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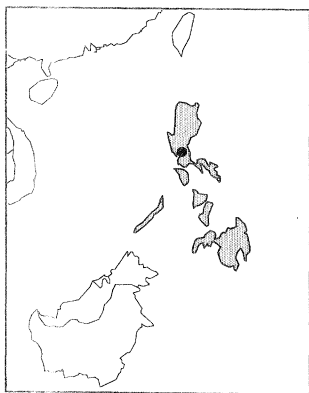
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# Metropolitan Manila: a framework for its sustained development

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## I. INTRODUCTION

**AS IN MANY** of the major cities of the Third World, Metropolitan Manila has grown rapidly into a very large agglomeration with inadequate provision for a planning framework (and its implementation) and for the infrastructure and services needed to maintain the environmental quality. Metropolitan Manila has some 8 million people with an area of 636 square kilometres and includes the city of Manila, three nearby cities (Caloocan, Quezon and Pasay) and 13 adjacent municipalities. Almost half of the population is estimated to be poor. With rapid population growth likely to continue (it averaged 4.1 percent in the period 1970-1980), with a serious economic crisis and a deteriorating urban environment, the prospects for the future are not encouraging. At present, a large proportion of the population already suffer serious threats to their health, safety and well-being, as a result of their housing and living environments, and environmental problems are likely to worsen unless urgent action is taken.

After a short historical section on Metropolitan Manila's development, this paper reviews current environmental problems and outlines a new framework for sustained development, to ensure these problems are addressed.

## II. BACKGROUND - A BRIEF HISTORY OF METROPOLITAN MANILA

**IN THE 16TH** Century, prosperous villages along the shores of Manila Bay, sheltered by the bay's geographic configuration, appealed to the Spanish conquerors as a good site for a capital. Wernstedt and Spencer noted that "...the selection of the site of Manila as the future economic centre and administrative capital for the Philippines was not without good justification since it provided excellent anchorage for ships and because its virtually land-locked nature could easily be defended."<sup>(1)</sup>

Population movements to Manila began during the early years of the Spanish conquest, but it was during the period under the rule of the United States that Manila grew into a large city. From 2000 inhabitants in the 16th Century, it grew to 329,000 in 1903 (when the first modern national census was taken). The period 1899-1946 saw a series of major public works and infrastructure development, the establishment of a legislative assembly and the development of a national civil service, which gave impetus to the development of Manila

1. Wernstedt, Frederick and J. E. Spencer (1967), *The Philippine Island World*, University of California Press, Berkeley, California, pp. 382-383.

2. Jimenez, Pilar R. et al (1986), *Philippine Urban Situation Analysis* UNICEF, Manila, July, p.9.

3. National Census and Statistics Office' estimate.

4. Philippine Commission for Urban Poor (PCUP) Report (1988), published in the *Philippine Daily Inquirer*, September 18.

5. See reference 4.

6. Salanga, Wilfredo (1988), as quoted in *Malaya*, June 14, p.7.

7. Laguitan, Raul (1988), quoting Roberto Jaylo, Paranaque's community relations officer in *Manila Chronicle*, February 22, p.6.

and to migration there. At the end of the Second World War Manila expanded very rapidly, with the urban area spreading to what had previously been peripheral areas such as Pasay, Quezon City, Caloocan and Mandaluyong, all of which became part of what is now known as the Metropolitan Manila area. By 1949, after the Philippines had been granted independence, the population had reached around 1 million inhabitants. By 1970, it had 4 million inhabitants; 6 million in 1980<sup>(2)</sup> and some 7.35 million in 1988.<sup>(3)</sup>

Located along the eastern shore of Manila bay and delta plains of the Pasig River, it is bounded by the swampy delta of the Pampanga River in the north, by the Bataan peninsula in the east and by the Laguna de Bay, a freshwater lake to the south-east.

The average population growth rate between 1970 and 1980 was 4.1 percent per annum compared to a national average of 2.7 percent for the rest of the nation. This implies that a substantial proportion of Manila's population growth during this period was a result of net immigration. Metropolitan Manila had the highest population growth rate of any region in the Philippines in this decade.

