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TITLE: Private Sector Financing of Urban Services

ABSTRACT: This paper is about bridging the gap between demand for urban services and available private sector financial resources. Unfortunately experience has shown that the relatively few successful approaches to building this bridge, such as BOOT schemes, have not provided a model that can be easily replicated. The problem is more deep seated and fundamental, and so this paper takes a look at some of these fundamentals and seeks to identify issues and proposes policies and institutional arrangements that will help bridge the gap.

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I. INTRODUCTION

There is a huge and growing demand for urban services in the Asia Pacific Region, and internationally there is a growing pool of finance available for investment in these same urban services. Yet relatively little private sector finance has been invested. There is a gap between demand and financial resources. Many attempts have been made to bridge the gap to solve particular problems, and with some success. Unfortunately experience has shown that these successes have not provided a model that can be easily replicated. The problem is more deep seated and fundamental, and so this paper takes a look at some of these fundamentals and seeks to identify issues and proposes policies and institutional arrangements that will help bridge the gap.

First a few observations may help to clear away some of the issues that have diverted discussion from the fundamentals.

This viewpoint and objective of economic development, is entirely different from that of the members of the private sector itself, who are often called upon to advise on the best policies for maximising their participation.

The “best” policies for private sector participation (PSP) from their viewpoint and their objective of maximising profit, would be to secure the monopoly rights of a government agency supplying urban infrastructure without limit.

This approach may appear to be at odds with the widely called for partnership-type approach between the government and private sector. As the themes of the paper are developed it will be seen that efficient policy frameworks and institutional structures do require a partnership. However it must be one that uses the strengths of the private sector without removing the “public” aspects of public infrastructure. Too frequently governments have used access to monopoly elements of public infrastructure such as restrictions on competing services, as an inducement to encourage PSP at considerable cost to the community being served.

There are a number of additional fundamental observations that need to be made to frame the discussion of PSP in urban infrastructure. They are:

PSP occurs usually in a market setting. The “marketability” of public infrastructure is a fundamental issue that has been dealt with elegantly in many micro economic papers. In brief summary, micro economics identifies the possibility of efficient markets existing where:

- it is possible to withdraw goods and services from consumers (subtractability) and/or prevent their consumption (excludability);
- the conditions of production do not have impenetrable entry barriers such as large economies of scale or large sunk costs (contestability);
- coordination requirements, externalities and social objective do not override;
- demand characteristics include temporal and other differentiating attributes, the existence of and information on substitutes, and price elasticity.

As applied to urban infrastructure this framework identifies a lot that is marketable. The factor inputs to urban services, for example, finance, design, construction and manufacture, management of operations and maintenance, can all be supplied from established markets. It also indicates that the network characteristic of much urban infrastructure shows less marketability at the trunk facility provision level than at the distribution and operational level.

There is no such thing as a free or perfect market.

The efficiency of markets is often equated with competition but in policy analysis it is necessary to investigate the circumstances that make competition efficient.

The underpinning of all markets, and private sector participation in them, is an administrative system with enforceable property rights, that can be transferred through contract and that includes the means to resolve disputes over liability when performance is not accepted by one of the parties. In its highest development, an independent commercial legal system would exist to ensure fair trading, but other surrogates exist and can be used. For example, at the community level, a person's reputation for fair dealing is valued and tends to exert appropriate pressure on parties to perform to an agreement. Similarly at the international level most countries are unlikely to negate financial agreements with say international banks and multinational financial agencies for fear of the negative flow-on effects that can occur when later seeking funds elsewhere in the capital market.

The demand for urban infrastructure is highly differentiated by time, purpose, price, and quality, in contrast to the uniform supply that has characterised most government provision when such services were categorised as public goods and services.

For reasons that will become apparent in the discussion of markets and for simplicity, the orientation of the paper is to markets defined by demand rather than supply. It is a feature of successful suppliers in private markets that they have a strong customer (demand) orientation. Hence the discussion will have as points of reference, market demand for; water based services, solid waste, transportation and shelter.

The applicability of the analysis to low income groups is strong. For example, the economic and financial cost of supply of drinking water to the poor by vendors has been shown to be significantly greater than piped supply. This suggests that cost based prices for piped services are affordable.

The paper will develop a policy and institutional framework that is applicable to the needs of each income group in the nominated sectors. However its application to a particular urban situation and income group requires careful analysis of the specifics and context, which is not possible in this paper.

The general shift in policy framework from government provision to market provision, presents a major opportunity for developing countries that have not got a large established governmental institutional bureaucracy for delivering urban infrastructure. The opportunity for those countries is to leapfrog their institutional arrangements directly to a market dominated one and thereby avoid the transition costs being borne by developed country economies with large entrenched and powerful public infrastructure bureaucracies.

II. MODALITIES OF PRIVATE SECTOR PARTICIPATION

The discussion of private sector participation in infrastructure has generally followed the institutional categorisations of traditional government supply, with analysis and policy development focused on substituting private sector functional responsibility for government responsibility. This offers a good starting point for profiling the modalities of PSP, and a basis from which bundling and unbundling can be analysed to point to issues for further attention.

It is useful, to think of a spectrum that starts at one end with government provision and full control and which sees greater private sector discretion over decisions on supply (assets, operations and maintenance) as you move to the other end to full private provision.

So the modalities of private sector participation span from simple short term contracting for the supply of defined goods or services, through longer term management, leasing or concessions such as Build Own Operate Transfer (BOOT), to fully private.

Note that the contracted goods and services become more and more complex as you move from left to right on the spectrum of PSP. This gives rise to the issue of the degree of bundling of factors of supply that is desirable.

Note also that the framework of reference for the potential modalities of PSP is still the traditional institutional structure based on government provision. It is possible, as the World Bank and others have done, to categorise different elements of the supply in each sector in such a framework as suitable for a particular mode of PSP. This traditional structure has not produced the robust markets or the investments by the private sector that have been expected. The issues have been shown to be more complex.

