

LAND-USE PLANNING AND MANAGEMENT STRATEGIES FOR A SUSTAINABLE GREATER JABOTABEK

Mike Douglass

ABSTRACT

Land-use strategies for a sustainable Greater Jabotabek focus attention on balancing economic and social requirements with those for maintaining the integrity of the natural environment. Two levels, region-wide planning and community-level land-use planning, are included. Region-wide land-use planning seeks to guide the direction and form of urban expansion to minimize impacts on environmentally sensitive areas, notably uplands and coastal zones, to maintain sufficient natural amenities such as open spaces, and to provide land for environmental infrastructure and services. A critical need at the community level is to provide sufficient supplies of serviced land for housing to keep pace with the rapidly growing residential population of Jabotabek. Both scales of planning can be enhanced by expanding local and regional scale capacities for planning and monitoring land development.

1. Introduction

Managing the growth of cities during the accelerated urban transition now underway is one of the greatest challenges facing Indonesia. For Jabotabek, which has more than 15 million inhabitants and is doubling in population every 15-20 years, discourse on this constituent neighborhoods and communities to the sustainability of the region as a whole in the 1980s and 1990s (Douglass 1991; World Bank 1993a; McGranahan and Songsore 1994). While great strides have been made over the past three decades in economic performance and poverty reduction, the process of urbanization and shift away from natural resource-based economy to an urban-industrial one is bringing Indonesian society into a new pattern of spatially intensified form of habitation in extended metropolitan regions that is bringing very high risk to the ecological and environmental basis for human settlement. The future of this region, as well as that of a nation that is expected to have 60 percent of its population living in cities by the year 2020, will depend upon building the capacity to balance the resource needs for social and economic development with the requirements for sustaining the integrity of natural environmental.

Accepting a continuing focus on neighborhood and community level land development, among the additional components of the broadened spatial concept of sustainability are; (1) the need to guide the vastly expanding extended metropolitan region away from environmentally hazardous directions such as uplands and marine habitats and toward more energy and resource efficient urban forms, particularly with regard to reducing fossil fuel use associated with automobile commuting; (2) the imperative to accelerate the provision of environmental infrastructure and services along with the steady expansion of the built environmental infrastructure and services along with the steady expansion of the built environment for economic and social development; and (3) the importance of gaining a better balance in the provision of housing and amenities vis-à-vis commercial and industrial development. The context for integrating these population migration to Jabotabek, which in the past have met with little success and have imposed greater burdens on the poor, development planning for the region is to be based on a strategy of dynamic accommodation that will require a greatly enhanced capability of securing land for expansion of the environment that is dependent upon unsustainable uses of the natural environment.

Under the banner of sustainable development, guiding land uses as a means of contributing to improved environmental management is not merely for the sake of the environment per se; it also directly relates to the economic potential of Jabotabek. A recent study by the World Bank (1993a) cites figures showing that in terms of health effects of pollution in Jakarta, the economic costs of environmental degradation totaled \$500 million in 1990 alone. Industrial and urban pollution is also threatening coastal fishing industries, and the loss of water to agriculture from the flushing of rivers in the dry season is also significant. Uncontrolled pollution from human and solid waste in tourist resorts is also presenting a potentially serious threat to the growth of tourism revenues, which totaled \$3.2 billion 1992. The report concludes that increasing pollution and congestion will work against Indonesia's efforts to remain internationally competitive for foreign investment, particularly in higher-technology industries and, further, social resistance to the impact of a projected ten-fold increase in industrial pollution may also arise. For these reasons, improving the environmental and use of environmental resource has profound economic and social implications as well as strictly environmental ones.

In this light, land-use planning and management -- including partnerships between government, private enterprise and communities -- can assist in realizing a more sustainable development. Each of the components of a sustainable development listed above has land use policy and planning at its core. Guiding the direction and form of urban expansion has typically entailed consideration of such regulatory land use tools as zoning as well as the more positive incentives such as tax reduction and publicly provided infrastructure at desired locations. The sustainability of the urban habitat involves the protection of open spaces and other amenities through land-use guidance. In the case of Jabotabek, this concern can be

extended to include the protection of irrigated agricultural land from conversion to urban uses. In some of the most built up areas of the city, it might also focus on the absence of public spaces for pedestrian walkways. In similar vein, the provision of environmental infrastructure has as a major bottleneck the acquisition of land for sewerage, water treatment, flood control, neighborhood pick up points and regional landfill sites for waste collection and disposal, and toxic waste treatment. Housing, often seen solely as a problem of providing shelter as a physical structure, is also more fundamentally an issue of serviced land for housing, which includes both the means of granting access to housing land and the organization of land parcels into coherent systems of land serviced with basic infrastructure such as lanes, and streets, piped water systems, sewerage, drainage, electricity and communications. In sum, in virtually all issues of sustainable development, land-use decision making plays a significant role.

