This is because target subsidies may be more genuine if based on considerations of level tariff required for financial viability of provider, minimum required consumption of service and prevailing income levels among consumers. Nevertheless, untargeted subsidies, as seen, is widespread as utility services are generally under-priced due to the characteristics of the cost structure for water and electricity. In general, under-pricing is more widespread in the water sector.
Incentive-linked Subsidies

Incentive-linked subsidies, generally referred to as output-based aid (OBA), move away from the traditional approach to public spending for utilities. OBA defines objectives in terms of outputs instead of inputs. Briefly, if traditionally subsidies are provided to municipal departments or utilities based on inputs for services, OBA foresees transfer of subsidies to utilities as reimbursement for each qualified customers receiving the service. For this to happen, service delivery must be delegated to third-party providers. OBA would reach the poor by providing subsidies for their actual consumption. In addition, incentive-linked subsidies are believed to be more transparent and to maintain market incentives. OBA would mobilize private funding, enhance efficient use of public funds, and reach the poor.

One example comes from Chile’s water utilities. Private water utilities provide the service to the poor at discounted rates for a certain amount of cubic meters per month. The water companies than gets a reimbursement (subsidy) from the municipal government for each qualified customer that receives the service in relation to the water consumed. In this case, the subsidy is a consumption one and success is related to almost universal coverage in urban areas. Incentive-linked subsidies can be used also used as connection subsidies. In Cote d’Ivoire utility providers are reimbursed for each customer residing within 12 meters of a utility main and obtaining a 15-millimeter domestic connection.

Nevertheless, OBA has its own problems. Firstly, it is difficult to design contracts providing the right incentives for efficient and well targeted service delivery. It is indeed complex to clearly define results, yet indicators are critical for OBA’s impact on providers. In the above mentioned case of Cote d’Ivoire, subsidies have accrued to over 90% of connections installed over the past 10 years, while failing to reach the customers that do not reside within the areas served by the utility networks, most probably the poorest. Secondly, many types of perverse
incentives can arise: for instance, providers may reduce quality to cut costs as quality is difficult to specify. In the case of Cote d’Ivoire providers had incentives to maximize the connections and subsidies have been claimed for reconnections after cut off for lack of payment of tariffs. Thirdly, not all providers are eligible as they must be ready to respond to incentives and operate at a distance from regulators and the funding source. This means that international private sector, small-scale service providers and community groups or NGOs are the best suited providers for output-based schemes. It is also to be highlighted that OBA is costly and capacity is needed to collect the necessary information on poor customers. In addition, choosing the form, level, and structure of payment is crucial for success. For instance, the lack of up-front payment may automatically exclude all providers facing difficulties in mobilizing financing for service delivery (refer back to session XXX: community finance). Also, administering an OBA system is not easy nor it is designing effective administration. Finally, for ODA to work properly appropriate governance and monitoring systems must be in place (Brook & Petrie, 2001; Meetha, 2003).

**Implicit subsidies**

A final dimension of subsidies, is implicit versus explicit targeting. Implicit targeting derives from low collection rates, illegal connections, flat fees for unmetered connections, single volumetric charges (see tariff section). Briefly, implicitly, certain customers end up paying less than others, for instance simply because it is harder to collect their tariffs or because they illegally receive water and electricity. In the water sector, implicit subsidies are mainly associated with unmetered service. Also, implicit subsidies derive from combining water and sewer services, especially in Latin America and Asia. In practice, those who do not have sewer service end up cross-subsidizing those who have. Also, many water utilities have low collection rates and many illegal connections, which means that nonpaying household are subsidized by paying households. In electricity, implicit targeting is less widespread. This is due to almost universal metering levels. Yet, also here, low collection rates and widespread illegal connections remain a problem.
Implicit targeting is an unplanned and non-transparent use of subsidization resources and it may compromise the success of explicit subsidization.

Invoicing and collection

One of the challenges in cost recovery is getting people to pay. The enforcement of cost recovery requires a billing system that informs consumers of their payment obligations and collection mechanisms which ensures the payment of bills. Difficulty in collecting payments in many developing countries derives mainly from a history of non-payment, the lack of a convenient payment place, and organizational/administrative problems.

The traditional problem of non-payment in South Africa is tackled through different strategies that have been applied elsewhere as well. One choice is the use of pre-paid meters: households buy and recharge cards in shops and are able to get water from standposts for the amount contained on their card. This and other similar pre-payment systems collect money in advance and do not allow consumers to go into default (Mc Donald, 2002). Another interesting feature of billing and collection in the South African projects is the tying of revenue collection efforts to service improvement. Payment for services is actively encouraged only for properly functioning utilities: as utilities performance improves, so should revenue collection. Collection of payments may prove more difficult in informal and unorganized settlements or in rural areas. In this case, the set up of new community-level institutions, e.g. a utility committee, may help implementing cost recovery. The committee members can be made responsible for collecting periodic fees from households. Chances of success are higher if some incentives are introduced for committee members to do charge tariffs: in the simplest water systems – boreholes with diesel pumps and standposts – water service stops if the water committee has not collected the money to buy diesel for the pump.
A solution to billing problems may be the preparation of one bill for entire communities while giving responsibility for collection to the communities themselves. A similar alternative is the organization of households into neighborhoods for billing purposes. Many alternative systems may be proposed, such as collection of payments through banks and supermarkets or community churches. In many developing countries, improvement of customer relations is also an option. Allowing consumers to express their concerns and complaints as well as give their input for system operation and maintenance through interactive programmes leads to higher cost recovery.

