

Title: **Ecosystem Based Management of MPA - Case study from Nha Trang Bay**

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Abstract: The marine ecosystem is vital to the survival of millions of coastal people in Vietnam. However, many areas have been severely degraded and others are threatened, with long-term productivity compromised. Currently, fisheries management is limited, with over-exploitation and unsustainable fishing in some area. Marine Protected Areas (MPAs) are an important tool in future fisheries resource management and biodiversity conservation. In Vietnam, the Ministry of Agriculture and Rural Development (formerly Ministry of Fisheries) has been responsible for establishing a system of 15 MPAs over the next decade. Some progress has been made to achieve this goal. However, a comprehensive approach Ecosystem based approach will be required for the establishment of a system of MPAs. Nha Trang Bay was chosen a model for the development as a model for the establishment of Ecosystem-based approaches to MPA management. MPAs represent a tool for marine ecosystem management based on the protection of biodiversity within the overall development planning process in coastal and marine areas. MPAs differ greatly in concept from the better known terrestrial PAs, which often appear to protect nature at the expense limiting human access and use. MPAs on the other hand are intended to provide benefits on various scales, from local to national, international and even global scales. Even small MPAs (e.g. 150 ha) have been shown to generate significant benefits both within and outside their boundaries. Larger areas provide even greater benefits of scale, particularly regarding fisheries recruitment, via protection of spawning or nursery habitats, plus spill-over effects from the MPA to the surrounding fishing grounds. MPAs benefits are various and include particularly sustainable tourism opportunities as well as the more obvious benefits to fisheries. MPAs can also play an important role in protecting the life cycles of marine species that are important in aquaculture, for example spiny lobsters, mud crabs and high value fin fish such as groupers and snappers. Institutional and/or management weaknesses, however, often prevent or inhibit the achievement of ecosystem management goals. At the design stage, it is vital that the most significant or representative areas of habitat and species diversity are protected, but this is often not the case due to inadequate site selection (comprehensive marine resource surveys are both technically very demanding and expensive). Within a particular habitat type, e.g. corals, there may be a number of distinct communities in need of protection, but this may not be catered for in the MPA plan. Thus, the areas chosen for protection are often selected on the basis of limited biological/ecological information, or to reduce potential conflicts with other resource users who would otherwise lobby against the inclusion of certain areas within an MPA. The potential significance of MPAs lies in the opportunity to develop a network of MPAs, both representative of habitat and species diversity, but also functionally effective via their fisheries and tourism values. In the case of fisheries and aquaculture support, the most significant benefits that MPAs can provide are via extensive MPA networks, including transboundary sites that allow valuable species that require large habitat ranges, such as migratory species and species with specialized feeding requirements.