2. Directing the Expansion and Form of the Extended Metropolitan Region

A dominant feature of spatial patterns of development in Indonesia over the past two or more decades has been the rapid area expansion of the built-up area of the extended metropolitan region of Jabotabek. Population pressures in the region have intensified along with the conversion of rural to urban land. The overall pattern is one of corridor development arching far beyond the Jabotabek region, with selected nodes acting to anchor the expansion on a sub-regional scale. In-filling between corridors and at the periphery of selective sub-regional nodes occurs with little monitoring for impacts on the environment, especially in areas on the metropolitan fringe that lie beyond the formal boundaries of the metropolitan region. Industries are locating in agricultural areas, next to existing villages and *kampung*, with in some instances very

severe impacts on, for example, the availability of ground water for residential and agricultural uses. Land acquisition is also taking place in a context of ambiguous land titles and land loss by small owners claiming traditional land rights as settlements continue to push into environmentally risky upland areas and into coastal wetlands.

The worldwide shift of population to very large urban agglomerations calls attention to the ways in which the form and expansion of the city can be directed in a more environmentally sustainable, resource conserving way. Numerous land-use related proposals, including ecocities, carrying capacity, design with nature, bioregionalism, compact cities, linear cities and multi-polar cities, have been put forth in this regard (Suryodipuro 1994). Where zoning is not adopted, and with the possible exception of Curitiba, Brazil, which uses transportation planning to contain the expansion of the city, the most commonly adopted of these approaches is the so-called growth pole approach that uses industrial location incentives to guide urban expansion (Douglass 1996a).

The *de facto* strategy adopted in the past for Jabotabek, while drawing upon private sector new town development and limited land use regulation, has also been of the growth pole type. Proposals for region-wide land use planning for Jabotabek date back to at least the late 1970s when the First Jabotabek planning study was completed. This was followed by a clearing house study sponsored by UNEP and, later, a number of government studies that sought to integrate land-use planning with environmental concerns. Although several studies recommended forms of land-use zoning, the adopted strategy was one of Guided Land Development, which uses the spatial allocation of infrastructure in key sub-regional nodes as an industrial location incentive to induce a "Jakarta Out" strategy along an east-west corridor anchored at Bekasi and Tangerang (Douglass 1991). It does not itself contain

land use regulations related to environmental management per se. Such regulations have in the past been implemented on a case-by-case basis rather than through land-use zoning, although proposals for such zoning have been made in various studies commissioned by government agencies and prohibitions against construction in forest and conservation areas exist. Monitoring and enforcement have continued to be issues of concern.

Components and objectives of a region-wide land-use planning approach to achieving environmental sustainability typically cover the following;

- Integrating transportation system into regional land-use plans to limit the pollution and congestion effects of increasing vehicle use. In a situation where automobile use is growing much faster than population and economic growth rates in Jabotabek, the fact that current national air quality standards are not being met raises serious concern about the sustainability of development in the region. Vehicle emissions are now the largest and most rapidly growing source of urban air pollution, with the greatest health damage caused by the effects of particulate and lead (World Bank 1993 b). At the same time, vehicular traffic is making more than proportionate demands on land for roadways, and superhighways to move ever more numerous and ever more distant populations into core areas of the region on a daily basis. Land use planning can contribute to reducing air pollution from automobile emissions by linking transportation planning with spatial planning to make cities more compact and thereby daily traffic congestion and commuting distances.

Linking transportation to land use can best achieve positive results where there is a decrease in the spatial separation of daily activities from

homes. Increasing land use intensity in cities (density of jobs and residences) results in a decrease of urban private motorized transport use and a subsequent decline in energy consumption. As work trips constitute only a portion of all trips, land-use design that minimize transport energy use must, however, look beyond the proximity between residences and jobs. Mixed land-use planning aimed at decreasing spatial separation of urban functions combined with cost-effective mass transport services would help in reducing the trip length for work and non-work needs, alleviating traffic congestion and controlling consumption of urban transport energy. A strategy of increasing the housing-workplace densification alone would not reduce transport demand, as it does not fulfill residents' needs of affordable retail shopping, health services, and recreation. The main focus of the strategy should not be on densification of the urban core with continuing suburbanization of housing, but on maintaining the overall mix of activities as density increases.

- Creating more energy and environmental resource efficient compact cities. The compact cities concept has two important dimensions. One is to leave more open space by absorbing urban population and activities in high density agglomerations that is made possible, in part, through high-rise construction. The second dimension is to reduce energy and transport costs associated with home-to-work travel time and distances. Compact cities with radial transportation networks that include mass transit systems have been found to have a lower share of land devoted to residential and commercial uses along with superior water as well as significantly lower levels of per capita gasoline consumption (Suryodipuro 1995).