### III. ENVIRONMENTAL PROBLEMS OF HOUSING

**THE ECONOMIC CRISIS** faced by the Philippines has hit Metropolitan Manila more severely than other regions. The Presidential Commission on Urban Poor reports that about 44 percent of Metro Manila's residents live below the poverty line.<sup>(4)</sup> The threshold for this poverty line is set at P3,292 a month per family (roughly US\$156) which is far above the mean monthly family income of P1,916 (some US\$91). Although 80 percent of the labour force is employed, 28 percent of these are underemployed. With a low income for most families and a high cost of real estate in Manila, it can be expected that most people find the cost of purchasing a house or flat beyond their means. The result of this gap between what people can afford and the cost of the cheapest reasonable quality unit has been a large number of house/room renters and the proliferation of squatter areas. House renters represent 44.1 percent of total families in the region. An additional 16 percent were 'sharer/visitors' which is the term given to those who double up with other families to rent rooms or who stay and share rooms for free, indefinitely (for instance, sons or daughters and their spouses and children staying with their parents). On average, there are 12 persons per household with this large average size being explained by the proportion of people who are 'sharers/visitors'.<sup>(5)</sup>

There is a very large and growing number of squatters in Metropolitan Manila and local government officials working in the cities or municipalities which make up Metro Manila admit to being overwhelmed by the problems. In Quezon City, the location of the lower House of the Philippines Congress and of many government offices, three of its four districts are heavily populated by squatters. Of the total population of 1.5 million, one estimate suggested that 50 percent were squatters.<sup>(6)</sup> In Paranaque, one of the municipalities within the metropolitan area, an estimated 70 percent of the population live in illegal housing of some kind.<sup>(7)</sup> It is generally acknowledged that uncontrolled migration to the cities has contributed much to swelling the urban population.

The Philippines Government has not succeeded either in implementing policies which would moderate the flow of migrants into Metropolitan Manila or which would lower birth rates and thus the rate of natural increase. Moreover, a lack of decisive action on the part of government has led to a rapid increase in the number of squatters.

In 1986, immediately after the February revolution (with the overthrow of the Marcos Government), thousands of people occupied vacant public and private land. In Metro Manila, there was the 'invasion' of Karangalan village in Pasig municipality, the Pasig development property in Ortigas and several government housing projects in Quezon City, Pasig and Dagat-Dagatan. The leaders of squatter organizations claim that although their actions have no legal basis, these "...could be condoned by the government because of its generous and humane nature."<sup>(8)</sup>

One of the best examples of this move by squatters is the occupation of 51 hectares of reclaimed land along historic Roxas boulevard. It is now home to some 10,000 families and this represents a challenge to the Public Estates Authority which cannot implement plans for the area because of the difficulties in ejecting the squatters. This is one reason for the reluctance of foreign investors to invest in this location. It is now called Pobres Park (the word 'pobre' meaning poor in Spanish) - to contrast it with Forbes Park where millionaires live. The Presidential Commission on Urban Poor (PCUP) has reported the existence of a syndicate which controls entry into the area, charges fees depending on the financial capacity of households and manages the affairs of the community. Electricity is tapped illegally from a government building and water supply is provided through door-to-door vendors.<sup>(9)</sup>

Government pronouncements and attempts to enforce laws have had little impact on the development of squatter settlements. Government officials have apparently postponed decisions about ejecting squatters since they probably feel that moving these people to new sites without assurance of economic opportunities in the areas to which they are relocated would compound the problem.

#### IV. SOLID WASTE

**METRO MANILA CAN** hardly cope with the 3,500 tons of waste generated daily by domestic, commercial, industrial and institutional sources. The inability of local governments and the metropolitan administration to develop a policy on solid waste disposal and management is illustrated by a garbage dump known as 'Smokey Mountain' which covers some 22.6 hectares, with an elevation at its highest point of 18 metres.<sup>(10)</sup> One visiting journalist described its smell as so rank and powerful that he could not breathe through his nose without gagging.<sup>(11)</sup> The rotting mass of organic material also produced a haze over the dump, coming from methane gas produced by the decomposition process.

Some 20,000 people live in this area and some have lived here for 40 years or more. These people refuse to be relocated since they claim that they would lose their sources of livelihood by doing so. Most of these people make a living by scavenging on the garbage dump and many are children who sort through the garbage with their bare hands. Smokey Mountain has become a symbol of the degradation of the physical environment, as well as an illustration of the affront to human dignity caused by poverty.

#### V. WATER POLLUTION

**THE TWO MAIN** sources of water pollutants in Metro Manila are domestic and industrial wastes. Only 15 percent of Metro Manila's population is served with sewers or individual septic tanks.<sup>(12)</sup> In addition, garbage, silt and other solid wastes find their way into

8. Tan, Rey (1986), volunteer head of The Assistance for the Settlement of Squatter Inter-Service Task Force (ASSIST), in *New Day*, April 27.

9. Buenaflor, Esper (1988), 'Special Report', *Manila Chronicle*, June 19, p.1.

10. Endrigo, Reynaldo, et al. (1988), *A Community Development Program for the Smokey Mountain Community*, Quezon City: University of the Philippines, College of Architecture (unpublished undergraduate thesis).