So rather than bog the discussion down in sector specifics, analysis of some fundamentals is in order. As already signalled in the introduction, the development of policy for PSP requires analysis of the true nature of markets and their participants that leads to a review of institutional structure.

First an analysis of capital markets.

III. CAPITAL MARKET

The term “capital market” is used to cover many things. In this paper it is used at its broadest, encompassing all mechanisms of capital accumulation and allocation and all forms of equity and debt instruments.

The particular attributes of capital markets to be discussed are: fundamental structure; the process of establishing creditworthiness; major changes in the source of capital; and the consequent changes in the characteristics and backgrounds of those making the allocation decisions.

A. Fundamental Structure

Capital markets are fundamentally simple with only a few major variables that effect the accumulation and allocation of capital, namely returns, risk and time.

In the competition amongst arrangers of capital, much is made of improvements derived from tax manipulations, commonly called financial engineering. However all this financial engineering is secondary in importance to the fundamental credit assessment of the investment. Fundamental credit assessment has its foundations in sector economic analysis and project economic analysis.

The importance of the basic credit assessment (or project investment appraisal) cannot be understated. If investments are not feasible, then no policy framework and institutional structure will improve the efficiency of infrastructure provision. In DMCs with high rates of economic growth, disciplined investment appraisal may seem to be unnecessary since the present growth in demand is strong. However infrastructure projects involve complicated interactions and have long lives, so if the objective of long term contribution to economic growth from infrastructure supplied with PSP is to be attained, then rigorous investment appraisal is fundamental.

Micro economic theory has little to say about inter-sectoral allocation, say between education and water, but a lot to say about ranking investments within a single sector. In the capital markets, creditworthiness is used to signify the worth of an investment and hence the cost of funding, and it is this subject that will now be discussed.

B. Creditworthiness

Creditworthiness is a measure of a corporate group's (company, local community, municipal government etcetera) ability to repay (service) and provide a reasonable return on capital (equity and debt). It is derived by a combination of micro economic/financial project investment analysis, and risk analysis, and includes the availability of other resources (cash flows and assets) to service capital if project investment returns are inadequate.

The creditworthiness of urban infrastructure investment has in the past been based on government guarantees. The shift in categorisation of urban infrastructure from public goods and services to marketable goods and services brings with it a need to shift credit assessment from the government guarantee end of the spectrum towards the project investment end.

A government sovereign guarantee, when applied to an investment, is worth nothing more than the sum of the creditworthiness of the economy that government represents. Government treasuries are concerned about their credit rating and tend to be sparing in permitting use of their guarantee (or creditworthiness). When the private sector takes over investment in those elements of urban infrastructure that can be supplied by a market based mechanism, it reduces the obligations of the government and hence should relieve some of the stress on the credit rating of the government.

The consequence is that a creditworthiness for urban infrastructure is emerging based on project investment analysis of market demand and supply.

Once a track record for private investment exists and the capital market no longer seeks a risk premium based on the newness of the market for such investments, then the creditworthiness of urban infrastructure through market based provision will rate no lower than provision as public goods and services by government.

The classic example of this process is in Italy, where part of the early funding of the Autostrada (Concessioni e Costruzioni Autostrada) included the first issue of eurodollar bonds in 1963, that required full government guarantees (through IRI, a government industrial and financial holding company) to ensure placement at any price. Over the years these guarantees have been totally removed and with a AAA rating for the Autostrada company, the price has come down to where today it is one of the lowest cost borrowers in Italy. Part of the lowering of price has come from the increase in size of the project portfolio and hence spread of risk over many revenue streams.

The actual cost of capital in a particular country or sector will vary according to the state of development. In DMCs with relatively low levels of development of the domestic capital market, initial costs on a one-off project basis may well be above government costs of borrowing. The policy point is to go beyond the one-off project mentality and encourage the development of institutions that can act as intermediaries and build a track record that, over time, will lower the cost and develop the domestic capital market.

The establishment of independent rating agencies is a necessary next step to accessing capital markets and it is significant to note that such agencies have now been established in DMCs such as Pakistan and Malaysia among others in the region

This observation implies that, as government creditworthiness is finite, substituting market based project creditworthiness for much urban infrastructure will leave additional government creditworthiness for non market or social public infrastructure.

In DMCs without fully developed formal capital markets such observations may seem to lack relevance. However if a broader view is taken of creditworthiness that includes the informal sector, then the principles apply and the task becomes one of identifying community and other NGO corporate entities that can act as intermediaries between demand for capital (and other urban service inputs) and supply.

To extend the observation to pooled sovereign government guarantees that support multilateral development banks, it can be said that the quality of the Asian Development Bank's portfolio has not been a great consideration to bond buyers despite the undoubted high quality of much of its lending.

With pooling of sovereign risk in multilateral banks to back a finance issue, an investor looks at the strength of the highest rated guarantee and rates the issue accordingly.

The rating of paper backed by sovereign government guarantees depends, in part, on the degree of resource allocation based on efficiency (and good sector and project appraisal), as compared to the degree of resource allocation based on political considerations that run counter to economic efficiency.

The availability and use of such pooled guarantees has not been widespread, being restricted to a handful of multilateral development banks, for the good reason that its giving is not costless and hence it is not given lightly.

There is only so much goodwill available in any country in support of passing on a portion of its creditworthiness to assist less creditworthy countries.

In that sense, and applying it to countries as well as multilateral development banks, the creditworthiness inherently available in the market end of urban infrastructure investment, has been underutilised given the available quality of investment based on careful project appraisal.

It would be preferable to use this inherent project creditworthiness to support borrowings for market provisioned infrastructure, and thereby free up and focus the government guarantees on social infrastructure.

The conclusion can then be drawn that division of urban finance into a market based category and a social based category should result in additional capital on market terms for the former, and additional capital on pooled sovereign government guaranteed terms for the latter.

C. Sources of Capital

In countries with developed economies and existing or emerging middle classes, major changes in the sources of capital for public infrastructure are occurring. No one uniquely successful approach to tapping the new sources has emerged and government policy needs to be adaptable.