Making cities more compact requires new ways of thinking about the relationship between transportation planning and land-use planning. Land use planning has traditionally focused on separating and protecting different types of land uses while the links between land-use planning and transportation have principally served to ensure that adequate space is allocated for vehicles to operate. Such planning practices effectively increase demand for transportation. Recently, however, focusing on ways to minimizing demand for transport through land-use planning is gathering more attention. This calls for the creation of spatial structures that balance the relative share of each transport mode, minimize travel demand and adverse impacts on land and environment, and maximize the quality of community life in cities.

Efforts to create compact cities have their demerits. In most developing countries, increase in building density and height could entail massive displacement of existing settlements, including those of the urban poor who often have insecure entitlements to land. Moreover, high-rise residential development can inadvertently reduce the income-earning ability of self-employed producers, hawkers and vendors and others who require storage space for equipment. The strong positive relationship between residential proximity to the urban core and income opportunities for the poor has also meant that schemes to resettle them to the urban fringe have not fared well. Any policy to increase the efficiency of land use through allowing greater density of residential and commercial construction in urban core areas would have to work with existing residents to resolve these issues in the land development process.

- Promoting a polycentric pattern of urban expansion. A multi-nucleated metropolitan structure, with each center being functionally diversified and acting as a principal node in the public transport system, is often proposed as a means of decentralizing development without incurring longer commuting flows from suburbs to urban core. These centers would thus be composed of mixed land uses, built at relatively high densities, and provided with pedestrian walkways for short trips and mass transit for longer trips. As mentioned above, two major approaches are often used to effect of a polycentric development strategy; new town development that includes higher order central business and commercial functions along with housing development; and second, industrial estates and other "growth pole" infrastructure development directed toward attracting footloose industry to key locations. In Jabotabek both have been used, with new towns such as Kota Baru Bumi Serpong Damai being built by private developers, and a large industrial estate program linked to the new international airport being carried out by the government. Whether public or private sector initiated, the important feature of these approaches is to decentralize major urban functions and employment opportunities along with the suburbanization of households.

While these polycentric strategies may work on their own terms to attract residents, commerce and industry, they do not guarantee that development will not continue to expand into environmentally critical locations. For this reason, positive incentives to attract industries to desired location need to be paralleled by controls limiting location in others.

With manufacturing and labor-intensive assembly operations be-

coming the major dynamic of economic growth in Jabotabek, total pollution from industrial growth is expected to increase even though many of the new industries are less polluting than those of the past. With an anticipated manifold increase in industrial output, BOD (biological oxygen demand) from water pollutants is expected increase 10-fold by 2020, emissions of suspended particulate into the air will increase 15-fold, and emissions to all media of bio-accumulative metals (mercury and lead) are projected to increase 19-fold. For Java as a whole, 85 percent of the rapidly increasing levels of toxic pollutants are accumulating in and around cities. The absolute level of industrial pollutants in Indonesia's cities will expand nearly 10-fold by 2020 with substantial efforts to limit them (World Bank 1993b). Industrial location policies are thus a major tool in guiding the growth of the city and limiting unwanted environmental impacts of economic growth. While industrial pollution requires direct attention through strict regulation of industrial pollution, land-use planning can use industrial location to achieve other goals, such as redirecting commuting patterns to cut down on commuter distances and traffic congestion.

- Adopting explicit environmental management plans and regulations for priority areas such as coastal zones, highly-polluted rivers, small-scale and sparsely-distributed polluting industries, and large-scale polluting activities.
- Promoting environmentally-sound green space (e.g., city parks, urban agriculture, urban forest) by providing incentives and security of utilization of idle land along riverbanks, railways tracks, and roads.
- Discouraging the loss of prime agricultural and irrigated land by

guiding urban development to alternative locations and/or by requiring the developers to share their equity with the replaced farmers. The loss of agricultural land to urban uses is not simply the result of conversion to the best and highest use of land as determined by the market. In many instances, agricultural land productivity is severely diminished by industrial pollution, by diversion of water to subsidized urban uses, and the cutting off access roads and loss of storage facilities resulting from uncontrolled land development on the urban fringe. For these reasons, the loss of agricultural land needs to be reconsidered from both an economic and an environmental viewpoint.

