

URBAN ENVIRONMENTAL MANAGEMENT IN DEVELOPING COUNTRIES

Toward a Policy and Program Agenda

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TABLE OF CONTENTS

INTRODUCTION	1
I. THE URBAN ENVIRONMENT - A Conceptual Framework	4
The City as an Economic Engine	4
The City as an Environmental System	4
II. ENVIRONMENTAL PROTECTION AND URBAN MANAGEMENT - Tools, Methods, Approaches	7
Enhance Urban Economic Growth.	8
Develop Strong Institutions	10
Clarify Jurisdiction and Purpose	11
Decentralize Authority and Improve Fiscal Management	12
Create Better Guidance Systems for Decision-Making	15
Strengthen Environmental Planning	16
Improve the Information Base for Decision-Making	17
Solicit Public Involvement and Support	18
Create Flexible and Appropriate Development Controls	19
Direct Urban Growth With Land Delivery and Infrastructure Investment	22
Facilitate Orderly Land Development	22
Stimulate Provision of Infrastructure and Urban Services	24
Encourage Private Initiative	27
III. AN URBAN ENVIRONMENTAL MANAGEMENT AGENDA - Strategies and Options for PRE/H	30
Relevant PRE/H Experience	31
A Draft Action Plan	34
BIBLIOGRAPHY	40

Environmental protection and economic development have often been considered as mutually exclusive public goods. As a result, public policy makers deeply concerned for the economic well being of their cities have not valued the protection of the air, water, and land resources. In so doing many of the economic conditions they sought to alleviate have not improved and the environmental resources which sustain economic development have been placed in jeopardy.

Just as protection of the natural resources which support urban growth is critical to sustaining that growth, investment in environmentally sensitive urban management must be made at the earliest possible stages of urban development. Because cities are the physical setting for the largest proportion of a nation's capital investment, they must be shaped and developed to maximum advantage from the outset. Failure to do so results in serious environmental damage which in turn requires even greater investment to repair. Poor countries particularly cannot afford the massive expenditures required for remedial actions such as urban renewal and clean-up of toxic wastes or air and water pollution. The recognition of the interrelationship of economic growth and environmental protection, as well as the recognition of the enormous cost of repairing environmental damage once inflicted, suggests a reappraisal of traditional thinking. This analysis offers the opportunity to consider how the twin goals of environmental protection and economic development can be mutually supported.

The discussion below assumes a working knowledge of the specific parameters of environmental damage which is being experienced as a by-product of the rapid urbanization and related industrial development in many developing countries. The discussion focuses on managing the urban environment and especially on addressing the problems (and opportunities) of rapid urban growth. It does not address all environmental dilemmas and it leaves important issues such as depletion of natural resources, air and water pollution and waste recycling to more detailed treatments elsewhere. The challenge here is to examine some possible responses to urban environmental problems, with particular emphasis on enhancing economic growth, strengthening local

governments and urban institutions, creating better systems for guiding urban growth, improving the delivery and management of urban land, infrastructure and services, and encouraging private initiative.

Several concepts underpin the paper:

Urbanization in developing countries is a necessary component of sustainable economic development.

The failure to manage environmental problems created by urbanization imposes enormous costs on current and future citizens. While the shortage of resources needed to deal comprehensively with the wide range of environmental problems is obvious, continued environmental degradation dooms the cities - and the countries in which they are located - to decades of human misery.

Adequate management of urban environments is one of the basic elements of most reasonable, sustainable economic development strategies. The absence of such management reduces the long-term availability of natural resources, creates a wide variety of health problems, and negates many otherwise positive investment strategies.

Environmental protection must be viewed as an economic development tool, not as a luxury good. Investment in infrastructure, services, and environmental quality controls not only creates permanent skilled employment but also provides a setting in which private investment is both possible and desirable.

Appropriate management strategies for developing countries are those which are explicitly sustainable, reflecting a realistic assessment of resources - both human and material - which are available in the country, and which include provision for cost recovery sufficient to allow continued investment in new facilities as well as adequate operation and maintenance.

A discussion of urban environmental management must be placed in the context of the urban environment as a system in which the sum is in fact greater than the individual parts. To that end, this paper suggests a conceptual framework

for understanding the components of the urban environment and the interplay between them. Based on this framework, the tools, methods, and processes of urban environmental protection and management are discussed. A possible program and policy agenda is then proposed, based both on past experience and extension of solutions drawn from the above discussions.

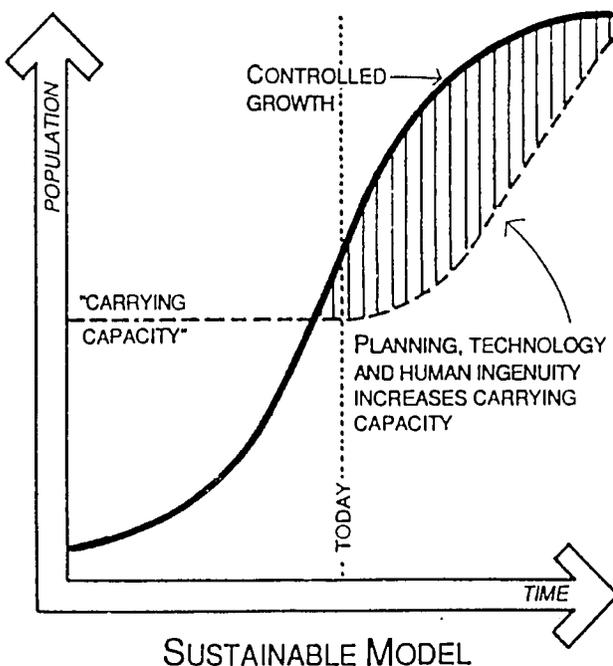
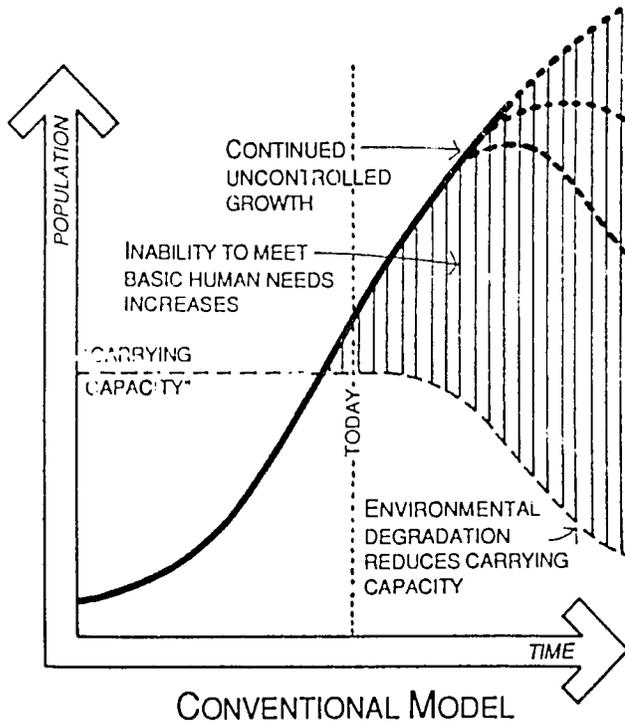
The City as an Economic Engine

The rapid growth of cities in most developing countries is creating great challenges for governments and international assistance agencies. As the underlying economies of these countries shift from rural, agricultural subsistence to more modern industrial growth, movement from hinterland to urban areas is inevitable and necessary. Population centers create both economies of scale and the development of markets for goods and services that in turn provide the foundation for more specialized industrial and service activities. Cities stimulate and support economic output, investment and income.

The progression from an agricultural subsistence economy to a more modern industrial society is in part a result of improved productivity in rural areas which reduces the absolute number of people required to work the available arable land. This, combined with high birthrates and declining infant mortality has created a labor force which can only be adequately used in more highly industrialized economies.

With few exceptions, industrialization is an urban phenomenon, bringing together investment capital, technology, and workers in order to produce goods - goods which are in turn sold primarily in cities. While some products certainly find buyers in more rural areas, the city creates its own market for goods and services. Some are for its population's direct use, while others are raw materials used in the production of industrial goods, secondary goods and luxury or export products. The production and sale of such goods creates the income which is at the root of sustainable economic growth, in part by providing additional investment capital, but also in the form of discretionary income which can be used for improving education, medical care and other important living standards.

The unhappy byproduct of these otherwise desirable outcomes of rapid urbanization is the serious degradation of environmental systems and natural resources, both in urban centers and their hinterlands. This destruction has reached such massive proportions that it threatens to undermine many of the productive functions of the cities



and thereby significantly reduce levels of sustainable development (Myers, 1986). In China's most populous region, heavy metals pollution in the food chain has forced plant closings (McQuillan, 1984); in Burundi, (especially those areas near population centers) fuelwood demand has stripped the country of its forest resources causing extensive erosion and loss of agricultural soils; and in some of Kenya's secondary towns, inappropriate land use and leap-frogging development patterns have driven the cost of extending infrastructure to industrial and commercial development so high that economic expansion has been severely curtailed. Water pollution, erosion, depletion of resources, inefficient land use and many other environmental problems all restrict economic growth. Still, the issue is not how to stop urbanization but how to protect the resources which support growth at a sustainable level.

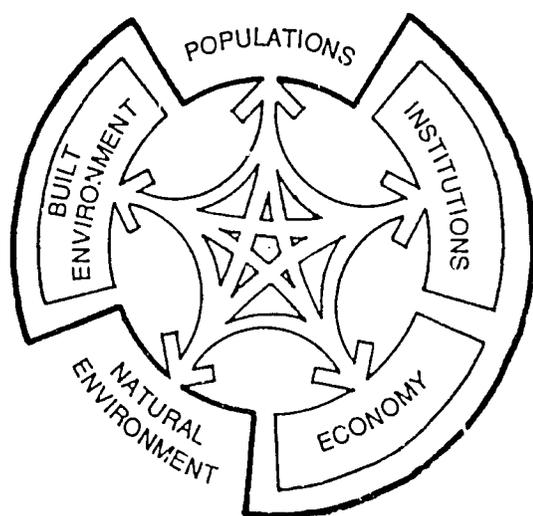
The City as an Environmental System

An improved understanding of the management of the natural resource base and the environment that supports urban economies is needed if a government pursues a sustainable development program. Achievement of this is only likely if the city and its environs are treated as a system. While doing so may not be an answer to all urban problems, its logic reveals the actual complexity of cities, and makes clear the urgent need to link economic development policy, natural resources management and urban investment decisions.

