

Population Growth and The Changing Ecosystem on Mindanao ¹

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Mindanao was regarded as the Philippines' last frontier or the 'land of promise' at the turn of the present century. Today, after about 100 years, Mindanao has "lost" that frontier status but has remained a land of unfulfilled promise for many people. The "Greenest Spot on Earth" with a salubrious climate (*Mindanao Herald*, February 3, 1909:2) that it was, it became the object of wanton exploitation -- and is now destitute and wallowing in misery. In the words of some keen observers, Mindanao has become a "milking cow" (Canoy, 1993:112), is being "raped" (Salgado, 1990) and is internally colonized. Tadem (1992:30) describes it as follows:

Mindanao has been the object of ceaseless economic exploitation since the turn of the century. Its natural resources are being depleted at a fast rate and, in the absence of alternative economic activities, the situation bodes dire consequences for Mindanao.

This paper will attempt to outline the changes on Mindanao with respect to population and the environment, and draw some implications for policy. More concretely, it will trace the dwindling ecosystem as a consequence of rapid population growth since 1900. This period is significant for Mindanao because it marked the beginning of incorporation of this second largest island into what is now the Philippine state which, then as a colony, in turned opened the floodgate of Mindanao to global trade and development. In 1898, after being defeated in the war, Spain relinquished its dominion over the Philippine territory to the United States by virtue of the Treaty of Paris. Incidentally, Mindanao was included in that Treaty as if it was governed by the Spanish colonizers. The truth is, Mindanao was an unconquered territory inhabited by

peoples hostile to the colonial powers, such as the Moros and some tribal groups.

By ecosystem here we mean, operationally, the natural environment in its "pure," natural state, with all the flora and fauna living in it, including the indigenous human populations. We shall elaborate more on it later.

Mindanao Before the 20th Century

Not much was known about Mindanao before 1900, except from what early Spanish missionaries or voyagers wrote during their visits to the island. Several images come to mind when one reads available accounts on the island: Mindanao was a wilderness and it was not part of the Philippine islands. More telling of these descriptions is that though this region was a land of gold and honey, it was inhospitable and strange. Mindanao was "swarming with mosquitoes" and deadly animals ready to kill anyone who crossed their paths. In addition, it was home to the deadlier Moros who conducted yearly raids in the coastal towns of Visayas and Luzon for slaves and booty (Non, 1993; Warren, 1981). Between the 16th and 18th centuries, these Christian towns and villages were ravaged and depopulated, which struck terror and misery among the people.

Visiting the island in 1774, British voyager Thomas Forrest (1969:174) affirmed the separateness of Mindanao from the Philippines:

They (Spaniards) sometimes call it a Philippine, in order to enlarge their own dominion, yet one of their most credible authors calls Maguindano (Mindanao) as island adjacent to the Philippine.

Charles Wilkes (1916) who later visited Mindanao and Sulu in 1842 said:

(Mindanao) is high and broken, like those to the north of it, but unlike them, mountains are covered with forests to their very tops, and there were no distinct cones of minor dimensions..(p. 417)

The forests of Mindanao contain a great variety of trees, some of which are of large size rising to the height of one hundred and one hundred and fifty feet... Many buffaloes were observed wallowing in the mire, and the woods swarmed with monkeys and numbers of birds, among them the horn-bills; these kept up a continued chatter, and made a variety of loud noises. The forests here are entirely different from any we had seen elsewhere, and the stories of their being the abode of large boas and poisonous snakes make the effect still greater on those who visit them for the first time.

French Jean Mallat who wrote about Mindanao in 1846 (Castrence, 1983:207) confirmed this uniqueness:

Mindanao is immensely rich in products of all kinds and most of all in wood. Although the interior of the country is little known, it is known to offer not only products familiar to the rest of the Philippines, but also most of those of the Moluccas. Among a great number of rivers watering it, there are some twenty which are more remarkable than the others, and of which the most important are Butuan and Mindanao (Maguindanao) rivers... The coasts of Mindanao are very jagged, they form remarkable ports and bays, and even gulfs where ships are perfectly safe. Its mountains, very high, are covered with very lush vegetation...