- Improving land administration and monitoring systems by strengthening local government personnel and by improving geographic information systems on land development.
- Promoting regional and integrated land-use development for water resources such as river basin management. The combined effects of greater use of ground water and settlement in upland areas is bringing Jabotabek into the realm of what is expected to be the major concern of all cities in the world in the next century, namely water supply and management. Ground subsidence from overuse of underground water reserves the central areas of the region and the loss of natural ground cover in upland areas have already led to increasing periods of flooding and drought. Reversing this process can be best coordinated through region-wide flood control and water delivery system, including waste water treatment and reduction in unaccounted water losses from the existing system.

3. Land for Environment Infrastructure and Services

A dimension of land use that has received only limited attention in relation to its importance is obtaining land for envi-

ronmental infrastructure and services. The need for land for this purpose ranges from flood control and transportation uses at the macrospatial scale to land for lanes and trash collection pits within low-income communities at the neighborhood and community scale. The inability to obtain land for these purposes often represents a major bottleneck in improving environmental management.

In Indonesia, major gains have been made in several areas of environmental infrastructure. Drainage and flood control have been improved in many cities and towns, as have waste water management and solid waste management. By the early 1990s an estimated 55 percent of solid waste generated in urban areas was being collected through an approved system, representing significant improvement in the proportion of the population served. Cities nonetheless continue to face challenges in each of these areas. Existing draining systems tend to be too small compared to growing needs, and drainage and flood control systems require substantial extension (World Bank 1993b). With the salination of ground water in Jakarta, systems of piped water supply need to be improved and expanded. In Repelita VI, the government seeks to provide piped water to another 22 million urban residents in systems that will provide an additional 30,000 liters per second.

At the same time, less than 5 percent of urban residents in Indonesia are served by operating sewer systems, which are limited to seven major cities -- Jakarta, Bandung, Semarang, Medan, Cirebon, Tangerang, and Yogyakarta. In Jakarta, the seepage discharge amounts to more than 200,000 cubic meters per day, but the city system is reported to be able to treat only 230 cubic meters per day, with the rest discharged directly into canals and rivers (Douglass, et.al. 1994). Land is needed for expanding these systems as well as their pits. Since bio-chemical oxygen demand (BOD) in Jakarta is expected to rise from 93 tons BOD per

day to 136 tons by the year 2010, the need for water treatment sites is critical.

Similarly, only about 40 percent of urban households in Indonesia are served by some form of garbage collection, and access to solid waste collection and disposal, however, is very unevenly distributed. In Jakarta only 19 percent of the urban poor have access to solid waste collection and disposal. Many *kampung* cannot link up with citywide waste collection systems either because lanes are too narrow for collection trucks to enter or land for first-step collection cannot be obtained within the community. Only 36 percent of urban households live close to a road of at least 3 meters in width (World Bank 1993b). As a result, garbage piles up on street corners or is thrown into canals and rivers, clogging waterways, generating unwanted odor and adding to the risk of flooding. It should be noted that although many *kampung* households may own their own houses, they often do not own the land on which their houses are located. In some instances even intra-*kampung* negotiations fail to find land for the location of a single trash dumpster (Dharmapatri and Hastu 1993).

For the Jabotabek region as a whole, new landfill sites are further and further away from the sources of waste, necessitating more transfer stations along the way. Unless waste production can be substantially reduced many new landfill sites will be needed that have not yet been identified (World Bank 1993b). With rising per capita incomes comes increasing per capita waste production, and estimations are that urban solid waste is likely to expand more than twice the population growth rate of Jabotabek.

One way of reducing the need for landfills is to encourage waste recycling. This, too, requires land. As was discovered in the Jati Dua experience in Bandung in the 1980s, which organized scavengers into a cooperative for waste recycling, the sudden loss of land for integrated recycling activities even on very small scale proved

to undermine the entire activity (Poerbo 1991). Given that in Jakarta scavengers are estimated to reduce total urban refuse by one-third (World Bank 1993b), the potential for cooperative uses of land to recycle waste and simultaneously improve the incomes of some of the poorest urban residents may be great.

Land scarcities in urban *kampung* are also associated with the practice of running water lines along drainage channels in neighborhoods, which leads to health-threatening contamination of household water supplies. A recent sample study found that 47 percent of Jakarta household water supplies displayed positive counts of fecal contamination (McGranahan and Songsore 1994). Almost all households in Jakarta resort to boiling water, which occurs at considerable energy cost, to purify water; but even after boiling about one-third of the samples still had positive counts of fecal coliform. This type of health risk remains as one of the leading factors in infant mortality and adult illness in Indonesia (Douglass, 1993). In Asia the two major causes of infant death -- diarrhea and acute respiratory diseases -- are closely associated with the physical environment and quality of infrastructure and services (WHO, 1992; UNICEF 1990). In Indonesia, the Kampung Improvement Program (KIP), which focuses on drainage and basic community infrastructure, is credited with sharply reducing this problem, but it continues to be a critical health issue.