The primary components of the urban system are its population, defined in terms of its size, density, growth rate, and relative heterogeneity; its natural environment or ecosystem; its "built" environment including particularly its infrastructure and overall land use pattern; its economy, most notably its underlying economic activity and the resource flows which support it; and its institutions, including governmental structure and policy setting processes. It is the understanding and management of the interactions of these components that offers the most promise for the ability to minimize environmental damage. For example, when demand for land for housing exceeds supply and when institutions are unable to

control or direct urban land use, the result is often unplanned settlement of environmentally sensitive areas, such as occurred in the steep hillsides of La Paz, the marsh areas of Mexico City, and estuaries of Dacca (Campbell, 1989). On the hillsides, vegetation is eliminated and erosion takes place; on the flood plain, floodwater absorption capacity is reduced and flooding increases. The damage is magnified as both areas are too costly to service and environmental health hazards grow more serious. A strategy that leads to delivery of an adequate supply of appropriately located building sites with minimal but crucial infrastructure would reduce unplanned settlements, environmental damage and long term development costs.

It is important to recognize that virtually all human activities impact on the community's underlying environmental system. Many, even most, impacts can be mitigated or managed so that little or no permanent damage is done. But anticipation and management are critical, for without both, the natural environment is most often overwhelmed by the sheer weight of escalating demand and competing human needs.



RESOURCE FLOWS
with: the
URBAN SYSTEM

There are limits to the current understanding of the components of the urban environment, and especially of the complexity of their interaction. There is, however, sufficient theoretical and factual information and professional expertise available to begin much more effective management of urban environments. Common sense judgments must be relied on even though those judgments may be based on deficient data. Such management can start now and if approached with respect for the systemic nature of interventions, much more will be learned and urban environmental management capacity will grow.

Within a conceptual framework which views the city as an engine of economic growth and as an interdependent environmental system, urban management is clearly the key to environmental protection. Anticipation and mitigation of urban environmental problems through improved management, however, poses significant challenges to traditional ways of managing the urban system. Not only has the size of the problem eclipsed the capacity of most existing tools, but the complexity of competing demands requires policy makers to re-examine conventional wisdom, rethink traditional relationships, and formulate new approaches. This analysis of the tools, methods and approaches available to support urban environmental management objectives should be driven by five guiding principles:

Enhance Urban Economic Growth

Urban growth, environmental protection and sustainable economic development are inextricably linked. Urban growth is both a function of and a prerequisite for economic development --- for that development to be sustainable, the natural resource base must be protected.

Develop Strong Institutions

Strong local governments and urban-related institutions must exist whose boundaries and jurisdictions correspond to the nexus of the management tasks before them. The entities must understand their respective roles in the urban system, and have the resources as well as the authority to play that part.

Create Better Guidance Systems for Decision-Making

Governments need a systematic means of guiding urban investments to assure that scarce resources are used to their maximum benefit in a way that protects the environment and encourages economic growth.

Direct Urban Growth with Land Delivery and Infrastructure Investment

Market-driven, environmentally sound land delivery and well conceived capital investments in infrastructure

provide important opportunities for minimizing pollution, reducing long term development costs and shaping the urban environment.

Encourage Private Initiative

The private sector has a significant role in environmental protection, not only in its direct response to environmental concerns, but also as a provider of urban infrastructure, services, and pollution control related employment and investment.

The following sections contain discussion of these principles and suggest tools, methods, and processes available to accomplish urban management objectives.

Enhance Urban Economic Growth

Urban growth has been a necessary prerequisite for the development of industry and services in developing countries. The employment opportunities, markets, technological improvements, capital and enterprises of a healthy city promote the development of its region's resources and that development, in turn, can reinforce the development of the city. Unfortunately, all too often policy makers fail to understand that growth must not be at the expense of the region's natural resources, particularly air, water, and land. In fact, adequate protection and management of those resources is crucial to continued economic health. An excellent if tragic example is provided along the Adriatic Coast of Italy where the precipitous drop in tourism is forcing the government to look seriously at ways of controlling industrial pollution.

Urban environmental management strategies are needed to enhance continued economic development while, at the same time, protect the natural resources on which urban economies depend in a way that ensures the resources' continued availability. Although the growth strategies now employed vary between market economies and centrally-planned ones, economic planning and policy-setting processes are used by all governments to allocate resources, generate revenues, and influence investment decisions. Government interventions that grow from these processes often take the form

The Seychelles Beach Pollution

Over the past decade The Seychelles has pursued a strategy of economic development based to a large extent on the continued growth of tourism. The type of tourism promoted by the government relied on package tour operators selling low cost sun and sand vacations to ever increasing numbers of travelers. As the strategy began to succeed, more and more large hotels were built along the beautiful beaches until the raw sewage being pumped into the ocean began to undermine the coastal ecosystem which had produced the abundant marine life, clear waters and spectacular beaches. As algae blooms clouded the water and dead fish washed ashore along with raw sewage, tourism plummeted, employment dropped and the economy suffered a severe shock. (Wilson, 1979).

of regional development priorities, intergovernmental grants to cities, pricing policies, wage policies, land taxes, and currency exchange rates or other monetary controls. These interventions, and the incentives which they embody often significantly affect investment decisions in particular regions, industries, crops or types of facilities. The policies may alternatively lead to growth of one area at the expense of others, to increased exploitation of an undeveloped resource, to competition for scarce commodities, to the creation of new jobs, or to indiscriminate disposal of hazardous wastes.

Decisions regarding treatment of environmental impacts of a specific industry pose a particularly difficult challenge. Policies which internalize the costs of waste disposal or air pollution may adversely affect the competitive position of an industry, while policies which do not internalize these costs force the larger community to absorb the consequences in the form of deteriorating environmental quality, rising public health costs, reduced labor productivity, or eventual costs of relocation and clean-up. Perhaps the most dramatic example to date is the five billion dollars to remove toxic wastes in the U.S. spent by the EPA "Superfund" since 1981. In this instance, the failure to internalize the costs of disposing properly of industrial waste, (in addition to staggering public health impacts), has, and will continue to require an enormous investment of public funds for physical clean-up. In retrospect, instead of creating an incentive for proper disposal at the time the waste was created, the marketplace was permitted to serve as a significant disincentive for appropriate environmental management, with disastrous long term impact.

No single approach is correct or always applicable. A balance must be struck between more immediate term needs for price competitiveness, and long term environmental protection. The challenge is to identify the politically acceptable set of policies that best serves the economic, social and environmental circumstances of the country and its individual cities.

Economic planning and policy setting in developing countries can be enhanced through a range of general measures. Especially important is the encouragement of

urban policies and strategies based on understanding the links between urban investment and agricultural productivity, between patterns of urban settlement and overall productivity, and between urban use of natural resources and the carrying capacity of the regional ecosystem. Some of the approaches most likely to have impact are:

Encouraging settlement policies that are framed to serve explicit economic goals and are meshed with each urban center's national context and natural resource base.

Encouraging development priorities not only to stimulate agricultural productivity but also to strengthen the economies of cities and towns which serve as both markets for agricultural outputs and sources of agricultural supplies.

Establishing resource development and pricing policies that encourage rational use of land, water, energy and renewable resources and remove unwanted biases in economic plans and subsidy, tax and pricing policies. Policy interventions need to promote better resource management and conservation, and, at the same time, reduce fiscal burdens on government to improve economic productivity.

Basing public investment in infrastructure and facilities on each urban center's potential as identified by its natural resources, positive economic and environmental advantages, and urban management skills.

Develop Strong Institutions

The task of managing the urban region, including the intricacies of the day to day operation of cities in developing countries, is sufficiently complex as to tax the most sophisticated system. Population growth, poverty, unemployment and resource depletion have all weakened the effectiveness of processes and institutions designed to plan, maintain, and improve cities. In most developing countries, urban management and environmental policy-setting and decision-making is carried out either entirely by central government or by a blend of central, regional

Kenya - Local Government Capacity

Many developing country governments have struggled to cope with dramatically growing cities in the absence of effective local government agencies. In 1981, the Government of Kenya, with assistance from USAID, initiated a program aimed specifically at improving local government capacity to plan and deliver facilities, housing and urban services and to implement central government development policies and programs throughout the country. A key element of the program was the training of local officials in a variety of areas including the evaluation of projects, project planning, budgeting, financial management and cost recovery techniques. The program was organized to support the district focus efforts of central government.

A local development planning process and reporting system known as the Local Authority Development Programme (LADP) was established as a first step. The Ministry of Local Government prepared and distributed to all local authorities a simple reporting form and a set of guidelines for completing the form, along with an indication that the LADP was essential to preparation of Kenya's overall National Development Plan and that the LADP process would be used to identify and evaluate local projects to be financed by central government.

The LADPs are impressive evidence that given a clear set of guidelines, even the least sophisticated local authority can prepare a reasonable development program. (Reeve, 1985).

and local institutions. It is but one of many tasks facing already over-extended central governments, while local governments usually lack the funds, expertise, management capacity, and commitment from central governments to function effectively.

Clarify Jurisdiction and Purpose

Jurisdictions of all types are often mismatched to the reasonable boundaries of the environmental problems and/or management tasks facing them; their geographic reach as well as their authority and resources may be inadequate, inappropriate or inefficient. Yet each level of government and each jurisdiction has an important role. Central governments, and to a certain extent, large regional governments need to establish clear policy guidelines for environmental protection, and create appropriate institutions and tools to implement those policies.

