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The Tools For Financing Infrastructure Tools As Revenue Generators: An Assessment

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EXECUTIVE SUMMARY

An emerging crisis facing developing countries is the provision of urban services at a scale that meets the needs of the urban population. Constrained by limited resources, basic services such as water and electricity are often neglected. This paper examines this problem within the context of local government's ability to raise revenues to finance urban infrastructure, and tools that have promise for policymakers in less developed countries will be explicated and analyzed.

Part 1 of the paper examines the existing condition of infrastructure provision in developing countries, and outlines the possible causes and ramifications of the persistent failure to provide adequate infrastructure services.

Part 2 presents an economic theory of the public provision of infrastructure: the nature of including market failures, their pricing, and their economic efficiency and equity.

Part 3 reviews promising financing tools found in a survey of the literature, both in the U.S. and in the developing world. The appendix analyzes these methods within the economic framework outlined in Part 2.

Though some of these tools have never been used in developing economies, they offer distinct possibilities and are worthy of further consideration.

INTRODUCTION

An emerging crisis facing developing countries is the provision of urban services at a scale that meets the needs of the urban population. Constrained by limited resources, basic services such as water and electricity are often neglected. Not only are human services a scarce resource, but technical and mechanical infrastructure are not available in sufficient quantities to accommodate the rapid growth of third world cities. This paper examines this problem within the context of local government's ability to raise revenues to finance urban infrastructure, and tools that have promise for policymakers in less developed countries will be explicated and analyzed.

Relying on the available literature, this paper dimensions the infrastructure problem and assesses why it is so persistent. The paper suggests programs and instruments that may be useful solving infrastructure financing problems.

The first part of this paper examines the existing condition of infrastructure provision in developing countries, and outlines the possible causes and ramifications of the persistent failure to provide adequate infrastructure services. The next part of the paper presents an economic theory of the public provision infrastructure: the nature of including market failures, their pricing, and their economic efficiency and equity. An important issue not only in developing countries, but also in the developed world, is the decentralization of government, especially with respect to fiscal autonomy. Infrastructure, intrinsically local by nature, is a clear candidate for local cost-recovery mechanisms. However, increasing local governmental control over the financing of infrastructure does not remove some of the difficulties facing public goods financing. These difficulties include the lack of a fiscal and physical cadastre as well as administrative skills and the unavoidable externalities and free riders.

Finally, the third section reviews promising financing tools found in a survey of the literature, both in the U.S. and in the developing world. Though some of these tools have never been used in developing economies, they offer distinct possibilities, and are worthy of further consideration.

PART 1: THE PROBLEM

POPULATION

The strong and steady growth of the urban population in the developing world is indicative of the growing need for adequate services. Population projections by the U.N. Centre for Human Settlements indicate that the urban population in all developing countries will increase from 29 percent of total population in 1980 to 53 percent in the year 2020 and up to 81 percent in upper-income developing countries. The urban population in the developing countries has more than quadrupled from 300 million in 1950 to 1.3 billion in 1990. The next 15 years are expected to show an increase of 50 million per year, reaching 4 billion by about the year 2025 -- close to the total population of the world in 1975. By this time as well the developing world will be primarily urban (UNCHS, 1986).

The concentration of development in these urban areas intensifies the need for adequate services. Although rural services are typically far less comprehensive than urban, the shift of the population from predominantly rural to predominantly urban within the developing countries will have a substantial impact on the required provision of services.

EXISTING COVERAGE

Most recent World Bank estimates indicate that 23 percent of the urban population in developing countries has no potable water within 200 meters; the figure rises to 35 percent in Sub-Saharan Africa. Road congestion is spreading, and escalating transport costs have reduced productivity. Housing shortages are common in many cities. (World Bank Development Report, 1988.)

The condition of existing infrastructure in developing countries is generally characterized as deplorable. It is not uncommon for there to be inadequate provision of clean water and sanitation services. Often these services are only provided for upper- and middle-income houses, while the greatest need remains with the lower-income areas of the city.

Excluding Africa, some services in the developing countries have been keeping up with the increasing population, the percentage of the population served with water supply and sanitation services actually rising between 1980 and 1983, as shown on Table 1. Through all the developing countries, 71 percent of the urban population has access to water supply and 59 percent has sanitation services. However, these low coverage rates do not include informal settlements in urban areas; it can be assumed that services there are grossly inadequate. Squatter settlements are usually worse

off than urban slums, although some basic services are now being provided under squatter settlement upgrading schemes.

Table 1 Water Supply and Sanitation Coverage by Region for Urban Population				
Region	Water Supply		Sanitation	
	1980	1983	1980	1983
Africa	66%	57%	54%	55%
Asia and the Pacific	65%	67%	41%	48%
Latin America Caribbean	78%	85%	56%	80%
Western Asia	94%	95%	80%	93%

UNCHS, 1986

Solid waste management is not well documented in developing countries, but usually the municipal government collects between 25 and 55 percent of the waste generated in the large cities. This rate would probably not hold among the squatter and slum settlements in the cities. Often, no waste disposal service is offered in these areas, and refuse is dumped in common areas or in unofficial dumping grounds.

The rapid expansion of cities in developing countries has led to increases in demand for transportation services that have not been met, even in cities which have diverted a substantial portion of public funds toward transportation. Inadequate public transport and pedestrian access, as well as traffic congestion and parking problems, affect all members of the urban population, although the lower-income groups suffer the most. A low-income family can spend between 10 and 30 percent of its income purely on transport. The scarce resources that are available for public transport are usually concentrated in long-distance transit rather than local transport. There are also extreme inefficiencies in the transportation systems, ranging from inefficient operations management and planning to inappropriate transport modes and technologies. Public buses in Zaire are out of service 90 percent of the time, and less than half the urban population has access to infrastructure services.

Most developing countries primarily use non-commercial fuels, such as firewood, charcoal, animal dung, and vegetable residues, especially in rural areas. This tendency continues in the squatter and slum settlements in cities since most of the residents in these areas are recently displaced from rural areas. In India, for example, up to 45 percent of the energy consumed in towns and cities come from non-commercial fuels (UNCHS, 1986). The electrification of cities has been given

priority in many developing countries, but the consistency of such services has not yet stabilized. In Nigeria, industries must assume that there will be frequent power cuts and voltage fluctuations. The inconsistency in power supply leads to such difficulties that almost every industrial establishment has found it necessary to invest in individual generators to avoid production losses. Industries must invest between 10 and 35 percent of their value into their own generators (Lee, 1989).

Although not necessary to the health and welfare of the people, the lack of communication infrastructure is glaring in developing countries. In Zaire, fewer than 20 percent of attempted telephone calls are completed (Urban Development Division, 1990). Fiscal markets, a sort of financial infrastructure, are rarely functioning in less developed countries.

COST OF SERVICES

The cost of adequate infrastructure directly affects the housing cost in developing countries. In Egypt, it was estimated infrastructure costs make up two-third of the total cost of housing development in lower-income settlements in the Greater Cairo area. This share increased to almost 80 percent in Greater Alexandria (Peterson, 1990).

A substantial share of the gross domestic product of developing countries would be required to fulfill the water service requirements in urban areas. Table 2 shows that an average of 6 percent of the GDP of developing countries will be required to meet provision requirements through the year 2000.

Table 2					
Average Annual Costs of Water Supply and Sanitation 1980-2000 (1978 prices)					
	Capital Cost (\$mill)	Recurrent Cost (\$mill)	Total Cost per capita(\$)	GDP per capita (\$)	Cost % GDP
All Dev. Regions	34,000	20,400	24.32	430	6
S. Asia	20,800	12,500	23.29	560	4
Africa	7,800	4,700	26.60	330	8
Latin America	5,400	3,200	23.63	1,040	2
UNCHS, 1986					

Sanitation services can also consume a sizeable portion of household income, depending upon the level of service. Considerable savings can be made through alternatives to traditional sewage systems. The lowest-cost sanitation systems, such as the pour flush toilet and twin-leachpit systems, consume 2 to 3 percent of income for an average low-income household. This share increases dramatically to over 50 percent of income with high-cost systems such as septic tanks. Alternative waste disposal methods can reduce the cost to consumers: in Hong Kong, incineration costs \$10.72 per ton, while sanitary landfill only costs \$4.74 (UNCHS, 1986).

An important component to the cost of providing infrastructure in developing countries is the operation and maintenance of the infrastructure already in place. The neglect of infrastructure leads to replacement costs that can be as much as three times the cost of timely maintenance. The utilization of existing infrastructure would seem to be an effective tool to increasing coverage of services, but this requires serious commitment by governments, politically and financially. Inappropriate designs, influenced by Western standards, may incur larger expenses in the long run due to differing user habits and imported equipment and skills that may be needed. Rehabilitation and maintenance pose some of the most difficult financing situations in developing countries, and will not be examined in depth here.

The lesson to be learned is that infrastructure provision must be self-financing to the fullest extent possible. Services which can be charged for, and non-payers excluded must be financed on a cost-recovery basis. Implicitly, this requires that the levels and costs of infrastructure must be consistent with the user's ability to pay.

IMPLICATIONS OF INACTION

The provision of sufficient infrastructure has far-reaching effects in developing countries, and inadequate infrastructure services impact productivity as well as growth patterns in cities. The link between urban services and efficient urban growth is undeniable: economic policies and urban growth patterns are interdependent, especially in developing countries. Well-planned infrastructure should lead to well-planned cities.

Productivity growth is directly affected by the provision of infrastructure services since these services are intermediate inputs for industry: although they are not intended for final consumption, they are necessary for the production of goods and services. Insufficient services will slow the productivity growth and the economic development of less developed countries. In Nigeria the industrial sector must invest in generators and water treatment plants to insure the level of service

required to maintain production (see Box 1 below). Individual industrial costs are therefore increased, reducing the competitiveness of locally produced products with imports (Lee, 1989).

Box 1: Nigerian Infrastructure Deficiencies

Nigerian manufacturers are plagued by frequent interruptions of publicly provided services such as water, electricity, telecommunications, transport and waste disposal, and by the poor quality of these services when and where they are available. Most firms do not relocate due to consistent poor quality of services. Instead, most companies undertake extensive capital expenditures to provide their own services. For example, a milk processing plant requires its own electricity generators to ensure power 100 percent of the time. Voltage surges or drops at a critical time would threaten key equipment and result in much waste. The capital value of generators and support facilities constructed by firms is on average 25 percent of the total value of machinery and equipment for small firms and 10 percent for large firms. This share varies widely by firm size and location, from 36 percent for small firms in Anambra to 4 percent for large firms in Imo.

Between the extremes of inadequate public provision of services and prohibitively expensive private provision of these services, a feasible policy option must be found. Identified infrastructure related subactivities could be left to the private sector through new market mechanisms.

(Lee, 1989)

The link between productivity and investment in infrastructure can be seen even in developed countries such as the U.S. The slowdown in productivity growth in the U.S. can be directly related to the distribution of government spending on public services. The strong correlation between changes in total factor productivity and changes in the level of public capital stock in the last 35 years led one study to conclude that "more than 80 percent of the reduction in productivity is directly related to the neglect of infrastructure investment" (World Bank, Urban Development Division, 1990, p. 19).

Economies of agglomeration are lost when traffic congestion on the scale of Bangkok, Cairo, or Mexico City slows the movement of goods and workers to a crawl. Urban growth rates between 3 and 5 percent require higher levels of skill and planning to meet the increased demand for services in cities. By simply ignoring the infrastructure problem, developing countries are creating future difficulties that may prove to be insoluble.

WHY NOTHING HAS BEEN DONE

Developing countries were directly impacted in the early 1980s by cutbacks in international lending to central governments. In a sample of fifteen developing countries, the World Bank Development Report in 1988 found that capital spending as a percentage of central government spending decreased by 35.3 percent in the early 80s. Infrastructure spending decreased by about 25 percent in the same time period.

The underprovision of urban services outlined above is due to constraints both in revenue and in spending. Local governments are facing tight budgets and higher level governments cannot be counted on for monetary transfers. The traditional financing methods have become too costly and the administrative framework necessary for raising more revenue is not in place. The lack of governmental investment in infrastructure projects, while it may ease the budgetary burden in the short run, will have long-term effects on the state of the city.

This crisis is not solely the problem of the developing world, however. There are certain theoretical arguments which help to explain the state of public services from an economic point of view. The next section will illustrate some of the problems that face the providers of public goods.

PART 2: THE THEORY

NATURAL MONOPOLY

Infrastructure has traditionally been provided as a public service for a number of economic reasons. The first is the capital-intensive nature of most infrastructure facilities which leads to a natural monopoly. Average cost pricing would recover the cost of the capital investment, but the declining marginal costs of infrastructure projects leads to lower efficient prices. Left to the private sector, a single firm would benefit the most from such a scenario, rather than many firms splitting the capital costs and eventual revenues. However, the monopolist would attempt to maximize profit by charging prices above the marginal cost level. To ensure the affordable provision of necessary infrastructure services, the government assumes responsibility for these monopolies and only charges the marginal cost of production, utilizing revenues from taxes to cover the cost of the capital investment.

EXTERNALITIES

Public goods such as infrastructure have two defining characteristics: non-excludability and non-rivalry in consumption. Everyone has access to these services and is guaranteed that they will not lose their place to someone else. These traits introduce the externalities that go along with public provision of infrastructure. Once a public good is produced, everyone can benefit from it; thus it is difficult for a private firm to profitably produce and sell a public good because they can't exclude non-payers. Because of the positive externalities inherent in public infrastructure, the private market will not produce these services efficiently. However, there is also no way to monitor demand in publicly provided services.

DECENTRALIZATION

The intrinsically local nature of infrastructure suggests that the most appropriate production source for these facilities is the local government. Not only are central governments more removed from the needs of the local population, but it is more likely that the methods by which a central government would construct a facility will differ from the method chosen by the local government. The trends in decentralization of governments in developing countries, at least in the literature, show that this is a growing concern in these countries. For the provision of infrastructure, it seems that local government would be the most efficient source for funds, since revenues can be generated from the people who will be directly benefiting from the services. A community-based effort can indicate the demand for these public services: usually public goods have no means of determining their demand.

The next section outlines the economic criteria by which the methods of financing infrastructure can be evaluated.

EFFICIENCY

COST RECOVERY

There are a few different ways to consider the efficiency of a financing method. The first, and most apparent, is the cost-recovery performance of the financing. How effective is the method in recovering the monies used to produce the capital facility? What form will the repayment take -- taxes? fees? charges? Will the facility be self-financing? The reliability and length of time for repayment are also pivotal in determining the efficiency of a financing method. In the case of utilities, the user fees and charges are usually a stable and effective way to insure that the production will be self-financing. However, the pricing of public services brings up the broader economic definition of efficiency.

Economic efficiency is defined as "the ability of an economic system to produce and distribute goods and services so that it is impossible to make someone better off by any reallocation of resources without hurting someone else" (Apgar & Brown, 1987). Usually, this involves minimum cost production and the production of the most valuable products to society as indicated by their willingness to pay for the products. Selma Mushkin writes,

The economic case for the expansion and rationalization of pricing in the urban public sector rests essentially on the contribution it can make to allocative efficiency. Prices will provide correct signals to indicate the quantity and quality of things citizens desire and help bring about the proper balance between private and public production of these things. (Mushkin, 1972, p. 11.)

This concept of marginal cost pricing in the public sector is ideal in economic terms for creating an efficient economy, but the practical implementation of this type of pricing may be difficult.

MARGINAL COST PRICING

Marginal cost pricing, in its pure form, would require setting the unit price of the service provided to each customer equal to the marginal cost of producing that product, including the social costs. Here, there is no better way to reallocate resources to increase welfare or decrease the total cost to the community. However, at the marginal cost production level, since costs begin to fall for

public goods, the average revenue is less than the average cost, resulting in an operating deficit. This deficit can be covered through property taxes or some other sort of subsidy, but before this is done, the inefficiency of charging more than the marginal cost for a public good must be weighed against the inefficiency of alternative revenue sources. Although in theory marginal cost pricing is the most efficient production level, there may be exceptions, especially if the demand is elastic (Apgar & Brown, 1987).

Utilities have traditionally used average cost pricing to cover the debt involved in the initial capitalization of the utilities. The difficulty with average cost pricing for public goods, aside from the obviously higher price than marginal cost pricing due to falling costs, is that the burden of financing the facility is shifted entirely onto users, rather than partially onto all taxpayers, as in subsidized marginal cost pricing. However, if the residual cost not recovered by charges is covered through taxes, inequity between the public and private sector could result; if the subsidy is set to maintain the same price difference as the marginal cost difference, though, the competitive efficiency would remain the same (Apgar & Brown, 1987).

In the public sector, the marginal cost curve has a negative slope due to the decreasing average costs of production. This is most evident in utilities, which therefore only require one producer for least-cost production. However, usually a price greater than the marginal cost must be charged for the facility to remain self-financing in order to recover the initial cost of building the facility, resulting in a loss in consumer surplus and a deadweight loss to society.