Taking together the variety and scales of environmental infrastructure and urban space needed to address the question of environmental sustainability suggests that land-use planning for this purpose needs to be integrated into all aspect and levels of land development. The implication for land use planning of the estimated \$10 billion needed for environmental infrastructure for Jabotabek for this decade (World Bank 1993b) is obvious: given the length of time usually required to acquire public land for this infrastructure,

obtaining sufficient amounts of land in the appropriate locations must be anticipated well in advance of project implementation. The method for doing this as traditionally been one of formulating regional structural plans complete with land-use categories. However, such approaches have a poor record in implementation. Like most forms of comprehensive planning, they suffer from ill-founded assumption about the capacities of governments to enforce them in situations where other stake-holders either ignore or otherwise gain special exemption from the plans. They also have great difficulty in anticipating major economic shifts, new technologies and other unexpected events that can make rigid spatial plans outmoded in a short period of time.

Alternative approaches toward incorporating the need land for environmental infrastructure into the thousands of land development decisions being taken by private developer and citizen alike focus on government as partner rather than sole regulator of land development. Among the approaches, two have been applied with some success: land readjustment and community site and service programs.

- Land readjustment or land consolidation, which involves the pooling of parcels of usually privately owned land for integrated development of private and public land uses, is often viewed as a "win-win" strategy, although individual parcel returned to private owners may be smaller than initial lots, the public investments in infrastructure and other public amenities substantially enhances land quality and value in land readjustment areas. The public at large gains from a rational development of land uses that include basic infrastructure and amenities. The government is trying to bridge this policy with the development of new towns and industrial sites in order to link work place and residence more closely in

the outer perimeters of large metropolitan regions. Given the thorough land development that this approach entails, it is generally applicable in relatively undeveloped areas at the urban fringe.

- site and service programs. Indonesia's KIP efforts is generally cited as being one of the most successful approaches toward building basic environmental infrastructure in existing communities. The recent modification of this approach under Repelita VI, which envisages greater community participation in the entire process of project identification, planning and implementation is seen as being in the spirit of government-community partnerships in land development.
- New town development also has the potential of incorporating environmental infrastructure. Like land adjustment schemes, this is more likely to be possible at the urban fringe rather than in already built up areas.

In central areas, obtaining land for environmental infrastructure is likely to be the most difficult, even when governments exercise the right of eminent domain with just compensation. Very high and rapidly rising land prices in core areas often require substantial financial outlays even for minimum infrastructure. In Tokyo in the late 1980s, for example, 90 percent of the cost of building a public road in the central area was absorbed by the purchase of land.

Given the very high rate of land development in core areas, some governments have placed requirements on land developers to include certain types of infrastructure such as on site waste recycling, apartments included in commercial high-rise development, and certain ratios of open space per size of building. Impact fees and other assessments to cover the costs of providing new infrastructure for commercial de-

velopment have also been attempted in U.S. cities.

Finally, betterment fees based on windfall gains that accrue to private land owners from public investments in infrastructure that raise land values also been advocated.

While potentially useful, it should be recognized that the above approaches do not reach the level of a Jabotabek-wide vision of land development and urban expansion, but instead focus on smaller elements of the region. At the broader scale, transportation development, major industrial infrastructure allocation and the zoning of specific areas for conservation would be needed to complement the more spatially limited partnerships, incentives and regulations.

4. Serviced Land for Housing

Jabotabek is annually absorbing more than one hundred thousand new households, most of which must find land for housing through non-market means or through housing sub-markets in low-income *kampung*. Neither government housing nor the housing development industry has been able to keep pace with the demand for moderate and low-income housing. Given the intensive increase in land prices in all areas of Jabotabek --including rural fringe areas -- as well as rapidly growing middle class housing market, it seems unrealistic to assume that the private housing market will provide sufficient amounts of low-cost housing in the near or even medium term future. In these situations, the underlying need is neither housing nor land per se, but rather low-cost serviced land for housing, namely, land that is prepared with basic infrastructure and services: neighborhood roadways and lanes, electricity, piped water, sewerage, and drainage.