It is important to note that, in general, community payments are the only long run financial resource available to service investment in urban services.

With numerous variations on the central mechanism, the options for gaining access to this community resource are taxes, forced savings schemes such as superannuation or pension funds, and user charges.

In the past when public infrastructure was considered a public good, the tax base (either directly or in combination with borrowings that it could service) was the dominant source of revenue to cover capital and major maintenance costs, with user charges seen only as the means of covering operating and normal maintenance costs and succeeding only rarely.

Now, with the shift to market provision, user charges and private savings in the capital markets (pooled funds) are taking over.

User charges of some form are expected to cover all costs, and private savings and particularly forced savings have taken over the capital provision role of taxes and sovereign government borrowing. Rigorous analysis that quantifies the extent and pace of these changes is hard to find but the existence of the change is irrefutable.

In some instances Governments have attached investment requirements on such funds, with the objective of ensuring domestic investment. For example in Malaysia, the Employees Provident Fund is required to hold 50% of its funds in government securities.

In other DMCs such as Pakistan, the attractiveness of investment in private power generation (Hubco) and telecommunications (PTC) attracted oversubscriptions, demonstrating the potential of domestic finance markets to supply capital.

The implication is that this change from tax based funding to private savings that are invested through the capital market, must be a major consideration in policy formulation.

In DMCs, which often do not have a developed tax system, it offers an opportunity to avoid the costs of transition from tax financed government agency supplied public infrastructure to the more efficient market based supply.

At the international level, several infrastructure funds (for example, AIG, Peregrine) have already been formed. These funds provide an efficient interface with the international capital market and investment opportunities. Their origins and management are in the main from the capital market and while endeavours are being made to enhance their project origination and appraisal capabilities they have not demonstrated that unaided the private sector can fill the gap between the demand for urban services and the new sources of capital. The majority of their investments have been in the power, interurban transport and telecommunications areas rather than in the more public end of urban services. Nonetheless, with appropriate government policies and institutional structures, they have great potential to act as intermediaries between the international capital markets and the need for urban services.

D. Investment Decision Makers

The move in the source of capital for urban infrastructure from tax base to capital market from private community savings, brings with it a change in the background and disciplines of those making and advising on investment decisions.

The public servants and advisers staffing the government agencies have their main professional training in technical aspects of supply. Where they have financial and economic analytical skills, their experience is most often in project feasibility analysis with little or no reference to the capital market. In general, their analysis is long term.

The present decision makers in the capital market, on the other hand, have knowledge and experience of financial structuring and trends in prices or yields in the various segments of the capital market, but little experience of sector and project appraisal. In general their analysis is short term, and they are guided by actuarial or statistical analysis of the sector as a whole rather than particular investments. Hence there is a problem with emerging sectors, such as urban infrastructure, which have no statistical history of financial performance.

There is thus a need for a new group of professionals (and in DMCs financial intermediaries to employ them) that combine urban infrastructure technical and project based analytical skills of project investment appraisal with financial structuring skills and up to date capital market knowledge.

An analogy could be drawn with the operations of deal making merchant banks that channel finance into development of industrial manufacturing sectors. If manufacturing knowledge were replaced by urban infrastructure knowledge, and sensitivity to the responsibilities of public infrastructure included with the deal making skill, then there begins to emerge a

definition of a prototype urban infrastructure banker to staff intermediaries that connect demand for investment with sources of capital.

The closest available examples of the required expertise are in the operational staff of the multilateral agencies such as the Asian Development Bank. As the Bank increases its role as arranger of co-finance for urban infrastructure, the demand for this broader deal making expertise will grow. The Bank could then continue its traditional role as a source, not only of capital but also of staff with relevant expertise, as the shift from government to market provision of urban services evolves.

IV. SIGNIFICANCE OF PARTICIPANTS

It is important in developing policy for private sector participation in urban infrastructure to understand the characteristics of the many participants. The participants to be considered here are: consumers, investors, developers, politicians, public servants (planners, regulators), professional consultants, constructors, and operators.

Significant characteristics include motivations, duration of interest in the project or service, the risk accepted, and the potential to add value. The suggested significance for policy formation is to align the importance of each participant with the summation of their ranking in these categories.

The analysis suggests that long term investors and consumers should receive more attention in policy development than participants with short term interests such as contractors and politicians. It also points to the need to carefully protect the value adding contribution from intellectual property.

The issue of intellectual property is commercially and legally complex. When interaction between the government and the private sector occurs over project concepts and design features as in BOOT projects, it is not only difficult to identify the ownership of intellectual property, it is even more difficult to protect it in law. Again markets exist for ideas and given their value adding potential it is an important policy consideration to ensure that they can be legally protected and hence encouraged.

The nature of competitive markets will now be discussed.

V. COMPETITIVE MARKETS

Formal markets for urban infrastructure services are new so government policy objectives need to include assisting the development of long term efficient markets. In DMCs, strategies to attain such an objective should include incorporation of the existing markets in the informal economy which currently supply most urban services.

For each service there are many markets. On the supply side, the inputs to supply for each service constitute markets that can be bundled together to varying degrees to provide service. For example, finance, design, construction and operations all are markets in their own right.

Similarly on the demand side of each traditional sector of urban infrastructure, analysis identifies a whole series of demands that have been bundled together to varying degrees to express the demand for service. For example the domestic market for water service could be as simple as the traditional supply of all water to drinking water standards, or as complicated as multiple supply systems at varying standards to deal separately with drinking, storm, garden, sewerage and waste water.

To generate insights for policy formulation it is desirable to first analyse certain aspects of the nature of markets and competition, to better understand the source of efficiency from PSP. Then the bundling issue will be discussed.

A. Nature of Markets

The aspects of markets relevant to urban infrastructure are: the dynamics or life cycle of markets; the number of participants; market scale issues including technical scale of production, the geographical scale and density required for demand responsiveness, the geographical and social scale required to encompass all relevant costs (environmental sustainability, externalities); and the combination of inputs or bundles of goods and services that constitute a market supply.