The goal of marginal cost pricing is to improve the allocation of resources by taking advantage of the following processes: the value of the product to the consumer will determine the volume of demand; resistance to new program offerings stemming from financial barriers in a city may be removed if new programs were originally planned to be self-financed out of fees and charges; and, although there is no mechanism at present to record demand for public goods, perhaps externalities could suggest larger resource commitments (Mushkin, 1972).

Clearly, this pricing technique is in opposition to self-financing prices, since the charge levied will be greater than the marginal cost of production in order to pay for the facility itself. In addition to this, by virtue of being a public good, it is inherently difficult to determine a marginal cost for production.

A "public good" is one that cannot be divided into purchasable units. . . . The production of public goods thus cannot be guided by demand. In the absence of market-type responses of demand to price, there is no conceptual procedure other than the cumbersome political process for signaling the decision-maker

about the value of increments of output in relation to costs of these increments.
(Mushkin, 1972, p. 23.)

MARKET SENSITIVITY

The impact that the financing method will have on the local market should be examined carefully. The market may be sensitive to certain financing tools, depending on the elasticity of demand, the project size and mix of uses, and the land and development prices. Changes may result from the use of developer fees in a market that has a low elasticity of demand. Market distortion may result due to the use of certain financial tools, and certain financing methods may encourage or discourage development.

BUOYANCY

The buoyancy of the financial tools must also be considered before implementation. Buoyancy refers to the degree to which fees, charges, or taxes increase with inflation. Inflation may have a substantial impact on the effectiveness of a financing technique, and the effectiveness of the method may be influenced directly by any changes in the value of money at a given time.

Efficiency includes not only these economic factors, but also social welfare and governmental or administrative efficiency. The proposed social welfare theory would set forth a theory that would apply to the real world in which one scenario would be inherently "better" for society than the other. The subjectivity of this distinction keeps this theory to the side of more concrete determinations of efficiency. Insuring the administrative efficiency of any financing method will usually necessitate some sort of cost, but this cost can be minimized through careful planning and the inclusion of the new administration with existing structures in the government.

EQUITY

Equity considerations are even more difficult to separate out than efficiency aspects, but there are a few major issues that should be considered. The difficulty, of course, is determining what is "fair" -- a decision which usually depends on individual values.

INTERGENERATIONAL EQUITY

Intergenerational equity stems from the tradition of one generation providing or helping to pay for the infrastructure which will benefit the next generation. As time goes on, though, the question of who should pay for increases in the unit cost of the infrastructure becomes more important, especially as public financing decreases. The subsidy which current residents enjoy from past residents can either be continued or determined inappropriate. That is, should residents today pay for the facilities for residents tomorrow? In a related question, who should be financially responsible for the unused capacity of public facilities constructed to accommodate future growth?

HORIZONTAL EQUITY

Horizontal equity arguments maintain that people in similar situations should be treated similarly. There should not be any arbitrary or discriminatory charges for residents who hold comparable places in the community. However, this brings up the difference between established residents and new residents in a city: does the benefit of new development to established residents outweigh the associated infrastructure costs they may be asked to finance? The costs and benefits of a project must be carefully analyzed to determine the answer to this question.

INCIDENCE

Another important equity consideration is that of incidence: that is, where the burden eventually and finally falls to pay for the infrastructure. This usually depends on the ability of the buyer and seller of property to shift costs to others or to move their business, which in turn is linked to the behavior of the market. The elasticity of supply and demand, the actual structure of the market, and the time period during which supply adjustments may occur all play a part in the final resting place of the burden of payment. Clearly, this issue is of great political concern due to the effects on development and the spatial structure of the city. Impact fees borne by land developers can either be shifted to the final users, the homeowners, or back to the owners of the raw land, depending on the elasticity of demand in the market and when the fees are announced. Either the cost of the final product will increase, or the price of the land will decrease.

DOUBLE TAXATION

Double taxation is a related equity issue which must be faced when considering a financing method. Does the method indirectly cause some members of the community to pay twice for the

same service? For example, with the use of impact fees, both new and established residents pay taxes and utility fees, but the established residents are paying only for the infrastructure meeting their needs, and the new residents are paying both general taxes and impact fees that fund facilities that they may not derive extra benefit from. To solve this, the development fees should be reduced by an amount equal to the taxes or fees that would be paid by the development to retire debt on the existing facilities. This assumes that the new development doesn't consume any other services that is funded by the fees.

BENEFIT VS. ABILITY TO PAY

The implementation of developer fees exemplifies the benefit principle of equity: those who benefit from a facility should bear the costs. However, this principle must be considered in conjunction with the ability-to-pay principle, in which individuals bear the financial responsibility for public goods according to their ability to pay the cost. The benefit principle is used as the primary justification for special assessment districts, since the people who will reap the benefits of the new infrastructure are the ones targeted for the assessment. Other methods of private financing, including exactions and impact fees, are based on this method as well, requiring that new developments pay their fair share for the new infrastructure they require. However, there remain questions of intergenerational equity and the possibility of a double standard when the benefit principle is used for new infrastructure and the ability-to-pay principle is used to back the replacement of infrastructure.

RATIONAL NEXUS

Legally, the primary difficulty in the U.S. encountered by these innovative methods for financing infrastructure is the rational nexus test. If the exaction or impact fee qualifies as a regulation, rather than a tax, the charge must pass the legislated rational nexus test, which determines that the charge mitigates the impact on the community as well as exactly equalling the cost of providing the new facility. Rational purpose must be established: the charge must be related to a legitimate governmental purpose which is causally related to the new development. The regulatory nature of the charge is usually determined if the charge is a requirement for permission to develop the land or complete the permit process.

POLICY AND IMPLEMENTATION

ADMINISTRATIVE

Any proposed method for financing infrastructure must be evaluated in terms of the practical implementation within the local governmental framework. The local government will certainly be concerned about the time frame in which funds will be provided, when repayment will begin, and how long the government will have to sustain a debt. Depending upon the position of the locality economically, these may be deciding factors in the choice of a financing tool.

Other administrative issues may come into play during the evaluation of a financing technique, ranging from the feasibility of creating a new administrative body, as in special district financing, to cooperation with other localities, as in credit pools. The ability of the local government to adapt to these changes in its administrative structure can be vital to the success of financing a project; if the locality begins to get lost in its own red tape, the project may never be completed. One of the specific facets of the financing method to be considered includes the payment form, which could be in the form of cash or in-kind contributions, a tax-free bond, or a lease from a private owner, to name a few. The eventual repayment method is also important, for it can range from traditional user fees to less traditional excise taxes or tax increment financing. If the financing is pay-as-you-go, traditional methods such as developer charges or central government transfers will probably be used. Since not all financing methods are revenue-producing, such as state revolving funds, repayment is especially important to consider.

IMPLEMENTATION

An intrinsic part of the success of any financing method is the implementation of the tool by the local government. The transition from traditional methods of financing to more innovative methods could result in confusion and additional inefficiencies. The effect of this transition on the locality must be considered before making the leap to a new technique. The conditions of the locality, in its government and politically, must be understood to determine the difficulty of implementing the new type of finance.

LOCAL POLITICS

Local politics can present another complicating factor. Some of the methods for financing infrastructure are politically explosive, involving issues that are not easily resolved. The tool should be

aligned with the goals of the locality, especially in terms of growth control or encouragement. If the community wants to encourage development, it may decide that development fees would keep growth away, so the existing residents should subsidize the development. Clearly, this could lead to raging debates that may cause the locality to choose a different, safer method of financing. The tool may also be too innovative for the public to accept, or the public may be ready for a change.

LEGAL

Finally, there are certain legal aspects which must be kept in mind during the choice of a method of financing. The local tax and regulatory laws must be taken into consideration, for they may render a method useless if it is classified one way or the other. Many specific issues must be considered for individual methods of financing before their implementation in order to protect both the project and the local government. Most helpful is an understanding of the legal precedence of the utilization of the method.

SPECULATION

A primary goal in the provision of infrastructure and the increase of available land will be to control the amount of speculation in the urban land market. Speculation drives the price of land up and forces many people out of the market. In the interest of keeping land affordable, the method used to finance the infrastructure facilities should encourage the most intensive utilization of the land allowable. In the past, financing methods have actually encouraged land speculation by allowing land owners to gain serviced land without requiring them to pay an amount which would force them to develop the land. This windfall gain to land owners should be recaptured to the fullest extent by the local government. Tax increment financing is the clearest example of recapturing the increase in value, as is the land value increment tax in China. Both of these methods calculates the increase in value to the land due to the enhanced services provided by the infrastructure project: since the government enabled these projects to be built, it should recapture some of this value.

It is also clear that the provision of infrastructure will have an impact on the spatial distribution of land uses through the city. Land will be utilized according to what services are available, and the direction of development can be very carefully controlled by the planning of these services.

PROBLEMS

In less developed countries there are some serious problems which hinder the effective implementation of innovative financing techniques. The lack of an efficient and knowledgeable administration in most local government slows any change to new techniques. In addition, the absence of an up-to-date, or in some cases any, fiscal or physical cadastre stalls efforts to accurately charge people according to the value of their property. Ownership traditions also differ in many developing countries, further complicating the collection of charges. Primarily, the imposition of Western traditions over the existing conditions in developing countries will not solve any problems; indeed, this will inevitably create long-term difficulties for the local governments.

PART 3: THE TOOLS

This section describes innovative methods for financing infrastructure as they have been described in recent economic literature. The techniques have developed in response to changing local and federal financing policies and show how the need for more effective techniques has given rise to creative methods of financing. The section focuses on methods that can be utilized at the local level, although some techniques require central and state government enabling legislation.

TAXES

A range of taxes are discussed below. Traditionally, taxes have been the primary revenue source for local governments. The role of local taxes has become even more important with the decrease in central government transfers. Special taxes and excise taxes have been used with some success in the U.S., although this was under the influence of the tax laws in the U.S. specifically. Tax increment financing has also become popular here. The auto tax is an excellent source of revenue and has been successfully utilized by many developing countries. By far the most popular tax worldwide, though, is the property tax. The property tax can take a variety of forms, and both the land value and the land value increment tax are discussed below.

Special Taxes

These taxes are collected for and dedicated to a special use and are kept separate and distinct from general fund taxes. They are not applied on an ad valorem basis, as property taxes are. The amount collected is not limited to the relative benefit they will provide to taxpayers, and the decision to levy these taxes must have at least 2/3 voter approval in the United States. Usually, the use of special taxes narrows the base on which the taxes are applied, singling out a specific type of economic activity, such as a selective sales tax. In some ways, this method is similar to a user charge; however, since it is more indirect in targeting the user, it is in some ways more avoidable. There are many types of special taxes, including a transient occupancy tax for hotel rooms where occupancy is longer than 230 days, or a utility users' tax, which is an excise tax levied on utility customers. The tax must be applied uniformly and for a specific purpose. Certain selective property taxes fall under this classification, such as vehicle licence taxes based on the value of the property.

Usually, additional special taxes are more acceptable than an increase in the general tax, and special taxes are a fairly stable form of capital financing. However, only rarely are these local taxes used for funding the infrastructure: a well-known example of this type of financing is the BART (Bay

Area Rapid Transit) system in San Francisco. The Mello-Roos Community Facilities Act of 1982 enabled localities in California to establish Community Facilities Districts to levy special taxes within. These taxes were used to fund a wide variety of facilities and services, primarily through direct funding and paying of bonds for capital facilities. This method does not define the district as a Special Assessment District, which removes the requirement that the tax be apportioned on a basis of property benefit. The formation of these Facilities Districts requires a public hearing and a 2/3 approval by the residents of the proposed district.

Excise Taxes

A type of special tax, the excise tax relates directly to the type of financing need usually filled by municipalities through exactions on the developer and impact fees, which will be discussed later.

A viable alternative to the use of exactions and impact fees is the levying of a municipal excise tax on the business of subdividing land or developing property (as opposed to a personal tax on the subdivider or developer or a tax on the property being subdivided). (Strauss & Leitner, Mar. 1988.)

This tax is imposed on a particular use of property or on the exercise of a single power over property incidental to ownership. It differs from a property tax since it is levied on only one of the many incidents of ownership, leaving all others free of the tax. The power to levy this type of tax is usually held by the state. It must be authorized by enabling legislation, which categorizes it under the taxing authority of the jurisdiction rather than the police power. In doing this, the excise tax is not subject to the needs-nexus requirement that regulatory measures must meet. The purpose of these taxes is simply to raise revenues: the money need not be earmarked for any special purpose.

In order to effectively implement these taxes, the excise tax must be clearly established as a tax, not a regulation, and specifically not as a property tax. This can be done by showing that the primary purpose of the tax is to raise money to finance the provision of public facilities, rather than to regulate development by assuring the provision of adequate public facilities to serve the new development. Legally, the excise tax can be declared regulatory if it is found that the purpose of the tax is to mitigate the financial burden placed on the city by the subdivision, if the tax is imposed on the subdivision rather than on the subdivider, or if the tax is imposed as a condition of subdivision approval. If the excise tax can be classified as a property tax, or if any linkage can be made between the excise and property tax revenues, it can be shown that there is double taxation. Such a case can be made if: the tax is imposed on the only (or one of a limited) number of uses of the property; the measure of the tax is based on the valuation of the property; or, the tax is levied by reason of ownership alone.

Although the excise tax need not meet the need-nexus requirement per se, it must be shown that there is a rational purpose behind the tax which relates the tax to a legitimate government purpose. Also, there cannot be any discrimination in the levying of the tax unless there is reasonable distinction between types of business. However, the matter of vested rights can be problematic when excise taxes are imposed on begun projects.

Clearly, there are several advantages to excise taxes: they have express statutory authorization to be levied in the U.S., they are not subject to any sort of rational nexus test, and they allow greater flexibility and discretion. Some guidelines for their use include ensuring that they are imposed on the activity of developing, not on merely owning property; the revenues should be deposited in the general fund, not earmarked as special taxes are; they should remain at a reasonable level, not reaching confiscatory or regulatory levels; they should remain clear of the regulatory process, such as subdivision approval; they should not be based on the assessed value of the property; to remain separate from property taxation, the securing of unpaid taxes should not be through a lien on the property; and the taxes should be levied without discrimination. Following these rules, the excise tax can be a particularly effective and flexible method of raising revenues for a municipality.

Tax Increment Financing

Tax increment financing involves taxing the increased property value within a certain area, and earmarking these revenues for economic development projects. These projects, in theory, should generate the increase in values that is being taxed, and the revenues collected should also cover related infrastructure costs. Revenues equal to those collected in the base year continue to be deposited in the general fund, while the remaining increment goes to special accounts for specific projects as well as debt servicing. The fees collected from the landowners are not increased at all, merely reallocated. This sort of financing depends upon increases in assessed property values, and is suitable when substantial growth is anticipated.

However, the freezing of the tax base for a substantial length of time could decrease the general fund of a local government by inhibiting the collection of taxes on the normal growth in property values. Also, this sort of financing is very vulnerable to tax limitation reforms, such as Proposition 13. With the implementation of this proposition, many tax increment bonds nearly defaulted, and, at the lower tax rates, tax yields on the increase in value of property were no longer sufficient to repay the debt, so this method of financing has virtually disappeared since Proposition 13.

Automobile Taxes

Automobile taxes can be levied upon the ownership or license of a car to cover the increases in expenditure requirements associated with road use. The tax can also be used to control congestion and pollution, although in the long run, this may limit the revenue raising power of the tax. Depending on the tax rate, it might influence the decision to own a car, which eventually may reduce the possible tax base. However, this would result in lower pollution and congestion rates, which is an important social efficiency goal.

Revenues from the auto tax can clearly be applied to improving the quality of the roads to accommodate the increased traffic. The type of tax varies throughout the developing world, ranging from flat annual taxes in Guatemala City to varying by cylinder size in Jakarta. In Bombay the tax is higher for vehicles without pneumatic tires. Singapore has used the tax most aggressively to limit central city congestion through the application of area- and time-specific licenses and parking charges.

Property Taxes

The classic method of raising revenues at the local level, property taxes have been under attack for many years with increasing calls for reform. There has been a great deal of debate over the regressive or progressive nature of the property tax, and suggestions for changes in their implementation have been numerous. The distinction between a land value tax and a structure value tax has been pointed out as vital in the success of property taxes in spatially shaping our environment.

However, this also remains a point of contention: how large a part do property taxes actually play in land use decision-making? If they are a substantial part of the decision, then changes in the property taxes may have noticeable effects on the spatial structure of the city. If they are not the impetus behind development, then their reduction will not necessarily influence land use decisions.

Another formidable problem faced in the property tax system is the manner of assessment. Today, the assessment procedure tends to under-value land compared to improvements. This increases the disparity between developed and undeveloped land taxes. New methods of assessment have been proposed, with the equalization of this difference the goal.

Land Value Taxes

Site value and structure taxes are levied on the value of the land without improvements to encourage development. Vacant land may be taxed from 2 to 5 times the basic rate to accomplish this. Alternatively, land and improvements can be treated differentially in the tax rates, or the tax can be on the value of the land, regardless of the level of development.