Without a clear strategy for developing low-cost serviced land for housing on a massive scale, current settlement patterns characterized by crowding into unserviced

neighborhoods, houses built along the slopes of river banks, flood-prone areas and into illegal settlements on public land will continue. Although buying land may not be within reach, rental markets for even the most polluted and environmentally endangered areas of the city have emerged to cater to the poor and work to routinize environmentally deleterious settlement formation of the region. In these settlements tenure remains precarious. As they develop, land markets direct the poor by default to land that, although near centers of employment opportunity, are otherwise unsuited for settlement. Insecurity of tenure further results in low investments by the poor in physical improvements of neighborhoods. Governments, fearing that such assistance will be taken as de facto legitimization of squatter areas, can find themselves refusing to either acknowledge community organizational efforts or service them. The recourse often taken is to try to resettle squatters or evicted non-squatter households from central locations to improved housing sites on the urban fringe. Throughout Asia such efforts have met with only limited success due to the lack of employment opportunities for low-income households at the urban periphery. Access to land is a critical issue not merely in terms of ownership and tenure, but equally in terms of where people must locate to secure employment and incomes in the city.

Regardless of location, the capacity to develop land for common use and environmental improvements is crucial to earning incomes in a community. Improvements in the servicing of land through paving walkways and providing drainage has been shown to be a principal generator of economic opportunities in low-income settlements. Such environmental infrastructure as pathways and covered drainage channels have led to a proliferation of commercial enterprises -- food stalls, beauty salons, and general stores -- where few existed before in slum communities (Ard-am and Soonthorn-

dhada 1994; Douglass and Zoghlin 1994). Improved environments through land improvements also dramatically enhance the health of household members and enables each to be more productively active.

For urban Indonesia, estimates of minimum housing demand is one million units per year, depending on what components are included. Within the current national planning period, about 40,000 hectares of densely populated slums in 125 urban settlements are estimated to be in need of upgrading. In the past the for-profit private housing sector has supplied just a little more than one-tenth of urban housing, and has responded principally to middle and upper income demand for housing. The public housing program, which provides another 4 percent of units, has principally served civil servants and other special groups. Thus about 85 percent of urban housing in Indonesia is supplied by the people themselves mainly using household savings, self-help and mutual aid efforts.

While much needs to be done to stimulate the growth of a private housing market that can reach lower-income groups, the statistics above suggest that the bulk of housing will continue to be built outside of this market. The government has sought to tag low-cost housing onto larger scale commercial housing development through its 6:3:1 policy of requiring 6 units of low-cost and 3 units of moderately priced housing for every one unit of higher-priced housing. Efforts have also been made by grass-roots organization to link up self-help housing construction with this policy. As yet, however, the progress has been slow and community housing linkages have been experimental rather than programmatic.

Since in Jakarta the principal sources of solid waste are at the neighborhood level (McGranahan and Songsore 1994), and given the high costs of putting region-wider sewerage systems in place, serviced

land for housing is more than an amenity concern, but is basic to the health of the human habitat. With the new role of government as facilitator rather than principal initiator of development planning, a shift from attempting to provide housing to expanding site and service programs is appropriate. The essential bottleneck in this regard is how to provide low-cost land for self-help and private sector housing developers. And while programs under the Kawasan Siap Bangun (KASIBA) and the Lingkungan Siap Bangun (LISIBA) deserve attention for expansion and strengthening, there is still great potential for more actively joining with community-based organizations and developmental NGOs in meeting both housing and serviced land for housing needs at the scale required.

One thesis with regard to providing land for housing is that the relaxation of government land-use regulations would free up the land market to an extent that land would become affordable for lower income households. In the case of Indonesia, there is thus a case to be made for improving the codification, transparency and simplicity of regulations on housing land development. Streamlining regulations on land acquisition and consolidation, construction permits, zoning codes, subdivisions, professional standards, building materials standard, construction standards, rules on practice of trades and professions are called for to make housing activities more efficient and limit arbitrary action and corruption. Studies have shown that delays and problems associated with complex procedures and standards can raise the cost of commodities related to housing by almost 30 percent. More routine provision of information on land issues -- land ownership and use rights, land values, regulatory systems, systems of taxes and charges, appeals systems, procedures for pre-court mediation of disputes and for litigation -- to facilitate access to land and land improvement processes is also

desirable to further participation in land markets.

Although desirable, it is not clear how far such improvements are likely to go in terms of delivering sufficient supplies of land to lower income groups. Moreover, the political economy of land development is such that unattended market expansion may continue to favor large-scale developers' claims over those of traditional small-holders. Thus, while it may be appropriate to expand the role of land markets in the allocation of land for housing, care must be taken to ensure that lower income populations are able to gain title to land on which they currently reside and to have access to newly developed land for housing. In this regard, credit availability to purchase of land for housing is a key area in need of greater support. Decentralization of housing programs to local governments would also make housing land development more responsive to community and private sector initiatives.