Local governments could play a more substantial role if their actions and responsibilities were part of a planning and investment decision-making process that integrated national, regional and local responsibilities based on clearly defined principles. For an integrated process to work, all parties must have clarity of purpose as well as strong financial and management capacity. A significant obstacle may be the political will of national governments to share power with local governments, yet this is essential if responsible urban management is to be achieved.

Institutions at all levels of government traditionally consider only those functions with which they are specifically charged. The goals of each institution are few and narrow in definition, and thus it often works at cross purposes or at best awkwardly with others in the exercise of urban management tasks. Individual institutions are, as a result, rarely responsive to the multi-dimensional requirements of the urban environment and are even more rarely in a position to manage the interactions of the components of the urban system. Interactive management techniques, ad hoc committees, or special purpose institutions charged with cutting across agency mandates, regional boundaries, and government jurisdictions have not been emphasized in developing countries to the

Comprehensive Planning Assistance (U.S.A)

Shortly after the end of World War II, in response to the crush of suburban growth occasioned by both a tremendous population increase and the change in the nature of economic development, the US government created a small financial assistance program, Section 701 Comprehensive Planning Assistance, to promote planning and land management competency in small cities, suburban communities, and newly formed regional planning agencies. The program, which was deemed no longer necessary after several years, is widely credited with stimulating the creation of appropriate regional bodies to manage such area-wide services as waste disposal and transportation, as well as strengthening a wide range of local environmental management capacities. (Massoni, 1989).

extent that they have in more developed countries. Governments need to adjust the charters of urban development and environmental protection institutions to better fit the tasks at hand, and find effective ways of coordinating their individual efforts.

Even with appropriate charters and greater cooperation, institutions must be strengthened. For urban environmental management programs to be implemented and sustained, capable institutions must exist, particularly at the local and regional level. Skills training and improved administrative practices aimed at comprehensive environmental resource management stand out as priority needs. Central governments should be encouraged to cede significant portions of the authority necessary to better manage environmental issues to local governments and their regional associations, and to empower that authority by providing support for institution and capacity building.

Decentralize Authority and Improve Fiscal Management

The institutional targets for strengthening management capacity must be both local governments and those institutions (often parastatal enterprises) that manage such urban infrastructure as electricity, water and transportation. The sometimes lax attitude toward fiscal control and management of both of these types of institutions results in part from the expectation that the central government will bail them out. Actually, the trend has been toward increasing local responsibility for delivery of urban services while simultaneously reducing the level of central government financial support with the result that real expenditures per capita have generally declined (Roth, 1987). In addition, internal cash reserves have often been depleted as these institutions attempt to meet their responsibilities without expected contributions. As a result, the financial condition of most have deteriorated seriously. In Nairobi, for one of many examples, the once strong, self-sustaining water development fund has substantially eroded as a result of municipal allocation of this fund's resources to meet other pressing requirements, a situation caused in large part by the central government's failure to keep current with its own obligations to the city. In the face of institutional insolvency,

severe strains on most central governments' budgets, and limited international assistance, resources for new capital projects to accommodate infrastructure and urban services expansion are elusive.

The answer to the dilemma does not lie in more funding from the central government nor can loans from international sources be seen as more than an interim measure. There appears to be no alternative to locally-generated financial resources over the long run (Trans-Atlantic, 1988). Most cities and parastatals can improve the collection of taxes and user fees dramatically, particularly property taxes and public utility tariffs. Attempts to increase revenues must be closely coordinated with parallel programs to improve urban services. Achieving higher levels of service will, in turn, require improving management efficiency and instituting cost reduction measures.

A sound investment planning process is basic to all these measures. The choice of investment projects must meet community needs, reflect environmental quality goals, and demonstrate high rates of return. Realistic standards need to be adopted to keep costs to a minimum. Capital investments should be designed in response to the willingness of the users to pay for, however slowly, the construction, operation, maintenance and replacement of the facility.

Giving Good Measure - California's Proposition 13

The passage of the so-called Proposition 13, a measure designed to drastically limit tax revenue raised by local governments testifies to the frustration experienced by voters, who, while willing to tax themselves to fund significant improvements in public services, revolt when those improvements are not forthcoming. Such taxpayers' revolts are not unique to California or the U.S. generally, but instead reflect the general principle that increased taxation or user charges must be accompanied by visible improvements in public services.

In addition, virtually every form and level of government has within its scope the power to create significant incentives and disincentives to particular economic choices and investment strategies. Adequate urban management can be significantly enhanced by a reasonable evaluation of these powers and selection of alternative courses of action or exercise of regulatory powers which reflect the goal of environmentally sound economic growth. An excellent example of this use of power is in the imposition of recycling requirements. While some communities have attempted to enforce mandatory recycling through legislation alone, others have adopted a more incentive driven approach. Specifically, separated trash is collected by private recyclers at no cost to the municipality or the residents. Unseparated trash or material unsuitable for recycling is collected by the

Mosquito Abatement - A Successful Approach to Financing Public Services Using Special Districts

Among the most successful approaches to funding necessary public improvements is through the use of special districts for specific services. In the case of mosquito abatement, a number of U.S. states permit the organization of special districts to finance spraying, swamp draining, and other actions necessary to reduce mosquito infestation. By spreading the cost over a relatively large group of residents and/or landowners, the individual share is significantly lower and thus more affordable.

municipality, but only if it is placed in trash bags purchased specifically sold by the local government, and priced to reflect the incremental cost of collection, and disposal. The result of the system has been significant reduction in overall cost of trash removal both to individuals and local government, substantial increase in compliance with recycling regulations, and creation of several new recycling based businesses.

In order to be effective, approaches to institutional development must be tailored to the needs of the specific country or city. Scarce resources must be concentrated on institutions that are critical to the country's development and to addressing the most significant environmental issues. Some approaches which might be considered include:

Encouraging decentralization strategies to place as much fiscal responsibility and management authority as possible at lower levels of government. Decentralization allows local leaders and managers to locate services and infrastructure more efficiently, to implement development projects more effectively and to have "ownership" of the success of development activities. By relieving the burden from the central government, its much needed role in coordinating and monitoring can be strengthened.

Strengthening central government agencies who coordinate local finance. Improving local government financial management inevitably means reforming the central government's involvement with local finance. In most developing countries, public finance is highly centralized and it is essential to begin reform through the central ministries (usually finance, local government and/or economic planning).

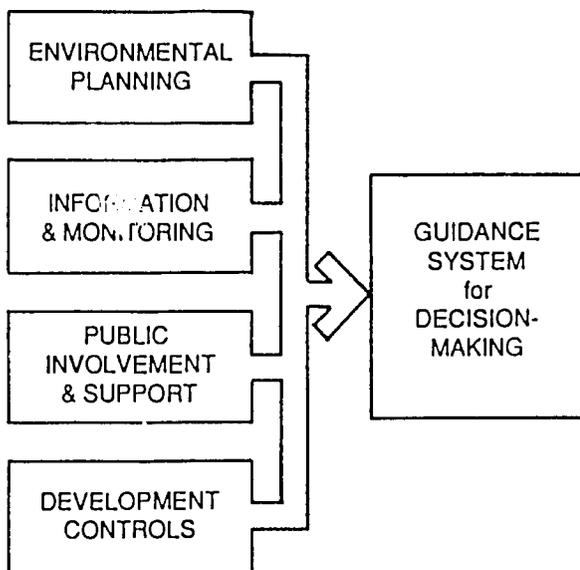
Strengthening the authority of local governments to raise adequate revenues to meet service demands. This includes expanding taxing and revenue raising authority; improving key sources of local revenues, such as the property tax; creating special loan funds for urban development; improving inter-governmental grant programs; etc. Local governments must be encouraged to expand their fiscal base through efficient collection of user charges for publicly provided services.

Inducing local government management reforms using the incentive of capital financing. International agencies and central governments should make it clear that improvement of urban environmental management is a prerequisite for future loan and grant programs.

Encouraging experimentation with new institutional means of facilitating communication across jurisdictional and sectoral boundaries. One method is the selective reassignment of officials across urban-related sectors and up and down the levels of urban institutions to increase sensitivity and knowledge of the multidimensional nature of urban environmental management.

Rewarding innovation and success through the expansion of training and job promotion opportunities for managers in agencies carrying out key urban environmental management responsibilities. Capacity building needs are most acute in the medium and smaller cities, however, the staffs of large cities, parastatals, and central and regional agencies should also be included in such incentive programs as their roles as facilitators may be equally critical.

Involving local government staff and elected officials in the development of improved systems and procedures will increase the likelihood that more lasting change will occur. The task of achieving meaningful institutional change is arduous, its prospects for economic payoff long term, and even in the best run urban centers, it is never finished.



Create Better Guidance Systems for Decision-Making

Cities are the physical setting for the largest proportion of a nation's capital investment. A development strategy must therefore carefully place investments for best advantage. In order to assure that these investments do produce maximum benefit in a manner that environmental protection and sustainable economic growth are assured, governments need a systematic means of guiding investment decision-making. The elements of this guidance system are environmental planning, information and monitoring, public involvement and support, and development controls.

The MEREC Project Tacloban, Philippines

In the recognition that new approaches are needed to understand urban environmental systems and better direct urban growth, USAID, in the early 80s, initiated a project called "Managing Energy and Resource Efficient Cities." Its key purposes were to assist selected demonstration cities in the establishment of energy/resource efficiency strategies and coordinated sectoral action plans to implement the strategies. The project was designed to provide reusable information and replicable procedures to enable application of its principles in other cities throughout the developing world.

In Tacloban, Philippines, the MEREC project worked with elected and appointed leaders and key urban-related agencies in the development of action plans covering both private and public sector activities, including land use, solid waste management, transportation, water supply, sewage disposal, and electric power supply. Particular emphasis was given to energy and resource conservation measures.