Punitive measures/threats used to persuade and force consumers to pay their bills, such as cutoffs and evictions are also used worldwide. Yet, these systems are not only expensive to administer, but also politically sensitive. (Komives & Prokopy, 2000; McDonald, 2002).

In general, identifying billing and payments systems perceived as adequate by consumers may prove helpful. Most tariff and subsidy related mechanisms require tailored administrative solutions. Strong regulatory and monitoring systems are also necessary and often missing (Mehta, 2003; World Bank, 2005i).

Evidence shows that at present resources for basic utilities are often inefficiently used and do not reach the poor. It seems that full cost recovery cannot be achieved merely or mainly through tariffs. The poor would pay a high price. Some sort of subsidization is widespread and necessary. The challenge rests on the design and implementation of tariff and subsidy structures more appropriate to each local context. Preservation of economic incentives must be taken into account. Most importantly, it is important to learn from experience in order to ensure that cost recovery encourages access to basic utilities for the poor. For what concerns tariffs, administrative simplicity and low cost of collection and administration improve chances of success. Solutions tailored to each local context must be researched and dialogue with communities for this purpose encouraged. Innovative solutions shall be explored, such as output based tariffs. The potential problem here is the impossibility of applying cross-subsidies as
customers are directly responsible for recovering costs of improvements of the utility they use. Also, output-based tariffs assume low mobility of the population, which is not the case in many developing countries. With regard to subsidies, there is some agreement that connection subsidies may be a better option over consumption subsidies. Yet, continuous research is needed. For instance certain approaches to connection subsidies have been more successful than others. Community approaches to design and implementation of access subsidies have had more success because of the creation of a good environment for demand promotion. There are numerous examples for this in the case of sanitation services (maybe add some evidence here). Often, household subsidies do not achieve this result. Also, connection subsidies should be linked to the idea of providing a basic service level. The cost of basic service should be assessed and affect the subsidy level. If there are savings, the community should be allowed to keep them: this would foster cost-effective designs.

In addition, when consumption subsidies are in place expansion of coverage and metering as well as elimination of implicit subsidization should be attempted. Generally, when designing subsidies, balance is needed between factors related to supply (e.g. subsidy design, criteria, targeting mechanisms etc.) and demand driven factors (i.e. local context, needed social mobilization, technical choices etc.). As with tariffs, simplicity should be encouraged. Multiple and conflicting subsidy rules can create confusion resulting in inadequacy of demand articulation and it is difficult to implement rules and conditions. Finally, targeted schemes seem more successful than untargeted options. The trade-off here is higher administrative costs. Moreover, it could be foreseen that subsidies providing protection to low-income households may risk lacking political support and in the long run be eliminated. Political economy consideration should indeed be taken into account in the design of both tariff and subsidy structures (Birdsall, 1992). The potential of incentive-linked subsidies requires further consideration.
The role of tax revenue

Sustainable, adequate and stable financial resources play a critical role in enabling governments to deliver public utilities and promote overall socio-economic development. Yet, most low-income countries still have a long way to go in order to mobilize sufficient resources to achieve their development objectives. Figure 1 underlines the urgency for improving the tax systems in developing countries. It shows two striking facts. First, low-income countries collect a significantly lower share of tax revenue relative to their GDP than high-income countries. Second, the relative share of government expenditure to GDP is much higher in developed countries than in developing ones.

Source: based on data from World Bank World Development Indicators 2006

The challenges developing countries face in mobilizing tax revenues are manifold. Firstly, the potential for tax revenue is generally low given the prevailing low average income in developing countries, the economies of which are often characterized by a large share of agriculture in total employment. This severely limits the revenue potential of income and
consumption taxes. Secondly, there are large informal sector activities and many occupations without any record of transactions. The problem of data collection is exacerbated by the fact that most transactions even in the formal sector are often cash transactions, a fact that makes it difficult to establish the true level of income. Thirdly, tax administration capacities are weak due to inadequate funding of revenue collecting agencies, lack of training, insufficient manpower, heavy competition and often more favorable remuneration from the private sector. Fourthly, tax awareness is low. Taxpayers are often not aware of their rights and obligations. Moreover, the incentive to pay taxes is low where the rates are too high and it does not exist where public services do not reach the poor. Lastly, there is a significant loss of revenue due to liberal tax incentives and exemption schemes, liberal capital allowances (the “race to the bottom” to attract foreign investors) as well as other sectoral exemption schemes (such as mining and agriculture), location incentives and the establishment of export processing and manufacturing zones.