The difficulty is in valuing land as distinct from improvements. The Republic of China has a successful system which determines a standard for the value of a unit of land in the area and taxes according to the value of the land as a percentage of the unit value. Structures are taxed separately. As in any taxation of land, the most important element is the existence of an up-to-date cadastre, which requires frequent reassessment and valuation of land.

Land Value Increment Taxes

Land value increment taxes act very much like capital gains taxes. Through a careful calculation of original value and gain in value, the value added to the land is determined at the time of sale. This additional value is taxed at steeply progressive rates to recapture the incremental value of the land.

China has a well established system for this calculation of value increase based on Dr. Sun Yat-Sen's theory of land ownership (see Box 2). The state should recapture any gain in land value, not the individual. There are some difficulties with this method, however, especially when attempting to determine the value of the land at origination and at the time of sale.

DISTRICTS

By geographically isolating the area over which to levy an extra charge for the provision of infrastructure, the relationship between the fee and the new services is clearly established. Special assessment districts and special districts work in slightly different ways based on the premise of geographic proximity and benefit from improved services.

Special Assessment Districts

Special assessment districts are not a new idea in financing at the local level, but they do work in a special way within the context of financing today. They are formed by geographically isolating the financing of infrastructure that usually serves new development in a particular area of a

Box 2: The Republic of China and Land Taxation

The theoretical framework of "Equalization of Land Rights" set forth by Dr. Sun Yat-Sen contains the guiding concept for land taxation in China. "The increment of the land price should belong to the public" has resulted in the Land Value Increment Tax (LVIT) which was designed to impose a heavy levy on the natural incremental value of land to curb speculation and monopolies in land. Since the natural increment of land is attributable to social development rather than the result of labor or capital investment, it should therefore belong to and be shared by the people. The tax has a specific purpose of meeting the specific need of a particular time.

The calculation of the natural value increment of the land involves the adjustment of the original land value at the last transfer of land by the commodity price index, subtracted from the declared present value at the transfer of land. The value of land improvements, construction benefit fees paid and fees paid for land consolidation are subtracted as well.

The tax rates are progressively structured based on multiples of the original land value. When the increment approaches 100 percent of the original value, the tax rate is 40 percent of the total increment. When the increment is more than 100 percent and less than 200 percent of the original value, in addition to the tax levied above, the tax rate for the portion exceeding 100 percent is 50 percent. Similarly, for any portion in excess of 200 percent of the original value, the tax rate is 60 percent.

Owner occupied residential land may qualify for a privileged rate of 10 percent, and public land is exempted from this tax. Exchange of self-tilled land is also fully exempted.

(ROC, Ministry of Finance, 1989.)

city. In this way, the burden of financing is not imposed on the residents of the city as a whole. It is important to keep special assessment districts separate from independent special districts, which will be discussed below: independent special districts are formed as another level of government whose function is to finance facilities for new and old residents. Special assessment districts merely demarcate geographically who pays for the new services. These revenues can be collected through property taxes, development fees, and user charges, and the charges must be distributed proportionally, based on the level of service and localized benefit. Unlike taxes, the sum of special assessments collected cannot exceed the cost of providing the benefitting improvement or service.

Special assessment districts are defined areas within which extra fees or taxes are collected in addition to the jurisdiction-wide property, sales, and income taxes. This normal increment is most often self-imposed or, at least, sanctioned by the

landowners themselves to fund improvements for which public funding is unavailable within the desired time period. That is to say, in cases not involving public health or safety, creation of a district requires prior approval by property owners. The level of approval depends on the laws of the area -- perhaps only a simple majority of the property owners, but sometimes more complex formulas such as approval by owners representing a majority of land area involved or a majority of revenues to be assessed (Mudge & Jakubiak, 1987).

In its pure form, the special assessment district should be a direct application of the benefit theory: he who benefits, pays. The benefits, project cost and otherwise, should be recaptured, but the benefitters are required to pay only an equitable portion of the project, as determined by the cost of the project. This limits the recapturing of windfalls if the increase in property value is greater than the project cost alone.

A vital component of the special assessment district is that the project in question must be local in character, for a non-local project would bring about non-local benefits that could not be targeted through special assessments. Once the parcels that will be affected by the improvement have been located, the method of determining the amount of the assessment must be determined. Usually this is done through a measure of front footage, acreage, or square footage of each parcel. Since this must be determined before the project is actually constructed, there will be a certain amount of inaccuracy in the distribution of assessments. A better approximation may be given by ad valorem assessments, which project the difference between the value of the land alone to the value of the land with the improvements in place. However, the zones that are determined may be slightly imbalanced and may influence the shape of future development, perhaps leading to leapfrog development. This leads to the consideration of a method similar to tax increment financing, basing the assessment on the change in property value.

The implementation of a special assessment district usually begins through a proposal by landowners and requires a feasibility study and public hearing, and it is recommended that there is an opportunity for a majority protest. However, since the special assessment is not a special tax, a 2/3 vote of approval is not required by law. The burden of financing may be shifted directly to the land-owners, or a bond may be issued. These bonds may be secured by the property within the district and the bonded indebtedness may be repaid with the money from assessments. Again, the total of the revenues collected must not exceed the cost of the project. Since the structure of special assessments requires that those who benefit pay, it is a form of private financing.

SPECIAL DISTRICTS

Special districts are formed out of public demand for specialized services not offered or performed by existing government, leading to a concentrated effort in one area. These special districts are created to stand as independent governing bodies. The district has a more limited function than the local government in that it must provide only a certain service. In order to function as a special district rather than a subordinate agency to the municipality, it must have the following structural characteristics: the entity must exist as an organized entity, it must have governmental character, and it must exhibit substantial autonomy from state and local control. These characteristics are facilitated by an independent body of administrators. This fragmenting of governmental services is usually effective since it mitigates the increased tax burden when the general purpose government limits its fiscal responsibility.

The special districts function in a manner similar to a city or county, providing increasing facilities as the district grows and requires more services. The specialization of purpose of the district increases its efficiency in providing the services required by the community, and its autonomy releases it from the hindrance of the greater politics of the area. There is also a better linkage formed between costs and benefits through this method, as well as more effective targeting of services to special groups. The special district also allows for a balance between economic constraints and demands for minimal levels of service. However, there is a danger of the special districts becoming substitutes for the general purpose local governments if they become responsible for more than just the financing of special needs. Governmental fragmentation is also dangerous and could result in proliferation. This could clearly lead to confusion of accountability among the districts.

CREATIVE BORROWING

Borrowing has always been an important source of funds to local governments. However, with the contracting of central government funds, local governments must learn to use other sources of money. Establishing bond banks, credit pools, and revolving loan funds allows municipalities to gain access to lower interest rates. Zero-coupon bonds allow the deferral of payment which could be vital to local governments. Industrial development bonds encourage private corporations to undertake improvements that the government sees as important to the area. In less developed countries, a limiting factor for the use of these tools is a mature and functioning financial market. The problem with all of these tools, however, is that none are revenue-producing: all require another method of repayment.

Bond Banks

Local governments can find innovative ways of borrowing with the support of the state government through the creation of state authorities that can supervise local capital operation, usually in conjunction with state bond banks. These banks act as intermediaries by borrowing money at lower interest rates than local governments could obtain and re-lending to the participating municipalities and counties. As the bond bank is repaid for its loans, it pays off its bond issue. The security in issuing a bond at the state level is far greater than a local government could ever achieve, and bond banks allow localities to take advantage of the state's lower interest rate. There are also economies of scale which can benefit local governments greatly, since larger debt issues are far more efficient than individual smaller issues. In this way, many localities can benefit from the support of the state, provided that the state already has a strong credit rating and that there are many of these small, unrated local borrowers.

The ability to take advantage of this lower interest rate is based on the assumption of responsibility on the part of the state for the local government. The state will insure that the local government will not abandon capital repair and replacement, increasing the security of the debt issue. The state may also subsidize the bond banks to enable them to lend funds to the localities at less than market rates. To assist the bond banks, the state may provide direct funding to the bond banks with a debt service reserve or coverage of the bank's operating costs. The state may also transfer credit to the bond banks through a moral obligation pledge, which assures that the state will use future appropriations if necessary to repay bonds.

Bond banks are a valuable method for local governments to save money in issuing debt. Rural states may find them particularly useful, especially if there is no strong commercial or investment banking sector to meet the financial needs of the locality. If the amount of debt that the state requires is too small to enter the national debt market, bond banks could be very useful. However, all of these situations require that the state is willing to use some of its credit capacity on the behalf of the local governments.

There are two methods that the bond bank can utilize. Once the state has sold a debt issue to the national bond market, the bond bank can use the proceeds to purchase bonds from local communities in need. Or, several small issues are pooled into one large issue to be sold on the national market. The bonds can either be blind, leaving specific projects unidentified at the time the state sells the bonds, or designated, in which all projects are identified within the pool before the state issues its debt. Although this lengthens the financing process considerably for the localities, it also reduces the chances that the state will fail to comply with federal tax laws.

The advantages for the individual localities using bond banks are considerable, due to the savings involved in the interest rates on the bonds and the shared cost of issuance by other local governments in the pool. The national bond market also has the benefits of more broadly based competition, more sophisticated lending instruments, and more liquidity in the secondary market. However, the utility of bond banks is primarily limited to small communities with poor credit ratings, since small communities with a good credit rating can enter the bond market alone, and larger communities with poor credit ratings can overwhelm the bonding capacity and endanger the credit of the bond bank as a whole. In less developed countries, providing local government with access to credit has resulted in development banks (see Box 3).

Credit Pools

Similar to bond banks, credit pools take advantage of economies of scale, improving the market access of smaller localities by pooling together the credit resources of different local governments. This aggregation, again, of many small bonds into one large bond enables the bond to enter the national bond market and reap its benefits. In its most basic form, these substate pools take the form of a lead city pool, in which one city assumes the role of lead city, usually then acting as the administrator. However, there is no external sponsorship of the pool, and the participants determine at the outset the anticipated capital need and required financing for each. No individual locality is required to give a credit pledge on the entire bond, holding responsibility only for the repayment of its portion. These pools may be used for regional or area-wide infrastructure needs which require the cooperation of different localities. Some other forms of substate credit pools include the following: leasing pools, certificate of participation pools, joint powers agreements, special financing districts, and taxable security pools.

The formation of the various types of substate credit pools may be hindered by prohibitory state laws, either of joint-powers agreement among localities or of the amount of debt issuance. Other problems may be due to local underwriters' resistance to bond banks and other credit pools as competitive forces that limit their market of potential clients, or a simple lack of financial expertise on the part of the local governments. Also, there is very little communication between different pools throughout the country, which makes it difficult to stay up-to-date with developments in other places.

Box 3: Jordan Cities and Villages Development Bank

In Jordan, local governments have little discretion over the level of local revenues. Major public utilities are provided by national parastatals. Local governments are responsible for road construction and maintenance, solid waste management, and the operation of public markets and slaughterhouses. Local taxes and fees and intergovernmental transfers projects can finance about half of local capital expenditures. The remaining half is financed through borrowing, and nearly all localities borrow exclusively from the Cities and Villages Development Bank, CVDB.

The independent funding sources for the CVDB shield its operation from political influence. In principle, the CVDB is responsible for any default; in practice, CVDB's financial accountability is less absolute. The ultimate risk of default is shared between CVDB and the Government of Jordan.

All local authorities in Jordan can submit project proposals to CVDB. CVDB has defined five categories of social projects (footpaths, street paving, solid waste, parks, and slaughterhouses) and six categories of commercial projects (office buildings, bus stations, industrial parks, vegetable markets, and parking lots) that are eligible for lending, as well as the purchase of vacant land and civil works equipment. After feasibility and financial appraisal, projects endorsed by local councils are considered by the CVDB.

The interest rate and maturity of loans differ by class of local authority and purpose of loan. Profit making projects have higher interest rates than social projects, and municipalities pay higher rates than villages. Between 1986 and 1988, 50 percent of loan approvals were for sidewalk and road projects. Commercial projects and land acquisition were substantially funded, and equipment, public buildings, schools and electrification were also approved for loans.

(Dillinger, 1990)

State Revolving Loan Funds

The state can also provide direct loan and grant programs with dedicated equity capital capable of recycling lendable funds to finance successive generations of projects over a long period of time, using both equity and borrowed funds. These loans are usually below market interest, and may also include subsidized interest rates for local bonds, and credit enhancement for borrowings in the private market, in the form of bond insurance or the guarantee of loans with the capitalization funds. Revolving fund loans differ from bond banks in that, although the initial capitalization and equity may come from state appropriations, the fund's equity is independent of any project demand and

the fund is intended to capitalize for continuing operation. The continuing nature of the amount of principal loaned by the revolving fund is recycled and used for making another generation of loans, retaining and expanding the equity. Bond banks determine the size of the bond issuance by the needs of the qualifying party, while state revolving funds keep a set capitalization, which determines the amount of loans that may be made.

These revolving funds can either be leveraged or unleveraged. A leveraged fund uses a fixed fund or stream of receipts as a source of equity to leverage a higher volume of lending financed by borrowing against the fund. Part of the capitalization may be from borrowed funds that must be repaid. The unleveraged strain of the revolving fund uses the fixed source of equity funds directly as capital for making loans to local governments. The debt repayments are recycled as loans as well. Here, the original capital has been permanently contributed, through the appropriation of a fund or the dedication of tax revenues. The advantages of state revolving funds include the infinite prospect of financing infrastructure, as well as the more obvious lower borrowing costs and independence from the state. Since the fund is not linked to market bond sales, existing funds can be used. Once capitalized, a continuing re-loanable fund is created. However, if it is funded through bond sales, the state revolving fund can be expensive, since there is no tie between the bond and the project, so all of the unused capital must be maintained. Also, without heavy, up-front capitalization, it could take years to establish a working re-loanable fund.

Zero Coupon

Zero-coupon bonds are sold at a substantial discount from their face value due to the nature of their repayment. Interest payments are deferred to maturity, which reduces the cash value of the bond up front. This deferral reduces the cost to the issuer for the bond, but the deferred payment may have dangerous repercussions if the municipality does not plan effectively for its eventual repayment. Some of the administrative costs of paying semiannual interest can be avoided with this type of bond, and the present value of the eventual expense is much less than if the interest had been paid throughout the life of the bond. A sinking fund should be established early on to ensure the ability to repay the accrued interest. Another political barrier is the discrepancy between par value of the bond and receipts to voters, which may be difficult to explain.

Industrial Development Bonds

Industrial development bonds are issued by municipalities for the purpose of providing funds to purchase land and construct manufacturing, distribution, and pollution control facilities for lease

or sale to responsible companies. The aim of these bonds is to promote industrial and commercial development through lower-cost financing. Economic development may be encouraged by the incentive they produce. The tax-exempt nature of the bonds has considerable value to private corporations. However, it is very important that the public purpose of the corporation has been clearly established before they can take advantage of the tax-exempt rates.

DEALS WITH DEVELOPERS/PRIVATE SECTOR

It has become increasingly apparent that in order to provide the services required for development, private resources will have to be tapped. This is most evident in the U.S., where developer exactions and impact fees are required in almost every municipality. Linkage programs extend the application of exactions to programs not directly linked with the development. User fees have proven successful all over the world in raising the funds to finance certain facilities. In less developed countries, valorization charges and benefit assessments recapture part of the benefit properties receive from enhanced services. The firm basis for these methods is the benefit principle: he who benefits, pays.

Exactions

"Exactions may be broadly defined as money, land or construction services and materials provided by a developer to a public jurisdiction" (Mudge & Jakubiak, 1987). It is presumed that the development being planned is creating a need for additional infrastructure to serve that development. Here, exactions are defined as in-kind contributions by the developer and impact fees as monetary contributions. Usually, exactions will be imposed at the time of the approval of the development, and they require a certain amount of time and effort, due to the negotiation involved in determining the form of the exaction.

One of the most important limits on exactions is the careful definition of the nexus between the exaction and the impact that the development will have on the area. Exactions are imposed through the police power of the state, and are classified as regulations. The exaction must offset the adverse impacts or burdens on public facilities generated by the new development on which they are imposed, and in the U.S. they must "substantially advance" a legitimate state interest, in accordance with the Nollan decision. There must be a causal connection between the exaction and the actual development. In some cases, negotiated exactions may uncover new types of relationships between the public and private sectors. Due to the ability of the exaction to shift the burden of development to the new entrants, a close approximation of marginal cost pricing efficiency can be obtained,

encouraging economizing behavior on the part of those whose actions ultimately can determine how costly the service is.

Impact Fees

In order to impose impact fees on developers, just as with exactions, authority must be given to the locality by the state legislature. These fees can be levied at any time during the development and approvals process, and fall under the categorization of regulations as well. Thus, the rational nexus test must be passed by the fees, allowing the government to charge new development the appropriate share of the cost of all public facilities that serve the new residents paying the fee. However, the service provided need not be of exclusive benefit to those paying. Impact fees differ from special assessment districts in the following ways: impact fees are not restricted to a geographic area as tightly as special assessment revenues are; and impact fees are applied at the same rate for all new entrants -- although this may not be the case for the more specialized assessment districts, which can vary within districts and from district to district. Impact fees are imposed by the local jurisdiction and do not require prior approval by the participating landowners.