The project succeeded in its application to Tacloban, but most significantly, it demonstrated that innovative urban environmental management approaches are needed to both enhance appreciation of the interactions between the natural environment and cities as well as to provide operational guidance to decision-makers with regard to the scope of environmental considerations in urban development. (Eigen and Bandavid-Val, 1982)

Strengthen Environmental Planning

If the urban environment is to be managed effectively, environmental planning is a key tool. ("Environmental" planning is here meant to encompass traditional land use planning, and other physical development planning, including transportation, open space, natural resources, public utilities and facilities, etc., within the context and with an understanding of natural environmental processes.) The impact of decisions about the direction and nature of the tremendous urban spatial growth being experienced in cities of developing countries is very far-reaching: decisions made today create the physical setting for economic and social system activities for the life of the city and its region. Unless massive urban and regional renewal is to occur every few years, decisions about the urban environment must be made with an eye to placing the most important development objectives within a systematic framework.

As a basis for these decisions, planning is vital, but there must be a redefined and reorganized approach to planning. Planning throughout the developing countries - as well as the developed countries - has been often and justifiably maligned in the past couple of decades. While large commitments to planning have been and are being made by developing countries, planning has, almost universally, not done the job.

Most often planning in developing countries is undertaken by a central government planning ministry with little involvement of the affected local governments and their citizens. These centrally prepared plans for urban areas rarely incorporate the information, programs and project plans of other agencies and thus only deal with a few components of the urban system and with only very incomplete understanding of the effects of the interventions intended in the plans. The plans are often static in nature: they establish land use directives that are fixed in time and require affected local governments to "implement" them for five or ten years or until the central planning ministry delivers a new plan. In the meantime, unanticipated development occurs, and other events take place that render the plans obsolete.

Decision-Driven Information Systems

Recent innovations in photogrammetry have created a relatively inexpensive method of environmental monitoring that can be directly related to environmental decision-making. The Landsat computer aided-satellite imagery permits review of changes in local, regional and even country-wide land use, and periodic monitoring of certain environmental conditions. The satellite-originated photography is readily available, and significantly less expensive than aerial or field surveys.

The information gleaned from such sources can be used to understand and anticipate changes in land use including conversion of farmland or rainforest, and trace migration of certain pollutants. This information can inform and guide decision-making at various levels of government. Highly sophisticated successor systems which integrate photogrammetry with computerized information bases are now being tested in several rapidly growing U.S. and European communities. Called Geographic Information Systems (GIS), these systems represent the most comprehensive form of information organization for urban management. As these systems are perfected, they will no doubt be extremely useful in developing countries. At present, however, their high cost and need for detailed data bases probably exceeds their marginal utility costs (Sugawara, 1989).

An alternative planning approach would place the relevant sectoral interests (regional economic planning, natural resource management, transportation, infrastructure, land use, public health, etc.) and local governments in a partnership with the mandate to create a dynamic planning process. Critical to the process is a shared responsibility for setting priorities, programming capital improvements and responding to unanticipated or emergency conditions. Environmental planning thus becomes not just the work of planners but also requires the coordinated efforts of a range of specialists including economists, natural resource experts, engineers, local government administrators, and others. Planning agencies must be seen less as institutions charged with making grand plans than as facilitators which examine the relationships, both supportive and conflicting, among the objectives of the many urban sectors and which achieve resolution among them in order to produce more coordinated decisions.

Improve the Information Base for Decision-Making

If the cities of developing countries are ultimately to be shaped in a way that promotes a productive balance between urban development and the natural environment, it will be necessary for relevant institutions to be able to intervene wisely and effectively into both the natural and built environment. Wise and effective intervention requires that these institutions understand the urban system, have access to sufficient information about the urban environment and be able to measure and monitor urban system performance.

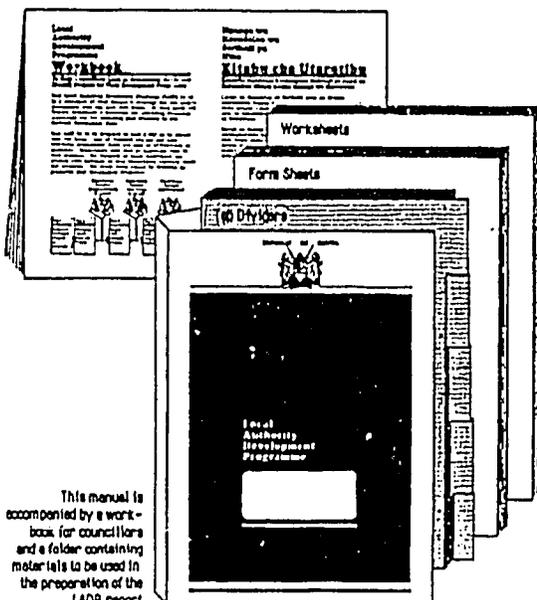
This does not mean that a vast array of data, maps, resource values, and/or pollution indices need be collected about every city. Information systems should be established that are carefully structured to incorporate readily available data in a manner that is appropriate to the types of urban decisions that are needed ("decision driven" information). As more is learned about a particular urban system, the information base can be updated, expanded and adapted to meet changing decision needs.

Monitoring of changes taking place in the urban environment can provide information to guide and control future development. Economic, social and environmental indicators can be designed to measure system performance and provide a basis for evaluating progress toward selected goals. For purposes of urban environmental management the key economic indicators may be new job creation, housing starts, and the unemployment rate. The key social indicators might be literacy rates, a measure of average household size, and infant mortality rates, while the key indicators of environmental conditions may be the percentage of households served by sanitary sewers, the number of private automobiles per thousand population, and the rate of farmland or rainforest conversion.

Solicit Public Involvement and Support

Information about the urban environment has an important value beyond that of improving development and planning decisions. Information (and education) is the entree for the involvement of citizens in public policy decisions, especially those who are expected to be willing to pay for interventions to improve the urban environment. Without public acceptance of the need for specific investments, rejection of well-conceived public projects may result or, at the very least, the ability to recover costs will be reduced. The history books of project implementation in developing countries are replete with examples of the dangers faced in instituting change without adequate support from the affected community: the goal sought may be undesirable; the change may produce unwanted responses; and the project may not have sufficient force to carry it to fruition.

Environmental problems, at least those that are not obviously life-threatening, are not perceived similarly by the poor as by those whose basic wants are satisfied. It follows that desire for or interest in information about these problems may not be perceived as important. Needed are creative approaches to disseminate information such as the Botswana Self-Help Housing Agency's "comic book" designed to explain the country's low-income housing program or the Kenya Ministry of Local Government's handbook designed to help citizens and councillors identify



Ecuador Codes and Standards

Ecuador's two largest urban areas - Quito and Guayaquil - have experienced rapid growth in recent years. Most of the growth has been as a result of rural to urban migration by poor families. The settlement patterns in these cities are different, but the consequences for the local and national governments are similar - large areas of 'spontaneous' low-income neighborhoods with inadequate or no essential services. The cost to provide potable water, sewerage, and basic access roadways to an existing settlement is estimated to be three times the cost to provide the same services to a vacant, but designated expansion area due primarily to the needed relocation of units in unplanned settlements.

Two local governments, in collaboration with the National Housing Institute (Junta Nacional de la Vivienda), are responding to the problems by establishing appropriate land use and building standards. The standards are not only intended to plan the prudent use of land and the building of safe and sanitary housing units, but also to be sure that the developer (private promoter or public agency) plans and actually provides the essential services. The standards have also been developed to reflect the reality of incremental construction - services and housing units must meet basic standards initially and higher standards at a later date (LaNier et al, 1987).

community development projects (TSS, 1985). Such efforts help to secure participation of citizens, groups and communities in decision-making. If those affected can have a voice, more acceptable and successful public investments will result.

Create Flexible and Appropriate Development Controls

The regulation of development activities is a necessary tool by which governments can intervene and manage the urban environment. Regulatory controls and incentives can take the form of land use controls, tax incentives, planning standards, effluent permits, pollution fees, building regulations, air and water quality standards, waste recycling incentives, etc.

Regulations that guide development are often instituted on an ad hoc basis, without full appreciation of complex relationships between environmental protection, poverty alleviation, economic growth, and private sector encouragement. For example, unrealistically high land development or subdivision standards can raise the cost of shelter, infrastructure and essential urban services above the level of affordability of urban poor; reduce the ability of the formal and informal private sector to contribute to infrastructure and services; and cause illegal squatter settlements to occur on environmentally sensitive land. By the same token, without land development controls, haphazard development patterns are more likely to result and this greatly increases the cost of providing essential urban services.

Development controls can become an effective force in managing the urban environment as they become more tailored to the regional and local characteristics of the specific development setting. Each city and its region has its own particular set of opportunities and constraints for development. The ability of the urban environment to support a given set of economic activities, resource consumption rates, population densities, waste discharge levels, etc., varies considerably across urban settings; and the set of opportunities and constraints can

Malawi Incremental Development Standards

In Malawi, various grades of residential areas are designated with each having different development standards. Low-income areas are planned on the basis of progressively upgradable standards. In these areas, house plots are marked only with corner stakes and road rights-of-way are graded. After this is completed, house plots are sold. While the purchaser of such a plot gets little more than what is available in rural areas, the framework for future urbanization has been established (LaNier et al, 1986).

be modified. Investments in sewage treatment infrastructure, for example, can significantly expand the capacity of an urban setting to support development (Stren and White, 1989).

The inherent characteristics of a city and its region, as well as its ability to modify its carrying capacity, should be considered in the development controls designed to manage its environment. For those controls which guide land use, building density, infrastructure, and resource use, blanket country-wide approaches should gradually be replaced with flexible controls which allow incremental changes (upgrading) over time to accommodate changing situations. Flexible criteria should be designed in close coordination with an initially very simple environmental information base and monitoring process. This allows socio-economic variables and changing environmental realities to be recognized and reflected in the development control measures.