1. Dynamics

Markets have life cycles that govern their efficiency as well as their composition. In an early or emerging phase, efficiency is often lower than in later phases. As knowledge and experience of demand becomes better known, risk is perceived to be lower. Similarly on the supply side, costs drop as production efficiency increases with experience.

Markets also evolve as to the level and nature of service demanded and supplied. Under traditional thinking, government supply of urban services was uniform. You either supplied drinking water to relevant standards, say WHO, or not at all. Markets are economically efficient in part because they are responsive. Suppliers in a market setting supply services that are “affordable” or they go out of business.

This is not to say that such spontaneous market response is readily available, but that governments must not inhibit the responsiveness of markets by regulating inappropriately. (See Section VIII)

Hence in policy terms it is important to be aware that efficiency and consequently costs will carry a risk premium in the early part of developing a new market such as is the case for urban infrastructure.

2. Number of Participants

The number of participants has ramifications for efficiency on both the demand and supply side of the market. On the supply side with only one participant, you have a monopoly. So by definition a market requires more than one participant to be efficient.

If the concept of bidding is used as a model to identify levels of efficiency then the more participants the more likely it is to have one supplier with a combination of input costs (among other factors that drive bidding strategy and all else being equal) that offers the lowest cost bid. In competitive theory supply companies will use a variety of strategies to gain competitive

advantage and it is important from a policy point of view to ensure the greatest scope for alternative approaches.

On the demand side the greater the number of participants the more likely demand will vary or become differentiated. Again markets should be permitted to supply services that are responsive to the demand and resources (affordability) of a particular community.

In summary it is desirable to permit as large and diverse a market as possible. Linking this to the aspect of the dynamics of market formation it suggests that policies should support an evolutionary approach to developing new markets. This approach should utilise the efficiency available in existing markets (both formal and informal) which supply some of the goods and services (factor inputs) that make up the particular urban infrastructure.

3. Market Scale Efficiency Issues

The appropriate market scale for efficiency varies according to the product. It is an amalgam of many considerations, with technical, transactional, demographic, geographic, topographic, and socio-political aspects of particular relevance to urban infrastructure.

For example, technological changes have negated many arguments for economies of scale in say water treatment. In urban transport, on the supply side, the network nature of the common user facilities of road (and ideally rail), and on the demand side, the multilink nature of most trips, both suggest a regional network approach to the provision of trunk infrastructure.

Take the example of transactional scale, which looks at the responsiveness of supply to demand. Efficient markets include the passing of information between buyers (how much I will pay for certain quantities and qualities of goods and services) and sellers (how much I will sell certain quantities and qualities of goods and services) across short links. The length and responsiveness of the path includes geographic distance, administrative or bureaucratic process distance and lumpiness of investment.

So in policy terms the smaller and more responsive the market the higher the likely efficiency. This points to the socio-political community scale as a major influence on the selection of the scale of the supply institution.

In summary, in any given urban area, different sectors may have different scale characteristics that should be taken into account in designing institutions and policies that encourage market provision.

B. Bundling of Services

As noted above, there are two types of bundling to be considered in seeking to establish efficient markets for urban infrastructure. The first accepts the traditional definitions of urban services; of water supply, wastewater management, sanitation and so on, and looks at bundling existing inputs or factors to supply traditionally defined demand for services. The second revisits these traditional definitions and considers the appropriate content of demand in defining efficient markets for services.

The latter analysis has particular relevance to market development policy in applying environmental sustainability criteria and dealing with the existence of externalities. With

appropriate definition of boundaries that include the effects of related services, for example between different modes of transport, what was viewed as external such as congestion mitigation effects, can become internal.

1. Bundling of Supply Inputs

In comparing the market based supply of urban infrastructure to government supply the major changes to inputs are: the origin and control of capital, and the role of coordinator of inputs. The latter in the private sector is thought of as the developer or deal maker role exercised in the past by government agencies.

So in terms of market operation, efficient markets for all inputs bar the two exceptions either already exist or are developing.

It is instructive to consider how the different modalities of PSP (see Section III) access the existing markets for inputs.

In theory all modalities could enjoy the benefits of the existing efficient markets. The most utilised process, BOOT and its many variations, is the exception. In a BOOT the call for tenders to supply the complete bundle of inputs, usually elicits responses whereby suppliers are required by the developer to pledge exclusivity. In the circumstances of a competitive bid, it is usually not possible for a developer to call for competitive supply of individual inputs.

Hence, in the BOOT type process, the chances of any one developer's bundle containing the most efficient supply bundle of all inputs, is low.

The use of "one off" processes such as BOOTs to procure goods and services again highlights the nature of market transactions. In a developed efficient market goods and services offered usually have well known features including price giving what has been come to be called "high transparency". As the procurement becomes more specialised (ultimately a "one-off"), the tender process becomes less open and the need for maintaining the secrecy of intellectual property and hence procedural transparency becomes greater, and its attainment more difficult and costly. So again there is a trade off in costs between bundling factor inputs as in BOOT and accessing separate factor inputs from established markets.

In policy terms it may therefore be more efficient to avoid such procurement practices and use other processes to access the efficiency available in existing markets.

The selection of alternative procurement processes raises other issues such as the appropriate government/private institutional arrangements to be discussed below.

2. Bundling of Traditional Demand for Services

Given the technological basis of traditional approaches to urban infrastructure, it is not surprising to observe supply arranged around sets of coherent technologies. For example, roads separately supplied and competing with railways; water supply separated often from drainage.

In market terms this is a supply side view. From the demand side a different picture emerges. Take water based urban infrastructure as an example where the supply of one service (drinking water) impacts on the supply of another (drainage and sewerage).

The demand for water based service is highly differentiated by purpose and time but highly connected physically. The individual or family unit has a demand for a variety of services (drinking water, washing water, waste disposal, storm drainage, etcetera) and seeks to maximise the utility or benefits it receives. Each of the different modes and quality of water based services, taken individually has an optimal cost. In combination, and with smaller scale processing, the cost will vary. Given that drinking quality water is the most expensive, the opportunity to lower the overall cost is the type of situation that the private sector is best able to exploit. When the factors of level of consumption and affordability for different income groups are included in the equation, then considerable improvements in efficiency are possible.