Mindanao Frontier Penetrated

Colonial work of some 300 years by Spain began in earnest to conquer the southern frontier. However, it meant that they would have to tame the hostile Moros and other tribes first. The Spanish mission in northern and western Mindanao, and partly into the interior, gained some foothold to subjugate and "civilize" the peoples there, but much was yet to be desired in the way of bringing Mindanao into the colonial line. It was the American colonial regime that finally tamed the wilderness in the south at the turn of the 10th century.

The defeat of the Spanish forces in the Philippines also meant the start of annexation of Mindanao to the country. That was also the signal of the beginning of economic and trading activities that incorporated the region to the rest of the islands and global economy defined by western capitalism.

When Mindanao became part of the Philippine territory, the new colonial government quickly realized its great wealth in timber and other natural resources, most notably land. Of Mindanao's land area of about 38,750 square miles, some 29,200 square miles or 75 percent of the total land area is covered by a thick vegetation of virginal forests (Hutchinson, 1909).

In 1903, when the first nation-wide census was made, Mindanao was found to have barely a million inhabitants, as opposed to 7.6 million from Luzon and the Visayas. The man-land ratio was a mere 16 persons per square mile (Table 1). Table 1 shows Davao, Cotabato and Palawan (Paragua) districts were found to be among those with low densities, while Siasi appeared to be the most crowded.

Table 1: Population of Mindanao, Sulu and Palawan, 1903

District	Area	Population	"Civilized"	"Wild"	Density
Basilan	520	30,179	1,331	28,848	58
Cotabato	11,786	125,875	2,313	123,562	11
Dapitan	2,015	23,577	17,154	6,423	12
Davao	9,707	65,496	20,224	45,272	7
Jolo	550	51,389	1,270	50,119	93
Misamis	3,777	175,683	135,473	40,210	47
Surigao	6,988	115,112	99,298	15,814	16
Paragua	2,389	29,351	27,493	1,858	12
Paragua Sur	2,849	6,354	1,359	4,986	2
Siasi	89	24,562	297	24,265	276
Tawi-Tawi	400	14,638	93	14,545	37
Zamboanga	3,056	44,322	20,692	23,630	15
Total	44,126	706,529	326,997	379,523	16

Source: Census of the Philippine Islands, 1903, Vol. II. Washington: United States Bureau of the Census, 1905.

While Mindanao's population was less than a tenth of the total at that time, it had an area that is roughly one third of the whole archipelago. Besides, a vast amount of land in the public domain, about 90 percent, was found in Mindanao. Thompson (1904:11) echoed thus: "There is no doubt the government land unsettled and untouched in this province amounts to 90 percent of all the tillable land, equals in areas and excels in richness that of all the tillable land of Luzon." Furthermore, land was its greatest untapped capital that lured the adventurous entrepreneur, and on which Philippine politics took shape when the call for independence sounded loudly in the 1930s.

Discourse of Philippine Development

Briefly stated, the discourse of Philippine development in post-war independence is very much colonial and centralized, where agrarian policy is essentially top-to-bottom. There is much in recent past that guided that action. Stouffer (1982) argues that in dealing with Mindanao during the early 1900s, the American Colonial administration used as a model of development the same as that used in the "winning of the West" in the United States. That is, the government opened the frontier in the name of trade by bringing in settler-colonists as the military conquered the indigenous peoples who opposed the intrusion into their lands.

The move to "colonize" Mindanao started in the Moro Province, the land of the Moros which covered about two-thirds of the land area of this southern frontier. In 1913, five such colonies were opened in the district of Cotabato for Christian and Moro settlers to cultivate some 12,900 hectares of land for planting rice (Manuscript Report, *Report of the Philippine Commission*, henceforth MS-RPC, 1915; Pelzer, 1945). Two additional settlements were put up before 1917 in Cotabato and Lanao (Momungan), the latter being intended for "down and out Americans" with Filipino families. Towards the end of 1915 the total number of colonists in Cotabato was 5,044 of whom 2,362 were classed as "immigrants" (Filipinos) and 2,682 as Moros (MS-RPC, 1915).