For those measures needed to abate industrial and other large pollution sources, there are a variety of controls and incentives and no single approach that is best. Regulatory programs include government provision of control services, regulated control levels, and economic incentives such as setting pollution fees high enough to induce polluters to install control measures on their own (Foster, 1989). As with controls guiding urban development, the best set of development controls for point-source polluters must respond to the realities of the situation including: the initiative of the private sector in policing its own actions; the extent of public technical personnel to administer the controls; the likelihood of political interference in carrying out the control programs; and the ability of the government to afford public pollution control services programs.

The elements of a guidance system - planning, information, public involvement, and development controls - are in place in most developing countries. Needed are redefinition and refinements to the system to assure that scarce resources are used to their maximum benefit and

that cities and regions are shaped to adequately protect the environment and sustain economic growth. Some of the approaches most likely to achieve this are:

Encouraging redefined planning programs in developing countries that incorporate a focus on environmental systems in a manner parallel to that of other sector planning including economic development, transportation, land use, etc.

Facilitating the decentralization of planning from central ministries to the lowest levels of government affecting urban environmental management.

Emphasizing the short-term priorities for planning as those providing the greatest environmental/economic/social payoff which in most countries translates as guiding the spatial location, timing, and sequencing of development.

Providing access for planning managers and staff to training and education opportunities that emphasize the needed innovations in planning approaches.

Encouraging coordination of research, data gathering, and monitoring approaches so that significant generic information can be obtained that may aid urban environmental management.

Improving the data base needed by government agencies for more region and locality-specific development planning. Within individual countries and regions, there may be information about environmental characteristics such as groundwater resources, grazing suitability, soil absorption capabilities, urban forestry management, etc. that can be used by many urban areas within the region.

Interpreting environmental data in simple language in order to promote interest among the local population in their own resources, problems and potential and thus enable them a stronger voice in shaping and implementing development plans.

Encouraging the formulation of flexible development controls for cities that reflect their ecological sensitivities, technical capacities, economic conditions, and specific urban/regional characteristics.

Encouraging the development of innovative and appropriate development controls in the areas of zoning; taxation policies; progressive, incremental standards; etc.

Assisting development of effective incentives to induce the private sector to control its own pollution.

Investigating the degree to which unwanted biases exist in regulatory mechanisms.

Developing training programs for public sector engineers and technicians to meet the technical capacity requirements of various pollution control programs.

Initiating modest environmental reviews of proposed urban development activities which over time can be extended or modified according to need and available data.

Somalia Land Distribution

In response to a tremendous influx of refugees and migrants, the City of Mogadishu initiated a remarkably effective land distribution program. Instead of extensive squatter settlements one might expect from such in-migration, this aggressive program has met basic needs as well as the demand for commercial, industrial and public use lands. Subdivision platting has been carried out for the majority of the city in a system of neighborhood modules that also provide for public open space, public facilities and commercial uses. No infrastructure is provided, however, this is being added incrementally. There are many examples of private initiative in providing housing and water delivery. This program has enabled the city to develop in a manner that has considerable social benefits, is environmentally sound and allows for cost-effective additions of water, sewer, electricity, street-lighting, and other urban services as they can be afforded. Magad

Direct Urban Growth with Land Delivery and Infrastructure Investment

A major challenge in the face of the unprecedented growth of cities in developing countries is the delivery of well-placed, ecologically suitable land for urban development and the affordable expansion of water systems, liquid and solid waste collection services, and other priority urban services. Key to the success of the fiscal capacity to do so is a sound capital investment planning process and the recovery of more of the costs of providing these essential services through targeted user charges and/or taxes.

Facilitate Orderly Land Development

The assembling, planning, servicing, and distributing of land for urban development is a key environmental management tool. There is no more basic requirement for orderly urban development than access to land.

Which lands are developed and how they are used has a great bearing on whether a city can have sustainable economic development, meet the basic needs of its citizens and develop harmoniously with its natural environment.

An inability to anticipate and control residential and other land use development has contributed to the proliferation of squatter settlements; the use of environmentally fragile lands; the consumption of valuable agriculture, forestry and grazing lands for urban uses; the shortage of water; the inadequacy of sanitation and drainage systems; and the unnecessarily high costs of a range of other urban public services (LaNier et al, 1987). Governments therefore have an important stake in assuring an adequate supply of well-located building sites by facilitating the preparation and servicing of land for private use.

Significant quantities of new urban land will be required to meet dramatically expanding needs for housing, schools, roads, industry, and other uses. Some of the land need may be met through increasing the density of existing urban land, but the vast majority will need to come from conversion of undeveloped land. Especially in the rapidly growing cities of developing countries, it is crucial for the conversion of non-urban land to urban uses to be handled efficiently, for it is at that point that the characteristics of the new urban pattern are set. The public role is twofold: first in determining the availability of environmentally appropriate land and second in the extension of public infrastructure to previously unserved land. Both actions will lead to environmentally sound land use and economic development opportunities.

Tunisia Procedural Reforms

Recognition of a growing deficit in supply of land for low-income housing and the resultant mushrooming of squatter settlements prompted a review of constraints facing private land developers. It was determined that delays brought about by cumbersome administrative procedures more than doubled the land development time frame. A project has been designed to assist Tunisian municipalities and other land development-related public agencies improve the administrative environment in order to encourage participation of the private sector in land development (Oman and Reeve, 1986).

Unfortunately, many developing countries are virtually without plans, policies, institutions, personnel and financing to carry out the task of meeting the land needs of its expanding urban populations. Where plans and policies are in place, the necessary authorities and controls to implement them often are not. Any program of public acquisition or distribution of urban lands requires good urban development plans, institutional and technical capacity to manage the program, functioning land development controls, and the necessary capital to finance the program.

Korea Land Adjustment

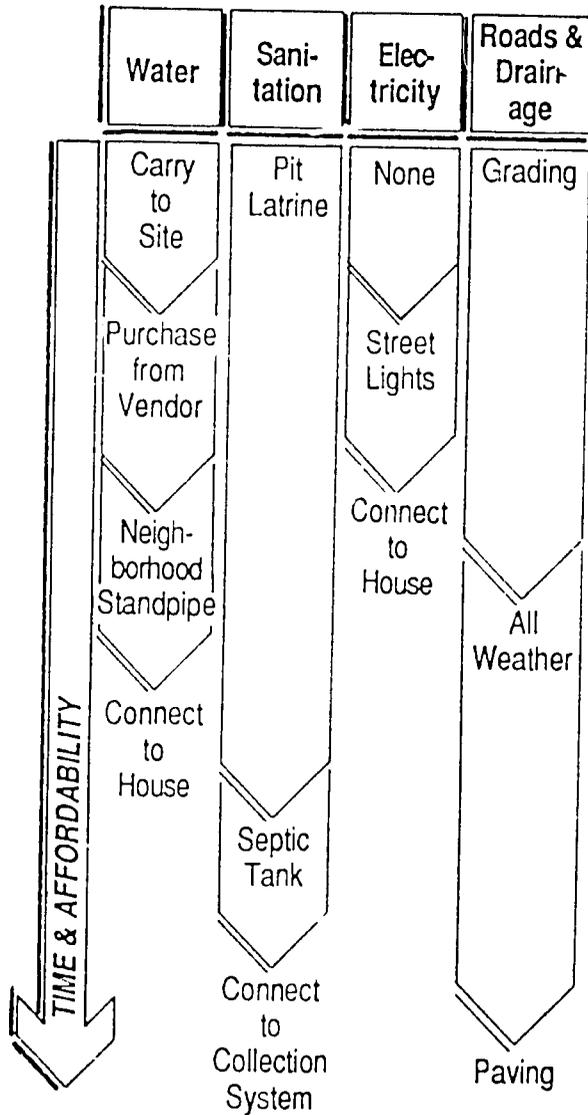
Land pooling or land adjustment is a concept which involves government acquisition, servicing, and resale of land, usually land held by a number of private owners. The Korean Land Development Agency has used this approach quite successfully. A development plan is prepared creating three categories of land within the project area: (1) public land for roads, schools, and other public facilities which will remain in public ownership, usually 15 to 25 percent of the total area; (2) private land that will be sold by the government at a public sale to recoup its out-of-pocket costs for servicing the entire area, usually 15 to 25 percent; and (3) private land that will be returned to the original owners in proportion to their original ownership shares, usually 50 to 70 percent of the total area (Kitay, 1985).

There have been some excellent efforts on the part of governments to address land needs. One especially promising form of public intervention used by the Korean Land Development Agency and others is "land adjustment", where a public entity assembles appropriate land for urban use, installs the necessary infrastructure, and finances all costs by the resultant increased land value. Typically the agency can sell enough of the serviced land to pay for its costs and the balance of land and/or sales revenue can be returned to the original private owner. The advantages of such an approach are that it requires minimal capital expenditure for land and it does not involve the government in long-term ownership of land, instead returning it to the tax rolls.

While it is clear that some form of public intervention in the land market is necessary, it is also apparent that many governments have a very limited capacity for intervention. As a result, some forms of public intervention have done more harm than good. For example, the experience with government distribution of land in many countries has been an undermining of the private sector land market and thus a curtailing of private investment in land delivery.

Stimulate Provision of Infrastructure and Urban Services

The provision of infrastructure and urban services has become a crucial element of the management of the urban environment, both because it contributes to the social welfare and very survival of urban populations and because it is vital to the economic growth of cities. Adequate water supply, sanitation, solid waste treatment and disposal, and drainage are essential to decent shelter and public health standards and they directly advance the productivity of labor and the capacity of urban markets to work effectively (Lemer, 1988). The location of infrastructure and urban services investments has great bearing on the pattern and efficiency of urban growth, on the siting of employment centers, and on the ability of the natural environs to support the impacts of development.