Impact fees are useful for local governments for many reasons. They support pay-as-you-go financing and are directly based on the benefits received. Costs are shifted away from the general tax payers, and they increase the opportunity to raise capital to secure bonds. However, some would call this method of financing cumbersome due to the necessity of forming a reasonable relationship between fees and needs.

Linkage Fees

Linkage is a generic term used by planners as well as politicians to describe a variety of programs, especially those implemented in central cities, which require that developers contribute toward new and affordable housing, employment opportunities, child-care facilities, transit systems, and the like in return for the city's allowing new commercial development (Alterman, 1988). The utilization of linkages implies an assumption that the local government is slow and unable to do its job, while the private sector is more able to implement services usually provided by the public sector. Linkage fees are levied on new development, especially in the central business district, to finance investment regarded as a necessary corollary of urban development which may not be traditional items of essential infrastructure.

Linkage fees came out of the discovery that downtown development brings along both negative and positive impacts. However, opponents of linkages claim that the burden of correcting social ills is illegally shifted to the commercial developer, and that linkages will tend to force commercial development away from downtown, which will exacerbate the existing problems. However, by integrating linkage programs into growth management and long-range planning, these difficulties can be avoided, so long as they provide incentives rather than disincentives for development.

User Fees

A facility can be financed by user fees if there is a measurable benefit from the service. It is difficult to recover historical cost since this would require average cost, not marginal cost, pricing. Non-excludability from use of the service may be a persistent difficulty. Direct or proxy measures of consumption are necessary as well as enforceable methods of collection. Life-line rates can lighten the burden on the lowest income groups; establishing a basic level of consumption for good health will enable the lowest income groups to have access to the service. Discretionary users can subsidize the basic users of services like water and sewer facilities.

Valorization Tax

The valorization tax levies a charge on a selected area for the project cost, plus administration cost on the increase in property values attributable to the public improvement project. This method has been very successful in Colombia and Mexico, where the valorization tax is prorated on the basis of area or frontage on the project area. However, the estimates must be sufficiently accurate or the upward growth trend in the city must be sufficiently fast to support the recapturing of part of the windfall. It is also important to establish the direct relationship between the tax and visible improvements in service and value of land in order to legitimize the valorization tax program. There should be a net gain to all income groups, although the redistributive effects may be mixed.

Benefit Assessment

This method levies an assessment against affected property owners in proportion to the benefits received. A form of revenue sharing, the full or partial cost of the project is recovered through assessments which are either collected after the improvement or when there is a transfer of title. Over-simplified levy-determination rules and inaccurate measurement of property values may result in varying levy-benefit ratios.

In Jakarta, the betterment tax recovers 60 percent of the estimated cost of new infrastructure provided by regional governments. The tax has been used primarily for road construction, apportioning the tax on the basis of land area compared to the total area that abuts an improved road. Again, the lack of an up-to-date cadastre of land ownership makes the levying of this tax difficult.

GOVERNMENT ENTREPRENEURISM

Finally, the government may act as the entrepreneur in order to facilitate the financing of infrastructure. Land readjustment involves the provision of infrastructure to unserved lots financed through the sale of a portion of the newly serviced lots. Public/private partnerships take advantage of the capital resources of the private sector and the powers of the public sector. The privatization of certain facilities may result in more efficient services, and possibly more competitive prices. Different leasing arrangements may also prove beneficial not only to the government, but also to the private sector. Public enterprise is the most direct form of government entrepreneurship: public corporations which function separately from the general purpose government.

Land Readjustment

To facilitate the development of land in a sensible order, the government may provide services to land pooled together through the choice of the landowners. The construction of the infrastructure is financed through the sale of a portion of the newly serviced land by the government at market rates. The majority of the land is returned to the owners in proportion to their original holdings and a portion of the land is reserved for public uses.

South Korea has a very successful readjustment program with proven methods of calculating the "cost-equivalent" land for reimbursing the government's expenditure on the infrastructure. The cost of installing the infrastructure is calculated and compared to the total value of all the lots when placed with services on the market. This is the percent of the land which, if sold, would produce exactly enough money to recoup the costs of providing services. There is some difficulty, of course, in determining the future value of the land, but thus far the valuation has always been in the favor of the landowners. The greatest risk involved is whether the land is actually developed after the provision of services. A system of incentives or rules for developers could require a time frame for construction to insure speedy development.

Public/Private Partnership

It is not only logical but inevitable that in a democratic system governmentally and a capitalist, free enterprise system economically, the general goals and interests of public and private sectors be compatible and mutually supportive most of the time. For example, in the United States, at all levels of government, two goals strongly embraced by both sectors are steady economic growth and social stability. (Coleman, 1989, p. 174.)

Clearly, it is to the benefit of both the public and private sectors to encourage cooperation in the provision of services. The form that this cooperation may take can vary widely and is usually the result of extensive negotiations between the local government and the private business.

Bargaining of the sort being analyzed here provides a large proportion of the capital needed to finance infrastructure needed for growth. Carried to its logical extreme, it could provide all of the funding needed. At that extreme, of course, only that development would occur which could justify such expenditures on the basis of the economics of the proposed project. As any external benefits would be difficult to capture and the full value of long-life assets might be difficult to fund with available financial instruments, a lower level of investment in capital infrastructure than is socially desirable is probable. (Kirlin in Weiss, 1985, p. 37.)

Usually, public/private partnerships are most effective when the public infrastructure will generate a specific revenue stream that can be collected in the form of user charges, or when the development and sale of the land will generate an income for the project -- that is, the private side contributes the money, while the public side contributes the land. The joint venture can take other forms, though; full private financing and construction of infrastructure may be donated in return for the right to associated revenues until the asset reverts to public ownership after a pre-determined period. The developer may also make capital contributions, either cash or in-kind.

Privatization

The privatization of certain types of public facilities has been found to be an effective way of increasing efficiency in pricing and in provision of services. Utilities can be separated out of the general budget process, and sold to independent authorities to take advantage of the self-financing nature of most user-fee based utilities. The utilities can take the form of autonomous public corporations which are responsible for the operation and maintenance of certain public works. The independence of these facilities allows them better access to capital markets to issue bonds for their capital needs, as well as insulating them from the budget pressures of the city government. The incentive for

careful operation is enhanced by the ability to accumulate depreciation reserves which the city might have been tempted to take, as well as the requirement to function as a self-financing business.

There is also quite a bit of economic literature which praises the type of charges used by these utilities, beneficiary or user, as an equitable method for producing revenue, which increases the efficiency of the use and production of public services.

Leasing

This variation of public/private partnerships can be very powerful in certain cases. In one scenario, the private sector owns the facility, but it is leased to the public governing body. Private financing pays for the initial capital cost, which relieves the capital financing burden on the local government and circumvents local limitations on bond issuance. Leasing is based not on the locality's authority to incur debt, but on its authority to acquire and dispose of property. There are many forms that leases can take, including the following: traditional operating lease, tax-exempt financing lease, lease-purchase, and sale-leaseback.

The advantages of this method of financing are that the public sector can obtain a facility without a large initial investment, the cost can be spread over a long period of time, and no voter approval is required. However, the agreements are complicated, and the financing costs may be higher due to increased risk in the lease being broken (and, most importantly, no revenues are generated). Another source of income must be found to pay off the lease.

Public Enterprise

The government truly acts as an entrepreneur through public enterprise. These public corporations are created and owned by one or more political jurisdictions, operating separately from the general purpose government. These corporations often take the form of self-supporting utilities and off-budgets enterprises. Their budgets remain separate from the governmental budget and they are usually funded by revenue bonds which are paid through user charges and fees. Any profit made in the enterprise is reinvested in other public corporations.

The public nature of these business may lead to some questioning of their efficiency. However, even if their performance is poor in terms of costs and profitability, in terms of the rest of their objectives they may be performing well.

CONCLUSION

The financing tools examined above indicate that the resources for financing infrastructure do exist. Tapping into these resources may require some ingenuity as well as some courage, especially in less developed countries. It is eminently clear, though, that the reduced level of central government involvement in most countries must be compensated for by the local governments. The financing methods examined focus on the ability of the local government to assume responsibility for the provision of infrastructure which will primarily benefit the local residents. The financial empowerment of local governments should enable them to provide more comprehensive services at a higher level to all members of the community. The use of innovative tools, carefully modified to fit the context of the locality, should provide this power to less developed countries.

APPENDIX:

**ANALYSIS OF
INNOVATIVE TOOLS
FOR FINANCING INFRASTRUCTURE**

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1. SPECIAL TAXES

GENERAL DESCRIPTION: An earmarked tax levied for a specific purpose. Not included in the general fund and not levied ad valorem. The amount is not limited to relative benefit to taxpayers and must be uniform.

COVERAGE: North America.

APPROPRIATE APPLICATIONS: Libraries, fire, police, school facilities. Primarily capital facilities like parkways, water and sewer systems, undergrounding utilities.

EXAMPLE: Selective sales tax, such as motor fuel tax and hotel room taxes to target auto users. Increased sales tax, with the increment dedicated to the capital facility debt payments.

EFFICIENCY

COST RECOVERY: Earmarked tax revenues for a specific purpose.

BUOYANCY: Since the tax cannot be ad valorem, it will probably only be indirectly affected by inflation.

MARKET NEUTRALITY/SENSITIVITY: May have an effect on the prices of the taxed items or the factors involved in their production. The amount of special taxes levied in a community may effect the land and development prices if they become large enough.

OVERALL: More efficient than general taxes due to the earmarking of funds.

EQUITY

INTERGENERATIONAL EQUITY: Future residents can vote the tax out.

HORIZONTAL EQUITY: Tax singles out a specific type of economic activity such as selective sales tax.

INCIDENCE: Subject to effects of growth -- burden falls on those using autos with a motor fuel tax.

DOUBLE TAXATION: Since the revenues are kept separate from the general fund, the purpose must be distinct from those provided for by the general fund.

ABILITY TO PAY/BENEFIT PRINCIPLE: Ability to pay -- can be a tax on the use of public facilities and on wealth or property ownership.

POLICY AND IMPLEMENTATION

ADMINISTRATIVE ISSUES: Voter approval required -- may take longer.

METHOD OF IMPLEMENTATION AND TRANSITION: Requires a 2/3 vote of approval before implementation.

LOCAL POLITICS: May be difficult to get voter approval and may require a concerted effort on the part of the policymakers.

LEGAL ISSUES: The vote is for earmarked revenue, which cannot be ad valorem or a property transfer tax. No limits on the amount of revenue.

SOURCES: Snyder & Stegman, 1987; Governor's Office, 1990; Weiss, 1985.

2. EXCISE TAXES

GENERAL DESCRIPTION: Tax imposed on a particular use of property or exercise of a single power over property incidental to ownership. Levied by reason of ownership; tax on privilege of developing.

COVERAGE: North America.

APPROPRIATE APPLICATIONS: To raise revenues which are required for a purpose rationally related to legitimate government purpose. Public facilities required for new development, for example.

EXAMPLE: In Colorado, a Service Expansion Fee was levied upon people who obtained building permits for new construction, additions, and substantial reconstruction of existing buildings. The SEF was based on the square footage and type of development for which the building permit was issued. The ordinance set the purpose of the SEF as raising revenue to fund the expansion of necessary city services for new growth and development. Since the sole purpose was to raise revenue and there was no mention of regulatory function in the ordinance, the SEF qualifies as a tax.

EFFICIENCY

COST RECOVERY: Through the collection of taxes. However, purpose is to build revenues, not immediately recover costs.

BUOYANCY: Inflation may influence the decision to develop, which would influence this type of tax.

MARKET NEUTRALITY/SENSITIVITY: May distort the market by increasing taxes before there is necessarily a project using the collected revenues.

EQUITY

INTERGENERATIONAL EQUITY: Existing residents shouldn't benefit from this tax, but since the revenues are not kept apart this may be difficult to guarantee.

HORIZONTAL EQUITY: May fall more heavily on incoming residents than existing due to its imposition on a particular use of land (for example, subdividing), for example, rather than simply ownership of land.

INCIDENCE: Imposed on the person undertaking the development, not on the land as a condition of subdivision. Imposed on a particular use to which the property is put, collected from the person proposing the use, proportioned according to the extent of the privilege enjoyed.

DOUBLE TAXATION: If the excise tax also qualifies as a property tax, or if a linkage can be made between excise and property tax revenues.

ABILITY TO PAY/BENEFIT PRINCIPLE: Levied by reason of ownership, therefore based on ability to pay.

RATIONAL NEXUS: Not subject to the "reasonable relationship," "needs-nexus," or "rational nexus" tests of the Nollan decision, but they must be at a reasonable level so as not to be construed as confiscatory.

POLICY AND IMPLEMENTATION

ADMINISTRATIVE ISSUES: Not earmarked funds. Purpose is to raise revenues. Keep at a reasonable level (i.e., not confiscatory or regulatory). Don't tie to the regulatory process (subdivision approval). Avoid basing the tax on assessed value of property, securing unpaid taxes by lien on property, and discrimination.

METHOD OF IMPLEMENTATION AND TRANSITION: Must be authorized by enabling legislation -- not by police power, but by the taxing authority of the government. Greater flexibility and discretion since no vote is required, just express statutory authorization. To avoid being a special tax, place proceeds in the general fund.

LOCAL POLITICS: Must be reasonably based on a rational government purpose.

LEGAL ISSUES: Must be a tax, not a regulatory measure, and cannot be a property tax. A tax is regulatory if its purpose is to mitigate the financial burden placed on the city by the development. Not subject to "need-nexus" or "rational nexus" requirements. The tax's sole purpose is to raise revenue.

SOURCES: Strauss & Leitner, 1988; Planner's Guide, 1990; Nelson, 1988.

3. TAX INCREMENT FINANCING

GENERAL DESCRIPTION: Property tax base in environs of a capital project is frozen for general tax purposes. Tax yields on increments in the value of taxable property in the district are set aside for repayment of debt.

COVERAGE: North America.

APPROPRIATE APPLICATIONS: Economic development and redevelopment projects designed to generate the increase in values in question, including related infrastructure works.

EXAMPLE: Redevelopment districts can be established for blighted areas to stimulate private investment. Blight is defined by substantially inadequate parking facilities, roadways, bridges, or public transport, facilities incapable of handling the volume of traffic flow, or predominance of defective or inadequate street layout. After establishing this need, the increment is used to service bonded indebtedness to finance the improvements needed.

EFFICIENCY

COST RECOVERY: Through taxed increments in assessed value of property.

BUOYANCY: Inflation increases the increment and the revenues collected naturally. TIF counts on inflation as part of the natural increase in value of property to be recaptured.

MARKET NEUTRALITY/SENSITIVITY: Doesn't distort the market unless assessments of value are markedly inaccurate. The market needs to be sufficiently strong to support the increments and development. If revival is unlikely, TIF is inappropriate.

EQUITY

INTERGENERATIONAL EQUITY: Frozen tax base keeps normal growth in property values out of the general budget. Sometimes, earmarked revenues for debt payment far exceed necessary levels.

HORIZONTAL EQUITY: As equitable as the established property tax in the region, assuming the benefits are evenly distributed: the incremental tax is redistributed internally.

INCIDENCE: Landowner pays no extra fees. Only TIF district affected by capital project pays for the repayment of debt.

DOUBLE TAXATION: The increment is intended for a specific purpose that is not covered through other revenue sources.

ABILITY TO PAY/BENEFIT PRINCIPLE: Based on benefit principle in determining the TIF district to benefit from the facility.

POLICY AND IMPLEMENTATION ASPECTS

ADMINISTRATIVE ISSUES: Requires accurate and frequent assessments to garner a worthy increment in property values.

METHOD OF IMPLEMENTATION AND TRANSITION: Property tax base in environs of capital project is frozen for general tax purposes. Tax yields on increments in the value of taxable property in the district are set aside for repayment of debt.

LOCAL POLITICS: No additional fees collected from landowners. TIF districts are not politically independent -- financial extensions of the government.

LEGAL ISSUES: The fund created by TIF can only be used for specified public purposes.

SOURCES: Kirwan, 1989; Mudge & Jakubiak, 1987; Peterson & Miller, 1982.

4. AUTO TAX

GENERAL DESCRIPTION: A tax on the ownership or license of an automobile to cover the increases in expenditure requirements associated with road use and the considerable cost of congestion and pollution.

COVERAGE: Thailand, South Korea, Republic of Korea, Singapore, Guatemala, India, Honduras, Colombia, Philippines, Iran, et al.

APPROPRIATE APPLICATIONS: New roads and to accommodate for increases in land prices and materials.

EXAMPLE: Throughout the developing world, different types of taxes are levied on automobiles and fuels: flat annual taxes in Guatemala City, differentiated by type of vehicles; varying taxes with the type of vehicle and vehicle weight in Colombian cities; varying with cylinder size in Jakarta. In Bombay the tax is higher for vehicles without pneumatic tires. In Bogota, the tax declines with the age of the vehicle. Singapore is the first city to make a significant effort to reduce central city congestion through the application of area- and time-specific licenses and parking charges.