Efforts to avoid land-related conflicts over well-located sites have led governments to acquire only cheaper, easier to obtain housing land on the urban fringe in locations that are least suited to the economic needs of lower income groups (Hardoy and Satterthwaite 1989). While these modest attempts are made, the larger dynamic of the city is slum clearance with inadequately developed alternatives (Douglass 1993). The poor are, however, often in too great numbers to be without political voice in land occupancy and tenancy issues. Cities everywhere register their daily resistance to eviction, rent increases and changes in tenancy relations. This realism understood, there are several elements of an urban land policy that have shown promise:

- Land entitlement. In Indonesia, access to land involves many types of overlapping property regimes, including common property, state-owned property, commodified privately-owned land allocated through

the market, and other land without clear access rules. In all major areas of rapid land redevelopment where local communities confront conversion of residential or rural land to urban uses, the overlapping of regimes and conflict over land intensifies. Manipulation of land entitlement procedures and documentation is not uncommon, with the result that land is transferred from so-called traditional forms of ownership to private property regimes, often in the hands of larger land developers. If securing land for low-income housing is a goal, special attention is required to anticipating the need for clear entitlement to land to existing residents before redevelopment begins. This is especially important at the urban fringe which, although now rural in make-up, will be part of Jabotabek's urban landscape in the coming years.

- Land sharing. In Bangkok NGOs have joined with households in large slum areas to negotiate land-sharing scheme in which a portion of the land is given over to commercial development under the titled owner and the remainder is sold to poor resident households at below market prices. This type of approach is only possible in medium-size and larger settlements where land divisions are of sufficient scale to allow for commercial as well as land for housing development.
- Land readjustment. (see above) can be used to cross-subsidize low cost housing by providing some portions of consolidated land for affordable housing.
- Cross-subsidized low-cost housing in private housing development schemes. As noted, the Indonesian government requires private developers to provide three medium-priced housing and six low-priced units for every one luxury unit built (the "1:3:6 rule").
- Land banking, through which the government buys and keeps land out of the market by setting it aside for a

variety of future uses, including exchange with developers for land elsewhere in the city, has also been advocated as a means of providing land for low-income households and communities. This has been attempted in Bangkok where the National Housing Authority began purchasing land ahead of development in the 1970s, making an estimated 25 to 67 percent savings over market prices that began to rise in the early 1980s (McAuslan 1985:89).

- Supporting community-based programs for land acquisition and self-help housing. Housing finance is still underdeveloped in Indonesia, with households mainly relying on private savings and other assets to buy land and housing. In Jakarta, one NGO has assisted in forming housing cooperatives and brought assistance from a university architectural program to help lower-income households design new houses at much lower costs than private sector land developers were able to do. Including such community based efforts in new housing development programs could produce similarly beneficial results.

No single solution can be found to the emerging housing land crisis in Jabotabek, but most would necessitate sustained government involvement in resolving land issues. In this context, among all of the options available, a coherent land titling process for the poor and low-income communities is quintessential. If it is to avoid the chaos that is currently resulting from private land development by households and developers alike, a land titling policy would also require a parallel program of servicing the land, particularly with environmental infrastructure. Where these basic conditions of community stability are realized, studies convincingly show that even very low income households will participate and invest in housing and community improvements, often with a great sense of pride. Legitimizing already existing low-income

settlements by resolving, in particular, ambiguous land tenure relations is an important dimension of this issue.

5. Land-Use Planning and Monitoring at the Regional Scale

Among the bottlenecks in fostering a sustainable development is the limited capacity of local governments to manage urban growth and the environment. The case of Jabotabek raises unusual problems in this regard because political-administrative divisions of planning do not coincide with the region as a whole. The city of Jakarta is charged with planning DKI Jakarta, while the Province of West Java and plans for development of the remainder of the extended metropolitan region with the three key kabupaten governments of Bogor, Tangerang and Bekasi. As the built-up area of the region expands beyond these kabupaten boundaries, the most dynamically developing areas of Jabotabek's future -- most of which lead into environmentally critical geographies -- are at risk of being left out of the planning process.

In the past, various coordinating bodies have been set up to try to bring functional planning agencies together jointly plan for land and other aspects for development of the region. Results have reportedly been mixed. With the promulgation of new spatial planning laws under Repelita VI, there may be scope for improving this coordination. What is needed at a basic level, however, is a more permanently established center for regional planning for Jabotabek. Such a center could serve a basic purpose of setting up geographical information systems and data bases for monitoring key trends for the region as a whole. It could also assist in identifying key issues and potentials for the region. In addition, it can act as a forum for civic participation and promoting government-private sector partnerships in planning and development. Some local governments in Asia, such as Seoul City's decision to set up a semi-autonomous Seoul Develop-

ment Institute, have established such institutions with these purposes in mind.