11. *The Atlantic Monthly*, November 1987, p.54.

12. Robles, Alan C. (1988), quoting Undersecretary Celso Roque of the Department of Environment and Natural Resources in *Manila Chronicle*, February 19, pp.1 & 10.



13. A study by the Department (then Ministry) of Public Works and Highways (MPWH) in 1985 as reported in *Daily Express*, August 17, 1985 states thus: "A lesser-known fact about the causes of floods in the metropolis is the indiscriminate throwing of garbage, silt and other solid wastes into 'esteros' and flood drainage mains." The study revealed that about 2,034 cubic metres of garbage accumulate in the 2,900 kilometres of drainage in Metro Manila.

'esteros' and flood drainage mains.<sup>(13)</sup>

Sewage, industrial wastes and garbage, and other solid wastes washed into water bodies greatly lower their level of dissolved oxygen to the point where marine life is damaged or killed. In some instances, all dissolved oxygen in the water is used up in the

**Table 1: Concentration Ranges of Heavy Metals in some Metro Manila River Systems.**

River System	Year	Concentration Ranges (all in ppm except Ag which is in pob)			
		Copper	Zinc	Cadmium	Silver
San Juan	1982	bdc-0.09	bdc-0.67	bdc-0.01	bdc-0.02
	1984	bdc-0.06	bdc-0.31	bdc	bdc-0.01
	1985	-	-	-	-
Pasig	1982	bdc-0.08	bdc-0.78	bdc-0.06	bdc-0.04
Marikina	1984	bdc-0.91	bdc-0.48	bdc	bdc-0.05
	1985	bdc-0.04	bdc-0.14	bdc	bdc-0.02
Zapote	1982	0.01-0.10	0.02-0.07	bdc-0.07	bdc-0.07
Paranaque	1984	-	-	-	-
	1985	bdc-0.06	0.12-0.40	bdc	-
Tullahan	1984	bdc-0.12	bdc-0.19	bdc-0.05	bdc-0.06
<b>NPCC allowable limits</b>		<b>0.02</b>	<b>2.0</b>	<b>0.01</b>	<b>0.05</b>

bdc=below detectable concentration

Source: National Pollution Control Commission, Annual Reports 1982, 1984, 1985.

decomposition of organic wastes and the water becomes anaerobic, turbid and foul smelling, unfit for use. Of course, all plants and fish die under such conditions.

Inadequate or no safeguards in the disposal of toxic wastes from industry have contributed to high levels of heavy metals in some river systems in Metro Manila (see Table 1). The problems of water pollution are further aggravated by high levels of pesticide use in the region,

**Table 2: Pesticide levels (mg/l) in selected Metro Manila River Systems.**

Pesticides	Pasig-Marikina	Paranaque Zapote	San Juan
Alpha BHC	0.012-0.026	0.011-0.028	0.012-0.026
Gamma BHCC	0.013-0.24	0.014-0.024	0.016-0.022
Heptachlor	0.008-0.016	-	0.008-0.010
Epoxide	trace-0.026	0.006-0.012	trace-0.010
Aldrin	trace-0.008	trace-0.012	0.008-0.012
Dieldrin	-	trace-0.012	-

Source: National Pollution Control Commission Annual Report, 1984

as can be seen by the concentration of some pesticides found in the rivers; surface run-off water washes the pesticides off the crops and farmlands into waterways (see Table 2).

One illustration of the consequences of uncontrolled dumping of wastes is the so-called 'red tide' phenomenon. Since September 1988, bays in the Philippines have been suffering from a condition said to be brought about by the abnormal and uncontrolled growth of phytoplanktons caused by the high organic load in water bodies. This has rapidly engulfed the entire 90,000 hectares of Manila Bay. By October 1988, eight other bays had been affected - and all were rich fishing grounds. Eight deaths have been reported from 73 cases of poisoning from eating contaminated shellfish. As a result, the authorities have prohibited the eating of shellfish and other marine

products from these areas, which has brought more hardship to many fishermen. In addition, it has removed an important source of protein from the diets of many Manila residents.

## VI. FLOODING

**ABOUT 2,034 CUBIC** metres of garbage are thrown daily into Metro Manila's waterways which clog them and contribute to flooding during the rainy season.<sup>(14)</sup> In addition, some 4,600 hectares are prone to flooding and affect some 1.9 million people. Floods inflict around P900 million worth of damage and losses each year (equivalent to US\$45m).