The market based suppliers' view is to respond to demand as closely as possible but that view depends on the scope available for supply. If it is restricted to, say, drinking water standard, then that will constrain supply and tend to suboptimise the suppliers response. If the supplier were permitted to optimise all water services then it is probable that what would emerge, would be more efficient configurations and pricing structures that coordinate the whole of the water cycle at a community level.

In transport the situation has many similarities to water, but is complicated by the networks being capable of operating as common user facilities. For example vehicles using the transport network can be individually owned by many different parties. The demand for service could, if permitted by policy, be met in many different ways and efficiently from these parties with their differentiated supply.

The key is to have a supply institution arrangement that can design and coordinate the investment and operation of such a supply. This issue is addressed below in Section XI.

In summary, the analysis suggests that the full utilisation of market based efficiency requires a demand based approach to supply that bundles together related modes of supply that can be coordinated and in which externalities can be incorporated, rather than a technologically based approach. This is not in conflict with the conclusion that supply inputs should be unbundled to access efficient (often existing) markets. It reinforces the policy conclusion that the community and investors should have greater control over investment and operation decisions.

The paper now turns to the point noted above, that the shift from government to market provision requires attention be paid to policies that permit the generation of revenue to provide acceptable returns to private investors.

VI. REVENUE GENERATION & PRICING

With the growth of demand and congestion of public infrastructure in urban areas at all stages of economic development, the dual role of user charges as both a rationing and revenue raising device has to be a major policy consideration. However the past approach of uniform supply from single purpose government utility agency such as roads, the need for coordination on charging, and the divorcing of physical supply from finance when taxes are used, continues to influence policy decisions in this area towards uniform user charges.

It has been an explicit dimension of some governments' public infrastructure pricing policy to maintain uniform pricing on equity grounds. As long as public infrastructure is categorised as delivering public goods and services the uniform price can be seen as a logical attribute. However now that most urban services can be categorised as market based, then this thin justification for uniform pricing is no longer appropriate. This is of particular relevance in DMCs with scarce capital, as the early adoption of time based user charges can for example, smooth out demand and delay the timing of the need to construct new capital works.

The existence of the effect and cost of congestion is evident in most urban areas and particularly in the megacities of Asia. Unless governments are willing to give up a significant increment of economic efficiency, there is no alternative to the use of pricing to ration supply. This will be seen by some as discriminating against lower income groups. However such assertions only have validity in the short term. In the longer term, for example in urban transport service, cost based pricing including congestion (temporal effects) will in general lead to more efficient location of urban activities, the development of higher densities in preferred locations, and for example, mass transit services to complement low occupancy vehicles.

Micro economic marginal cost pricing theory using a simple model far removed from economic reality and even further from commercial reality, has established that maximum economic efficiency occurs with short run marginal cost pricing. The practical interpretation of this theory has been narrow and its application naive.

When a broader consideration such as equity are used and the practicalities of setting prices are considered then a two part pricing regime becomes appropriate. One element is a charge for availability of service whether or not it is consumed, a concept that is already used in pricing say sewerage. The second element is a time based congestion charge to users to ensure efficient operation of supply.

This two element pricing scheme can be defended on micro economic grounds and importantly it can be presented as beneficial in political terms.

So in combination with the broader approach to marginal cost pricing as a device for rationing use and maintaining efficiency, the adoption of availability pricing provides an efficient means of generating a revenue stream to finance all urban infrastructure from the capital market.

VII. REGULATION

A. Background

Regulation is required for technical reasons and for economic reasons, and in each case, a clear administrative framework is required. The required administrative framework, as noted above, should include legally enforceable property rights, that can be transferred through contract and include the means to resolve disputes over liability when performance is not accepted.

An unfortunate tendency exists to extend this need for a legal contract system to a legal administrative system that specifies technical and financial guidelines and regulations. The incorporation of such requirements in law gives great strength to central administrators and the legal profession who may have little understanding of the issues involved. Technical and

economic (pricing) standards require legal status but their setting is best left in more flexible administrative form to permit modification by professional advisers as markets evolve.

The current legal review of PSP in Pakistan appears to run the risk of establishing a rigid regulatory framework that may inhibit PSP. Similarly in Malaysia the tendency to centralise and codify standards and codes of practice as with the Sewerage Service Act of 1993 may not be the best long term strategy for extending coverage. Even in Lao PDR, the Vientiane Urban Development and Management Committee is understood to be incorporating design norms and quality standards in law to strengthen implementation of an infrastructure upgrading program. Again experience suggests that long term economic efficiency and PSP are better served by leaving such specifics to professional advisers operating with authority supported by law, rather than standards specified by law.

Predictability of regulation, and certainty of enforcement is as important to private sector participation as the type and level. Any uncertainty arising from political interference or frequent changes in regulations, will result in large risk premiums being demanded with consequent loss of efficiency.

Another much mentioned required feature of the administrative framework is the separation of the regulator from operations to avoid conflict of interest. It is often the case that the skills and knowledge for effective regulation reside in operating departments of government. With the introduction of a market approach, these same departments, in corporatised form, can remain as competitors to the private sector to supply service. It is necessary to completely separate the regulatory function from operations to ensure the confidence of the private sector that their parastatal competitors are not getting any advantage.

A related point is that societies and their political representatives may legitimately have equity objectives for urban infrastructure provision, that they may see as desirably achieved with regulation. However regulation, for example of prices, is an inefficient way of attaining them. In policy terms it has been well argued that direct transfer payments to groups seen to be disadvantaged are preferable. This allows markets to perform efficiently without the political imposition of distortions or subsidies, in investment allocation or in pricing, which lower efficiency.

B. Technical Regulation

Technical regulation is the setting of minimum technical performance standards and rules for coordination to ensure efficient supply.

Such technical standards should impose the minimum constraint on the development of efficient supply. The private sector in order to be efficient, needs the flexibility to respond to differentiated demand.

