

The Conservation and Management of the Philippine Marine Ecosystem

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Dr. Velasquez, distinguished scientists, ladies and gentlemen, good morning.

When Undersecretary Umali asked me last Thursday afternoon to take his place as one of the discussants on the subject of "Conservation and Management of the Philippine Marine Ecosystem", I thought that I would review only one paper. I was surprised later to receive two papers - one on "Coral Reef Ecosystems and Resources of the Philippines" authored by Dr. Edgardo D. Gomez and another on "The State of Seagrass Ecosystems and Resources in the Philippines" authored by Dr. Miguel D. Fortes - with a warning that a third paper on Mangroves was forthcoming. As of yesterday afternoon, however, the threat had not materialized, fortunately. I finally received the third paper entitled "Managing the Philippine Mangal for Long-Term Human Survival" by Dr. Prescillano M. Zamora only this morning. So instead of a paper on "Conservation and Management of the Philippine Marine Ecosystem" with three co-authors, we have three papers authored individually by separate experts. This situation probably highlights the great complexity of the subject matter - the Marine Ecosystem.

1. The State of Seagrass Ecosystem and Resources in the Philippines

Let me now take up the paper on Seagrass Ecosystem.

First of all, I would like to congratulate Dr. Miguel D. Fortes for coming up with a very comprehensive paper on the state of the seagrass ecosystems and resources in the Philippines as well

as the problems and issues associated with their conservation. Reading through the paper and listening to the presentation was a very interesting and educational experience, especially for one whose professional exposure has been entirely on forests including grasses that thrive on *terra firma*. The sources of information are quite exhaustive and, combined with Dr. Fortes' personal expertise on the subject, assure us that the discussions cover the "state of the art" as far as available knowledge on seagrass ecosystems and resources in the country is concerned. The paper gives us, among other vital information, a clear picture of the nature and variety of the seagrass ecosystem components.

Considering their multifarious functions and uses, there is really an urgent need to ensure that the seagrass ecosystems are sustainably managed and effectively protected. We are cognizant of the ever-increasing pressures on the coastal areas by the rapidly expanding population and industrial activities, especially mining. The paper notes that information on the extent of damage and the costs of restoring the seagrass beds are still wanting. A few studies which provide some benchmark information on the subject have already been made in some parts of the country. Further studies, however, should be conducted in other parts of the country to show a national perspective.

It is interesting to note that a high diversity of flora and fauna reside in seagrass beds and that a great percentage of the biotic components are commercially important; a fact which the layman, like myself, just takes for granted due to ignorance of their inter-relationships. Furthermore, it appears that two important endangered species of marine animals - the green sea turtle (pawikan) and dugong feed directly on seagrasses. Survival of these species would, therefore, largely depend on how effectively these feeding grounds are protected.

The role of seagrasses in the stabilization of coastal areas, their ability to filter sewage and their vulnerability to natural stresses as well as human pressures, as a result of his basic needs and industrial pursuits, should awaken our policymakers to the need to conserve these resources.

Regarding the prospects and developments in the seagrass ecosystems management, we quite agree that management policies and conservation projects specifically on seagrass ecosystems are yet non-existent in the Philippines. However, it was

also represented that among the ASEAN countries, only the Philippines, through an inter-agency cooperation, has formulated a National Seagrass Management Program including the proposed creation of a Philippine National Seagrass Committee. Furthermore, the author pointed out that in 1986, UNDP/FAO in association with UNEP, formulated a regional project on coastal fisheries rehabilitation through seagrass transplantation and that the ASEAN-Australian Coastal Living Resources Project is investigating the structural and functional aspects of local seagrass resource at present. But as the author correctly noted, the most practical approach toward sustainable development and conservation of the marine ecosystems is to have an integrated study of seagrass-mangrove-coral reef ecosystems as they are intimately associated or inter-related with one another. We hope that this integrated study would soon be implemented.