EFFICIENCY

COST RECOVERY: Range from flat annual taxes, differentiated by type of vehicle, weight, or cylinder size, to transfer taxes, to fuel taxes. The efficiency depends on how accurately the tax approximates the marginal costs imposed by the use of the vehicle, including maintenance and pollution costs, and the marginal social costs of congestion. These costs can be closely approximated to a general set of tax guidelines.

BUOYANCY: The elasticity of the tax base depends on amount of car ownership. The specific rate of fuel taxes is inelastic when inflation erodes the real value of the specific tax and when gasoline consumption is not growing. Ad valorem taxes are usually buoyant, given the rising price of fuel.

MARKET NEUTRALITY/SENSITIVITY: May influence the decision to purchase a car, which could cut down on congestion and pollution. Will result in a tradeoff between revenue and allocation effects.

OVERALL: The benefit of the possible revenue to be raised and the benefit of discouraging car ownership to society must be weighed carefully. Since car ownership is heavily concentrated in the large cities in developing countries, a viable tax base is created. However, the social efficiency in terms of resource allocation must also be considered. If the local government successfully uses auto taxes to reduce congestion and pollution, the revenue productivity will be reduced as well, and the elasticity of the tax base will also decline. The decision to tax to selectively discourage road use rather than to maximize revenue yield may reflect the local government's view that controlling congestion and pollution is a higher goal.

EQUITY

INTERGENERATIONAL EQUITY: Since applies to all owners/users, the tax should be equitable in providing services for all.

HORIZONTAL EQUITY: Some say that ownership of a car gives no indication of ability to pay a tax and classify auto tax as regressive: ideally should be a progressive tax.

INCIDENCE: Will fall on those who own the cars, usually those in higher income groups. Generally, this tax should be more progressive than property taxes.

DOUBLE TAXATION: If there is already a fuel tax imposed by the government, central or local, this could be double taxation.

ABILITY TO PAY/BENEFIT PRINCIPLE: Benefit and ability to pay converge, since the car owners will benefit the most from the new roads, and the people who can afford to purchase cars should also be able to pay the tax.

POLICY AND IMPLEMENTATION

ADMINISTRATIVE ISSUES: Specific rate is easy to administer, while sales or transfer tax may be difficult. Should be a low ratio of administrative cost to revenue intake.

METHOD OF IMPLEMENTATION AND TRANSITION: Automobiles are easily taxable, either as part of direct licensing fees or registration charges, as well as purchase. The implementation cost is minimal.

LOCAL POLITICS: The efficiency-revenue effects must be determined according to the goals of the community. In less developed countries, urban governments aren't all authorized to levy such charges. The tax schedule depends on whether the government is taxing to discourage road use or to maximize revenue yield.

SOURCE: Bird & Oldman, 1990.

5. PROPERTY TAX

GENERAL DESCRIPTION: Tax based on the value of property owned, based on annual or rental value, capital value, or site/land value.

COVERAGE: Most widely used revenue generator by municipal governments.

APPROPRIATE APPLICATIONS: Usually for general fund purposes.

EXAMPLE: Brazil: Land use and distributional effects are pursued through the rate structure. Vacant land is taxed more heavily than developed land and certain residential uses are exempt. Squatter settlements are exempt as well. Liability for the tax is on the owner of the property, broadly defined as anyone in beneficial occupation of the property.

EFFICIENCY

COST RECOVERY: Inefficient at recapturing benefits, since it is questionable whether the provision of public goods actually affects the value of property. Primarily a revenue source.

BUOYANCY: Buoyant so long as re-assessments are frequent and accurate. Cannot be maintained without regularly adjusting valuations and unit costs or implementing compensatory increases in nominal tax rates. Index valuation according to inflation.

MARKET NEUTRALITY/SENSITIVITY: Should control speculation if the rate structure is designed carefully.

OVERALL: Due to the traditionally insignificant level of property taxes, they are not the impetus behind development and may not influence land use decisions. Although ideally property taxes should be used to influence allocative effects, there is no hard evidence to show that these efforts actually succeed.

EQUITY

INTERGENERATIONAL EQUITY: Should be equitable if significant changes are carefully implemented.

HORIZONTAL EQUITY: The same expenditures for public services may require different tax prices in different communities. There are inter-area disparities. Evasion increases inequities.

INCIDENCE: Paid by the landowner. Should be a progressive way to finance urban services depending on rate structure and administration.

DOUBLE TAXATION: May be a problem with land tax -- tax on earning power of structures and tax on site value of undeveloped land.

ABILITY TO PAY/BENEFIT PRINCIPLE: Based on ability-to-pay principle, from the value of the property owned. Should reflect costs, not benefits. Capital value method makes a more correct estimate of economic importance and taxable capacity of owner.

POLICY AND IMPLEMENTATION

ADMINISTRATIVE ISSUES: Keeping an up-to-date cadastre of land values and methods of assessment are big problems. Use of minimum standards will increase overall efficiency and coverage. There may be substantial benefits to combining a flat rate schedule with exemptions to simplify administration and collection.

METHOD OF IMPLEMENTATION AND TRANSITION: Assessment and record keeping are the largest obstacles to property tax collection. Identification and valuation of property are also vital. Defining the person liable for taxation is often very difficult. Extending liability to anyone in beneficial occupation of the property saves the government from obligation of proving legal ownership before collecting tax. Permanent procedural changes and a detailed design before implementation would expedite the process as well.

LOCAL POLITICS: A clear connection between urban services and taxes to pay for them will force more revelation of preferences and hold back demand for these services. Increasing rates is more politically volatile than improving administration and collection.

LEGAL ISSUES: The issue of legal ownership and liability for the property tax needs to be resolved and simplified to ensure proper collection. The establishment of a fiscal cadastre should be considered in the context of the ownership traditions of the area. The definition of the tax base, the method of discovery, and the valuation and the assessment of the land are important legal issues.

SOURCES: Bird & Oldman, 1990; Lin, in Bahl, 1981; Dillinger, 1988, 1989; Bird, 1970.

6. LAND VALUE/SITE VALUE AND STRUCTURE TAX (See Property Tax above)

GENERAL DESCRIPTION: A combination of a pure property tax and an unrealized capital gains tax. Vacant land can be taxed from two to five times the basic rate. Methods of taxation include differential treatment of land and improvements in the tax rates, an invariant tax with respect to the degree of development on the site, or a tax only on land, not on improvements at all.

COVERAGE: China, Australia, South Africa, India, Jamaica.

APPROPRIATE APPLICATIONS: Most effective in central cities to encourage development. Used to finance municipal services.

EXAMPLE: In India, land and buildings are taxes on area measurements. The tax rate varies by location, adjusted according to population density. Promotes desirable land uses, simplifies assessment, and provides an increasing revenue source. Not elastic if the base is frozen with the building area. Valuers don't need training, and rates can be determined by desirability; i.e., the most undesirable areas have the highest rates, according to Woolery's idea.

In Taiwan, a Progressive Starting Value is established for each city, and the tax rate is determined by the value of the land as a percentage of the PSV. Structures are taxed separately. There are large disparities between communities due to the PSV.

EFFICIENCY

COST RECOVERY: Raises revenue like the property tax.

BUOYANCY: Should be buoyant since dependent on the value of the land and should keep inflation down by reducing speculation.

MARKET NEUTRALITY/SENSITIVITY: A surtax on underused land, if high enough, may be effective in stimulating development. However, a more uniform higher tax rate might exert pressure more broadly and produce more uniform results.

OVERALL: To encourage development and investment decisions, site value taxes are more efficient than property taxes. Primarily discourage speculative holding. Provides economic incentive for more productive use of land.

EQUITY

INTERGENERATIONAL EQUITY: Current land owners bear the burden of increased holding costs, which encourages improvement or sale.

HORIZONTAL EQUITY: Adversely affects owners of vacant lots and those who haven't built up to the optimum permitted level.

INCIDENCE: More progressive than the property tax.

DOUBLE TAXATION: Difficult to separate land and improvements and to keep separate from the property tax. If the land were fully taxed, taxes on improvements could be removed entirely.

ABILITY TO PAY/BENEFIT PRINCIPLE: Based on the ability to pay -- part of owning land.

POLICY AND IMPLEMENTATION

ADMINISTRATIVE ISSUES: Valuing of land as separate from improvements is very difficult.

Re-assessments and accurate valuation are also vital. Liability for tax must also be established.

METHOD OF IMPLEMENTATION AND TRANSITION: Simplicity will be most efficient in the long run. Tideman suggests a competitive self-assessment process for valuing the land.

LOCAL POLITICS: Should encourage more intensive development and discourage speculation.

SOURCES: Bird and Oldman, 1990; Woolery, 1977; Tideman, 1990; Datta, 1983; Bourassa, 1990; Lindhom and Lin, 1977.

7. LAND VALUE INCREMENT TAX (See Property Tax above)

GENERAL DESCRIPTION: A heavy levy on the natural incremental value of land for the purpose of curbing speculation and monopolies on land.

COVERAGE: China, Denmark, Italy, Germany, and Israel based on percentage increase in value over a period of years; Korea, Malaysia, New Zealand, and Great Britain based on absolute increase in value.

APPROPRIATE APPLICATIONS: Municipal services.

EXAMPLE: Taiwan: Progressive rates from 20 to 40 percent, depending on the increment as a percentage of value. Neither the total amount of the gain or the total gains of all the owner's properties will determine the tax rate. Tax is paid according to announced current land value, regardless of sale price. Homes and industry are treated preferentially.

EFFICIENCY

COST RECOVERY: At transfer of land, by purchaser or seller depending on compensation.

BUOYANCY: Very buoyant since the long run trend of land prices is upward. Valuation must be kept up-to-date. The calculation of the increment is indexed by the wholesale price index.

MARKET NEUTRALITY/SENSITIVITY: The higher the rate, the greater the influence on sale and purchase decisions.

OVERALL: Not indexed for the length of holding.

EQUITY

INTERGENERATIONAL EQUITY: Since tax is levied at time of transfer, should affect future and existing generations equally.

HORIZONTAL EQUITY: Preferential treatment to industry and homeowners.

INCIDENCE: Should be progressive since it is merely recapturing a portion of the calculated gain in value.

DOUBLE TAXATION: Must be kept separate from the capital gains income tax or eventually integrated with this tax.

ABILITY TO PAY/BENEFIT PRINCIPLE: No relation to the owner's other income, therefore not related to ability to pay; rather, a payment on the increased value or benefit the property has gained.

POLICY AND IMPLEMENTATION

ADMINISTRATIVE ISSUES: A flat rate may be as effective as the progressively scaled rates.

METHOD OF IMPLEMENTATION AND TRANSITION: The calculation of the increment involves the accurate valuation of the property at the time of initial purchase as well as the time of final sale. The eventual integration with the capital gains part of the income tax would be desirable.

LOCAL POLITICS: In China, since it fulfils Sun-Yat Sen's idea of land ownership and state recapture of value, very politically acceptable.

SOURCES: Tax in ROC, 1989; Harriss, 1975; Harriss in Lindholm, 1977; Lent, 1975; Bahl, 1988.

8. SPECIAL ASSESSMENT DISTRICTS

GENERAL DESCRIPTION: Geographically isolates the financing of infrastructure that serves new development: those who will benefit from a capital facility are assessed a special payment to finance it.

COVERAGE: North America.

APPROPRIATE APPLICATIONS: Streets, curbs, sewer and water facilities, fire protection, schools, or maintenance and operation of capital projects. Recently has also included improvement districts, parking districts, building authorities, rapid transit, canals, and renewal districts.

EXAMPLE: The City of San Diego has levied Facilities Benefit Assessments for capital improvements in urbanizing areas designated on the General Plan. These assessments pay for streets, sewer and water facilities, and a park-and-ride lot. These facilities serve new development: the assessment is not a special tax and is within the power of the city to enact.

EFFICIENCY

COST RECOVERY: Through the collections of assessments on residents distributed in proportion to a measure of their benefit from the new service. Usually financed through bonds backed by the municipality or individual land parcels, and the bonded indebtedness is repaid with money from the assessments. Landowners can pay off their assessment immediately or take on liens against their property, paying in installments.

BUOYANCY: Not very responsive to inflation: payments are dependent upon initial assessment levied.

MARKET NEUTRALITY/SENSITIVITY: Should recapture no more than the increase in value of the property. No defined relationship between the two.

EQUITY

INTERGENERATIONAL EQUITY: A possible variation is deferred assessment, holding off collection until the property in the district is sold. Usually, the turnover will cover the debt payments.

HORIZONTAL EQUITY: Falls only on those within a geographically isolated area that will be served by the new infrastructure.

INCIDENCE: May shift the burden of financing to owners if the assessments are paid before the completion of the project.

DOUBLE TAXATION: So long as projects are specified carefully and not financed through the general fund, this should not be a problem.

ABILITY TO PAY/BENEFIT PRINCIPLE: Based on benefit principle -- pay in proportion to frontage along road, etc. However, front footage may be a poor index of benefit; lot area, ad valorem assessments, land, or land and improvements could also be used.

RATIONAL NEXUS: Not legally necessary to prove this.

POLICY AND IMPLEMENTATION

ADMINISTRATIVE ISSUES: No 2/3 vote required. Complex administration is a major drawback. However, not as separate as a Special District, another level of government. Can be proposed by landowners through a public hearing.

METHOD OF IMPLEMENTATION AND TRANSITION: Not very streamlined -- small bonds to specialized buyers may be expensive. Short-term notes should be used to finance until the city can pool several issues to get better interest rates. The measurement of benefit is a big problem since the amount of assessment must be determined before the project is constructed (front footage is a widely accepted tradition). The assessment is usually the greatest source of error.

LOCAL POLITICS: Can be used for non-traditional uses, such as fire stations, libraries, schools, and transit systems. May have a bad image if voters are suspicious that the special assessment is a tax. Can only be imposed with respect to public projects that are local in character. The process involves an investigation and hearing, and a majority protest of 2/3 has the power to stop the project.

LEGAL ISSUES: Not a tax, since they are in response to the provision of "special benefits." The exact relationship between assessments levied and the benefits received is not legally required. Legal tradition sides with an assessment at not more than the cost of the new facility. A special assessment district is a separate legal entity.

SOURCES: Snyder & Stegman, 1987; Governor's Office of Planning & Research, 1990; Hagman & Mischynski, 1978; Weiss, 1985.

9. SPECIAL DISTRICTS

GENERAL DESCRIPTION: An autonomous body that exists as an organized entity with governmental character to fund specific projects within the district. The district may levy extra fees or divert and earmark taxes to the project fund.

COVERAGE: North America.

APPROPRIATE APPLICATIONS: Water and sewage services, roads and bridges, fire and school facilities, mosquito control, and waste collection and disposal.

EXAMPLE: California water districts can base voting rights on residency if less than half the land is used for agriculture, as opposed to landownership. The district is intended to provide retail water service as well as other services, including waste water collection, electric power, recreation, solid waste management, and drainage. The district can issue general obligation and revenue bonds, form improvement districts, and issue special assessment bonds. The district may borrow without a voter referendum. The district also has the power to establish improvement districts within their boundaries. These districts can finance different or special services that benefit the land or inhabitant of the improvement district.

EFFICIENCY

COST RECOVERY: From direct charges for services rendered and from special assessments. Taxes are a small amount of revenue.

BUOYANCY: Should follow inflation closely since funded primarily through charges and fees.

MARKET NEUTRALITY/SENSITIVITY: Probably alters economic decisions that would have occurred without the added fees.

OVERALL: Service delivery will be more cost-effective since demands for service will be reduced once consumers can readily determine how much they are paying for the service and adjust their consumption according to real needs.

EQUITY

INTERGENERATIONAL EQUITY: Usually called for by those who will benefit from the service now.

HORIZONTAL EQUITY: Established by citizens who feel a need for a certain specialized services or new and improved services. Special districts can provide a means for targeting specific types and qualities of services to defined groups of residents.

INCIDENCE: Shifts infrastructure costs from all taxpayers to the general fund to the residents or property owners who will specifically benefit from such improvements.

DOUBLE TAXATION: Avoided since providing services not provided to general taxpayers.

ABILITY TO PAY/BENEFIT PRINCIPLE: Based on the benefit principle, directly linking benefits to costs.

RATIONAL NEXUS: Not legally required, but necessary politically.

POLICY AND IMPLEMENTATION

ADMINISTRATIVE ISSUES: Special districts must exist as an organized entity, have governmental character, an independent body of administrators, and have substantial autonomy from the local government. Special districts should not place any burden on local administrative and financial resources.

METHOD OF IMPLEMENTATION AND TRANSITION: Usually, a state agency is granted authority to create special districts and mediate between existing local governments and private parties wishing to form new districts. District activities should be monitored rigorously. A means for termination should be included in special district bylaws in a manner which is amenable to district residents and public and private investors.