Three major causes of flooding have been the overflowing of Manila's heavily silted rivers during intense rainfall; the insufficient capacity of inland drainage facilities; and the disappearance of 35 out of an estimated 95 'esteros' (canals) which, prior to World War II, were transportation arteries. Furthermore, illegal construction of dykes and the conversion of traditional fishponds along the shores into residential areas have been identified as factors which further aggravate the problem of flooding.

## VII. AIR POLLUTION

**IN MANILA, AS** in most cities, motor vehicles, industries and thermal power stations are the major sources of air pollution. Many conventional measurements for air pollution in Metro Manila indicate more serious pollution problems there than in many of the major western cities. For instance, the average concentrations of sulphur dioxide in the atmosphere for the years 1973 to 1980 (73 microgrammes per cubic metre) exceeded those in New York, Los Angeles and Chicago and were comparable to those in Frankfurt and London. The average concentration of particulate matter was 85 microgrammes per cubic metre, far exceeding that of Tokyo (61), New York (65) and London (31).<sup>(15)</sup> A medical study found worrying levels of lead concentration in the blood samples of 544 infants and children aged between 4 months and 14 years. The average lead level was 22.8 microgrammes per decalitre with some eight percent of the sample having over 30 microgrammes per decalitre, a level which is considered 'elevated'. The study also showed a significant correlation between high lead concentrations in the blood and proximity of the household to dense traffic.<sup>(16)</sup> Mental retardation is the most devastating effect of exposure to lead.

High levels of air pollution are also known to cause or contribute towards many illnesses. For instance, 43 percent of all lung cancer and other diseases of the lung have been found to be caused or aggravated by air pollution other than smoking.<sup>(17)</sup> Health statistics also indicate that for many years, bronchitis, influenza, respiratory tuberculosis and pneumonia have been major causes of morbidity and 11 of these are aggravated by air pollution.<sup>(18)</sup>

## VIII. A FRAMEWORK FOR SUSTAINED DEVELOPMENT

**IT IS CLEAR** that municipal, city and national governments in many countries have been unable to manage city growth and guarantee city dwellers and city businesses an adequate provision of infrastructure and services. Metropolitan Manila is no exception, despite the fact that the economic activities within it account for 32 percent of the nation's

14. See note 13.

15. *Polluted Metropolitan Manila*, Lingkod Tao Kalikasan Primer, Series no. 12 (undated) p.14, quoting from World Health Organization figures.

16. See reference 15.

17. Tablan, Dr. Priscilla, (1986), Lung Centre of the Philippines in *Philippine Almanac: Book of Facts*, 1986 Edition, pp. 618-619, Aurora Publications.

18. Disease Intelligence Center, Ministry of Health, 1986.

19. Some of these ideas evolve from the ecodevelopment planning approach of the United Nations Environment Programme, which seeks to combine the development goal of improved quality of life through increased productivity, with the environmental goal of maintaining ecosystem balance and productivity.

gross domestic product and that local governments there receive one-third of all local government revenues. The poverty of so many of its inhabitants also limits the scale of possible cost recovery in any major investment programme.

Both recent and current responses to urban problems have been piecemeal. They have included traffic management experiments in certain areas, a revised system of garbage collection and initial efforts to revive some rivers. But for Metro Manila's long-term development, there is a need to formulate a long-term strategy which takes into account the inter-relationships between human activities and the environment, with the ultimate objective of achieving a balance between resource use and technological development.<sup>(19)</sup>

First, there must be a recognition of the scale and nature of current urbanization and an assessment of the extent of deterioration so that the resource base can be rehabilitated and preserved. Urban communities must develop a diversity of land uses so that areas can be broken up into smaller self-contained communities, functionally related to one another. Given the nature of Metro Manila's population (mostly migrants) this seems to be feasible and can be made possible through the following actions:

- defining residential areas in relation to resource base and sources of employment to simplify economic activities and journey-to-work patterns;
- monitoring land-use conversions as a first step towards developing a more effective programme to retain the best and most rational use of land;
- encouraging urban farming and urban forestry in areas where these are traditional and/or feasible;
- restoring water bodies to their natural condition so that once again they become sources of food and water and places of recreation as well as receivers and carriers of sewage and surface run-offs.

Secondly, there should be manageable population densities in relation to physical, fiscal and natural resources so as to minimize environmental stress. This can be done through:

- promoting awareness of the advantages of smaller families;
- guiding the location of residential areas through zoning and other developmental control measures as well as locational incentives and other devices;
- monitoring land uses.