It is thus important to use functional performance standards rather than physical specifications to allow the full range of optimisation by the private supplier of goods and services. The policy emphasis must be on the outcome rather than the means of achieving it which should be left to the private sector.

C. Economic Regulation

The acceptance of market provision of urban infrastructure must carry with it the reality that perfect markets do not exist (nor do pure public goods). Hence the policy goal is to use the minimum regulation necessary to approach, as close as possible, the operation and outcome of a perfect market.

Emotive words such as “market failure” detract from clear understanding of the object of the combination of market mechanisms and regulation to jointly deliver services with efficiency, equity and accountability.

The focus of most economic regulation has been on tariff or price setting. Various approaches have been used but most fall into the categories of “cost plus” and “incentive” pricing schemes.

The cost plus approach has been shown to lead to distortions, with vast managerial resources of the supplier being given over to establishing as high a cost base as possible rather than minimising costs or better still maximising net benefits. Incentive price regulation, where formulae have been devised that share increases in profits (from say improvements in efficiency) between the private supplier, the community being served and perhaps the government, has emerged as an efficient mechanism.

It is important to economic regulation policy, not to forget the opportunity to achieve efficiency through the imposition of competitive pressure through short term contracts. This puts emphasis on developing contractual mechanisms to handle boundary effects at end of contract where physical and process assets have residual value. Such knowledge and experience is available from commercial activity, for example, the leasing of major manufacturing plants.

Before looking at desirable institutional arrangements, the role of government supports is discussed and analysed.

VIII. GOVERNMENTAL SUPPORTS

A. General

In all policy implementation it is necessary to take into account the history of the existing situation and in each case use government support accordingly. None the less, the emphasis with governmental supports still must remain on the transition phase. This applies at all stages of economic development, even for poverty groups (see Section XI below).

Government support through the transition phase may also be normative. In many countries the elimination of financial controls such as on foreign exchange, foreign ownership, ceilings on payments and royalties, and expatriate employment would have significant positive impact on PSP. Such changes have been introduced with great success, as in Pakistan, to support industrial development. The opportunity is to include the provision of urban infrastructure in the list of desired foreign and domestic investments.

The positive government supports that are available, span the whole range of financial instruments from, for example, capital grants, equity contributions, capital guarantees, and

options to say buy back facilities, plus use related supports such as minimum throughput or traffic levels and restrictions on competing services.

In infrastructure that has been privatised in the past (including BOOT schemes) the use of government supports has disguised a significant structural problem. In the privatisation transaction between a government under budgetary pressure and a profit maximising private investor, the maximum price achieved by the government and the maximum return to the investor occurs when monopoly elements are left in place. These monopoly elements may be as simple as a guaranteed floor on tariff increases such as the CPI used in privatising British water authorities, or traffic restrictions on roads that could provide alternative service to a private tollway as in Melbourne's south west tollway project. The community of consumers is not directly represented in the negotiation of these contracts and so the temptation to increase price and returns is hard to resist.

Notwithstanding these problems, the use of government support through the transition phase has probably been underutilised. As commented above, the international rating agencies have a detailed appreciation of a country's creditworthiness and the social responsibilities and risks out of which the government can not contract. In other words such assessments are already included in a ratings assessment before markets and PSP are used in urban infrastructure.

The selection of which support depends primarily on the particular project, but there are two features that are desirably common to all financial support.

The first feature derives from the required transitional nature of support and is to incorporate some termination or "sunset" mechanism to ensure that the market does not build in a long term expectation of government support that takes on the form of subsidy with all the consequent distortions and inefficiencies.

The second desirable feature for government capital support is to build in a revolving fund type mechanism that allows the government to convert the support to a form of marketable instrument once the market for investment in the project has reached a stable low risk profile. The instrument can then be sold to the private market and the government recover its resources for application elsewhere. Such mechanisms help develop the local capital market.

This is an appropriate point to raise the much neglected issue of what governments should do with existing urban infrastructure assets.

B. Existing Assets

Government infrastructure provision has tended to respond to a yearly budgeting cycle that places most emphasis on new capital works and operations. Hence existing assets have tended to be ignored in the discussion of markets and PSP. The significance of this issue varies according to the level of urban infrastructure development achieved and, as with all policy implementation strategies, the particular circumstances are critical and may override the dictates of a generalised approach. Nonetheless, government policy on PSP in urban infrastructure should explicitly include existing infrastructure.

Existing infrastructure offers an opportunity for governments to accelerate the development of a broad capital market involved with infrastructure provision by simply securitising the existing

assets. Once securitised the government has many options as to how it converts the holding to full market negotiability and to whose benefit.

One policy option is to distribute financial instruments to existing consumers thereby spreading ownership and instantly creating the local capital market that is desirable for PSP in urban infrastructure. It is a powerful opportunity to accelerate development of capital markets in DMCs.

This leads to the issue of community and N.G.O. participation.

IX. COMMUNITY & N.G.O. PARTICIPATION

There has been a tendency in the literature published on infrastructure provision to regard community participation as something separate from market development.

It needs to be clearly stated that from an economic development point of view, the highest form of community participation is as consumers in a developed and hence responsive market. Community participation is not something separate. The relevant community are the beneficiaries, the consumers, the clients in market provision. Analysis of their involvement needs to be brought into the mainstream of policy development.

As used in this paper “community” allows for broad definition. It can span from the obvious group of residents in an urban village or district, to a group of port users as in a container handling terminal to be built using BOT in the Port of Karachi.

In discussing community participation in developing countries, it is appropriate to raise the significance of the official and unofficial economy. Again much of the PSP discussion has centred on the official or formal economic activity, but particularly for low income groups, the informal economy is a significant provider of infrastructure and operates, in the main, on market principles.

The policy challenge is to connect such activity with external sources of capital and expertise in the private sector without losing the existing market characteristics. This is not a new challenge and has been the subject of the multilateral development banks’ poverty alleviation programs in urban and rural areas since the seventies.