LOCAL POLITICS: People are more likely to vote for special tax levies than for higher general property taxes. Also, the specificity of the special districts allows for a more concerted effort in providing the needed service. Should be insulated to some degree from political abuses, since the service is provided by an independent authority. However, governmental fragmentation and proliferation could render local governments inefficient and increase fiscal inequalities, as well as confuse citizens and accountability.

LEGAL ISSUES: Financial constraints should be placed on indebtedness and taxation to ensure no abuse of government powers by the special districts. Full disclosure of total costs of ownership in a special district should be required for new buyers.

SOURCES: Porter, Lin, & Pieser, 1987; de Haven-Smith in Nicholas, 1985; Mudge & Jakubiak, 1987.

10. BOND BANKS

GENERAL DESCRIPTION: A state-sponsored intermediary borrows money which it, in turn, re-lends to participating local governments. As localities repay loans from the bond bank, the bank pays off its bond issue. Either states sell to the national bond market and use the proceeds to purchase bonds from local communities, or several small issues are pooled into one large issue to be sold on the national market. These issues can be blind (specific projects not identified when the state sells its bonds) or designated (projects are identified).

COVERAGE: U.S.

APPROPRIATE APPLICATIONS: Water supply, sewage treatment construction projects. Widely used by small cities with limited access to credit.

EXAMPLE: *New Jersey Qualified Bond Program:* Earmarked state aid for the repayment of "qualified" local bonds. State aid payments set aside as guarantee of repayment to bond holders, without passing through the local budget allocation process. Reduces risk of default. State incurs no obligation to repay the debts, but state aid set aside for repayment is regarded as a secure stream of revenue. Local governments required to budget for debt service as though they were repaying the debt. State monitoring helps cities stay on target. *Texas Water Development Fund:* Local governments or special districts can borrow money for water supply and sewage treatment construction projects. State can issue bonds with low interest rates because of its strong credit rating and lend the proceeds to cities or water and sewer districts. Local water distribution systems cannot borrow from the state fund.

EFFICIENCY

COST RECOVERY: Through economies of scale and the utilization of strong state credit, small local governments can take advantage of better interest rates and enter the national bond market more competitively. Issuance costs are shared by the pool, reducing this cost to the individual cities.

BUOYANCY: Should be flexible to accommodate any changes in inflation.

MARKET NEUTRALITY/SENSITIVITY: By reducing financing costs, this type of financing may be available to more projects and could stimulate development in this way.

OVERALL: Larger debt issues function more efficiently than many small issues to entities with lower bond ratings. Provides small communities with access to national bond markets. Viable means, regardless of tax changes, for local governments to save money in the issuance of debt. Most helpful to rural states with no strong commercial and investment banking to meet financial needs.

EQUITY

INTERGENERATIONAL EQUITY: If the term of the bond is comparable to the life of the capital facility, the costs of financing the facility is equitably distributed between existing and future generations.

HORIZONTAL EQUITY: Most useful to municipalities with lower credit ratings. Larger cities may be unable to take advantage of these banks.

ABILITY TO PAY/BENEFIT PRINCIPLE: Depends on the method of repayment.

POLICY AND IMPLEMENTATION

ADMINISTRATIVE ISSUES: Operating revenues through fees is usually required for local governments. Interest rates may be higher than banks' interest rates to cover administration.

METHOD OF IMPLEMENTATION AND TRANSITION: State-sponsored intermediary borrows money which it, in turn, re-lends to participating local governments. As localities repay loans from the bond bank, the bank pays off its bond issue.

LOCAL POLITICS: Uses direct and indirect state support by improving bond ratings and lowering interest costs for local governments and sometimes coupled with state subsidy to re-lend to local authorities on below-market terms.

LEGAL ISSUES: Default by local government could damage the credit rating of the state: big communities with poor credit ratings will also overwhelm the bond bank. Small communities with good credit ratings have access to the national bond market alone.

SOURCES: Peterson, J., 1988; Pagano and Moore, 1985.

11. CREDIT POOLS

GENERAL DESCRIPTION: Regional associations, state municipal leagues, etc., create pooled loan programs to expand the ability of local governments to raise capital at a lower cost. Participants are not poor credit risks, but they may be small or inexperienced. May take the form of joint-use facility pools, dedicated pools, or composite issues. No external sponsorship -- one of the pool members issues the bond.

COVERAGE: U.S.

APPROPRIATE APPLICATIONS: Regional or area-wide capital improvements, such as drainage systems that cross jurisdictional lines.

EXAMPLE: Municipal League Pools: The state municipal leagues acts as the pool administrator by helping with assessment of needs and completing applications. A team of experts structure the financing, and the municipal leagues acts as a go-between in relations with bankers, etc. An entity will be formed to issue the bonds for intermediate term capital financing (10-12 year amortization) and to pledge taxable and non-taxable revenue as security. There is no cross-reliability, and loan insurance and liquidity support is provided by the municipal league pool.

EFFICIENCY

COST RECOVERY: Higher credit ratings and shared issues costs reduce the cost of issuing the bond.

BUOYANCY: Should be flexible to accommodate changes in inflation.

MARKET NEUTRALITY/SENSITIVITY: Should encourage cooperation in regional infrastructure improvements.

EQUITY

INTERGENERATIONAL EQUITY: Bond payments should cover the life of the facility and spread the cost between existing and future generations.

HORIZONTAL EQUITY: All municipalities willing to work together are eligible.

ABILITY TO PAY/BENEFIT PRINCIPLE: Depends on method of repayment.

POLICY AND IMPLEMENTATION

ADMINISTRATIVE ISSUES: A lead city can be chosen as the administrator, or a state municipal league acts as the pool administrator, utilizing a team of experts to structure the financing. Requires some financial expertise.

METHOD OF IMPLEMENTATION AND TRANSITION: Several agencies jointly issue public debt, e.g. for drainage systems that cross jurisdictional lines. Participants determine the capital needs and required financing. There is no external sponsorship -- one of the pool members issues the bond. Each member is only responsible for the repayment of its portion, i.e., no cross-reliability.

LOCAL POLITICS: Local underwriters' resistance to bond banks and credit pools as competitive forces that limit their market of potential clients can be problematic.

LEGAL ISSUES: Laws that limit the amount or timing of debt issuance, or state laws that prohibit any joint powers agreement among localities are real barriers to formation of credit pools. No cross-liability among participants. Since the tax reform in 1986, there have been restrictions on arbitrage earnings as well as other restrictions which require that the projects be identified before the pool is created. The pool cannot over-issue, and the calculation and reporting requirements are burdensome.

SOURCES: Peterson, J., 1988; Pagano and Moore, 1985.

12. STATE REVOLVING LOAN FUNDS

GENERAL DESCRIPTION: Programs with dedicated equity capital capable of recycling lendable funds to finance successive generations of projects over a long time. The capitalization amount is set and determines the amount of loans that may be made. Combination of loan and grant programs using a combination of equity and borrowed funds. Technically, direct loan programs, at below-market interest, usually as a lender of last resort or for communities at subsidized interest rates. Provision of credit enhancement for borrowing in the private market. Guarantee of municipal loans provided with the capitalization funds. Leveraged funds use a fixed fund or a stream of receipts as a source of equity to leverage a higher volume of lending financed by borrowing against the fund. Pure or unleveraged funds use a fixed source of equity funds (tax revenues, appropriations) directly as capital for making loans to local governments.

COVERAGE: U.S.

APPROPRIATE APPLICATIONS: Capital projects.

EXAMPLE: Unleveraged: The state makes 20-year loans to localities at 0 percent interest with a level principal repayment schedule. The debt repayments are then recycled as loans.

Leveraged: The state borrows an additional \$20 million at 10 percent interest and passes the debt service to the borrowing communities. The other portion of its capital is lent at 0 percent. The EPA has been replacing construction grants with seed grants for wastewater construction after an amendment to the Clean Water Act. EPA financing of wastewater treatment facilities has shifted from EPA's construction grant program to a system of capital grants that will disburse of \$8 billion to capitalize revolving loan funds in each state by 1994.

EFFICIENCY

COST RECOVERY: Payments are made to the capitalization fund. Could become a permanent form of financing once the capitalization fund is built. If the loan is leveraged, the bonding must be repaid by the local borrowers, whose payments must cover interest and principal payments. Borrowing costs should be lower since the fund is not dependant on the state or an agency issuing the bonds, and the existing funds can be used since the fund is not linked to market bond sales.

BUOYANCY: Should be flexible to accommodate any changes in inflation.

MARKET NEUTRALITY/SENSITIVITY: Should be designed to be flexible and responsive to changes in the local economic and financial markets.

EQUITY

INTERGENERATIONAL EQUITY: The continuing nature of the amount of principal loaned allows funds to be recycled and used for making another generation of loans while the equity is retained and expanded. Could be a permanent form of infrastructure financing.

HORIZONTAL EQUITY: Should be designed to meet a narrow set of attainable goals.

ABILITY TO PAY/BENEFIT PRINCIPLE: Depends on repayment method.

POLICY AND IMPLEMENTATION

ADMINISTRATIVE ISSUES: Fund's equity is independent of any project demand. The capitalization is set, and this determines the amount of loans that may be made. Proposals must be rated and ranked to determine which project receives the loan from this limited resource. Cooperation between the separate state organizations for technical and financial operations is required.

METHOD OF IMPLEMENTATION AND TRANSITION: A narrow set of achievable goals should be selected. These goals should be flexible to respond to changes in the local economic and financial markets. Technical and financial operations are in separate state organizations and need to cooperate. Most programs are initially capitalized by a combination of appropriations and bonding authority. Some funds are self-sufficient, while others require periodic infusion of capital. Preventive procedures should be implemented to avoid loan defaults by anticipating potential loan repayment difficulties.

LOCAL POLITICS: Should be the loan of last resort for a community with a poor credit rating. The decision between subsidizing loans and the volume of borrowing must be made. Leveraged loans take advantage of the credit enhancement available from the state, while unleveraged loans must choose between greater loan volume or deeper subsidies for the loans. The fund should be an all-encompassing lender, providing loans at subsidized rates.

SOURCES: Peterson, J., 1988; Pagano and Moore, 1985.

13. ZERO COUPON BONDS

GENERAL DESCRIPTION: Bonds that pay no interest prior to maturity. They are sold at a substantial discount from their face value.

COVERAGE: U.S.

APPROPRIATE APPLICATIONS: Capital projects.

EXAMPLE: A bond issued in 1982 that matures in 1994 with a par value of \$5,000 may be sold to investors at a price of \$1,250. When the bond matures in 1994, the government must pay the investor the bond's par value as well as the imputed interest rate of 12.25 percent. Due to the considerable value investors place on this type of issue, the interest rate may be 75 basis point less than the issuer would have had to pay for a traditional bond with semiannual interest payments. In order to realize \$5 million in net proceeds, bonds with a total face value of up to \$20 million may have to be issued.

EFFICIENCY

COST RECOVERY: The lower interest cost is the primary appeal to the issuer of the zero coupons. Since there is no interim cash flow, the investor must repay the entire issue at maturity. Payment of the interest is deferred. Issuers receive much less cash up front.

BUOYANCY: The rate will be locked for the life of the bond.

MARKET NEUTRALITY/SENSITIVITY: The deferral of payment could distort the market: the bond will have to be paid off at some point.

OVERALL: The balloon payment may increase credit risk.

EQUITY

INTERGENERATIONAL EQUITY: Future generations are burdened with the payment of the bond at maturity. The deferral of interest payments may also cause problems at maturity. The planning for this through a sinking fund could alleviate this.

ABILITY TO PAY/BENEFIT PRINCIPLE: Depends on method of repayment.

POLICY AND IMPLEMENTATION

ADMINISTRATIVE ISSUES: Issuers can avoid some of the administrative costs associated with semi-annual interest payments. The present value of the expense is much less than if the interest had been paid throughout the life of the bond.

METHOD OF IMPLEMENTATION AND TRANSITION: A sinking fund should be established to pay for the issuance at maturity and to spread the costs throughout the life of the bond.

LOCAL POLITICS: It may be difficult to explain the discrepancy between par value and receipts to voters. The face value could be up to four times the value of fund realized.

SOURCES: Bourassa, 1983; Peterson and Hough, 1983.

14. INDUSTRIAL DEVELOPMENT BONDS

GENERAL DESCRIPTION: Bonds issued by municipalities for the purpose of providing funds for the purchase of land and the construction and equipping of manufacturing, distribution, and pollution control facilities for lease or sale to responsible companies. Interest income is exempt from federal income taxes, so the interest yield is substantially below that of regular corporate bonds.

COVERAGE: U.S.

APPROPRIATE APPLICATIONS: IDBs can be used for bonds to provide funds to private companies for the following facilities: residential real property for family unit; sport facilities; convention or trade show facilities; airports, docks, wharves, and parking facilities; public utility facilities to process sewage or provide electric energy or gas; air or water pollution control facilities; and facilities for the furnishing of water to the general public.

EXAMPLE: To use IDBs, a firm should first contact the appropriate municipal agency in the area and gain its support. The agency may wish to control the location of a plant, for example, in an industrial park. The municipal agency will issue the bonds, but the firm must market them. Major buyers are banks, insurance companies, pension funds, and individual investors. The legal documents are prepared by legal counsel retained by the agency or the bond broker. An offering document is prepared by the broker once the tax-exempt status of the bond has been legally established. The bond broker will either sell the bonds or actually underwrite the issue.

EFFICIENCY

COST RECOVERY: The bonds are secured by revenues of the bond-financed property, such as user fees and charges.

MARKET NEUTRALITY/SENSITIVITY: The aim of IDBs is to promote industrial and commercial development through lower-cost financing. May attract investment for economic development. IDBs may crowd out other demands on the municipal market.

OVERALL: Lower interest rate can be from four to seven percentage points below market rates.

EQUITY

INTERGENERATIONAL EQUITY: May not have been available to earlier generations of industry.

HORIZONTAL EQUITY: Should be available to all industries with an established public purpose. Should not be available to businesses serving a private/profit-making purpose.

ABILITY TO PAY/BENEFIT PRINCIPLE: Repayment based on benefit charges, usually.

RATIONAL NEXUS: POLICY AND IMPLEMENTATION

ADMINISTRATIVE ISSUES: Funds from the sale of tax-exempt bonds are channeled into private and quasi-public endeavors.

METHOD OF IMPLEMENTATION AND TRANSITION: Tax-exempt bonds issued by an agency of the local government to provide funds for a private company. The property remains entitled to the agency, but a long-term lease or installment sales contract is created.

LOCAL POLITICS: Public purpose of some IDB issuances has been questioned. Now public approval must be obtained for any IDB financing.

SOURCES: Bourassa, 1983; Matzer, 1983.

15. EXACTIONS

GENERAL DESCRIPTION: A wide range of contributions, ranging from in-kind contributions to monetary impact fees, both voluntary and mandatory. Usually tied to zoning regulations.

COVERAGE: North America, Europe.

APPROPRIATE APPLICATIONS: Roads, schools, other necessary facilities.

EXAMPLE: In California, the use of development agreements has encouraged the use of negotiated exactions. Development agreements allow for bargaining between the developer and the city which promises, in the end, a regulatory freeze to the developer, but not vested rights to develop. However, the added flexibility has resulted in innovative exactions from developers, some funded at the beginning of the project, others phased in during development. The Hacienda Business Park in Pleasanton developers agreed to built more than \$32 million in off-site improvements, including six-lane access roads, five freeway interchanges, an eight-million-gallon emergency water storage reservoir, expansion of the city hall, a fire station, stormwater drainage facilities, utility undergrounding, landscaping, and other improvements. The developer expects to recapture some of these costs from other development planned for the area. In Israel, historically, land dedications have been required for new development. Up to 40 percent of a tract of land can be taken without compensation. Land can be taken whether or not the developer will benefit directly from the proposed service. No causal link is required between the new development and the public facility. Formal exactions and informal negotiated exactions are now used to obtain additional land or in-kind construction of public facilities. As a national statute, monetary exactions are not authorized.

EFFICIENCY

COST RECOVERY: Through in-kind contributions or monetary contributions or service fees.

BUOYANCY: Should be flexible to accommodate changes in inflation.

MARKET NEUTRALITY/SENSITIVITY: Requires strong demand for development or else the imposition of exactions will reduce growth to maintain the balance between the demand and supply of infrastructure.

EQUITY

INTERGENERATIONAL EQUITY: Cities used to subsidize development, but budgetary constraints make this more and more difficult. However, the exaction, if passed on to the buyer, will be financed over the life of the mortgage, which is probably comparable to the life of the improvement.

HORIZONTAL EQUITY: Shifts part of the burden of development to the new entrants that create the infrastructure bottlenecks. Evens out the burden between new and existing residents since they permit an accounting for a large part of the real cost of urban growth.

INCIDENCE: Depends on the elasticity of the market. Directly levied on developer, who may pass the cost on to the buyer if the cost of land doesn't decrease. Well-designed exactions should be difficult to shift -- quasi-user fees.

DOUBLE TAXATION: Should be avoidable if the general fund is not used for the same project.

ABILITY TO PAY/BENEFIT PRINCIPLE: Based on benefit principle, since the value of the developer's land increases with the presence of services.