**Improving tax administration**

The following sections offer a brief survey of common challenges related to improving revenue collections in developing countries. They center around two interconnected issues, tax administration and tax policies. The role of tax administration is to collect taxes as specified in the law. The biggest challenge is hence to reduce the difference between the tax due according to the law and the amount actually collected, i.e., the goal is to narrow the so-called “tax-gap”. Common types of non-compliance result from non-registration, non-filing and non-payment, under-reporting of tax voluntary paid and abuse in refund systems, in particular in case of the VAT\(^7\). A menu of typical underlying reasons for non-compliance to various tax types is given below (based on Amon, 2000).

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<table>
<thead>
<tr>
<th>Type of tax</th>
<th>Administrative challenges</th>
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<tbody>
<tr>
<td>Self employment taxes</td>
<td>o Large informal sector</td>
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<td></td>
<td>o Failure to transact business at specific places</td>
</tr>
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<td></td>
<td>o Failure to keep records of transactions</td>
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<tr>
<td></td>
<td>o Lack of resources to facilitate monitoring duties</td>
</tr>
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<td></td>
<td>o Increased activities in the black economy</td>
</tr>
<tr>
<td>Employment income</td>
<td>o Failure to declare allowances and other sources of income</td>
</tr>
<tr>
<td>Corporate taxes</td>
<td>o Technicalities and tax avoidance</td>
</tr>
<tr>
<td></td>
<td>o Poor record keeping</td>
</tr>
<tr>
<td></td>
<td>o Cash transactions</td>
</tr>
<tr>
<td>Value added tax</td>
<td>o Delayed refund of input VAT</td>
</tr>
<tr>
<td></td>
<td>o Failure to declare correct turnovers</td>
</tr>
<tr>
<td></td>
<td>o Poor record keeping</td>
</tr>
<tr>
<td></td>
<td>o Electronic commerce</td>
</tr>
<tr>
<td>Other indirect taxes</td>
<td>o High-tax rates</td>
</tr>
<tr>
<td></td>
<td>o Smuggling</td>
</tr>
<tr>
<td></td>
<td>o Under invoicing</td>
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<td></td>
<td>o Lack of logistics</td>
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A quick look at these challenges suggests that the following objectives are critical for improving tax administration in developing countries. First and foremost, there seems to be an urgent need for improving data collection and improving taxpayer information to correctly assess the revenue base. Secondly, measures must be taken to increase potential tax payer’s ability and willingness to pay. This can be done through more simplifying compliance procedures, educational efforts, lower tax rates and a more universal and better provision of public services. Secondly, the administrative capabilities of the revenue authority should be increased. Possible vehicles for this could be better remuneration for employees, upgrading of technology and a higher degree of autonomy of the agencies. Finally, much revenue is lost through tax incentives, a trade-off, which should be critically examined.

One popular avenue of administrative reform intended to tackle these challenges more effectively has been the establishment of semi-autonomous revenue agencies, in particular in Sub-Saharan Africa. The justification of the establishment of these agencies is based on considerations of efficiency and effectiveness. An autonomous organization is believed to be free from political interference in day-to-day affairs and other constraints of civil service personnel systems. More specifically, concrete advantages of establishing an autonomous revenue agency are perceived increased effectiveness, efficiency and equity of a new agency by taxpayers, greater flexibility in human resource management, an opportunity for integrating revenue functions into one agency, and the independence of such an agency to take legal action against tax payers. Among the possible disadvantages are the additional costs of establishing and the higher costs of running the new agency (compared to the tax agency it typically replaces). In addition, the establishment of a new executive agency might contribute to fragmentation of civil service with a negative impact on inter-agency coordination and cooperation. It is also important to put in place a clear regulatory and supervisory framework to prevent abuse and political interference. This is often lacking in poor countries.
A first assessment of some these new revenue authorities done by Fjeldstad and Rakner (2003) indicates that this model has run into deep problems in many instances. While tax revenue increased in the short-run it could not be sustained in the long run. As happened in the case of Uganda, a proclaimed autonomous revenue authority with generous remuneration packages is not necessarily free from political interference. On the contrary, by offering well-paid jobs and considerable rent-seeking opportunities it is an attractive target for interference in personnel matters. Secondly, corruption can continue to thrive even within high-wages environment. Moreover, the typical work environment of tax officers includes external actors. As a result, there is the potential for corruption in an extended network, where tax officials can be hired as “tax experts” by the private sector in return of certain “favors”. Privatization of tax collection, such as the collection of customs duties by the private British company Crown Agents in Mozambique give also reason to concern as revenue increases seem unsustainable, skills transfer is limited and contracts are often very expensive for the developing country government. Moreover, in countries with high levels of corruption there is no reason to believe that the private sector entities are less guided by self interest than the Revenue Authority. While most of the literature views outsourcing measures with some skepticism another potential tool of increasing administrative efficiency is viewed more optimistically: Electronic Service Delivery (ESD) (Hadler, 2000). It is argued that low-income countries need to begin a process of reviewing their tax administration in the face of growing electronic commerce. Growing electronic commerce includes electronic banking, purchasing and inventory systems, payment systems and commercial transactions conducted via internet, phone or fax and all forms of digitized goods and services. Although, the internet is still in embryonic stages in many least developed and developing countries, this form of business is growing rapidly around the world. There is considerable evidence that e-commerce has helped spur economic growth and thus can help increase the potential tax base (Brookes and Wahhaj, 2000). To harness this growing opportunity electronic service delivery development (ESD) (i.e., the ability to file taxes electronically, register a business, receive information etc.)
should go hand in hand with growing ecommerce. Like most internet transactions ESD has an enormous potential for gains in efficiency and effectiveness. On the other hand it implies its own set of inherent risks and challenges, which are outlined in table below.