6. Conclusions

Throughout Asia, conflict over land-use and access to land in cities has intensified under pressures of economic growth, structural change toward manufacturing and urban population expansion. This conflict underscores the tension between the unique roles that land development must play in the course of development. On one hand, land is developed for the purposes of increasing the productive capacity and economic efficiency of cities. Cities in this sense become the sites for industrial and commercial enterprises. On the other hand, the city must also provide the habitat for the daily reproduction of society, the basic social unit of which is the household, through the provisioning of adequate shelter and environmentally sound neighborhoods and communities.

Land development serves these dual purposes not only through private investment. It greatly depends as well on the provisioning of public infrastructure such as roads and highways, utilities, sewerage, open spaces and amenities. Governments are also usually charged with regulating the negative externalities - congestion, pollution, and other costs to society not absorbed by producers and households--arising from land development. Any city that overlay favors investment in any sphere of land development over another cannot be sustained. A city that expands as a center of production without regard to social sustenance or environmental integrity not only become less attractive to potential economic investors, but can also become a center of human activity in which large portions of the population find their economic potential drained by insecurity of housing, lack access to basic human services, and environment-related diseases and health problems.

While it is desirable to deregulate certain aspects of land development and simplify permit processing to free up land for a more robust land market that is potentially more capable of delivering land entitlement to a greater number of citizens, in other ways the regulation of land uses needs to be strengthened and enforcement needs to be more rigorous if a healthy habitat is to be sustained. In either instance, greater clarity of the regulatory framework is needed along with a more inclusive access to serviced land for housing which, as the city expands, will occupy the largest proportion of a region that will have more than 26 million inhabitants by the end of the current long-term planning (PJP II) period. With infrastructure and services used to lead development and shape the city rather than merely respond to demographic and market trends, there is also hope that the environmental integrity of the region as a whole can be more closely guided.

REFERENCES

- Ard-Am, Orathai and Kusol Soonthorndhada (1994). "Household Economy and Environmental Management in Bangkok: The Cases of Wat Chonglom and Yen-ar-kard," Asian Journal of Environmental Management, 2: 1, pp. 37-48.
- Dharmapatni, Ida Ayu Indira and Hastu Prabatmodo (1993), "Community-Based Urban Environmental Management: A Bandung Case Study." Second International Workshop on Community-Based Urban Environmental Management in Asia. University of Hong Kong, September, 6-10
- Douglass, Mike (1991). "Planning for Environmental Sustainability in the Extended Jakarta Metropolitan Region," in N. Ginsburg, et.al., eds. *The Extended Metropolis* Settlement Transition in Asia (Honolulu:

- University of Hawaii Press), pp. 239-273.
- Douglass, Mike (1993), "Urban Poverty and Policy Alternatives in Asia," in UNESCAP, *State of Urbanization in Asia*. (Bangkok: UNESCAP), Ch. 4
- Douglass, Mike, et. al. (1994), "Draft Framework for the Urban Policy Action Plan," Repelita VI (Jakarta: Bappenas/UNCHS/UNDP).
- Douglass, Mike and Malia Zoghlin (1994), "Sustainable Cities from the Grassroots: Livelihood, Habitat and Social Networks in Suan Phlu, Bangkok," *Third World Planning Review*, 16: 2, 171-200.
- Douglass, Mike (1996a), "Urban Priorities for Action," in World Resource Institute, *World Resources 1996-97* (Washington, DC: WRI), Ch. 5, 103-124.
- Douglass, Mike (1996b), "City and Community: Toward Environmental Sustainability," in World Resource Institute, *World Resources 1996-97* (Washington, DC: WRI), Ch.6, 125-148.
- Hardoy, Jorge and David Satterhwaite (1989), *Squatter Citizen* (London: Earthscan).
- McAuslan, P. (1985), *Urban Land and Shelter for the Poor* (London: Earthscan).
- McGranahan, Gordon and Jacob Songsore (1994), "Wealth, health, and the urban household: weighing and environmental burdens in Accra, Jakarta, and Sao Paulo," *Environment*, July-August, 36: 6, 4-17.
- Poerbo, Hasan (1991), "Urban solid Waste Management in Bandung Towards an Integrated Resource Recovery system," *Environment and Urbanization*, 3: 1, 60-69.
- Suryodipuro, Laila (1995), "Towards an environmentally Desirable Urban Form: the Case of Jabotabek" (Honolulu: Dept. Urban and Regional Planning, Univ. of Hawaii).
- UNICEF (1990), *Children and the Environment* (New York, UNICEF).
- WHO (World Health Organization) (1992), "Improving Environmental Health Conditions in Low-Income Settlements" (Geneva)
- World Bank (1993a), "Indonesia -- Environment and Development: Challenges for the future" (Washington, D.C)
- World Bank (1993b), "Indonesia: Urban Public Infrastructure Services" (Washington, DC)