RATIONAL NEXUS: Must follow the guidelines of the Nollan decision: advance a legitimate state interest and mitigate adverse impacts to interest that would otherwise result from the project. Must account for the ultimate use of any fees.

POLICY AND IMPLEMENTATION

ADMINISTRATIVE ISSUES: Negotiated individually, which is time-consuming but more flexible.

METHOD OF IMPLEMENTATION AND TRANSITION: Usually collected as a condition of an approval being granted by the local government.

LOCAL POLITICS: No vote required if the charges don't exceed the estimated reasonable cost -- utilizes the regulatory authority of the local government. More acceptable than general tax increases.

LEGAL ISSUES: Compliance with the direct nexus test of the Nollan decision is required.

SOURCES: Alterman, 1988; Governor's Office of Planning and Research, 1990; Pagano, 1986; Snyder & Stegman, 1987; Weiss, 1985.

16. DEVELOPMENT/IMPACT FEES

GENERAL DESCRIPTION: Required contribution by developer, satisfied by payment or by dedication in lieu of payment.

COVERAGE: North America. (Development charges in Canada; impact fees in U.S.)

APPROPRIATE APPLICATIONS: Provision of potable water, solid waste, sewer, and drainage systems are the most common applications, with the possible addition of arterial, collector, and local roads, parks, schools, libraries, law enforcement, fire protection, emergency medical services, and public buildings.

EXAMPLE: St. John's County, Florida, Road Impact Fees (J.C. Nicholas). "The collection and expenditure of Road Impact Fees will result in the road outside the development... It is, therefore, assumed that new development will receive an offset against impact fees for any roads outside the development that are constructed or otherwise improved by the developer as a condition of development approval. Net cost equals total cost (which includes construction cost and right of way cost) less credits (which calculates the present value of the capital portion of the motor fuels tax attributable to the development). These formulas calculate, first, the travel that individual units of new development are expected to place on the St. Johns County road system and, second, the physical quantity of roads, in terms of land-miles, required to accommodate that travel at Level of Service D. The third step is to calculate the cost of acquiring the necessary rights-of-way to construct the needed additional road capacity, and the fourth is to calculate the cost of constructing the needed road improvements."

EFFICIENCY

COST RECOVERY: One-time fee to developer to cover cost of infrastructure or facilities necessitated by the development.

BUOYANCY: Primarily depends on elasticity of market and accessibility and demand for development.

MARKET NEUTRALITY/SENSITIVITY: Requires demand for development to be effective. Otherwise could be a deterrent to growth.

OVERALL: Although impact fees may not be very efficient in terms of provision or use of facilities, they may be in terms of land use and development decisions, provided they are based on the marginal cost of services provided. Will probably encourage dislocated development in nearby areas with no impact fee requirements.

EQUITY

INTERGENERATIONAL EQUITY: Currently, developer must pay his way; previously, the community subsidized incoming development. Existing owners will enjoy windfall gains since past generations have partly financed their services and they are not responsible for financing the services of new residents.

HORIZONTAL EQUITY: Fees are targeted at those who will directly benefit from the new infrastructure the developers. Costs are shifted away from general taxpayers. Same rate charged to all new entrants. Facility need not be of exclusive benefit to those paying.

INCIDENCE: Depends on elasticity of the market. Either the cost to the buyer will increase or the cost of the land to the developer will decrease. The developer will tend to shift the burden to the new home buyers, if at all possible. Nelson writes, "consumers -- home buyers, renters, or non-resident tenants -- will pay the major share of development impact fees over time." The burden on the pre-development land owner, the home buyer, and the developer/builder must be considered, and the final incidence will depend upon the information and sophistication of the land buyer; changes in a municipality's development charge policy; market conditions in the land or housing market, and when during the development process the charge is levied.

DOUBLE TAXATION: Property taxes and user charges should be adjusted for new residents so that they are only bearing the burden of growth-related costs of development, not that of existing and future residents as well.

ABILITY TO PAY/BENEFIT PRINCIPLE: Based on the benefit principle -- the developer pays since she benefits from enhanced services.

RATIONAL NEXUS: Must be proven to retain regulatory status. There must be a reasonable connection between the need for facilities and the growth resulting from development. The fee can't exceed a proportionate share of the cost to be incurred. The connection between the fees charged and the benefits received must be proven.

16. DEVELOPMENT/IMPACT FEES (continued)

POLICY AND IMPLEMENTATION

ADMINISTRATIVE ISSUES: Usually utilizes a Cost Revenue Impact System that measures the fiscal short-fall that will be induced by the development and projects the facility needs, costs, and revenues. Systematic assessment is the same for all new entrants -- no negotiation.

METHOD OF IMPLEMENTATION AND TRANSITION: May be authorized by legislation or by home rule enabling legislation.

LOCAL POLITICS: Does not require prior approval by participating landowners. May defeat affordable housing objectives due to increasing prices or changes in what the developer will produce.

LEGAL ISSUES: Must show reasonable relationship between fees and financial impact on the locality. Must utilize operational principles to allow for legal calculation of a fee.

SOURCES: Amborski, 1990; Nelson, 1988; Nicholas, 1985; Slack, 1990.

17. LINKAGES

GENERAL DESCRIPTION: Developer contributions to mitigate the negative impacts of new development on downtown areas. Usually required for development approval in lieu of impact fees.

COVERAGE: Primarily in North America (California, Boston, Jersey City).

APPROPRIATE APPLICATIONS: Usually used to gain contributions toward programs such as new and affordable housing, employment opportunities, child-care facilities, and transit systems.

EXAMPLE: The San Francisco linkage program came out of the realization that large-scale office developments attract additional employees to the city, establishing the causal connection between such developments and the need for additional housing in the city, especially affordable housing. The cost of the increased burden of providing housing necessitated by office development falls on the developer who is generating the need: either the developer must build housing or pay a fee to the city to subsidize housing development as a condition of development.

EFFICIENCY

COST RECOVERY: Through in-kind contributions, the provision of new affordable housing, child care facilities, transit systems, and so on, in return for permission to build.

BUOYANCY: Flexible design of linkage programs will keep them responsive to inflation.

MARKET NEUTRALITY/SENSITIVITY: The market must be able to support increased developments before developers will be willing to pay for linkages to locate in the locality. The linkages must provide incentives, not disincentives, for development.

EQUITY

INTERGENERATIONAL EQUITY: A new requirement, but defensible in terms of newly created needs.

HORIZONTAL EQUITY: Cannot be discriminatory among developers. Owners of existing buildings may enjoy windfall gains due to increased development. A comprehensive tax may spread taxes more uniformly.

INCIDENCE: Primarily, the incidence falls upon the developers, who may, depending on the market, choose to raise the price of their product.

DOUBLE TAXATION: Should not overlap with programs funded by the general fund.

ABILITY TO PAY/BENEFIT PRINCIPLE: The developers who benefit from the right to build at this location pay to provide the services which will be needed as a result of the development.

RATIONAL NEXUS: The city must at least show that calculations are not arbitrary. The linkages must be shown to mitigate the negative impacts of development. The program goals must be reasonable when balanced against the concessions the city will grant to the developer, in accordance with the Nollan case.

POLICY AND IMPLEMENTATION

ADMINISTRATIVE ISSUES: The linkages are determined either through a formula or through negotiated developer agreements, which are time-consuming. The linkages could restrict economic development if the price increases can't be passed on to the buyer, since then the developments won't be built there. This is counter to the purpose of linkages and should be avoided.

METHOD OF IMPLEMENTATION AND TRANSITION: Linkages should be integrated into growth management planning and long-range planning, since there is a risk that the requirements could be outpaced by growth. However, linkages are generally an ad hoc method of keeping pace with growth.

LOCAL POLITICS: By utilizing linkages, the city is admitting that planning does not work downtown, since it relies on the private market for economic growth and revitalization. The flexible interpretability and inadequate exactions of linkage programs has been criticized by housing activists. Developers are hostile to linkages: if they render the project infeasible or don't provide the city with sufficient funds to achieve and maintain program objectives, linkages will be politically unworkable.

LEGAL ISSUES: Cities must establish that they do have statutory authority to impose these exactions. The determination of linkages as taxes or regulations is important: if the funds are segregated and designated for specific improvements linked to new development, the city has correctly exercised its police powers. The Nollan case is cited for proof of a rational relationship between municipal purpose and linkage fee charged.

SOURCES: Alterman, 1988; Nelson, 1988.

18. USER FEES AND CONNECTION FEES

GENERAL DESCRIPTION: Pay for the use of a government-provided service to defray the cost of provision. Connection/hook-up fees should be kept separate from the user fees.

COVERAGE: All over the developed and less developed world -- SubSaharan Africa, Honduras, Jamaica, Mexico, Thailand, Colombia, Bolivia, Malaysia, et al.

APPROPRIATE APPLICATIONS: Water and sewer services, bridges and highway tolls.

EXAMPLE: In Honduras, a self-financing water connection program is in effect. Households vote through the neighborhood association for the connection program. Donor financing sets up a revolving fund to lend households part of the capital cost of connection. Repayment is over three years.

EFFICIENCY

COST RECOVERY: Collect charge when service is used. There should be a measurable benefit from the service. Recovery of historical costs is inefficient since they are not likely to coincide with the opportunity costs for using the service. Cost recovery and marginal cost pricing are not usually compatible.

BUOYANCY: Must be adjusted to reflect inflation. Flexibility must be built in.

MARKET NEUTRALITY/SENSITIVITY: Will depend on the pricing method used: marginal cost pricing should not disrupt the market and may encourage more efficient use.

OVERALL: Income elasticity may be low and may produce perverse distributional effects.

EQUITY

INTERGENERATIONAL EQUITY: Costs are not effectively shared between current and future generations. Financial losses may continue to plague users from past investment decisions.

HORIZONTAL EQUITY: Must be able to exclude those not paying from using the service. Life-line rates accommodate basic users with low income elasticity for the service.

INCIDENCE: Generally progressive, but the burden is heaviest on the lowest income groups as a percentage of income. Cross-subsidization may alleviate this, if the heavier/wealthier users pay higher rates to compensate for basic users.

DOUBLE TAXATION: General fund money should not be used to finance these projects to avoid this.

ABILITY TO PAY/BENEFIT PRINCIPLE: Based on the benefit principle, although access for poor people must be a consideration. Life-line rates can be set below costs for minimum level of consumption regarded as basic to good health with rates increasing with further discretionary usage.

POLICY AND IMPLEMENTATION

ADMINISTRATIVE ISSUES: Direct or proxy measures of consumption are needed. Any subsidies should be kept apart from the fee structure. Average Incremental Cost pricing can also be used.

METHOD OF IMPLEMENTATION AND TRANSITION: Revenue collection must be comprehensive and enforceable. The measure of consumption should be standard -- e.g., meters.

LOCAL POLITICS: Must be committed to enforcement of collection.

SOURCES: Bird & Oldman, 1990; Mushkin, 1972; Peterson, 1990.

19. VALORIZATION TAX/CHARGE

GENERAL DESCRIPTION: A selected area is charged for the project cost plus administration costs to recapture increases in property values due to the public improvement project.

COVERAGE: Colombia, Mexico.

APPROPRIATE APPLICATIONS: New and improved urban streets, water and sewer systems.

EXAMPLE: Bogota: 25 percent of total city revenues are from valorization charges. Due to the rapid rate of urbanization and the emerging large modern cities, valorization charges have financed many infrastructure projects. The basic coefficient to determine the prorating of the charge was calculated directly from an estimation of the future values per square meter of the properties within the zone of influence of the project. Representatives are elected by the property owners in zone of influence to safeguard their interests.

EFFICIENCY

COST RECOVERY: Tax is payable before project or in installments, which requires short-term financing. However, it is reasonable to expect that some of the cost will not be prepaid.

BUOYANCY: Frequent re-assessment needed to keep up with inflation.

MARKET NEUTRALITY/SENSITIVITY: Increases the aggregate supply of serviced land, which may drive the price down. Increase in value could have been the same under traditional financing.

OVERALL: May work as an incentive for development by making landowners more aware of liquidity and potential use. May discourage speculation.

EQUITY

INTERGENERATIONAL EQUITY: Future generations will also benefit from the improvements financed by current generations.

HORIZONTAL EQUITY: Falls on the wealthy landowners who could increase their saving pattern in this way. Improved access to employment and housing has enhanced the economic position of low-income groups along with others.

INCIDENCE: Progressive compared to traditional financing. Installments further reduce the burden on low-income property owners. Developers may be able to shift the burden to the purchaser.

DOUBLE TAXATION: With respect to the regular property tax -- valorization projects raise site values and may increase the property tax. Maintenance expenditures should also be paid by those who benefit, and the increment is rarely taxed completely away.

ABILITY TO PAY/BENEFIT PRINCIPLE: The taxpayer is making no sacrifice -- the value will rise at least as much as the charge. The connection between cost and benefit must be obvious for the method to succeed. Initially, Colombia used the ability-to-pay criteria to select projects, which limited them to middle- and high-value parts of the city. Now, a systematic analysis of capacity to pay is used.

OVERALL: There is a net gain to all income groups, with mixed redistributive effects.

POLICY AND IMPLEMENTATION

ADMINISTRATIVE ISSUES: The estimates must be sufficiently accurate or the upward growth trend in the city must be sufficiently fast to support the recapturing of part of the windfall. Land is difficult to hide from taxation. Tax and improvements must go hand in hand. Poor administration, leading to badly planned projects or poor allocation of taxes among land owners, will lead to the tax being discredited as arbitrary and capricious. The isolation of betterment due is very complex, so the Colombian simplification to the recovery of project cost contributes to its success. There are liquidity problems since the total cost is unlikely to be recovered prior to payment for the project. This method also requires a skilled administration and coordination of existing administrative mechanisms.

METHOD OF IMPLEMENTATION AND TRANSITION: The tax is collected in large sums from a small number of property owners. The calculation of site values is complicated. Careful planning is required -- starting with small projects to earn the taxpayers' trust, perhaps. Flexibility must be built in to the autonomous entity.

LOCAL POLITICS: Can be clearly established as a benefit charge. Rapid urban growth and no drastic changes in transportation technology is required for success.

SOURCES: Bird, 1970; Doebele, 1977.

20. BENEFIT ASSESSMENT/BETTERMENT TAX

GENERAL DESCRIPTION: Benefit Assessment -- based on imputed cash value of benefits received as a result of public improvements. After improvement is built, an assessment is levied against affected property owners in proportion to the benefits received. "Revenue sharing." Betterment tax -- seeks to pass on a share of capital costs incurred in providing supporting infrastructure for nearby land parcels. "Cost sharing," otherwise virtually the same as assessments.

COVERAGE: Colombia, Indonesia -- Jakarta (Betterment tax), Latin America.

APPROPRIATE APPLICATIONS: Site-specific improvements difficult to finance through user charges. Roads, bridges, sidewalks, curbs, gutters, drainage improvements.

EXAMPLE: DKI Jakarta -- Pajak Khusus is a betterment tax through which city authorities can recover 60 percent of the estimated cost of new and improved infrastructure provided by regional governments. So far, this tax has been primarily used for road construction. The formula used apportions the tax to each parcel on the basis of its share of land area to the total land area that directly abuts an improved road. This fails to pass on the cost to parcels nearby but not directly on the road, which will also increase in value. This system fell into disuse in 1987: the major problems encountered were non-compliance and lack of enforcement. The government found it difficult to locate land owners, and those it did locate were often unable to pay for the increase in value until the land changed hands. Cervero suggests, "it would appear that collecting betterment assessments from properties that do not change ownership or for which no land certificate or building permit is being sought is unworkable; a strong case could be made, then, for collecting proceeds only when there are cash transactions and thus original owners have money in hand (such as when new title certificates are being sought) or when owners are seeking to upgrade the use of land (and thus need a building permit or similar certificate)." (p. 16)

EFFICIENCY ASPECTS

COST RECOVERY: Full cost recovery through assessments usually collected on a one-time basis after the improvement or when there is a transfer of title or land conversion.

BUOYANCY: Should be buoyant if assessments of costs and value of land are accurate.

MARKET NEUTRALITY/SENSITIVITY: Once again, depending on the determination of benefit received, the market may be affected. If the fact that properties of higher value will increase in value more than lower-value properties is ignored, the cost to landowners may distort the actual changes in value. Oversimplification may cause more long-term problems than it solves administratively.

OVERALL: Should promote more rational development patterns.

EQUITY

INTERGENERATIONAL EQUITY: Since the full cost is not recovered through benefit assessments, future generations are not completely subsidized by existing residents. Existing residents will benefit the most from the improvement in terms of increased value, so they are burdened with financing the improvement.

HORIZONTAL EQUITY: Those who do not have cash available will be unable to cover the assessment until the sale of the property; by delaying the collection of the levy, the tax recaptures part of the gain in value at the point that it is realized. Will help to avoid a worsening of income distribution by either discouraging land speculation from anticipation of public works or recovering the increase in value for the public sector.