**Risks and challenges to be taken into account in ESD (based on Hadler 2000)**

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Taxpayer</strong></td>
<td>o issues of security, privacy and confidentiality</td>
</tr>
<tr>
<td></td>
<td>o high access cost</td>
</tr>
<tr>
<td></td>
<td>o potential discrimination of the illiterate</td>
</tr>
<tr>
<td><strong>Government</strong></td>
<td>o burden of changing technology</td>
</tr>
<tr>
<td></td>
<td>o increased costs from infrastructure overhead, training and updating</td>
</tr>
<tr>
<td></td>
<td>o taxpayer’s potential for evasion, fraud and misuse.</td>
</tr>
<tr>
<td><strong>Tax officials</strong></td>
<td>o changing work environment</td>
</tr>
<tr>
<td></td>
<td>o changes in volumes of work</td>
</tr>
<tr>
<td></td>
<td>o changes in skill needs</td>
</tr>
</tbody>
</table>

Despite these risks, ESD offers enormous potential for cost reduction and improvements in tax efficiency, transparency and client orientation. Setting standards and formulating
frameworks for ESD is already happening within the OECD. Given the growing role of the internet throughout the developing world it is important and timely to include low-income countries into the debate in a more universal forum. This could help assist them in developing their own ESD strategy for tax administration.

Lastly, apart from considering the vehicle of the most effective tax administration it is important to reach consensus on the general objectives of tax administration. In this regard, Mokherjee (1997) stresses the need for complementary reforms in incentive systems and organizational procedures. Improving tax structures and collection requires a thorough examination of institutional parameters. Feasible reform may require “enabling organizational changes” in many areas, including personnel systems, task assignments, information systems, budgeting and procurement, and mechanisms for feedback and evaluation. These comprehensive reforms can only materialize if they are guided by political will at the highest level.

**Improving tax policies**

Discussing tax policies implies the possibility of changing the tax law. The overall goal of the tax policy should be to design a practicable system that takes into account the prevailing socio-economic context and generates an adequate amount of resources to meet the demands of the people. At the same time the tax system put in place should be the one with the least possible costs transferred to the people. Another objective must be to minimize the tax’s potential disincentive effects on economic activities and design it in accordance with international norms. Finally, the most important property of all taxes must be their ability to be collected (Neumark 1974, Tanzi&Zee, 2000, Figueroa, 2000).

It is important to stress that a more efficient tax administration must go hand in hand with a more equitable tax systems. As Amartya Sen has demonstrated (reference) countries with the
most impressive levels of economic growth and social development in the last half of the 20th century were those with a strong focus on equitable tax systems and broad health, education policies and a high level of public service and utilities provision.

Given the urgent need for investment in social services and basic utility provision in developing countries a strong case can be made for the necessity for developing countries to not only improve their tax administration but also changing tax policies. Over the last two decades many developing countries and many economies in transition have indeed implemented comprehensive tax reforms. The focus of these reforms was threefold. Firstly, tax administrations and compliance procedures were strengthened, secondly, tax policies changed with a view to achieving more stable and bigger revenue flows and thirdly, existing rules and procedures were made more efficient. More specifically, during the 1990s, the Bretton Woods institutions promoted tax reforms as part of their larger structural adjustment programmes. These reforms focused on the central government tax system and were similar in design to those popular in developed countries. Usually, these reform packages aimed at broadening the tax base while flattening the tax rates. They typically included the following measures (Fjeldstad, Rakner, 2003, Emran and Stiglitz):

- Introduction of the value-added tax (VAT) in combination with a reduction of trade taxes
- Lower personal and corporate income taxes as well as broadening of the bases for personal and corporate income taxes;
- Simplification of the excise duty structure

The following section will discuss some of the critical aspects to be taken into account when contemplating these and other tax reform measures.
The potential or non-potential of VAT in poor countries

While the sales tax is a tax levied on the retail price of a good or service and collected by the retailer, the VAT is levied on every business involved in the production process as a fraction of the price of each taxable sale they make. However, every business is reimbursed the VAT on their purchases. As a result, the VAT is only applied to the value added to the goods at each stage of the production. Because of this reimbursement procedure, the VAT has the same overall economic effect on final prices as a sales tax. However, by involving each actor in the production chain, the VAT increases accounting requirements on the side of the producer. It is therefore believed to reduce the grey economy and increase competitiveness.