During his administration of the Philippine commonwealth in 1930s, President Manuel Quezon coined the term "Mindanao as a land of Promise" to highlight the need to further develop the southern frontier. He carried on the old policy of indentured migration by inducing Christian settlers to come to Mindanao. The growing apprehension of the Japanese "menace" in Davao during that period, drummed up by the Japanese occupation of Manchuria in 1937, no doubt played a role in the decision of the government to encourage mass migration largely to create a buffer and contain future Japanese expansion (Scaff, 1948:120). New sites were opened on the Koronadal valley and the Kidapawan Areas in Cotabato, and the Compostella-Moncayo north of Davao. In Kidapawan and Allah valley alone, some 97,000 hectares of lush greenlands were allocated for homesteading to an initial number of 10,000 people.

The construction of roads, or even its mere plan, and the logging activities helped accelerate the exodus of migrants in Mindanao. Pendleton (1942:181) described the situation thus: "Each month during 1939 about a thousand Filipino immigrants entered Mindanao through the two ports of Davao and Cotabato alone. Along the route of every proposed highway squatters and others are claiming the land in advance of construction, and before long all the desirable public land in blocks of appreciable size will have been occupied, legally or otherwise, or in other ways brought under private control."

Henceforth, almost every administration made land resettlement as its central policy. After Quezon's National Land Settlement Administration (NLSA), President Quirino pursued a similar program under the Rice and Corn Project Administration (RCPA), which was abolished in 1950. Then, in 1951, Magsaysay worked out a program to resettle former Huk rebels to take up homesteads under the Economic Development Corporation (EDCOR) in selected municipalities in Mindanao. Later, he expanded the EDCOR into the National Resettlement and Rehabilitation Administration (NARRA), which opened up even larger tracts of lands in Palawan, Wao, Cotabato and other parts of Mindanao. From 1954 to 1963, NARRA administered 23 resettlement projects which covered some 538,693 hectares of land with 30,441

settler families (Dumarpa, 1984:33-34).

The Great Migration

The landless Christians from the Visayas and Luzon heeded the call for resettlement in Mindanao. In fact they did so later on, even without government protection, when thousands of families took up homesteading in Bukidnon, Cotabato, Zamboanga, and other parts of Mindanao. A phenomenal growth in population occurred in this region nowhere found in the Philippines. From less than a million people at the turn of the century, Mindanao's population leaped to about 5 million in 1960 and more than doubled 20 years later. After the World War II, the wave of migration grew bigger. Between 1948 and 1960 alone, the population jumped from less than 3 million to over 5 million, giving the southern region a rate of growth more than double the national average. Of the seven provinces during this period that more than doubled their population growth, six were from Mindanao (Wernstedt & Simkins, 1965). By 1960, one out of four residents from Mindanao is considered a migrant, that is, one who reported his/her birthplace as some area other than Mindanao.

Land pressure and the growing tide of peasant unrest in Luzon must have contributed to the southward migration. Some areas in the Visayas, like Bohol, were showing signs of overcrowding. In Luzon, the rise of the Huks in post-World War II also contributed largely to the swelling numbers of land-hungry and displaced individuals who moved to Mindanao.

Now, after almost about a century, the full impact of this great migration can be discerned in terms of a rapidly changing man-land ratio in Mindanao. In 1990, Mindanao's population soared to about 14 million, while that of the Philippines increased to 60.7 million in 1990 (Table 2). The population density in the whole country is about 202, that of Mindanao has grown to slight half at 116 persons per square kilometer. (Excluding Palawan, the figure is larger at 138.)