The costs of infrastructure and services are dependent on the standard and level of service. In most market economies, costs are largely covered by property taxes with the remainder provided by user fees and allocations from general tax revenues. Where land ownership remains with the government, land rent fees for infrastructure and services usually replace the property tax as a source of revenue. In either case, key to the success of the fiscal capacity to finance both infrastructure and services is the recovery of more of the costs of service provision through targeted user charges and taxes (LaNier et al, 1987).

A capital improvements program for infrastructure and urban services is a vital management tool. Projects must be carefully identified that will meet urban development locational objectives, demonstrate maximum rates of return, and be designed to affordable standards. Cost recovery strategies to meet both capital and recurrent costs must be implemented to enable new investments in other projects.

The provision of urban services, whether by public or private entities, offers significant opportunities for permanent, skilled employment. While reasonable pricing policies must be established to assure the economic viability of the service, the provision of the service has benefits in terms of wages paid and creation of investment opportunities which transcend its direct cost. These benefits support opportunities for continued economic growth in urban areas and represent the beginnings of service industry sector which is critical to an integrated urban economy.

A range of approaches exist for improving the delivery of land, infrastructure and urban services. These include:

Providing seed money for self-sustaining property acquisition programs that, with appropriate distribution to the private sector, will enable government to direct and control the density of development and to guide it away from ecologically vulnerable areas.

Improving the management of public lands by property inventory, improved land information systems, and other measures.

Improving land development controls (such as tax incentives, zoning regulations, subdivision standards, building codes, etc.) and enforcement in order to channel private land development in desired directions and areas; protect high value forest, agriculture, grazing and ecologically-vulnerable lands; and encourage efficient and cost-effective land development by the private sector.

Channeling extensions of infrastructure and roads as well as locations of public facilities in such a way as to encourage or discourage private economic development activities dependent on them so that efficient physical development of the city takes place.

Providing incentives for increased density and/or infill development of appropriate existing urbanized lands.

Encouraging public-private partnerships in land development that bring the strengths of both sectors to bear on the delivery of adequate and appropriate lands for urban development.

Encouraging the provision of minimal infrastructure and urban services to allow self-help housing programs to operate effectively. The most important elements are basic infrastructure, access, land tenure, and low-cost credit.

Encouraging community/neighborhood action efforts as part of capital assistance projects on the belief that the people most affected are the ones likely to invest in the improvement effort. If the benefits of urban environmental management are poorly understood, the "willingness to pay" may not be present and cities will underinvest in environmental management, to their ultimate detriment.

Choosing infrastructure and urban services investments that have strong impacts on economic growth and revenue generation so local governments can cope with environmental costs.

Providing local and central governments with information about the range of tested technologies and organizational systems which can reduce capital costs and facilitate cost

recovery in water supply; solid waste treatment, recycling and disposal; public transport; and other urban services.

Providing infrastructure before development occurs where possible, thereby preempting costly retrofitting.

Encouraging private sector provision of appropriate urban services, including solid waste collection and disposal; roadway and drainage maintenance; water distribution and sewage collection system installation; etc.

Encourage Private Initiative

In their efforts to provide urban services with very limited funds, some governments are finding that certain services need not be delivered by government nor be paid for through taxes (Roth, 1987). Many development activities and urban services including land delivery, on-site infrastructure, some transportation facilities, and garbage collection have specific identifiable beneficiaries and lend themselves to full or partial private development or management. Many of these activities and services can be provided more effectively and at less cost by private companies than by government and can be paid for by those who benefit directly.

Privatization can relieve financial and administrative burdens on government institutions and decrease the amount that they must borrow in order to extend services and infrastructure. It can also accelerate economic growth by expanding the ability of private enterprise to earn profits for investment (LaNier et al, 1987).

A variety of local factors will determine whether particular urban services can be provided by the private sector and how privatization can best be accomplished. These factors include the political and economic environment of the country; the specific benefits which will accrue to the public and those which will accrue to the private operator; the availability of capable private sector managers; and the extent to which private ownership or management will displace public service jobs (Frey, 1988).

Several conditions must be met if private service provision is to be encouraged. Perhaps most importantly, there should be general agreement that providing the service or infrastructure improvement is appropriate for profit-making. For example, emergency medical services, paid for directly by the user, is probably not generally accepted as a legitimate profit making opportunity. On the other hand, collection of certain kinds of refuse by private entrepreneurs might be greeted enthusiastically by policy makers and users alike.

A policy environment must also exist which is supportive of private enterprise. Central to this is the avoidance of unfair competition by governmental or otherwise subsidized organizations. The private investor must be given a reasonable chance to be successful, without having to compete with other providers who are not market driven (LaNier, et al, 1989).

Similarly, it is important that potential customers not be "skimmed" - that is to say, reserved for more favorable treatment. For example, if certain large companies are exempted from recycling requirements, the economic feasibility of a private recycling effort will be significantly reduced. A "level playing field" is required for private enterprise to be stimulated.

Approaches to create and encourage private sector initiatives include:

Identifying specific service provision opportunities, and conscious solicitation of private sector entrepreneurs to provide those services.

Setting-aside certain services or opportunities for small businesses, and extension of specific credits or financing assistance to get them started.

Strategically withdrawing from certain services or service areas, based largely on the feasibility of user charges or other direct payment strategies, designed to create opportunities for private providers.

Releasing publicly held lands for private development, in exchange for investment in infrastructure to serve areas beyond that being developed.

Using public regulatory powers to create opportunities for private service provision.

Planning and programming capital improvements to stimulate private investment.

The preceding sections of this paper have emphasized that sustainable economic growth depends on healthy, growing cities which, in turn, are dependent on well managed environmental resources. Cities will continue to be the setting for the majority of developing nations' capital investment and it is essential that they be shaped and developed to the maximum economic, environmental and social advantage.

Toward that objective five guiding principals were recommended to urban managers and a number of tools, methods and approaches were suggested to improve urban environmental management. These approaches, while intended to assist developing country officials in formulating their policy and program agenda, should also guide the A.I.D. Office of Housing and Urban Programs (PRE/H) in setting its agenda in urban environmental management. In addition, PRE/H should consider:

The nature and extent of PRE/H and other A.I.D. offices' experience, and, hence, the present capacity to launch new activities related to the various interventions outlined;

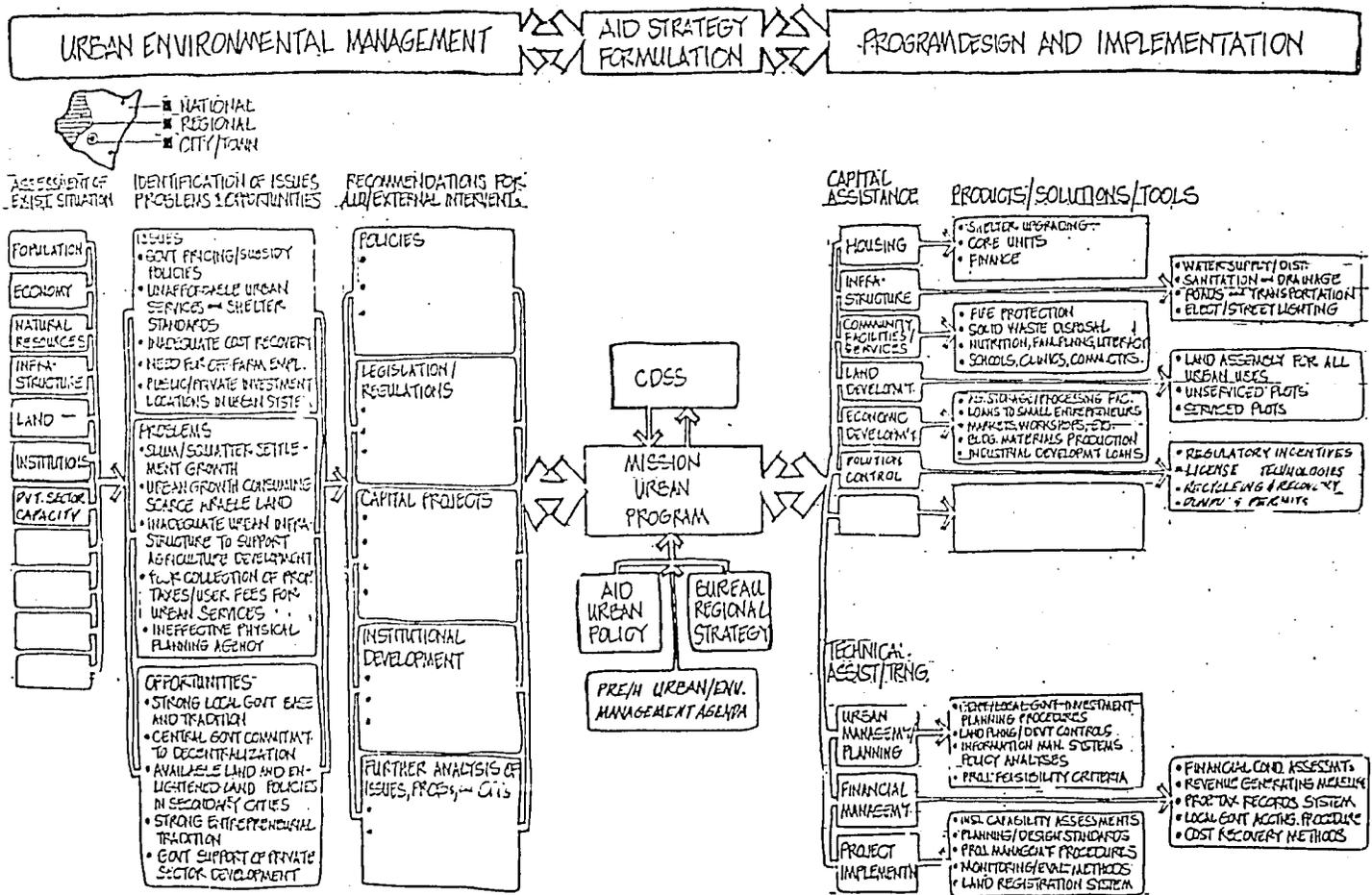
The priority assigned to this activity by the Agency;

The extent of new funds that can be mobilized by the Agency to assist developing countries in urban environmental management; and

The possible areas of cooperation with other bilateral donors and multilateral development banks.