A large number of developing countries have implemented a revenue-enhancing increase in VAT in tandem with a reduction of trade taxes as part of the policy conditionalities of the structural adjustment programmes of IMF and World Bank. In this regard, Emran and Stiglitz (2000) raise serious doubts about the wisdom of increasing VAT in developing countries to compensate for lost revenue through the reduction of trade taxes. In their view, the abovementioned benefits of the VAT are derived from partial models that do not take into account the large informal sectors in developing countries. This informal sector escapes the VAT net and as a result, an increase in VAT might increase inter-sectoral distortions between formal and informal sectors, which would reduce overall welfare. Another common assumption that is made in most models is that economies consist entirely of tradable goods. Based on this assumption any tradable commodity can be a candidate for trade tax reform. The case for coordinated reform of VAT and export tax then rests on the assumption that the commodity with the lowest indirect tax burden is an exportable good. Yet in developing countries public services are either untaxed or enjoy consumption subsidies and hence public utilities are non-exportable commodities with low indirect tax burdens. This weakens the case for simultaneous VAT and
trade reform even further. Empirical research is needed to examine the welfare effect of this common reform measure.

**Lower personal and corporate income taxes (PIT and CIT)**

A notable difference between developed and developing countries is the ratio of PIT to CIT revenue. This ratio is about four in developed countries while it is smaller than 1 in developing countries. The PIT has traditionally yielded very little revenue in most developing countries. Despite its political importance as a visible policy instruments for governments to underscore social justice it is often undercut by high rates of personal exemptions and deductions. Indeed, the more progressive the nominal PIT rates are the higher is the potential tax loss in form of deductions. An increase in the effective rate along with a substantial equity improvement could be brought about by reducing the nominal degree of the rate. If restructuring is not a possibility, replacing PIT deductions with tax credits is another option. This would provide the same benefits to taxpayers in all tax brackets.

Another important consideration is the level of the top marginal PIT rate. This rate should not exceed the CIT rate since otherwise taxpayers are tempted to choose the corporate form of doing business simply for tax reasons which would have a distortionary effect on the economy. A further problematic area in countries with weak administration is the tax treatment of financial income. In developing countries interest income is typically taxed by applying a final withholding on interest income. This should be carefully targeted, however, since taxpayers with business income can circumvent this tax through fairly simple arbitrage transactions (i.e., by fully deducting all interest expenditures from interest incomes before the withholding tax is applied).

Tax issues of the CIT are no less complex. Two areas are especially problematic. Firstly, many developing countries have multiple CIT rates in various sectors. This can lead to a
distortion of sectoral resource allocation due to a difference in tax rates. Secondly, many low-income countries have inappropriate systems to take into account allowable depreciation of physical assets for tax purposes. This is caused by an excessive number of asset categories and depreciation rates, excessively low depreciation rates and a structure of depreciation that is not in accordance with the relative obsolescence rates of different asset categories. This could be overcome by classifying assets according to a smaller group of categories, applying one depreciation rate per asset category, setting depreciation rates higher than actual physical lives of assets (to compensate for inflation) and exploring new methods of accounting that allow for automatic accounting of capital gains and losses from asset disposals, such as the declining-balance method (Tanzi and Zee, 2000).

**Simplification of the excise duty structure**

In simplifying the excise duty structure one needs to keep in mind that the reasons for imposing an excise tax are very different to that of a consumption tax. Goods deemed to be excisable are usually those with negative externalities (tobacco, alcohol, cars). These are typically few and they are usually highly inelastic in demand. A strong case can indeed be made for simplifying the excise duty structure since the narrow tax base that is characteristic for excise taxes calls for low administrative costs.
Macroeconomic factors to be taken into account in the design and use of financing mechanisms

Addressing macroeconomic risk, in particular foreign currency risk

Private or public investors in utility projects face various kinds of risks, including political risk, regulatory and contractual risk, credit risk, and foreign exchange risk. This section will focus on macroeconomic risk, which is not to minimize the significance other types of risks. Indeed, all of types of risks mentioned above and possible mechanisms for risk mitigation have been discussed in great detail during a set of multi-stakeholder consultations on “Improving the climate for private investment” organized in 2004-2005 by the World Economic Forum in cooperation with the Financing for Development Office of UN DESA.

Foreign currency risk in financing utilities

According to several studies one of the major reasons that investors shy away from developing countries is regulatory risk and foreign exchange risk. While regulatory risk does not necessarily qualify as macroeconomic risk it is closely related to currency risk. Regulatory risk worsens in the event of a financial crisis or a currency devaluation, as the government might be prompted to default on contractual obligations. Foreign exchange rate risk is of particular concern to water and power projects in developing countries for several reasons. First, as a result of a shallow financial sector the large financing needs of water and power projects can often not be met through commercial loans. Moreover, as discussed above, financial deregulation aimed at but not always succeeding in deepening the financial sector has limited the access of public utility