Quite striking is what seems to be an "ecological invasion" wherein the indigenous populations are succeeded by the settlers. From about 60 percent of the population at the start of the century, the Lumads and Moros as reduced to a mere 27 percent in 1980.² While the indigenous populations are also increasing in absolute numbers, they are drowned by the ever-growing settler population. "Segregation" also becomes apparent in many of the provinces, where the Lumads and Moros tend to move further away into the interior as they come into contact with the more numerous newcomers. By 1980, some of the old districts were, in fact, divided into several political units following the grooves of this ecological principle. Such was the case for the two Lanaos and the three Cotabatos, where Christians or Muslims are dominant in one but

not in another.

Table 2 - Population and Population Density in Mindanao, Sulu and Palawan, Relative to the Philippines, 1903-1990

Year	MINSUPALA			PHILIPPINES	
	Popul.	Density (km ²)	% of Phil.	Population	Density (km ²)
1903	706,529	5.9	9.3	7,635,426	25.5
1918	1,175,212	9.7	11.4	10,134,310	34.4
1939	2,338,094	19.4	12.6	16,000,303	53.3
1948	3,049,593	25.3	15.9	19,234,182	64.1
1960	5,546,815	46.0	20.5	27,087,685	90.3
1970	8,200,567	68.0	22.4	36,684,486	122.3
1980	11,277,025	93.5	22.4	48,098,460	153.7
1990	14,000,000	116.1*	23.2	60,400,000	202.0

Source: *Philippine Census, 1970 & 1980*; *Based on estimate by Costello (1992).

Incursion of Upland Population

Quite related to population exodus from Luzon and the Visayas to Mindanao is the internal growth, or evolution, of a group of people called upland agriculturists. Included in this group are the kaingineros (shifting agricultural cultivators), which together exert tremendous pressure on the depletion of the forest cover. The Population Commission (1994) reported that his group of people is increasing faster than the normal growth of the Philippine population (Table 3). In 1988, they constitute 17.8 million. By the year 2000 they shall number 21.4 million.

Table 3 - Upland Population, 1988-1990

Year	Population (millions)
1988	17.8
1990	18.2
2000	21.4
2010	24.2

Source: Commission on Population, *Population Management Towards Philippines 2000*, Manila, 1994.

Ooi (1987) said that during 1980-85, some 631,250 hectares of forest lands³ in the Philippines are deforested annually by *kaingineros* and through conversion of forest land to other uses. Of these, 331,250 hectares are destroyed by *kaingineros* alone. There is no complete or comparable information on the size of upland population in Mindanao. A survey of October 1979 placed some 2.6 million non-Muslim hilltribes and unauthorized occupants of forest lands in Mindanao (see Ooi, 1987:36-37). The magnitude of forest destruction can be discerned in one of Mindanao's region, Region II (consisting of the provinces of South Cotabato, Surigao del Sur, General Santos, General Santos City and the Davao provinces). Based on latest data (1991) for this region, NEDA has estimated that some 86,500 families live in the uplands, with a 2.55 percent annual growth rate (*Philippine Star*, Aug. 18, 1991). Local authorities opined that the rapid growth of upland population in these areas is due to dismal lack of livelihood opportunities in the lowlands. Illegal logging and rampant *kaingin* agriculture destroy some 3,790 hectares yearly, or a total loss of 1.02 million hectares of forest cover. Of Region II's total forest area of 1.96 million hectares, only 146,000 hectares or only 7.4 percent are virgin forests while only 792,540 are residual forests. The accompanying soil erosion, according to the same report, said that some 61.5 percent of the land area of Davao province and Davao del Sur are already severely eroded. For the whole region, this problem has risen to 83 percent.

Impact of Rapid Population Growth

In 1948, an observer (Scaff, 1948:119) noted that "for decades, the chief source of ecological change in Mindanao has been immigration." If he were to make a similar observation today, he would surely concur with Rip Van Winkle, that changes have occurred beyond his wildest imagination -- like falling asleep for years and waking up to a totally different environment!

The impact of rapid population growth in Mindanao may be summarized into two: (1) the exhaustion of the forest cover and depletion of other natural resources, (2) the effects on the indigenous peoples or tribes.

