I INTRODUCTION

1.1 Background

Sustainable tourism planning is a planning based on the maintenance of a balance where tourism runs at a profit but not at expense of the natural, cultural, or ecological resources (IFTO, 1994 in Holden, 2001). Therefore, to survive and thrive for a long term basis, tourism industry is obliged to preserve the environment. Promoting sustainable tourism development in the Province of Daerah Istimewa Yogyakarta is one of the objectives of Agenda 21 of Yogyakarta in which tourism was selected to be the first Regional Agenda 21 of Yogyakarta.

Tourism has large and extensive multiplier effects and may create new job opportunities. Tourism has positive impacts for local income, employment, scientific and tax revenues (PAD), however, some negative impact may also exist. The negative impacts are for examples, degraded environment and culture. These impacts are determined by a variety of factors, such as the extent of tourist zone use, the resilience of ecosystems, and the size of zone. The smaller the size of the tourism area, it is likely to impose more effects on the environment and culture. Basically, positive impacts are more to be considered, therefore it is not surprising that local or national governments attempt to maximize their coastal tourism potential through promotional campaigns, increasing tourist facilities and enhancing air and sea links (Briguglio & Briguglio, 1996).

The government is aware that the sustainability of the tourist industry has been threatened by overused and inappropriate spatial planning, for example; (a) Malioboro, the tourism centre, with the excessive number of street vendors and heavy traffic, (b) Kaliurang, where a natural mountain lake has been transformed into a
swimming pool, and (c) Parangtritis beach, where the beach and ocean view have been obscured by hotel, settlement, shops and parking lots that utilized the area of sand dune (UNDP, 2003). Therefore, the Agenda 21 of Sustainable Tourism Development DIY has one of important missions i.e. to rehabilitate these conditions to reach the sustainable resource utilization.

For managing the tourism industry, spatial planning is one of the solutions to be taken into consideration. According to Williams (1998:111), spatial zoning is an established land management strategy that aims to integrate tourism into sustainable area by defining areas of land due to the suitability’s or capacities for tourism. Hence, zoning of land may be used to exclude tourists development facilities from primary conservation areas, to focus general visitors into a limited number of locations where their needs may be met and their impacts may be controlled and managed. It uses some kind of spatial data themes that are collected through inventorying, storing, attributing, and analyzing. In this case remote sensing technology was used for spatial data collection and inventory of coastal ecosystem condition.

Geographic Information System (GIS) allows the matching of recreation potential with the characteristics of the regions. The capability of a GIS to allow rapid modification, addition or removal of constraints and to investigate the complex interrelations between the thematic layers is attractive for resources management and planning.

In some cases, conflicts of interest of different stakeholders exist and need to be assessed with the output best for the region. Spatial multi criteria analysis may be employed for the study. Spatial Multi Criteria Analysis Method offer the analytical and statistical modeling facilities to deal with multiple choice objective and multi-
criteria. Spatial Multi Criteria Analysis is a conjunctive application of Remotely Sensed data, Geographic Information System and Multi Criteria Analysis Technologies, which is very important in assisting decision makers choose the best decision on complex problems.

This research employs spatial multi criteria analysis to assist spatial planning in Parangtritis Land Coastal Tourism Area.

1.2 Problem definition

Decision makers often faced by conflicting interests resulting from various existing or planned activities of different stakeholders. The government of Bantul Regency faces similar problem in managing Parangtritis tourism area, where path of the sand dune conservation zone to be used for settlement, hotel and some plantation. The effort to minimize deviation in space utilization must be done, to prevent deterioration of existing tourism zone. The trend of increasing visitor will use more space of land; it can be anticipated through exploiting alternative site or expanding tourism zone.

Data aerial photos in 1992, aerial photos in 2000 and quick bird image in 2003 clearly show that the expansion of the settlement and hotel is about 11%. The problem is that about 3% of development was situated in the area of sand dune conservation. The other problems are vegetation that grows and the planting that causes to be passive sand dune.

The policy documents concerning sand dune conservation/ rehabilitation and utilize land for other purpose i.e.: hotel, settlement and agriculture need proper consideration, so the conflict will be reduced and avoided. Studying the conflict is carried out through spatial analysis and conflict analysis approaches. The spatial
analysis is conducted through Geographical Information System in evaluating the situation to obtain tourism suitability. The spatial planning is basically the formulation of space utilization in optimum way, based on production orientation and environmental conservation. According to the problem, it is necessary to make problem definition on how to use spatial multi criteria analysis for land coastal tourism planning. The most important propositions of this study are:

- how to determine the land suitability by obtaining land characteristics and land use or land cover using remote sensing and GIS,
- how to get the best policy of land use alternative for tourism development using spatial multi criteria decision making, and
- how to create the land coastal tourism zone according to the best policy, which is being defined.

1.3 The objectives

The objectives of this research are:

- to carry out the suitability assessment for tourism area,
- to identify the conflicting area,
- to assess the conservation zone of sand dune and other tourism object, and
- to assess the policy option of tourism development.

1.4 Output

The outputs of this research are:

- Land suitability map for tourism area,
- Alternative maps based on scenario created to develop tourism planning, and
- Recommended land use map that would be used for tourism development.
1.5 Scope of Research

Research site is Parangtritis village, which is geographically located between 110° 16'30" - 110° 21'00" East and 07° 16'30" - 08° 02'00" South. The research area is focused on coastal land, while the coastal marine were not included due to the strong wave and steep slope of the sea bottom.

Parangtritis Village covers an area of 967,201 hectares consisting of 11 sub villages. Administratively, Parangtritis is bounded by Donotirto Village in the northern part, Selohardjo Village in the eastern part, Tirtohardjo Village in the western part and Indian Ocean in the southern part. This research used a base map at 1: 25.000 scale.

Figure 1.1. shows Parangtritis area in the Province of Daerah Istimewa Yogyakarta.