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8 The final report of these consultations is entitled “Building on the Monterrey Consensus: The Untapped Potential of Development Finance Institutions to Catalyse Private Investment” and is available on the FFD website at: http://www.un.org/esa/ffd/09multi-stake-dialog-WEF-INV.htm
9 See for example the report of the World Panel on Financing Water Infrastructure (Camdessus Report), 2003.
providers to official sources of capital. As a result, international capital markets have become more attractive for infrastructure investors. This, however, implies greater exposure to foreign exchange rate and interest rate risks. Second, amortization is a lengthy process for water and power assets. During the 20-30 years it takes to recover the investment it is not unlikely that a currency crisis might occur. Third, thermal power generation projects rely on fuel, which is denominated in hard currencies. Similarly, expansion costs are mostly priced in hard currency, as many countries import the equipment required for network extension from outside the country. Whoever invests in these parts, whether public or private investor, is exposed to foreign exchange risk. Fourth, in the event of a financial crisis, investors are in a weak bargaining position. Power and water project assets, once installed, may not be redeployed. As a result, it is more difficult for investors to exit the investment in order to minimize foreign exchange losses. Fifth, with some notable exceptions in power-generation, water and power outputs are usually non-tradables. Consequently, currency movements are not compensated for by increases and decreases in revenue. Lastly, there is a significant risk for households in the vent of a financial crisis. Higher interest rates that result from a currency crisis may decrease the incentive of the government to honour price regulations to curb the abuse of monopoly power in these sectors. If prices of utilities go up as a result of higher interest rates, households will be the one to suffer the most. This will be further exacerbated by factors that usually accompany a financial crisis, such as rising unemployment and inflation (Matsukawa, Sheppard, Wright, 2003).

Protective mechanisms against foreign exchange risk of investors include: (i) the use of local currency instruments (ii) currency hedging; (iii) exchange rate guarantees (often based on tariff indexation); (v) other innovative mechanisms such as liquidity facilities, sovereign guarantee pools and escrow accounts.
The use of local currency instruments

Local currency instruments can be an effective instrument for currency risk mitigation. Increasing the share of local currency loans in investment in utilities has the advantage of limiting foreign currency exposure. Local currency schemes may include, local currency financing, local capital and bank market development, local currency fund schemes, local currency credit enhancement, or public sector lending in local currency. However, a major problem with local currency debt is often its short-term structure, which does not match the long-term nature of water and power industry assets. As a result, while currency mismatch might be reduced through the increased use of local currency, investors are still vulnerable to interest rate increases that can follow currency devaluation. The development of long-term interest bearing instruments such as municipal bond markets can therefore play a critical role in making local currency a viable financing option for utility providers. An innovative mechanism to deepen local bond markets could be guarantees by multilateral development banks for international investors in local currency bonds. These guarantees would provide utility infrastructure investors with partial compensation for devaluation losses and could be based on local guarantees currently provided by the IADB only to domestic investors in several developing countries (Griffith-Jones, Fuzzo de Lima, 2004).

Currency hedging

Currency hedging usually relies on long-dated forward exchange rates. Forward exchange rates specify in advance the amount of local currency needed to meet future debt service obligations in hard currency. Through buying forward contracts the debtor can ensure the ability to pay the required amount in hard currency according to an agreed schedule. Yet, long-dated forward exchange rates exist only for a few non-OECD countries with investment ratings. Similarly, hedging with derivatives is not an option in most developing countries as derivative
markets do not exist for most developing countries currencies. In both cases, deepening of local capital markets would help developing these instruments.

**Exchange rate guarantees**

Governments, multi-lateral development banks and export credit agencies play an important role in providing guarantees that can ensure the viability of investments into basic utilities. Yet, while many governments in developing countries provide such foreign exchange rate guarantees to investors, their financial capacity to deliver on such commitment is in doubt. Moreover, mechanisms that allocate exchange rate risk of investors to fiscally constrained governments in developing countries are highly controversial. For many it is hard to see why state governments and municipalities should bear the risk of foreign exchange movement when they have no control over these fluctuations. Opponents of this concept argue that foreign exchange risk is market risk and it should be borne by the market players, i.e. the private sector itself. Furthermore, these guarantee mechanisms are usually structured in a way that revenues have to increase in the event of currency devaluation. As a result, either the end-users will have to bear the burden of a tariff increase or governments may simply default on their obligations.

A further advantage of having export credit agencies in developed countries and/or multilateral development banks provide guarantees is that they are a more creditworthy source for guarantees than developing countries governments. Consequently, they are in a much better position to bear currency risk. Future research should focus on the role these banks and agencies can play in providing guarantee mechanisms. These guarantees could also entail a countercyclical element. Where developing countries show relatively sound long-term fundamentals MDBs and ECA could provide countercyclical support by increasing their guarantees during times when commercial banks lower their exposure.
Other innovative mechanisms

Innovative mechanisms for risk mitigation include liquidity facilities such as the Contingent Partial Credit Guarantee (CPCG) of the World Bank’s International Finance Corporation (IFC). Through the CPCG the IFC supports foreign investors of a project with local currency revenues that lack access to local currency financing of the desired tenor. The partial guarantee mitigates the foreign exchange risk that might arise from local currency devaluations.

Other proposals for liquidity facilities have been subject of heated debate. For instance, the Camdessus report (Camdessus, 2003) put forward the proposal of a devaluation liquidity backstopping facility to mitigate risks of foreign exchange fluctuations in water projects at the sub-sovereign level. In the case of a large devaluation the facility would pay foreign lenders that part of the debt that would exceed the reimbursement capacity of the utility provider. The amounts paid by the facility would be treated as long term loans to the national government. The facility in turn would be repaid by the host government through socially and politically feasible surcharges on water tariffs. Proponents of the proposal argue that this type of risk mitigation will significantly increase commercial investment into utility provision. Opponents argue that financing a devaluation liquidity backstopping facility through tariff increases would essentially impose the international market price for water on consumers in developing countries, with the poorest being the most vulnerable. Similar problems arise with escrow accounts. Escrow accounts are deposits held in trust by a third party available to pay debt service. These deposits can be used to cover exchange rate risk for the benefit of the lender. Since these accounts are typically funded by the proceeds of the project’s senior debt they typically costly to maintain. Similarly to liquidity facilities the critical question is who funds these escrow accounts.