Exhaustion of the Forests

The rapid depletion of forest cover in Mindanao is directly a function of increasing population, especially the upland population. The DENR, according to a Population Commission Report (1994), forewarned that in 12 years, all the forests will be gone! Twenty years ago, Mindanao had over 4 million hectares of forests. Today, there is barely half of those forest lands left. The country's virgin forests is reported at only "1 million hectares." This is due largely to a rapid rate of forest depletion -- 210,000 hectares annually between 1969 and 1990 (*Journal of Philippine Statistics*,

1991). But at the rate *kaingineros* and illegal loggers are cutting down trees, even the mountains will turn completely bald before the end of this century.

One tragic result of this destruction is that the watersheds have been rendered barren. IN Cotabato alone, the Bureau of Forestry estimated that 1.9 million hectares are commercial and non-commercial forests in 1935, or 80 percent of the land area (Pendleton, 1935:735). Now, even the mountain tops have been denuded of forests as only 10 percent of the watersheds have forest cover, according to a recent DENR report. This damage on the watershed poses grave danger to two new irrigation projects worth some 3.2 billion when completed in 1997, the controversial Malitubog-Maridagao Irrigation in North Cotabato which will irrigate 10,840 hectares and the Kabulnan Irrigation and Area Development Project in Maguindanao which covers 11,500 hectares of ricelands (*Philippine Daily Inquirer*, March 17, 1994). I have seen the poor watershed of the Kabulnan project; with a research team preparing the project study, we visited the mountains of Maganoy in 1991. There, I saw no forest cover at all, only a few trees from logged-over forests which are gradually being felled by upland agriculturists to make way for crops such as corn.

In other places, the same picture holds. Lake Lanao, the life and blood of NAPOCOR's 1,000 megawatt hydro-electric plants that supply most of the energy needs of industries in Mindanao, seemed to have reached the limit. The water level has receded so badly that in 1992 even Mindanao was not spared from the energy crisis that hit the nation. The cause is indiscriminate logging and destruction of the forest cover which was already evident twenty years ago (Rabor, 1970). Mt. Apo, the source of new power plant using geothermal is not any better. By the year 2000, the plant is expected to generate 840 megawatts of electricity. But by then, the delicate ecological balance that gives sustenance to it may have already altered. There may be no more forests to speak about, and perhaps the Lumads there will be gone, too.

It is clear that Mindanao has lost its primordality, when man was once in close kinship to nature. Its rivers are now dry or polluted, and many fish species are getting extinct. One does not hear anymore of monkeys and birds cheerfully announcing their existence. Soil erosion has washed away natural fertility, reducing crop yields in some areas. "Flashfloods" occasionally occur in General Santos City and adjacent areas. In 1994, five people died by drowning in Polomolok, when their jeepney was suddenly swept away by flood waters while traversing a dry creek (*Manila Bulletin*, May 22, 1994). In South Cotabato, rice and corn farmers complain about diminishing soil fertility due to spill-over erosion from nearby Dole plantation (Tadem, 1992:24). Pesticide poisoning of the rivers risks danger not just to the fish and other aquatic animals but also to human beings who eat them.

Unless arrested soon, nature will take its own revenge. The tragedy in Ormoc, where thousands drowned in a flashflood a couple of years back; is not a far-fetched

possibility in Mindanao. Already, some signs are beginning to show up in northern Mindanao where flashfloods in 1981 left 283 people dead (Tadem, 1992:25).

Displacement of the Lumads and Moros

The settlement of Mindanao beginning in the 1930's meant development in one sense and displacement or marginalization in another. One known adverse effect of the exodus was the wanton displacement of the Lumad and "Moro" indigenous tribes. The word *Lumad* is a Bisayan term for 18 highland tribes in Mindanao, namely the B'laan, Manobo, Tagakaolo, Bagobo, Matigsalug, Mansaka, Mandaya, Manguwangan, T'boli, Tiruray and Subanon, among others (see Rodil, 1992). On the other hand, the Moros refer to the 13 Muslim Filipino groups in Mindanao, Sulu and Palawan. These indigenous tribes were variously termed historically as "wild tribes," "non-Christians," "infideles," "Harafooras," and are generally called in the literature as "minorities." Ironically, they were clearly the majority in the south at the start of the century (see Table 1). The Moros were dominant in the so-called Moro Province consisting of five districts: Lanao, Cotabato, Sulu, Zamboanga and Lanao. They are now a majority in four parcelled provinces, namely Lanao del Sur, Sulu, Tawi-Tawi, and Basilan. On the other hand, the Lumads exercised control in 17 provinces, but are a majority only in nine municipalities (Rodil, 1992).

