1 FOREWORD

1.1 Background

The regency of Mentawai Islands is the only region in West Sumatera which is an archipelago. Geographically its location is separated from other regencies/towns in West Sumatera because it is separated with a sea. Located in West Sumatera in the Indian Ocean, it is a group of islands whose formation is a kind of tectonic islands.

As an archipelago, fishery and marine resources become the reliable basic capital of developing the region. Mentawai Archipelago has a potential fishery and marine tourism development, whose coastal area is surrounded by sea, and some small islands which have natural forest charm and specific cultural tradition.

Mentawai Islands Regency has a coastal line as long as 2,054 km and consists of a group of 4 big islands (Siberut Island, Sipora Island, North Pagai Island and South Pagai Island) and 94 small islands. This area as a whole is surrounded by sea, and it has a potential coral reef ecosystem. The coral reef ecosystem as one of the main ecosystem in the coastal area specifically plays an important role to protect the beach and from tides. Ecologically it functions as a habitat of various marine biota, such as a shelter, a place for searching food, for spawning, and as a nursery ground.

Furthermore, the beauty of the coral reefs can become an interesting marine tourism object. Utilization of coral reefs as one utilization of the environmental services in the form of marine tourism such as diving and snorkeling. Diving and snorkeling are a form of marine tourism that is favored by coral reefs. If this can be managed well it can support the regional income and it can give an opportunity for the local people's economy to grow.

Coral reef ecosystem is an ecosystem that is subject to environmental changes due to natural disturbance as well as human disturbance. When developing the coral reef ecosystem area as a marine tourism area which is sustainable, it is important to apply ecotourism concepts, namely a tourism concept that can reflect environmental horizon and follows the norms of balance
and conservation, and can improve the quality of inter human relationship, the quality of the local people and also can keep the quality of the environment. To sustain the coral reef ecosystem as a utilization of marine tourism, it is necessary to use an ecotourism concept.

Conceptually, ecotourism can be said as a concept of developing sustainable tourism in order to support the efforts of conserving both the natural environment and culture, and to increase people’s participation in management, so that it can give benefits to local people. From the management point of view, ecotourism can be said as a responsible tourism activity in a natural environment or an area that is made based on natural norms, and economically can be sustained to support the environmental conservation and to improve the local people’s welfare. Integrated marine ecosystem management, promising investment planning, good layout utilization, and the local people’s orientation can improve the quality of human beings that very much depend on marine resources. Besides, the natural environment is also well sustained. Ecotourism whose area is relatively limited usually has a specific nature, so it is necessary to consider the carrying capacities for its utilization. The carrying capacity here means how to arrange the number of visitors and to determine the location for each related activity.

Tuapejat is the capital regency of Mentawai Islands, which is the main gate to this Islands. In the Regional Tourism Development Chief Planning (Rencana Induk Pengembangan Pariwisata Daerah - RIPDA), Tuapejat belongs to a developing area of marine tourism. The coral reef ecosystem area in Tuapejat is planned to be an area of conservation. Nowadays, three out of seven islands in Tuapejat have been managed by investors as marine tourism areas. The existence of data about potentiality and carrying capacities of coral reef ecosystem in the coastal areas and small islands will be useful to build the sustainable marine tourism for the regional development. At this time data of the research results or studies are still very limited to support potentiality, suitability and ecosystem carrying capacities for coral reef ecosystem in the coastal areas and small islands in Tuapejat waters for the development of the marine tourism.

For the needs of developing marine tourism in the areas of coral reef ecosystem, it is necessary to have coral reef management that is good and settled.
Good management needs data and information about coral reefs. As an initial step to manage and develop coral reef ecosystem for marine tourism, data and information about its condition must be available.

1.2 Problem Formulation

From the problems mentioned in the background, the problems that underline this research can be formulated as follows:

- Lack of data of coral reef ecosystem resource potentialities in Tuapejat.
- The absence of studies on the suitability and carrying capacities of coral reef ecosystem for the development of marine tourism in Tuapejat.
- The absence of management of coral reef ecosystem area for the marine tourism activities.

To identify the problems more easily, look at the following diagram of problem approach in Figure 1 below.

1.3 Frame of Thought

The frame of thought that underlines this research is the importance of a study of suitability and carrying capacities or coral reef ecosystem in order to develop marine tourism in Tuapejat, the Regency of Mentawai Islands, so that data of potentialities and environmental carrying capacities for the development of ecologically-based marine tourism.

The coral reef ecosystem that is available in the coastal areas and small islands gives a number of benefits to the people in the coastal areas. Besides, it is a habitat of a number of marine biota, and a place for the people to earn a living and to develop the region. It also contains an esthetics that can be developed as a tourism object that can become a source of the income of the region and the stakeholders involved in it. The meeting of various interests in the coastal areas unavoidably can create conflict of interest from the utilization of various parties that are involved in it. On the one hand, the limited ecosystem resources of coral reefs can cause conflict of interest.
The flow diagram of Analytical Frame of Thought of Coral Reef Management in order to develop Marine Tourism in Tuapejat
On the other hand, the sustainability of the existing resources needs to be managed and conserved well. The conflict of interests in the end will put ecological importance as an object that will be sacrificed, whereas its ability as an ecosystem to recover the condition like the original will be too late. Slowly and surely the condition of the coral reef ecosystem will be destroyed and it is not possible that one day it will extinct.

Being aware of the importance of the existence of coral reef ecosystem in the coastal areas and small islands in Tuapejat which is related to the concept of environmental balance which has so far been adopted, and also considering the efforts to conserve the nuclei plasma resources (to maintain the existence of biodiversity), it is necessary to carry out a study on suitability and carrying capacities for sustainable development and utilization of marine tourism.

1.4 Research Objectives

The objectives of this research are as follows:

1. To identify the potentialities of coral reef ecosystem resources in the coastal areas and small islands in Tuapejat.

2. To carry out a study of suitability and carrying capacities of coral reef ecosystem in order to develop marine tourism in the coastal areas and small islands in Tuapejat.

3. To make a strategy of managing the marine tourism in the coastal areas and small islands in Tuapejat based on the types of marine tourism that can be developed.

1.5 Scope of Study

The scope of the research includes the following:

1. Collecting ecological data of coral reef ecosystem and socio-economical data that are related and that support the research results.

2. Analyzing the suitability and carrying capacities of coral reef ecosystem in order to develop marine tourism and the importance of conserving the coral reef ecosystem in the coastal areas and small islands in Tuapejat, the Regency of Mentawai Islands.
3. Zoning and planning the management of the coral reef ecosystem areas to support the development of tourism activities and to sustain the conservation of coral reef ecosystem.

4. To make a strategy of planning for developing the marine tourism of diving and snorkeling categories.