Griffith-Jones and Fuzzo de Lima (2004) suggest an interesting regional approach for creating guarantee agencies that enables currency risk sharing among countries. The proposed
mechanism would be a sovereign guarantee pool, which is a contractual mechanism for risk sharing among governments. Governments that benefit from the same infrastructure investment, but that enjoy complementary sovereign ratings could come together to pool their guarantees and share the risk. The country with the better rating may have an incentive to participate due to budget constraints and a likely multiplier effect of the infrastructure project in terms of social and economic development. At the same time, the country with the worse rating will enjoy access to financial resources it would otherwise not have.

**Environmental sustainability and investor risk**

Innovative mechanisms for risk mitigation are critical for investing in renewable energy. As mentioned before, burning fossil fuels is not a long-term option for sustainable economic development and new investments into utilities in developing countries should also be seen as a chance to invest in renewable energies. Besides the obvious environmental benefits, not relying on hard currency intermediate input would also decrease foreign exchange risk in the long run. Yet, given the high upfront costs of renewable energy technologies serious challenges persist. According to a recent study by UNCTAD\(^\text{10}\) two factors are critical for promoting the use of renewable energies in developing countries. First, the costs of renewable energy have to become competitive in a growing number of situations; and second, the investors and consumers need access to long-term finance to invest in renewable energy. Interestingly, the study concludes that the greatest potential lies with decentralized schemes that aggregate the renewable energy investments of a large number of people, rather than large-scale dams, wind farms or solar farms.

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The role of the government in promoting the financial sector

Throughout this paper, we have emphasized the positive role a well-developed domestic financial sector can play in providing long-term financing instruments for much-needed investments in utilities in developing countries. This section will give a very brief overview of the debate around the different policy options for governments that are committed to promoting the domestic financial sector.

The MS School and the financial liberalization hypothesis

Indeed, the role of the government in promoting financial development and economic growth as well as the relationship between finance and growth has been discussed for centuries. The majority of economists has assumed a positive correlation between the level of financial development and economic growth. For instance, Bagehot (1873) stressed the importance of the British banking system in spurring England’s industrialization. In later years, McKinnon (1973) and Shaw (1973) (MS-School) brought to the fore the “financial liberalization” thesis, arguing that financial repression reduces both the quantity and the quality of investment in the economy as a whole. According to the MS-School investment, productivity and hence economic growth can be increased by abolishing financial restrictions, such as ceilings on deposit and lending rates, directed credit programmes and high reserve requirements. Economic growth would follow a removal of these restrictions with a positive feedback effect on the financial development of the economy. The more recent endogenous growth literature supports this view and explicitly models the services provided by financial intermediaries (e.g. collecting and analysing information, risk sharing, liquidity provision) suggesting that financial intermediation has a positive impact on steady-state growth (Greenwood and Jovanovic, 1990; Bencivenga and Smith, 1991). At the same time government intervention in the financial system should be avoided due to its negative effect on the growth rate (King and Levine, 1993b). In some ways the endogenous growth
literature goes beyond the MS –School in its focus on financial institutions and markets, in particular stock markets. While the MS School focuses on the equilibrium interest rate as an instrument to raise the savings rate, and the quantity and quality of investment, endogenous finance literature places a similar function on financial markets and institutions, in particular the stock market (King and Levine, 1993; Allen 1993; Levine and Zervos, 1995; Atje and Jovanovic, 1993). Both strands of literature have become the basis of the policy recommendation of the Bretton Woods institutions.

**The Structuralist critique**

The effectiveness of these policy recommendations has been challenged by the Structuralist school of economists that originated in the Economic Commission for Latin America and the Caribbean (ECLAC) in the 1950s and 1960s. Contrary to the MS-School, the Structuralists claim that the effectiveness of policies of financial liberalization are severely limited by structural constraints and market fragmentation. The Structuralist approach is based on two critical assumptions. First, banks are not the only financial intermediary and co-exist with sometimes more efficient informal credit markets (van Wijnbergen, 1985). Second, enterprises in developing economies require a high level of finance for 'working capital' (e.g., inventories, advances of wages). As a result, high bank interest rates resulting from financial liberalization may draw funds away to banks from the informal markets leading to no overall net increase and maybe even a decrease in the availability of finance. Moreover, increases in the interest rate of firms’ working capital may lead to inflation by causing them to raise the prices of their products. Therefore, in the worst case scenario, financial liberalization might result in stagflation, i.e. a decrease in output and simultaneous inflation. Others, outside the Structuralist camp, strike a similarly cautionary note. Singh (1997), for instance, has pointed out that financial markets can provoke volatility and decrease the volume of investment by discouraging risk-averse investors from investing. Along similar lines Mauro, (1995) has suggested that the introduction of certain
financial hedging tools allows individuals to decrease their risk exposure. This may lead to a reduction in precautionary saving with adverse implications for economic growth.