Here's how the B'laan put it in 1973 on the despoilment of his people in Koronadal and Allah Valleys (Rodil, 1992:239).

I want to tell you about our people as they were before the settlers came. We are the largest number of people then. We lived in the wide plains of Allah and Koronadal Valleys. It is true that we are happy; we made our lives, lived in on our own way.

Then settlers came, our lives became unhappy. We ran to the mountains because we were afraid of settlers. Even today, the B'laan people are scared of their government officials. Our lands were taken away because of our ignorance. Now we are suffering. We have been forced to live in the Roxas and General Santos mountain ranges. Now we have only a few hectares of flat land to grow our food. And even with this little land, the government is running after us and they tell us that land is not ours, it is the government's. They say lands belong to the forestry. They will put us in jail. Truly we do not think we are part of the government.

The same story goes for the Mansaka of Toril, Davao, who were driven to the

higlands of Maragusan. According to Arlyn Mayo (1995), a sociology student from Mindanao State University, Marawi City, her grandfather, Colama Manasaka, a member of the Mansaka tribe once told her: "Yakad kami Marasugan kay madayeg da man silan. Awon pa silan sang baril." (We went to Marasugan because the Christians were numerous and one thing more, they had firearms with them.) She narrated thus:

The Mansakas according to some folks, had a very big plantation in Toril, Davao City. They were living in abundance of food and fowls. Davao City then was a forested area. They said that the educated Christians squatted on their lands and applied for titles. That was how they were ejected from the areas and fled to Marasugan valley in Davao del Norte which has become a foothold on the Mansakas today.

In other areas, the displacement of the Lumads seems to be a trade off for development itself. For example, the expansion of pineapple production by Del Monte, in Bukidnon, and the Bukidnon Sugar Corporation in the same area, has "pushed" the indigenous communities like the manobos deep into the interior (Tadem, 1992).

Alcantara and Sons Company (Alsons), while developing a 19,000 hectare tree-plantation farm in Tala-ingod, Davao, ran into conflict with the Matigsalug tribe there, resulting in the death of many tribesmen and 12 Alsons workers in 1994 (*Philippine Daily Inquirer*, Feb. 27, 1995). The conflict is still raging and no solution is yet in sight.

In Bayog, Zamboanga del Sur, the Subanon tribe is protesting a 100 million cattle project by the government as this will encroach on their ancestral land. Aided by the Australian government, the project covers 1,900 hectares which shall house a feedmill plant, dairy meat production center as well as a cattle ranch. Oscar Alo, a *timuay* (chief) of the tribe said: It seems the cow is more important than us (*Philippine Daily Inquirer* Dec. 7, 1994).

The Consunji Logging Company in Sultan Kudarat also had a brush with the 11,000 Manobo-Dulangin tribe. Nine tribal members were killed and 67 of their houses were burned by armed men in 1990. The tribal leaders said that the firm started to disturb them in 1972. They were obliged to plant 100 seedlings of falcatta trees in exchange for 3,000 and a sack of rice (*Midweek*, Nov. 1990).

In Maramag, Bukidnon, a Manobo tribe is now seeking Pres. Fidel Ramos to enforce a Supreme Court order giving them back their ancestral lands. In a letter by its head, Datu Piang Daguiwaas, the delay was due to "political intervention" from officials who allow squatters to plant sugar cane in said contested lands. The tribe was

also being harassed by armed men who lobbed a grenade in one of the houses, while several others were raided by lawmen who accused them of possessing unlicensed firearms (*Philippine Daily Inquirer*, May 14, 1994).