An example is the Social Action Programme component of the ADB supported upgrading of infrastructure in Vientiane, Lao PDR. Here strong community involvement is to be fostered, and it offers the opportunity to include influence over control of the investments to be made.

The need that the above analysis suggests is for a new form of institution that bridges the gap between the community and the capital market.

X. PUBLIC/PRIVATE INSTITUTIONAL ARRANGEMENTS

The following proposed arrangements constitute a general set of policy considerations and institutional specifications for market based provision of urban public infrastructure services. They are followed by description of a “generic” model of appropriate institutional structure, that incorporates the specifications.

This generic model has been termed a Community Infrastructure Corporation (CIC). In essence CICs would be owned and controlled by a combination of the community demanding service and investors most probably from the broad capital market. The CIC would then access traditional efficient markets for the factor inputs to the service to be provided, for example; finance, management, design and construction, operations and maintenance. These and other characteristics of CICs are discussed below.

As has been emphasised throughout the paper, each sector in each city in each country will have particular characteristics that should influence the selection of optimum strategy to move the current situation towards the model.

A. Policy Considerations & Institutional Arrangements

The suggested policy considerations and institutional specifications include the following:

1. The traditional government institutional framework of supply sectors defined by technology (including modes in transport) needs to be changed to markets defined by demand, so that the efficiencies of markets can be realised.
2. Institutional arrangements should encourage close links between, the creditworthiness in the community demanding service, the investors in the capital market as sources of capital, and the traditional (existing) private sector markets that supply inputs (factors) to providing service (finance, design, construction, operation and maintenance).
3. Consumers and investors should be given more importance in policy formation, moving discretion over supply decisions away from contractors and politicians.
4. Governments should make more frequent use of explicitly defined financial supports to manage the dynamics of market formation , particularly equity and debt finance, during the transition from government provision to market provision.
5. Community participation should be seen as part of the market development process.
6. Market experience in the informal economy should be utilised.
7. The opportunity exists to securitise existing infrastructure assets, distribute scrip to existing users, and thereby accelerate and support establishing a local capital market in urban infrastructure.
8. The size of the market included by the government in a concession or franchise, should be as small as practical after consideration of efficient technical, transactional, demographic, geographic, topographic, and socio-political scale.
9. There is a need for a transition strategy to move the currently largely government located project analytical capability, to the infrastructure supply institutions and

capital market to enhance the investment analytical background of those controlling capital.

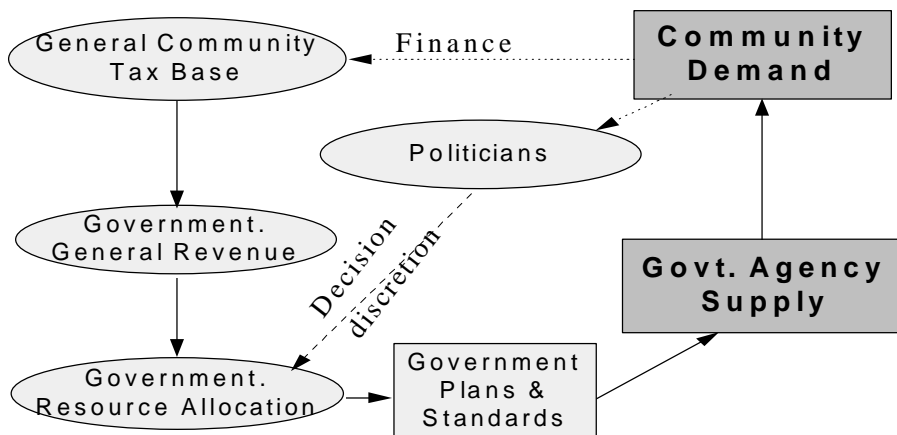
10. That some of the bundles of inputs being sought in BOOT schemes constitute new markets that are costly to establish, are not efficient, and hence should be avoided unless it is the only way of accessing required resources.
11. Two part direct user charges, separately covering availability and congestion control, and that reflect the principles of marginal cost pricing, are an imperative for the involvement of capital markets with their consequent need for revenue to service investment.
12. Prices that control congestion by rationing use, are an imperative for the efficient operation of urban infrastructure and hence urban economies.
13. Short term contracts and an unbundled approach with carefully constructed termination and asset transfer provisions, have advantages in gaining the efficiencies available in markets by avoiding the need for much economic regulation.
14. Regulation should be kept to a minimum with certainty and constancy in application; with technical regulation by functional performance standards; and where economic regulation is felt to be necessary, it should be in a form that provides incentives to suppliers to improve efficiency while sharing benefits with consumers.

B. Community Infrastructure Corporations

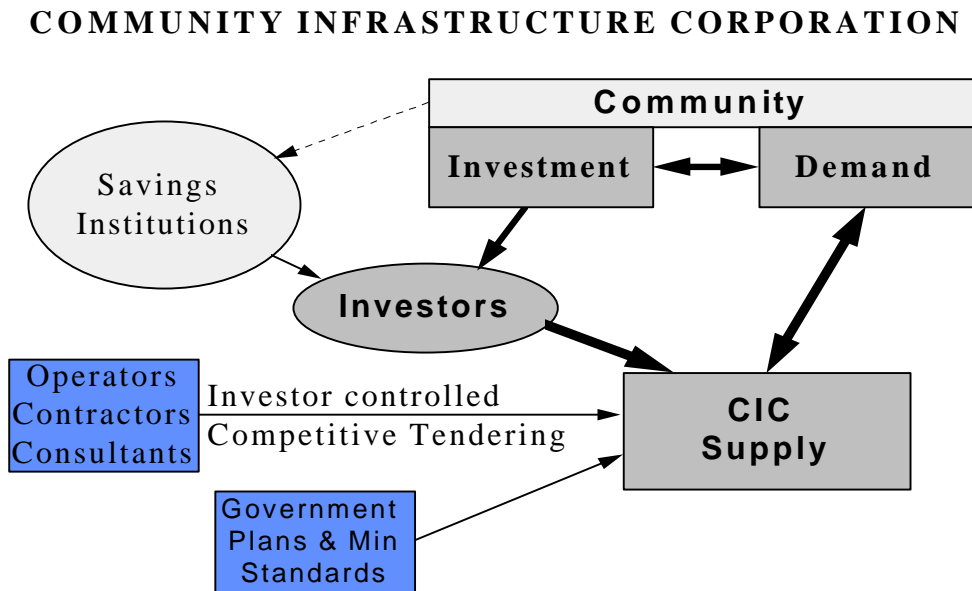
The understanding of recommendations to change the accepted structure of institutions can be helped by comparing the old with the new. The following charts illustrate some of the differences between traditional Government Agency supply institutional structure and a market based Community Infrastructure Corporation supply structure.