**Empirical evidence on the finance and growth nexus**

Based on the existing comprehensive empirical literature, there seems to be no clear justification to promote financial liberalization as the right government policy. The most that can be concluded from empirical studies on the finance and growth nexus in a general sense is that there is a positive long-run relationship between the size of the economy and the size of the financial sector. This, however, does not settle the critical question whether and to what extent domestic financial market liberalization can increase the size of the financial sector. The main reason for that is the fact that the question of the direction of causality between finance and growth is not settled (Demetriades and K.A. Hussein 1996, Odedokun 1996). In this regard, Rajan and Zingales (1998), note that financial liberalization is not an obvious policy implication even in cases where there seems to be a strong link between financial and economic development. This is due to the fact that the impact of financial development on growth cannot be identified easily as it is usually accompanied by other structural factors. Fry (1995) reiterates this challenge: “… in practice, however, most clear cut cases of financial liberalization were accompanied by other economic reforms (such as fiscal, international trade, and foreign exchange reforms). In such cases it is virtually impossible to isolate the effects of financial components of the reform package transformations of the economy.” Other difficulties that arise when studying the finance and growth nexus include the assumption that the financial system is “well behaved” during the process of form and liberalization. As Arrestis (2005) points out, there is significant evidence from a number of empirical studies that the process of financial liberalization is far from being a smooth or continuous one. Moreover, the fact that in many developing countries financial liberalization reversals take place due to exogenous shocks makes it difficult to assess the costs and benefits of financial liberalization. Furthermore, financial dualism, that is the coexistence of
formal alongside informal credit markets in developing countries is rarely taken into account in empirical studies. Much of the Structuralist critique was supported by the actual Latin American experience in the 1970a and 1980s. In his famous article “Good-bye financial repression, hello financial crash”, Carlos Diaz-Alejandro (1984) focuses on why financial liberalization reforms carried out in Latin American countries during the 1970s yielded by 1983 domestic financial sectors “characterized by widespread bankruptcies, massive government interventions or nationalizations of private institutions, and low domestic savings.”

**Framing a constructive dialogue on the role of the government in financial sector development**

So what is the proper role of the public sector in promoting financial sector development? As noted in the “Blue Book” on “Building inclusive financial sectors for development”

11 government policies, laws and regulations can constrain the building of financial sectors, yet they can also serve to re-engineer and revitalize the financial sector. In order to promote a constructive dialogue and to avoid a polarized discussion around laissez-faire and interventionist views the book sets out seven strategic questions for governments, which are outlined below:

1. Government intervention in the market for financial services — how much intervention, what kind, where and when?
2. How can we achieve affordable and sustainable interest rates?
3. How to fashion financial infrastructure for inclusive finance?
4. What should regulators and supervisors do to foster financial inclusion?
5. How to promote consumer protection?

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11 The “Blue Book” is a joint product of the United Nations Department of Economic and Social Affairs (DESA) and the United Nations Capital Development Fund (UNCDF). It provides an overview of the outcome of multistakeholder consultations held in 2004 and 2005 in follow-up to the International Conference on Financing for Development (18-22 March 2002, Monterrey, Mexico) and as part of the activities within the framework of the International Year of Microcredit (2005). The publication can be accessed at: http://www.uncdf.org/bluebook/index.php.
6. How many financial institutions and of what types?

7. How should governments be organized to promote financial inclusion?

Answers to these questions will vary from country to country. For instance, whether Governments should provide financial services critically depends on two closely related questions. First, is there a lower end of the market that is not efficiently served by the commercial financial sector? - and second: Is there evidence that state-owned banks have filled that role successfully? While the first questions can be answered in the affirmative for almost all developing countries, the response to the second query depends on how effective state-owned institutions are functioning. Based on experience state-owned banks seem to be more effective where they have a clear mandate, work on commercial principles, clearly account for subsidies and demonstrate sound governance and management practices. If these basic fundamentals are in place, public provision of financial services might indeed make sense. Where they are missing public sector reform or stronger reliance on commercial providers might make for the better alternatives. Interest rate ceilings should be discussed from a similar angle. The debate whether these ceilings should be imposed by government authority or whether interest rates should be liberalized has gained new significance with the proliferation of microfinance loans in the developing world. High rates for microfinance seem to be justified due to the higher operating costs of microfinance institutions as well as the apparent willingness of most borrowers to pay them. On the other hand, high rates might reduce the success prospects for microenterprises and, more importantly, adversely affect poor households. Successful liberalization of interest rates presupposes country conditions, where increased competition will indeed drive down costs and ultimately lower interest rates themselves. The country-level dialogue determining the appropriate interest rate policy must focus on the question what these conditions might be and whether they are indeed in place.
Similarly, the other questions entail a wide range of options for policy-making and will have to be considered separately, taking the prevailing economic, social and political setting in each country into account. It is important to note, however, that choices in one area will have an impact on those made in another area. Therefore, appropriate strategies for financial sector development have to be far-reaching and consistent and should be based on extensive consultations among all relevant stakeholders.
Bibliography