Desperate and hopeless, a Lumad writer echoed his sentiment thus: "Fortunate is the eagle, Pag-asa, that the rich would sponsor it... (but) who will sponsor the Lumads?" (*Philippine Daily Inquirer*, March 17, 1992).

While the Lumads take these events somewhat passively, it was not so among the Moros. They have reacted more strongly over the continuing loss of their territory and their consequent displacement from it. Marginalized and displaced, they have vociferously asserted their rights in a more militant manner, even to the point of violent struggle. The problem of Moro secessionism has exemplified this struggle, which has been a costly affair to the government. During Martial Law alone, the government stationed more than half of the Armed Forces in Mindanao to contain this problem.

The Mindanao conflict of the 1970s is an account worth telling about how the Muslim Filipinos have waged a struggle to keep their identity intact and to prevent further incursion of "outsiders" into their remaining territory. In one study, Muslim displacement was found to be directly associated with the occurrence of violence during 1970-72 (Magdalena, 1985). Areas with high displacement tended to exhibit greater participation in the communal violence that saw thousands of Muslims and Christians lives perished. In any case, the question of land is a central issue in the Moro separatism.

Modernization

Another culprit in the "plunder" of Mindanao is modernization. By modernization here we mean the development of man's potential to control his environment by the use of certain tools or techniques due to increase knowledge. The logic of modernization is evident in the words of Orr (1979:76) when he said:

The development of science and technology has had profound effects upon the way modern man related to other men and to nature. Modernity is characterized by rational modes of thought in which decisions tend to be based on secular, goal-oriented, and universal criteria.

In a sense, modernization is gauged by the extent of man's triumph over nature, in contrast with the situation of primitive man like the Neanderthals of Europe or the cave-dwelling Tao't Bato of Palawan where nature is supreme. Migratory behavior replaces man's nomadic instincts, pushing him to thread the unknown.

Modernity seems to have placed undue emphasis on profit, production and efficiency, which are assumed to redound to the good of man. In contrast to primitive societies which exert less or no control over his environment, modern society is equipped with the wherewithal to utilize in the production process. Having access to elaborate mechanisms and techniques to increase production of goods, however, modern man has transformed raw materials into consumable products without much consideration of the future consequences. He has wantonly exploited the natural resources and other God-given gifts, as if they have no limits. Concerned more with the principle of "economies of scale," he has explored the earth by the use of a grand process that may surpass the earth's "carrying capacity." Psychologically, the term for this "motive" in which the paramount desire for materialism has turned into "greed." Man craves for much more than he can eat. He is insatiable.

The complaint of Datu Bagani Kaputian of Talakag, Bukidnon (*Philippine Daily Inquirer*, March 17, 1992), a Lumad, is representative:

As a Lumad, I view with concern the continuing deforestation of my once green island, of the valleys, hills and mountains of Central Mindanao now denuded and occupied by strangers from other tribes who do not have respect for the land and our customs and traditions. Perhaps we could not stem the tide of progress, and perhaps these land-hungry people from different islands have to be pitted and therefore also given the right to own lands in areas which are traditionally ours. But when they impose their greed and questionable ways on the Lumads, who are traditionally hospitable, that is another story. For that is the main reason for the deforestation of our land. Loggers came to despoil our beautiful hills and mountains. They were followed by permanent settlers. And together they drove us, Lumads, deep into the forest.

Conclusion

Mindanao has no doubt changed. The most notable type of change is the alteration of its ecosystem since 1900. From being literally a jungle, Mindanao has been transformed. It has attracted pioneering settlers upon government sponsorship and through voluntary migrations that infused new elements into the frontier. In the end, Mindanao was finally won! But the winning of this southern frontier has its own price to pay. While it offered benefits of development to some newcomers, many among the indigenous inhabitants were consequently deprived of their share in the largesse. Many of them are quick to point out that they have become victims, if not objects, of

development. They lost many of their precious legacies, including their ancestral lands. Others even lost their cultural identities as they assimilate into the dominant culture of the newcomers.