Note the weak unidirectional links between supply and demand in both the financial flow and decision discretion, resulting in weak feedback and responsiveness. Such arrangements are features of countries as diverse as Australia and Lao PDR, and reflect the continuing view of urban infrastructure as public goods and services rather than marketable goods and services.

GOVERNMENT AGENCY



Note the weak unidirectional links between supply and demand in both the financial flow and decision discretion, resulting in weak feedback and responsiveness. Such arrangements are features of countries as diverse as Australia and Lao PDR, and reflect the continuing view of infrastructure as public goods and services rather than marketable goods and services.



In contrast to the first chart note the short links among Demand, CIC Supply, and Investors, with strong feedback and responsiveness between Demand and Supply. Particularly note the feedback between Community Demand and Community Investment, which provides a “governing” mechanism to help keep community demand for service (at a price), in balance with community (and investors from outside the community) requirements for a return on investment.

What these charts do not illustrate, is the proposed shift in scope of operations, for example in urban transport, from supplying facilities for a single technologically defined service mode such as roads, to a service demand definition of the scope of supply, providing facilities for all modes to permit suppliers to efficiently respond to the differentiated demand.

While, as noted above, each situation requires careful analysis in its regional, social and cultural setting, the following characteristics of CICs would be found in most situations.

1. CICs are proposed as a permanent organisations combining public and private sector characteristics, rather than as a means to transition from public to private status. In this way CICs differ from Municipal Development Funds which however could be used as a strategic first step to the establishment of a CIC.
2. The urban services to be supplied by each CIC would be designated initially by government as part of its sector planning process using analysis that would include the market scaling principles described in Section VI A 3.
3. The establishment of each CIC would require an intermediary with the deal making and administrative skills of the “developer” described in Section V A 3 . In DMCs this establishment process could be conducted with the assistance and guidance of

multilateral development agencies such as the ADB, or in consultation with the international infrastructure funds that are beginning to emerge.

4. On ownership, CICs would be privately owned by the community and investors, thus distinguishing them from corporatised public infrastructure departments.
5. Permanent participation in ownership by the community being served is essential, as is investment by broad based savings institutions. This characteristic of community ownership, distinguishes CICs from private infrastructure companies and funds. . It should be noted that without government direction it's unlikely that community participation in ownership and control would occur.
6. Where infrastructure assets exist, ownership of the CIC could be distributed to existing consumers with additional funds being raised in the normal corporate way from capital markets through an appropriate combination of equity and debt.
7. Where there are no assets, the Government could sponsor community and NGO participation and institutional building using the techniques developed by the ADB in existing rural and urban lending programmes that seek to engage the informal economy.
8. On control, it is essential that the community being served has strong influence to ensure responsiveness of supply to needs and affordability. Similarly, broad based savings institutions that invest should have strong influence to reinforce this and maintain economic and financial efficiency through discipline in investment appraisal, operation and maintenance. Mechanisms to restrict at least part ownership to the demand community, would be needed to prevent control of CICs falling to infrastructure companies without strong local community ownership. In this way CICs include a checks and balances mechanism to control monopoly without a high degree of regulation.
9. CICs would operate within a broad functional framework defined in a contract with the government.
10. The Government would continue to exercise broad planning authority over trunk network layout and rights of way.
11. Government would be the permitting and approval authority
12. CICs would have the right to decide on all investments and standards at or above the contracted minimum. The government could not force CICs to make investments in infrastructure that the CIC considered inefficient.
13. Where a government desired investment in infrastructure that could not be justified by the CIC, then government would have to contract explicitly with the CIC and finance such investment on reasonable terms acceptable to the CIC.
14. The scope of infrastructure managed by each CIC may vary depending on the state of development of assets and existing organisations, as well as the scale considerations discussed above. In general and as noted elsewhere it would appear desirable for each CIC to be responsible for one type of infrastructure. For example, a CIC could be responsible for a regions complete water cycle so that optimal systems of storage, reticulation, recycling, treatment etcetera, can be supplied using procurement that accesses competitive markets.

This general description of CICs raises many questions the answers to which only the challenges and circumstances of specific situations can illuminate. The important point remains that institutional structures with such characteristics and operating in the policy environment described, would overcome many of the constraints to PSP that to date have inhibited capital market resource flows to markets for urban public infrastructure.

XI. CONCLUSION

Efficient private sector participation depends on the establishment of efficient long term markets for urban public infrastructure services, which in turn depend on the establishment of an appropriate policy framework by government.

The transition to the desired framework, requires strategies that take into account the features of the current policy framework in a particular sector in a particular urban setting, and the above mentioned changes in knowledge of: capital markets, participants, competitive markets, revenue generation, regulation, the use of governmental supports, and community participation.

It is suggested that the public/private institutional structures that respond to these policy considerations take the form of Community Infrastructure Corporations (CICs). CICs would operate under a contract with government and be jointly owned and controlled by investors who are a combination of the community being served, and outside investors from the capital market. They would obtain the factors required to provide service from traditional efficient markets.

All the elements in the proposed policy framework and institutional structure are well known. However the suggested combination is new. It requires a significant shift in attitude by policy makers, but would lead to the removal of the many impediments to private sector participation and the spanning of the gap that currently exists between private capital and the needs for more efficient urban infrastructure services.