INCIDENCE: A progressive charge since land owners are generally more wealthy. Difficult to shift the incidence due to the method of collection from adjacent land owners at the time of the improvement.

DOUBLE TAXATION: This could be a problem if the property tax rate already truly recaptures the increase in land value. If the property tax were high enough and reappraisal regular enough, then capital cost could be recovered and there would be no need for an additional tax. Similarly, the capital gains tax should be adjusted by deducting the betterment levy amount before calculating the tax liability to avoid double taxation. Ideally, though, the benefit assessment should reduce the total tax burden of the community.

ABILITY TO PAY/BENEFIT PRINCIPLE: Benefit principle -- those whose land values appreciate and who use the facilities help to cover the investment costs. Can be shown that land value increases are linked to proximity to a new road or similar improvement.

RATIONAL NEXUS: Since only 60 percent of the cost can be recovered in this way, the relationship between the improvement and the charge is clearly established.

20. BENEFIT ASSESSMENT/BETTERMENT TAX (continued)

POLICY AND IMPLEMENTATION

ADMINISTRATIVE ISSUES: Problems in the past have been in its execution -- non-compliance and lack of enforcement, as in Jakarta. Calculating the proportionate share of the cost involves share calculation. Usually only a portion (60 percent) of the cost can be financed in this way.

METHOD OF IMPLEMENTATION AND TRANSITION: Oversimplified levy determination rules and inaccurate measurement of property values may result in varying levy-benefit ratios. Rather than being based on frontage or acreage, they should be based on the value of the property -- more valuable property will increase more than less valuable property. Lack of an up-to-date cadastre makes this determination very difficult to implement. The cadastre is not essential, but would facilitate assessment procedures. Locational differences and assessments of recoverable value increments should be integrated into the calculation of the levy.

LOCAL POLITICS: There may be a perception that the benefit assessment is the same as the in-place property tax, which may make collection difficult.

LEGAL ISSUES: A legal cadastre would help in identifying owners of land in the assessment area and would provide the basis for initiating court action. In the absence of such a cadastre, the administrative system for collecting property taxes can be utilized, but at a greater cost.

SPECULATION: Reduces the incentive for speculation by recouping some of the land value gains from public investments. Reduces windfall gain to developers and premature land conversion.

SOURCES: Cervero, 1990; Macon and Manon, 1980.

21. LAND READJUSTMENT

GENERAL DESCRIPTION: Serviced land is pooled together by the choice of the landowners. The government provides the necessary services, financing the construction of this infrastructure by selling "cost-equivalent land" which it takes from the original landowners. The remaining land is re-distributed to the landowners in proportion to their original holdings.

COVERAGE: Taiwan, Australia, Korea, West Germany, Japan, China.

APPROPRIATE APPLICATION: Land engineering and road construction, main sewers, school, fire, and police sites.

EXAMPLE: South Korea: A site plan is developed for the readjustment area, accounting for necessary streets, parks, schools, etc. Lots allocated for private development and the area for public use remaining are compared to the total area. The cost of installing the infrastructure is calculated as well as of the total value of all the lots when placed with services on the markets. The cost-equivalent rate is the comparison of these two figures, or the percent of the lot area which, if sold, would produce exactly enough money to recoup the costs of providing services. If 25 percent of the land is designated public and 15 percent of the lots create a value equivalent to the cost of providing services, then 60 percent of the land is returned to the owner in the form of serviced lots at approximately the same location.

EFFICIENCY

COST RECOVERY: The sale of cost-equivalent land by the government in the private market provides the funds to reimburse the government's expenditure. The amount of land to be used for this purpose is determined before the readjustment begins.

BUOYANCY: The value of the cost-equivalent land will be affected by inflation. May increase the price of land, since land is produced at a higher price.

MARKET NEUTRALITY/SENSITIVITY: After readjustment, the land market may be affected by the decisions made by owners of the land. Do the owners sell some parcels to build on others? Is the land leased to people who will build on it? A weak land market could decrease the value of the cost-equivalent land.

OVERALL: The largest efficiency risk involved in readjustment is whether the land is actually developed after the provision of services. A system of incentives or rules for developers requiring a time frame for construction could insure speedy development. Repaying the original land owners in less land and more money, giving them the capital and the incentive to develop the land returned to them, controlling speculation. The "beneficent monopoly" formed by this governmental intervention may breed bureaucratic inefficiencies.

EQUITY

INTERGENERATIONAL EQUITY: Present owners reap the benefits in increased value, but future owners receive better services.

HORIZONTAL EQUITY: Benefits received vary greatly. Many small projects would lessen the inequities involved in larger projects. If properties outside the project boundaries will benefit, betterment charges should be levied to recapture this windfall.

INCIDENCE: The burden falls on the land owners, who carry the largest risk if the land values do not increase as much as anticipated.

DOUBLE TAXATION: The money raised is channeled directly into infrastructure provision.

ABILITY TO PAY/BENEFIT PRINCIPLE: The land owners who will profit from the provision of services are the ones who contribute the land to repay the construction costs of the infrastructure.

POLICY AND IMPLEMENTATION

ADMINISTRATIVE ISSUES: The use of readjustment is restricted from very expensive projects due to the limit of only 40 percent of the land being taken for public use or cost-equivalent land. Administrative costs should be included in the total cost calculation.

METHOD OF IMPLEMENTATION AND TRANSITION: The determination of the cost equivalent land is the most complex part of the process. No major monetary compensation is required from the government since there is no transferral of title from the land owners.

LOCAL POLITICS: Usually requires the consent of most of the landowners, or owners of most of the land.

LEGAL ISSUES: Consent of the owner protects the state from needing to utilize eminent domain.

SOURCES: Doebele, 1982; Shroup, 1978.

22. PUBLIC/PRIVATE PARTNERSHIPS

GENERAL DESCRIPTION: Through a negotiation process, the private and public sectors work together by each conceding either in-kind or cash contributions to the project that benefits both the private interest and the community at large. Possible configurations of partnerships include: operating services, management assistance, private construction, donation or purchase of capital projects, municipal leasing. The public sector may encourage this through land assembly, disposition or equity participation in private ventures, or contracting out for services.

COVERAGE: North America.

APPROPRIATE APPLICATIONS: Economic development projects, capital facilities, roads, landscaping, lighting, public improvements.

EXAMPLE: The form of these partnerships can vary widely. Possible partnerships include: public improvements in the project area; joint public and private use of shared facilities; developer provision of shared services, reducing both capital and operating budgets of jurisdictions; developer maintenance and operation of public facilities; acquisition of real property by developer for jurisdiction's purposes; profit-sharing with jurisdiction; conditions upon developer activities which facilitate accomplishment of public purposes; development of public property or resources to provide revenues to the jurisdiction.

EFFICIENCY

COST RECOVERY: Either through user-based fees or taxes, developer exactions, or by private investors. Costs to municipality are reduced.

BUOYANCY: Charges should reflect any changes in inflation.

MARKET NEUTRALITY/SENSITIVITY: Will probably influence decision to enter the area, but not the development size or type.

OVERALL: The capital resources of the private sector can greatly increase the efficiency of the public sector goals for providing services. Negotiated partnerships, though possibly complicated, probably result in the most mutually beneficial results.

EQUITY

INTERGENERATIONAL EQUITY: Equity may be traded off for other goals by the public sector during negotiations.

HORIZONTAL EQUITY: Equity may not be primary goal.

INCIDENCE: The final incidence may benefit the developer more than the general public.

DOUBLE TAXATION: The developer should not be taxed for the services he has provided per agreement.

ABILITY TO PAY/BENEFIT PRINCIPLE: Ultimately based on the benefit principle, since the developer and the municipality both will benefit and both are making concessions.

RATIONAL NEXUS: No nexus requirement for donations by developers: the result of negotiations, not regulations.

POLICY AND IMPLEMENTATION

ADMINISTRATIVE ISSUES: Strong leadership from public or private sector is required. Negotiations will require time and effort as well as commitment by county administrators since the bargaining will be complicated.

METHOD OF IMPLEMENTATION AND TRANSITION: Must be a clear definition of roles and responsibilities. The objectives must be feasible. Coordination may be complicated and time-consuming.

LOCAL POLITICS: Must serve a mutual interest.

LEGAL ISSUES: In the U.S., this may be a way to expedite the development regulatory process.

SOURCES: Colman, 1989; Building Prosperity, 1983; Building Together, 1990; Mudge and Jakubiak, 1987; Weiss, 1985.

23. PRIVATIZATION

GENERAL DESCRIPTION: The private sector becomes substantially involved in the financing, design, construction, ownership, and operation of public facilities or services.

COVERAGE: Europe, S.E. Asia, Latin America, Africa, Turkey, Grenada.

APPROPRIATE APPLICATIONS: Traditionally, transit, garbage, gas/electric, telephone, water, and sewer. Innovative applications include water/waste water treatment facilities, correctional facilities, parking garages, educational facilities, public office buildings. Proven technologies, equipment-intensive services, activities appropriate for service agreement, and new construction and facilities are the best candidates for privatization.

EXAMPLE: Chile: An early advocate of privatization, the military regime brought to power by the 1973 coup withdrew from the provision of a range of social and other services. The denationalization of 17 state-owned companies transferred more than U.S. \$1,000 million in shares to new owners and increased over five-fold the volume of stock trading. Majority state holdings had been sold in the following industries: steel production, urban transport, electricity distribution, and nitrates. A large minority stake was sold in: electricity generation, coal production, international telecommunications, domestic telecommunications, and sugar production, and shares have been on sale since 1985 in electricity generation, transmission, and distribution.

EFFICIENCY

COST RECOVERY: Transactions can be leases, service agreements, owner capital, or debt financing.

BUOYANCY: The pricing determined by the privatized company should be buoyant to capture necessary revenue.

MARKET NEUTRALITY/SENSITIVITY: Improving the industrial efficiency and activating the capital markets are necessary for privatization. It requires developing capital markets, providing credit facilities, and reforming microeconomic policies. Due to economies of scale, the scope for the introduction of competition into some sectors of the economy may be more limited in less developed countries than, for example, the U.K.

OVERALL: Depends on the success that the private sector achieves in cost savings for public, fair profits for owners, efficiency in engineering and design, and reasonable level of oversight by government. The difference between the drain on the economy from poorly run utilities and the operational subsidies required for these utilities must be determined. Underutilization of existing infrastructure represents an expensive opportunity cost. Privatization is about increasing efficiency more than transferring ownership in Thailand. Competitive efficiency should be the criterion for evaluation of privatizing enterprises. Socioeconomic efficiency must be considered.

EQUITY

INTERGENERATIONAL EQUITY: Reduces the responsibilities for service provision previously assumed by the municipality.

HORIZONTAL EQUITY: Skewness in the ownership of industrial shares will not be remedied through privatization. Fear of economic concentration could be exacerbated by privatization. Shares are usually held by only a few people. Beneficiaries may be a very small fraction of the population.

INCIDENCE: May not be in the best interest of the people.

DOUBLE TAXATION: Taxes no longer go to fulfill all service needs and should be redirected explicitly.

ABILITY TO PAY/BENEFIT PRINCIPLE: Pricing should still be based on ability to pay, but public regulation may not be effective in curbing the monopoly.

POLICY AND IMPLEMENTATION

ADMINISTRATIVE ISSUES: Requires market analysis and proof of commercial viability. Requires cooperation and active participation of all governmental agencies.

METHOD OF IMPLEMENTATION AND TRANSITION: Lack of knowledge about implementation is a major stumbling block for developing countries. Government regulation should be reduced to a minimum, removing price controls and state subsidies. Shares of state enterprises can be sold, business units leased, or incomplete investments can be sold to private investors conditionally.

LOCAL POLITICS: Political resistance can be a major obstacle. Full political commitment is required.

LEGAL ISSUES: Procurement laws can also hinder privatization. Some privatized facilities are treated specially under tax laws.

SOURCES: Cao, 1990; Hanke, 1987; Ramanadham, 1989; Weiss, 1985; Fraser, 1988.

24. LEASING/LEASE-PURCHASE/SALE LEASEBACK

GENERAL DESCRIPTION: The facility is owned by the private sector, leased to public government bodies.

Sale Leaseback – sell a facility already city-owned to a private corporation set up for the transaction. The city then immediately leases the facility back.

Lease-Purchase – lease the facility with the intention of purchasing the facility later.

COVERAGE: U.S.

APPROPRIATE APPLICATIONS: Primarily, things that can be converted to private use, such as building, mass transit vehicles.

EXAMPLE: Mass Transit Vehicles: 1981 tax legislation permits public authorities to issue tax-exempt revenue bonds to finance transit vehicle acquisition, with the revenue bonds secured by a private firm's promise to pay. Public bond proceeds account for the bulk of the acquisition cost, supplemented by the private firm's capital contribution. The private firm is the owner, and can claim accelerated depreciation allowances for tax purposes. The public authority "sells" to the private firm the depreciation advantages of capital ownership which it can't make use of directly. The public authority also retains the advantage of tax-exempt bond financing.

EFFICIENCY

COST RECOVERY: Not a revenue generator. Requires another source of income to pay it off. May require a higher debt payment. No large initial investment required. The cost can be spread over a long period of time. Costs of entering the lease may be less than issuing a bond. Debt service must be budgeted from current revenues.

BUOYANCY: The lease should be structured to reflect changes in inflation.

OVERALL: Not a revenue generator: rather a sort of public/private partnership. The municipality can acquire an asset with long-term financing without technically incurring debt. A suitable means for financing assets that are too expensive to fund on a one-shot basis out of current revenue but with lives too short to warrant bond financing. Technological change may make ownership imprudent since that may require a continuing vendor relation.

EQUITY

INTERGENERATIONAL EQUITY: The lease is usually long-term so repayment may extend the life of the project.

HORIZONTAL EQUITY: The method of repayment will determine this: the leasing option should be available to all qualified projects.

POLICY AND IMPLEMENTATION

ADMINISTRATIVE ISSUES: The agreements are usually complicated. It may be difficult to find single investors. However, removes the capital financing burden from local governments and circumvents local limitations on bond issuance. The city's debt limit is not a factor. Financing costs may be higher due to builder's risk that the lease might be broken.

METHOD OF IMPLEMENTATION AND TRANSITION: Negotiated agreements with the private firm must set out the length of the lease, conditions of ownership, amount of down payment, lease payments, and so on.

LOCAL POLITICS: No voter approval required. Sale-leaseback may be hindered by political reluctance to sell public property.

LEGAL ISSUES: There are no legal limitations on leasing for municipalities. Legal fees are generally reduced as well.

SOURCES: Building Prosperity, 1985; Coleman, 1989; Pagano and Moore, 1985; Planner's Guide, 1990.

25. PUBLIC ENTERPRISE

GENERAL DESCRIPTION: Public corporations created and owned by one or more political jurisdictions, such as self-supporting utilities and off-budget enterprises. The enterprise operates separately from the general purpose government. (State owned firm)

COVERAGE: North America, Japan, United Kingdom, Italy, Turkey, Austria, Germany, France, Nigeria.

APPROPRIATE APPLICATIONS: Sewer facilities, water systems, drainage, roads and bridges, transportation, resource conservation.

EXAMPLE: In Japan, there are two different versions of public enterprise: "Kosha" is public utility service and the monopolistic provider of the service, and "kodan" is the provider of social overhead capital, fulfilling the specific objective of economic and social policy. Most public enterprises are public corporations, similar to the U.K. model. Civil and commercial trading laws are not applicable to these public corporations, and they are not liable to state or local taxation. The budget of some corporations must be submitted to the Parliament for approval. The types of public enterprises can be classified into the following industries: public utility; transport and communication; banking, credit, and insurance; multi-purpose development projects; basic established industries; new industries or service; and cultural activities.

EFFICIENCY ASPECTS

COST RECOVERY: Revenue bonds paid back through user charges and fees. Revenue raising may include permits, licences and fines, and connections fees. Any profit will be re-invested in other enterprises.

MARKET NEUTRALITY/SENSITIVITY: Should help to correct market failures by providing services below monopolistic prices.

OVERALL: Public enterprises are generally less economically efficient than private enterprises. Although they may perform poorly in terms of costs and profitability, in terms of the rest of their objectives they may be performing well.

EQUITY ASPECTS

INTERGENERATIONAL EQUITY: Since repayment is through fees and charges, should be equitable.

HORIZONTAL EQUITY: Industrial users may be charged more heavily than residential.

INCIDENCE: Subsidization of these enterprises should make them more accessible to lower income groups.

ABILITY TO PAY/BENEFIT PRINCIPLE: Charges for use based on ability to pay.

POLICY AND IMPLEMENTATION ASPECTS

ADMINISTRATIVE ISSUES: Enterprises are isolated from the government. They are not included in the general budget, which adds flexibility in financing.

METHOD OF IMPLEMENTATION AND TRANSITION: May complicate the delivery of services and may lead to greater inefficiencies due to their "public" nature.

LOCAL POLITICS: The government-run business may be perceived as inefficient. But government failure does not imply that the market will do better.

SOURCES: Rees, 1984; Yoshitake, 1973; Ramanadham, 1989.

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