What happened to the natural habitat? The old ecosystem gave way to a new one, or at least is perceived as “damaged” by many observers. The virgin forests were exploited indiscriminately (“raped” is a term used by some writers), causing some problems to all. Rivers and creeks dried up or were polluted by pesticides, causing some animal species to disappear. Soil erosion and flashfloods became ordinary occurrences. Nature has taken its vengeance,

A new ecological pattern seems to have evolved based on rapid population movements, the most notable being *segregation*, where the lowlanders have inhabited the town and cities or cultivated the choice lands, while the Lumads and the Moros have taken refuge to the interior where life is harsher. In many instances, the change in the ecological balance resulted in conflict as the communities compete for resources, particularly land, or claims for rights over the utilization of such resources. The Moro secessionist struggle in Mindanao may be taken in this light, a reassertion of a threatened identity in the midst of vast changes that have may drown the Muslims into oblivion. For the less fortunate Lumads, the identity problem is more manifest.

Thus, the story of Mindanao winds up as one which does not have a happy ending. It will be so if the actors continue to play roles that endanger the ecosystem. Only a change in policy or behavior can correct the situation before it is too late. And the need to do it is now.

Implications for Policy

The picture I have attempted to paint here is not meant to portray a gloomy situation which cannot be reversed any longer. without doubt, Mindanao’s ecosystem has changed and the direction it takes is generally in the negative.

The key to the problem of environmental degradation is policy (Salita, 1978) and the political will to implement it. There is no reason why Mindanao cannot be saved from further destruction. Assuming that forest cover is central to the ecosystem, hereunder is a six-point proposal:

1. Log ban is an idea which is long overdue. Government must consider it, not. However, the ban must be selective and applicable only in areas which are regarded as critical or inimical to projects (e.g., irrigation, electrification, water supply) of regional significance.

2. Replenishment of depleted but renewable resources must be done, such as by way of reforestation and social forestry policy. To do so, however, people must be rewarded in their efforts in terms of increased family income.

3. Upland agriculturists, particularly the Lumads and Moros, must be assisted by declaring certain areas as ancestral lands, according to the Philippine constitution. They must be encouraged and taught production techniques to conserve the remaining forest cover. Priority should go to them in the issuance of community forestry program.

4. Government must strengthen those agencies charged with the task of environmental protection and management, such as the DENR, DA, and even the PNP. They must be clothed with sufficient authority to deal with illegal loggers, but at the same time the law must be given course in handling errant officials.

5. Declare strategic forest areas as national parks and allocate funds for their maintenance or rehabilitation. If not contrary to law, management of the same must involve the local community or private organizations.

6. Observe a moratorium on settlements in areas where Lumads and Moros live. Whenever possible, government must restore to these indigenous peoples those lands which were fraudulently taken from them under the same principle now operative in CARP.

Government alone cannot do much of the job, although it plays a lead role in promoting a sound ecological balance. For this reason, private and non-governmental organizations (NGOs) must be encouraged. Those already in existence must be supported. In some areas in Mindanao, the Church takes part in monitoring the log ban and illegal logging, but some priests were even criminally charged, or accused as communists. The government must recognize their contributions for a common good.

If these suggestions are taken according to purpose, Mindanao can possibly live up to its expectations as a "land of promise."

Notes

1. Paper presented at the Conference on Environmental Research and Resource Management in the Visayas and Mindanao, University of San Carlos, Cebu City, April 3-4, 1995. The author is Director of Research and Professor of Sociology at Mindanao State University, Marawi City. Fieldwork was done intermittently during 1991-92 when the author worked as a consultant in Cotabato to prepare project studies for two irrigation projects, one being the Kabuntalan project mentioned in this report. He has lived on Mindanao since 1965.
2. In 1980, the Philippine Census enumerated the Moros to be 2,504,232 while the Lumad population is placed at some 600,000 (by this writer). In 1970, the Lumads in the whole MINSUPALA area are counted by the Census to be 475,501, excluding the Cuyonon and Agutayanon groups.
3. Forest land means land in the public domain which has not been classified as alienable or disposable.

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