

CHAPTER I INTRODUCTION

A. Research Background

Mangroves play an important role both ecologically and economically on the planet (Alongi, 2014). Mangrove plants have a special ability to adapt to extreme environmental conditions, such as submerged soil conditions, high salinity and less stable soil conditions (Noor, 2006). In addition, mangrove vegetation is a typical coastal plant along tropical and sub-tropical beaches. This plant grows on the tide boundary, precisely the coastal area and around the river mouth, so that the forest floor is always inundated and always covered with sediment and can adapt to brackish dish (RSNI-3, 2011).

Mangrove forests have high biodiversity and serve as feeding, breeding and nurseries for many species such as crabs, fish, mollusks, oysters and shrimp, and provide habitat for many species of amphibians, birds, crustaceans and mammals (FAO, 2007) In addition, mangroves also play an important role in protecting the coast from storms. Mangrove ecosystems are rich in biological functions in providing important goods and services that support human well-being, including livelihoods, income, food security, health services, poverty alleviation, and social sustainability (Walters, 2008).

Indonesia has the largest mangrove ecosystem in the world and has the highest biodiversity. With a coastline of 95.181 km², Indonesia has a mangrove area of 3,489,140.68 ha (in 2015). This amount is equivalent to 23% of the world's mangrove ecosystem, from a total area of 16,530,000 ha. Of the mangrove area in Indonesia, it is known that an area of 1,671,140.75 Ha is in good condition, while the remaining area of 1,817,999.93 Ha is in damaged condition (Ministry of Environment and Forestry, 2017). This area is lower compared to data from the Ministry of Forestry in 2007 which reached 7,758,410,595 ha (Director of Forest and Land Rehabilitation Development at the Ministry of Forestry, 2009 in Hartini et al., 2010). Generally, mangroves can be found throughout the Indonesian archipelago. The largest mangroves are located in Irian Jaya, Kalimantan and Sumatra. But almost 70% of the mangrove area in Indonesia is damaged (with the level of damage that has not been recorded).

Mangroves are vegetation with very fast deforestation rates. Indonesia has lost about 60-70% of mangrove forests and continues to lose the remaining mangrove forests every year (Maiden, 2012). The area of mangrove forests has decreased by 30-50% in the past 50 years due to coastal development, expansion of pond development and excessive logging (Donato et al., 2012). Deforestation and changes in land use currently cause carbon dioxide (CO₂) emissions of around 8-20% originating from human activities while at the global level occupying the second position after burning fossil fuels (Donato et al., 2012).

One of the damaged mangrove forest areas in Indonesia is in Riau Province. In 2007 the area of mangrove forest was 261,285.33 Ha (RLPS-MOF and Riau Provincial Forestry Service, 2007) and in 2009 it was 206,292.64 Ha (BIG, 2009). This mangrove area continues to experience a decline in 2010 amounting to 175,295.26 Ha (Riau BLH, 2010) and in 2013 it became 143,882 Ha (Riau Provincial Forestry Service, 2013) and declined again in 2014 to 138,433.62 Ha. there was a downward trend in the area of mangrove forests in Riau Province from 2007-2014 amounting to 122,851.71 Ha or 47% of the area of mangrove forests in 2007, almost half of the total mangrove debt that had been lost or changed.

The area of mangrove forest that was damaged in Riau Province was the area of mangrove forest found in Indragiri Hilir Regency. In the period of eight years there was a loss of mangrove forest area of 17,512.31 hectares from the area of 121,535.31 hectares of mangrove forest in 2006 to 104,023.00 ha in 2014. The large potential damage to mangrove forests is in Mandah District, this area has an area the largest mangrove forest in Indragiri Hilir Regency is 31,007 Ha (Forestry Office of Indragiri Hilir Regency, 2016), so that Mandah District is very vulnerable to damage and loss of mangrove forests.

Mangrove forests also provide many products for the community, namely food that can be obtained from nipah (*Nypa fruticans*), api-api (*Avicennia spp.*), Syrup drinks from *Sonneratia spp.*, Various types of medicines, bioenergy from Bintaro seeds (*Cerbera sp.*), dyes for batik, animal feed from leaves, fish, crabs, shrimp, shellfish, mollusks, other marine biota, and wood (construction wood, wood for housing, firewood, charcoal and wood chips), (Tampubolon, 2017). Forests besides producing wood, also non-timber forest products and environmental

services (Sudana and Wollenberg, 2001). Overall, mangrove ecosystems have an important role in the coastal economy. But this function is currently not going well because of the increase in mangrove damage from year to year, especially in Indonesia.

Communities around the forest area have a very important role in conserving forests. However, they can also play a role in forest destruction (Singha, 2013). Communities around the forest and the community in general will have different attitudes in addressing the existence of mangrove forests. The number of people living inside or on the edge of the forest that depend on forest products is very large (Rangkuti and Ferdi, 2005).

However, every landscape certainly has a different level of dependence and interaction with the mangrove ecosystem. Fishermen have the main source of income from fish catches and other marine products which are partly derived from mangroves or marine waters that are affected by mangroves. Processing communities and traders of mangrove forest products depend on the supply of raw materials from mangroves. Likewise, with farmers, the productivity of the land is very dependent on mangroves which can prevent sea water intrusion, abrasion and reduce wind speed. Urban and urban communities are very dependent on the quality of water, air and land, prevention of flooding and strong winds that can be provided by mangroves.

Certain community groups also benefit from the development of ecotourism in mangrove forests. It can be ascertained that mangrove damage will disrupt the stability of the landscape around the mangrove ecosystem. On the other hand, damage to mangrove forests actually threatens people's lives, such as the loss of fish, shrimp, crabs and various other aquatic biota, coastal abrasion, seawater intrusion and various other negative impacts (Tampubolon, 2017).