Thirdly, integrate rural and urban development with the aim also of minimizing rural/urban disparities. Among possible measures are:

- implementation of agrarian and urban land reform programmes so that social justice may prevail; without government measures to offer alternative land sites to squatters, there is little chance of major improvements in housing. Similarly, without agrarian reform, there is little possibility of slowing the migration from rural areas to cities;
- promotion of increased economic production in urban and rural areas through activities which are environmentally sound or which have built into them measures to minimize pollution.

Fourthly, at the national level, develop a settlement system in terms of function so that basic needs are met and delivery of services such as potable water, health care and (where needed) garbage disposal are facilitated at the most appropriate level of government. This would include the need to rationalize the location of social infrastructure as well as road construction and development.

Fifthly, the formulation and implementation of decentralization measures which will strengthen local governments and ensure they develop the capacity to deliver basic services to those within their jurisdiction.

Sixthly, to evolve a comprehensive national policy of environmental ethics and management which would encompass the following:

- promotion of environmental awareness, especially in regard to the fragile nature of the Philippines' island resources;
- formulation and enforcement of legislation which would protect and enhance the environment;
- give support to non-governmental organizations (NGOs) to encourage their participation in environmental concerns, especially at the community level.

## IX. NGOS IN URBAN COMMUNITY DEVELOPMENT

**A STUDY ENTITLED** *Environmental Quality and Other Considerations in Land Use Decisions* undertaken in 1984<sup>(20)</sup> looked into cases involving land-use conflicts at the local level. This level was the 'barangay' which is the smallest political unit within the Philippines. The study concluded that, by and large, there was a lack of community organization and 'community-ness' to allow residents within the 'barangay' to work together to achieve common goals. This could be partially explained by the lack of information exchange between 'barangay' organizations about community issues and problems. Using a three-point criteria of economic gain, environmental quality and equity, it was found that only economic gain was understood and often the sole criterion by which a person evaluated or assessed the impact of virtually all activities. Even projects which had a purely political impact were perceived to have acquired some dimension of economic rationality.

The level of the 'barangay' can provide the opportunity for community issues and problems to be discussed and pre-evaluated for the following reasons:

- it is small enough to allow first-hand knowledge of any important event or activity affecting the community;
- it is the smallest unit of government where planning and implementation may take place since its legislative assembly has the power to make decisions on matters which affect the community such as "...health and safety, enhancing prosperity and general welfare, improving morals, maintaining peace and order and preserving the comfort and convenience of its inhabitants;"<sup>(21)</sup>
- through its residents, there is a reservoir of workers who may be willing to devote time to organizing discussions about matters affecting their community.

A tentative approach to promoting discussion and agreement within the 'barangay' would make use of community organizations which would initiate a discussion of issues affecting the community so that a consensus can be arrived at regarding what action to take. In this way, residents would participate directly in decision-making, thereby giving them a certain control over the future development of their community. Their collective decision, which is assumed to consider the threefold criteria of economic gain, environmental quality and equity, can then be relayed to the local government for appropriate action. This approach presupposes a commitment from the community and its officials and residents to work together towards common goals. It usually depends on the presence of skilled motivators who may be called upon to conduct impact evaluations and who can explain these and other technical questions to the residents. On the part of the government, this provides an opportunity to understand public opinion and at the same time explain the basis of decisions so that residents can also better understand the rationale behind certain

20. Jimenez, Rosario D. (1984), *Environmental Quality and Other Considerations in Land Use Decisions*, (unpublished).

21. The *Philippine Local Government Code*, Chapter 4, Section 91 provides the powers and duties of the legislative body of the 'barangay'.



courses of action. On the part of the residents, there would be an appreciation that they are part of government. For example, an ongoing campaign in Metro Manila against smoke belching, which was launched by some non-government organizations, drew participation (in an initial symposium) from representatives of jeepney operators and drivers who depend on jeepney transport for their livelihood. On that occasion, the jeepney operators/drivers presented their view that the rising cost of new engines for replacing their old ones was beyond their present capability. Since there were hardly any other areas of employment into which they could immediately move, the public could understand why a gradual phase-out of jeepneys with old engines was a more acceptable course of action rather than a complete ban on jeepneys. The forum underlined two things - the initiative of NGOs in grappling with a pollution problem and the willingness of the 'pollution causers' to participate in the discussion. If this could be replicated at the community level and cover other issues with community-wide impact such as garbage collection, or the use of resources such as rivers and lakes, or even the entry of industries, then the gap between local governments and residents could be minimized.

In conclusion, it is felt that a more collaborative framework for government action in which both local governments and local community-based non-government organizations work together offers the best hope for reversing environmental deterioration in the face of several resource constraints. Efforts to fully involve the citizens of any community in deliberating on issues and problems which affect them should be a priority in any agenda for development.