It should be emphasized that there exists an important opportunity to marry the wealth of knowledge gained by PRE/H and that of other A.I.D. offices from their respective prior development activities. Just as a strong city depends on well-managed development of its region's resources so should the link be forged between PRE/H and other A.I.D. offices. PRE/H has extensive experience in providing infrastructure, housing, planning and management assistance for cities; other A.I.D. offices have extensive experience in the management of

forestry, water, and agricultural resources on a regional scale. Both areas of expertise are vital to successfully developing an urban environmental management program.



Relevant PRE/H Experience

The A.I.D. Office of Housing and Urban Programs has substantial experience in project design and implementation as well as in providing technical assistance and training to developing country institutions engaged in infrastructure and services delivery to low income urban dwellers. This was accomplished by developing sites and services projects to stem the growth of unplanned squatter settlements and by urban upgrading projects to improve environmental conditions affecting health and the quality of life in poor neighborhoods. In the course of designing and

implementing projects in more than fifty countries in Asia, the Near East, Africa, the Caribbean and Latin America, PRE/H has developed experience in dealing with a number of critical urban environmental concerns. For example, the ONAS project (Tunisia HG-005) brought infrastructure, particularly sewers, into small towns throughout Tunisia to improve environmental conditions in low income neighborhoods. A subsequent project (Tunisia HG-006) facilitated private sector delivery of land for low income housing and included a study of alternative technologies for areas not suitable for service by waterborne sewage.

PRE/H has extensive experience in upgrading neighborhoods with extreme environmental problems. The San Miguelito upgrading project (Panama HG-009) helped solve a critical environmental situation where storm water runoff and inappropriate onsite domestic sewage systems were causing significant contamination of the bay, thereby endangering the shrimp industry. In the Tetuan project (Morocco HG-001), the difficulty was to deliver infrastructure to a neighborhood built on a steep slope. In the Melassine project (Tunisia HG-004) the critical problem was to control flooding and to introduce infrastructure into an area where the water table was only a few inches below the ground surface.

PRE/H's project-specific experience has led to an understanding of the need for environmentally sound site selection criteria. In some cases this learning came from adverse experience. In the 1960s a project in Dakar (Senegal HG-001) was built in an area of unstable sand and many of the houses were severely damaged when the sand shifted from beneath the foundations. While the Umoja project (Kenya HG-005) did not suffer similar consequences, the unstable black cotton soils on which this project was sited led to higher costs than were anticipated, one of the root causes of the target group affordability problems which plagued the project.

PRE/H's project experience was valuable in defining principles such as the need for cost recovery and for maximizing the use of local resources as key elements of a

sustainable urban development program. It was also valuable in clarifying what is becoming increasingly obvious: 1) governments do not have the financial or human resources to produce housing and deliver urban services at the scale required nor are they necessarily efficient at doing so; and 2) government efforts should rather focus on creating a policy environment which encourages private initiative so that limited public resources can be concentrated on those essential elements which the private sector is unwilling or unable to deliver. These conclusions have led PRE/H as well as many other offices of A.I.D. to determine that the resources which foreign assistance agencies can mobilize should be directed toward achieving policy objectives and institutionalizing program directions which affect the way projects are designed and implemented, rather than toward direct project assistance. The challenge to PRE/H and to the Agency as a whole will be to bring the lessons learned from its extensive project experience into the assistance it provides at the policy development and program implementation level. The PRE/H experience suggests that this challenge is being met.

As early as 1980 PRE/H initiated the Kenya Small Towns Project (Kenya HG-007) which was a significant departure from previous projects and a precursor of the programmatic approach in that it focused on providing technical assistance aimed at strengthening local government's ability to plan and deliver urban infrastructure and services, rather than on site specific projects. By the mid-1980s, PRE/H recognized the need for tools to assist RHUDOs and Missions in their efforts to evaluate urban conditions and formulate appropriate strategies for providing assistance. Just as tools such as Shelter Sector Assessments, Initial Environmental Evaluations, Site Selection Criteria, Land Development and Subdivision Standards and Environmental Checklists had been useful in project design and implementation, a new set of tools was needed to assist with program design and policy implementation. Over the past few years PRE/H has commissioned a number of studies intended to assist urban development policy formulation. Among these studies are several which can be considered important tools in promoting urban policy

dialogue: Housing Need Assessments, Urban Development Assessments, Municipal Management Audits, and Private Sector Capacity Studies.

There is also evidence to suggest that the tools prepared by PRE/H are being used to formulate development strategies that are environmentally sensitive. In Jordan, an A.I.D. grant provided assistance to the urban development policy formulation process which led to program assistance (Jordan HG-003) aimed at encouraging urban infill construction and increased densities in order to make better use of existing infrastructure as an alternative to further expansion of the urban area. In Nepal, an Urban Development Assessment helped to identify the key role of settlements in the development process and subsequent technical assistance has been directed toward strengthening the government's ability to cope with the serious urban environmental and developmental issues it faces.

A Draft Action Plan

Urban management is without doubt an essential tool for environmental protection. It is not the only approach, but it is perhaps the one best suited to the expertise and resources which PRE/H has to offer to developing countries. In formulating a policy and program agenda to address the objective of improving urban environmental management in developing countries, PRE/H might consider the following strategies and options.

Strategy: Strengthen PRE/H's Niche in Urban Environmental Management - PRE/H should look to its extensive experience in secondary city development, municipal finance, infrastructure and urban services, urban upgrading, and private sector encouragement to identify its particular strengths in the management of urban environments. By comparing PRE/H strengths to those of other A.I.D. offices and of other international assistance organizations, the PRE/H niche in urban environmental management can be better defined, areas of complementary action with other A.I.D. offices can be forged, and synergies with other international organizations can be identified.

Options:

- Develop assistance programs with other A.I.D. offices that link urban economic growth policies and investments with rural productivity and regional management of natural resources.
- Establish a PRE/H land development expertise to complement its knowledge in infrastructure delivery and sites and services programs in order to position the office in a lead role in this key area of urban environmental management.
- Expand the PRE/H role in urban fiscal management and strengthening urban institutions (especially local governments) in the areas of capital improvements programming, financial management, cost recovery, etc.

Strategy: Assist Developing Country Governments to Define a Pro-Active Policy Agenda for the Urban Sector - Urban policies and programs must be designed to stay ahead of the pace of urban growth in individual countries if they are to protect natural resources and guide urban development, rather than react to an established environmental problem.

Options:

- Encourage settlement policies that are framed to serve explicit national economic goals and recognize each urban center's potential to accommodate growth as identified by its natural resources and economic and environmental advantages.
- Stimulate innovative approaches to improving access to land to meet the needs of rapid urban population growth

- Improve the guidance systems - planning, monitoring, community participation and the range of development controls - to provide a framework for orderly and environmentally sound development and allow for incremental improvements as economic conditions permit.
- Initiate programs to accelerate the provision of infrastructure and services in newly developing urban areas

Strategy: Develop and Refine Tools for Use in Policy Formulation - It is clear that some of the studies PRE/H has commissioned have proven to be useful tools in formulating urban development policies. Specific tools might be developed to assist policy makers in evaluating the environmental issues which may be critical to sustainable economic development.

Options:

- Develop quick, economical and useful assessments of urban development needs (a variation on UDAs) to assist Missions and host country governments define urban projects and programs as they relate to environmental issues.
- Prepare guidelines for assessing urban environmental issues, studies which might be conducted to identify key environmental concerns for incorporation into urban development policy.
- Establish a checklist of critical environmental indicators suitable for use by urban managers in monitoring environmental quality.

Strategy: Disseminate New Knowledge to Assist Decision Makers - Through international coordination of research, data gathering, and monitoring approaches, significant generic information can be obtained that may aid urban environmental management. Cities could

benefit from information gained in studies of other cities around the world. The creation of information systems or the collection of data should facilitate use of information which is readily available.

Options:

- Assess the existing natural resource base in selected urban areas using new technologies in order to define limiting factors, carrying capacities and future growth prospects
- Identify biases and disincentives to achieving improved urban environmental management inherent in taxation, subsidy and pricing policies, land development standards and other regulatory mechanisms
- Analyze and document the experience and lessons of decentralization efforts in various cities and countries and of innovative ways local governments have planned, implemented and recovered costs of infrastructure and urban services projects, especially those that offer potential of replicability in other situations
- Develop cost effective incentives to induce industrial and other point-source polluters to control their own pollution
- Improve practices for managing solid waste generation, collection, recycling, treatment and disposal

Strategy: Coordinate with Missions and Bureaus to Develop a Common Program Agenda - There are a number of cases where PRE/H use of an existing loan authority and the grant resources available through the Regional Bureaus have been effectively combined to achieve results which would not have otherwise been feasible. The Kenya Small Towns Project was one of the earliest examples and the current Municipal Finance Program in Indonesia is the most recent.

Options:

- Provide direct grant funded support for urban policy formulation
- Provide grant funded technical assistance in support of program implementation
- Initiate innovative new projects in the areas where PRE/H has limited experience such as rapid provision of urban land and private sector delivery of urban services as a means of gaining experience and developing effective approaches

Strategy: Seek new Sources of Funds to Support Urban Environmental Management Assistance - The Housing Guaranty (HG) loan authority is the principal resource available to PRE/H at the present time. This source of funds has been used effectively to deliver infrastructure and services to low income neighborhoods but its utility in the context of addressing larger urban issues is limited. Increasingly HG loans are applicable only in the more economically advanced developing countries. Yet policy reform and changes in program direction are equally needed in countries which are not eligible for market-rate loans.