To reduce the gap or damage can be done with certain approaches to maintain life. Sustainable livelihood approach is an approach on how the community optimizes the utilization of existing assets to fulfill an adequate livelihood. Livelihood assets are all things that are valuable or are a set of capital used to make a living. These assets consist of natural assets, physical assets, social assets, financial assets and human assets (DFID, 1999). Sustainable livelihoods are

seen through how communities manage, utilize and prioritize available assets to overcome problems in terms of fulfilling livelihoods.

The study of the livelihoods of coastal communities is considered necessary, namely to know the assets owned and also what must be done from them. In addition, the strategy to meet the needs by utilizing livelihoods also needs to be carried out deeper studies, especially for coastal communities in Mandah.

Based on the explanation above, this study wants to examine how the current condition of mangrove forests in the research location and the dependence of people's livelihoods on mangrove forests and how the damage to the mangrove forests is by looking at the livelihood assets of the community.

B. Research Questions

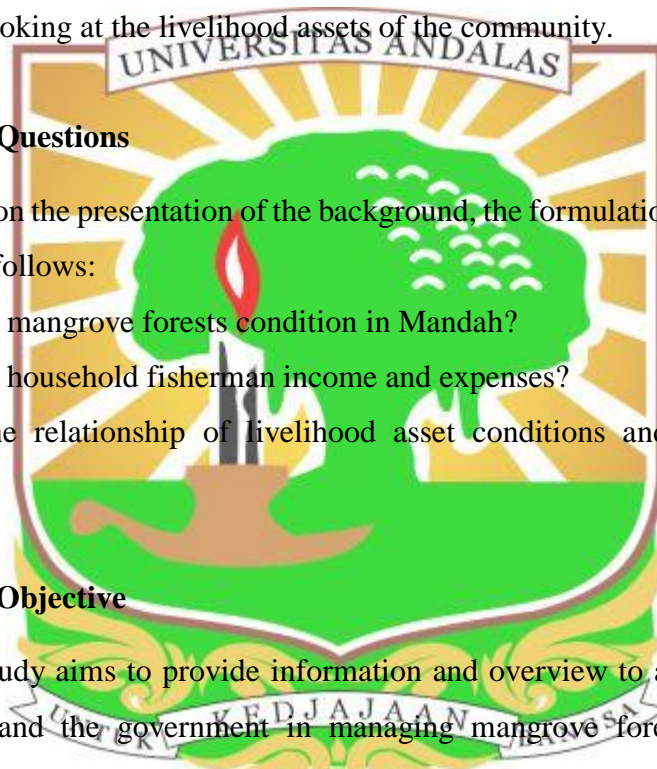
Based on the presentation of the background, the formulation of the research problem is as follows:

1. How is the mangrove forests condition in Mandah?
2. How is the household fisherman income and expenses?
3. How is the relationship of livelihood asset conditions and the livelihood strategies?

C. Research Objective

This study aims to provide information and overview to all communities, stakeholders, and the government in managing mangrove forests in order to maintain the ecological and economic functions of mangrove forests. The purpose of this study is as follows:

1. To analyze the mangrove forests condition in Mandah
2. To calculated fisherman household income and expenses
3. To analyzing the relationship of livelihood asset conditions and the livelihood strategies



D. Analytical Framework

The thinking framework of this study illustrates the process of the research flow and can be seen in Figure 1. the following.

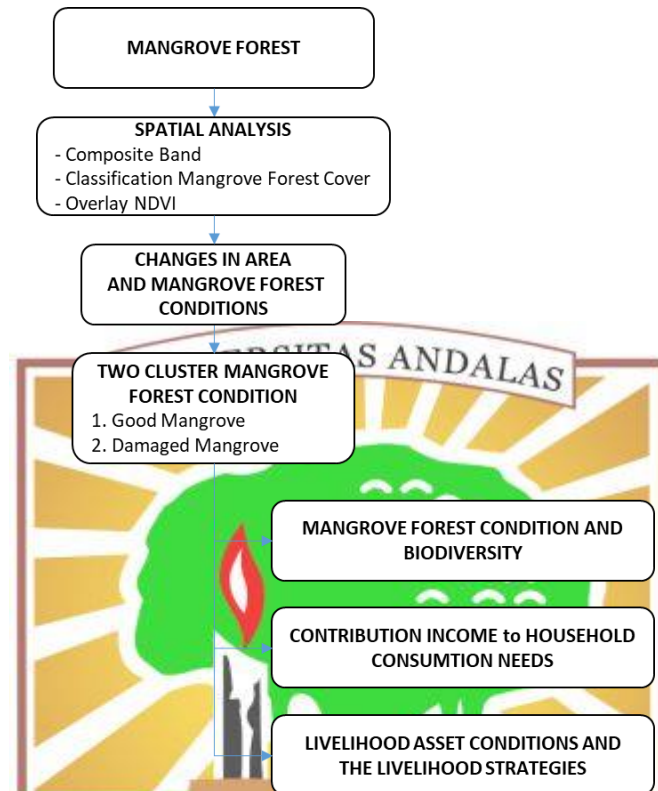


Figure 1. Analytical framework

E. Significance of the research

The findings of the study are expected to provide information on the condition of mangrove forests spatially and their impact on people's livelihoods by looking at the dependence of the community on mangrove forests and are expected to be useful for various institutions and stakeholders, especially the Ministry of Environment and Forestry, in making forest management policies and forest protected areas mangrove to maintain mangrove forest ecosystem function and management and utilization of mangrove ecosystem in an integrated and sustainable manner in terms of knowledge and technology.