The paper pointed out that the Philippines has formulated a National Seagrass Management Program which consists of five parts namely: resource mapping and survey; research and development; information dissemination; education, training and publication; environmental management; and policy and legislation. The paper did not indicate if the program has been implemented and, if so, its current status. In any case, I believe that the policy and legislative component should not be neglected. I mentioned this because a look at the list of bills on natural resources filed in the House of Representatives and the Senate revealed that there are no bills addressing the concerns of these ecosystems except a few which mandate the reforestation of mangrove areas.

Likewise, the component on education and information dissemination should be accorded priority. It appears that much of the work done, especially the papers on studies so far undertaken, are mainly for the scientific community. Hence, there appears to be an utter lack of information about and appreciation of these vital ecosystems among policymakers, especially the legislators and the communities who are directly interacting or who make their living by harvesting the products of these marine ecosystems and resources. I think everybody will agree that if we are to effectively manage and conserve our seagrass and associated resources, the people who directly relate to these resources should be properly educated and informed on the need to protect and conserve them.

2. Coral Reef Ecosystems and Resources of the Philippines

The paper gives us a concise account of the Coral Reef Ecosystem and the valuable resources intimately associated with it. In contrast to research on the seagrass ecosystem, coral reef research has received considerable attention and has progressed so much since the 1970s. This is perhaps because corals, aside from providing habitat to various marine life, especially fish, are extremely valuable in commerce. Judging from the list of references at the end of the paper, however, there appears to be only very few Filipino scientists involved in research on this ecosystem.

Among the problems related to the conservation of the coral reef ecosystem, the author pointed out that pressure of human population is one of the major ones. This indicates that coral reef ecosystems and resources have at least one thing in common with the forest ecosystem, that is, both suffer from population pressure.

To address this problem, the author proposes that for the long term, something must be done about the population problem. For the immediate future, the author indicated that access to them should be restricted or controlled which is quite obvious, but is easier said than done. The approach through some local authority, while in consonance with the current thrust for local autonomy, may be quixotic considering the deeply ingrained Filipino value of **pakikisama**. I must admit, though, that we in the DENR are also proposing to adopt such a scheme when the proposed Local Government Code becomes a law.

3. Managing the Philippines for Long-Term Human Survival

Finally, I shall say a few words about the paper of Dr. Zamora, which as I said earlier, I received only this morning. The paper discussed the present status of the Philippine mangrove ecosystem and indicated that out of an estimated area of 450,000 hectares in 1920, it is now down to 140,000, an average annual decrease of over 4,400 hectares over the last seven decades. A large portion of the mangrove forests has been converted to fishponds and industrial uses.

In this connection, I would like to mention an incident which is very relevant to the subject. In 1967, President Marcos

instructed the Director of the Bureau of Forestry to release 500,000 hectares of mangrove swamps for fishpond development. The directive was supported by supposed studies of the Presidential Economic Staff, the forerunner of the NEDA, which showed that the value of mangrove areas would be more if converted to fishponds. We, however, knew that the President was being misled by an influential group of war veterans who were then engaged in the lucrative export of mangrove timber to Taiwan. In other words, the proposed conversion of mangrove forests to fishponds was just a cover or justification for wholesale clear cutting of the mangrove forests. Recognizing this ruse, we prepared a position paper and requested the President to reconsider his directive. Fortunately, the President heeded the Bureau's advice and did not pursue his directive. Otherwise, we probably would not have a single hectare of mangrove swamp left at present.

Like the other ecosystems, the mangrove ecosystem is being damaged and depleted. However, at present, we have regulations that prohibit the conversion of forested mangrove swamps to fishponds. Even areas covered by fishpond leases which are still forested with mangrove species are required to be left in their natural state. The titling of fishpond areas, which was allowed before, has been stopped. Furthermore, areas zonified for fishpond purposes which are not utilized within five years after their certification are reverted to the category of forestland.

Finally, let me congratulate the authors of the papers on Marine Ecosystems and Resources for their excellent exposition of the present status and the issues and problems affecting them.