Options:

- Seek congressional approval for new Urban Development Guaranty (UDG) loan authority specifically to assist implementation of an urban environmental policy agenda
- Seek direct budgetary allocations for urban development assistance within the A.I.D. budget. This might take the form of an allocation for direct grant assistance or a UDAG type program where grant monies are used to leverage private loan funds thus lowering the overall cost of borrowing to a level affordable by less developed countries.

Strategy: Provide Training and Technical Assistance to Strengthen Institutional Capacity - PRE/H currently supports participation in a number of U.S. based training courses and has provided assistance to regional training centers and special workshops and seminars. This can be an effective strategy for initiating policy dialogue and for improving the capacity of institutions to manage the urban environment.

Options:

- Improve the quality of literature and training materials available on a variety of subjects pertinent to urban environmental management
- Support the development of a series of urban environmental management training courses designed to meet the needs of urban-related institutions
- Develop a U.S.-based urban management internship training program as an alternative to traditional university training
- Develop institutional training and technical assistance needs assessments.

Campbell, Tim (1989), "Environmental Dilemmas and the Urban Poor," Environment and the Poor: Development Strategies for a Common Agenda, Jeffrey H. Leonard, Editor, U.S. Third World Policy Perspectives, No. 11, Overseas Development Council, Washington, D.C., Transition Books, New Brunswick.

Eigen, Jochen, and Bendavid-Val, Avrom (1982), Managing Energy and Resource Efficient Cities (MEREÇ), a paper prepared for the A.I.D. Office of Urban Development, Bureau for Science and Technology, Development Analysis and Programming, Inc., Washington, D.C.

Foster, David (1989), "Viewing Environmental Protection as Investment in Urban Infrastructure," a concept paper prepared for the A.I.D. Office of Housing and Urban Programs, Research Triangle Institute, Raleigh Durham, (September).

Frey, William (1988), "Private Sector Participation in Municipal Services Delivery in Third World Cities," Public Private Partnerships in the Provision of Infrastructure for Human Settlements, Workshop Proceedings, Ministry of Public Works of Indonesia and Ministry of Housing, Physical Planning and Environment of The Netherlands, Ciloto, Indonesia.

Grossman, David A. (1983), "Enhancing Managerial Competence in Cities of the Developing World," a paper prepared for the A.I.D. Office of Housing and Urban Programs, The Nova Institute, New York City.

Hardoy, Jorge E., and Satterthwaite, David (1989), "Environmental Problems in Third World Cities: A Global Issue Ignored?" prepared for conference on Cities - the Mainspring of Economic Development in Developing Countries, International Institute for Environment and Development, Lille, France (November).

Hengeveld, H. and DeVocht, C., editors (1982), "The Role of Water in Urban Ecology," Special Issue Urban Ecology Vol. 6, Elsevier Scientific Publishing Company, Amsterdam (July).

Kitay, Michael G. (1985), Land Acquisition in Developing Countries. Policies and Procedures of the Public Sector, Lincoln Institute of Land Policy, OG&H, Boston.

LaNier, Royce; Massoni, Albert; and Oman, Carol (1986), "Public and Private Sector Partnerships to Address the Housing Needs of Africa," a paper prepared for the 10th Conference on Housing and Urban Development in Sub-Saharan Africa, A.I.D. Office of Housing and Urban Programs, Harare, Zimbabwe.

LaNier, Royce; Massoni, Albert; Oman, Carol (1989), "Public Private Partnerships in Shelter and Urban Development - An Issue Paper," Policy Seminar Sponsored by A.I.D. Regional Housing and Urban Development Office for Asia, Jakarta, Indonesia, June 19-21, Technical Support Services, Inc., Washington D.C.

LaNier, Royce; Oman, Carol; and Reeve, Stephen (1987), Encouraging Private Initiative: New Public and Private Roles in Providing Low-Cost Shelter in Developing Countries, a monograph prepared for the A.I.D. Office of Housing and Urban Programs for the International Year of Shelter for the Homeless, Technical Support Services, Inc., Washington, D.C.

LaNier, Royce, editor (1978), "The Quality of Life" Special Issue Urban Ecology Vol. 3 No. 3, Elsevier Scientific Publishing Company, Amsterdam (November).

Lee, James E. (1985), The Environment, Public Health, and Human Ecology: Considerations for Economic Development, The World Bank, The Johns Hopkins University Press, Baltimore and London.

Lemer, Andrew C. (1988), "Building Firm Foundations: Africa's Infrastructure in Long Term Perspective," unpublished report prepared for International Bank for Reconstruction and Development.

Lurie, Carol and Laredo, David (1989), Environmental Impact of Rapid Urbanization and Industrial Development: Water Resources in the Urban Context, a paper prepared for the Bureau for Asia and the Near East, USAID, Wash Task No. 019, Camp, Dresser and McKee, Inc., Washington, D.C., (May).

Massoni, Albert (1989), "Redefining the Role of Government in Urban Development and Shelter in the United States," a case study presented at a policy seminar sponsored by A.I.D. Regional Housing and Urban Development Office for Asia, Jakarta, Indonesia, June, 19-21, Technical Support Services, Inc., Washington, D.C.

McQuillan, D. Aidan (1984), "Housing and Urban Development in China," for the Office of Housing and Urban Programs, U.S. Agency for International Development, Washington, D.C., (September).

Meier, R.L. (1978), "Urban Carrying Capacity and Steady State Considerations in Planning for the Mekong Valley Region," in Urban Ecology Vol. 3 No. 1, Elsevier Scientific Publishing Co., Amsterdam (March).

Myers, Norman (1986), "The Environmental Basis of Sustainable Development," a paper prepared for a Seminar on Land and Water Resources Management, Economic Development Institute of the World Bank, Washington, D.C., (November).

Oman, Carol and Reeve, Stephen (1986), "Analysis of the Role of Private Developers in Meeting Land Needs for Low-Income Housing Sites in Tunisia," a report prepared for the A.I.D. Office of Housing and Urban Programs, RHUDO/Tunis, Technical Support Services, Inc., Washington, D.C.

Organization for Economic Cooperation and Development (1988), "Adjusting National and Local Government Instruments for the Improvement of the Urban Environment," Paris, (December).

PADCO, Inc. (1984), "Nepal Urban Development Assessment," U.S. Agency for International Development, Washington D.C., (February).

Peterson, George E.; Kingsley, G. Thomas; and Wines, Sarah (1986), "Urban Infrastructure: Pilot Studies and Development Strategy," a paper prepared for the A.I.D. Office of Housing and Urban Programs, The Urban Institute, Washington, D.C.

Reeve, Stephen (1985), "Kenya Case Study," Secondary Towns: An Overview and Five Case Studies, a paper prepared for the A.I.D. Office of Housing and Urban Programs, Rivkin Associates, Washington, D.C.

Rivkin, Malcolm D. and Rivkin, Goldie W. (1984), "An Overview of Urbanization Issues in Africa," a paper prepared for the 9th Conference on Housing and Urban Development in Africa, A.I.D. Office of Housing and Urban Programs, Dakar, Senegal.

Rondinelli, Dennis A. (1983), "Towns and Small Cities in Developing Countries," Geographical Review, Volume 73, No. 4, (October).

Roth, Gabriel (1987), The Private Provision of Public Services in Developing Countries, Oxford University Press, New York.

Salamon, Lester M., Editor (1989), Beyond Privatization, the Fools of Government Action, The Urban Institute Press, Washington, D.C.

Schramm, Gunter and Warford, Jeremy J. (1989), Editors, Environmental Management and Economic Development, The World Bank, The Johns Hopkins University Press, Baltimore and London.

Sherwood, Frank P. (1983), "Comments and Proposals for a Strategy of Development in Urban Administration," a paper prepared for the A.I.D. Office of Housing and Urban Programs, Florida State University, Gainesville.

Stearns, Forrest W. and Montag, Tom (1973), Editors, The Urban Ecosystem: A Holistic Approach, a report on the Urban Ecosystems Project of The Institute of Ecology supported by the National Science Foundation, Dowden, Hutchinson & Ross, Inc., Stroudsburg, Pennsylvania.

Stren, R.E. and White, R.R., Editors (1989), African Cities in Crisis, Westview Press, Boulder.

Sugawara, Sandra (1989), "Putting GIS on the Map," *The Washington Post*, Washington, D.C., (September 25).

Technical Support Services, Inc. (1985), "Guidelines to Assist in Development Project Planning and Implementation," Ministry of Local Government, with assistance of the U.S. Agency for International Development, Nairobi.

Trans-Atlantic Consulting Services Inc. (1988), "Feasibility Conditions for the Creation of a Municipal Development Bank," Directorate of Local Government, Ministry of Interior, with assistance of U.S. Agency for International Development, Rabat, (July).

UNCHS (United National Center for Human Settlements), (1989), "Urban Management and the Environment," a discussion paper prepared for a consultation workshop at the World Bank offices in Washington, D.C., (September).

U.S. Agency for International Development (1984), "Management Audit of The Kingston and St. Andrew Corporation," Kingston, (April).

U.S. Agency for International Development (1984), "Municipal Financial Analysis Handbook," Washington, D.C., (December).

U.S. Agency for International Development (1981), "A study of the Progressive Development of Three Low Cost Housing Projects in Panama," Washington D.C., (Spring).

U.S. Agency for International Development (1989), "Evaluation Retrospective du Project de Rehabilitation de Mellassine," Tunis, (March).

U.S. Agency for International Development (1988), "Agricultural Growth and Market Town Development," Conference Proceedings, Lilongwe, Malawi, (May).

Wilson, David (1979), "The Early Effects of Tourism in the Seychelles," Tourism. Passport to Development, Emanuel de Kadt, Editor, Oxford University Press, New York.