

CHAPTER I

INTRODUCTION

1.1 Background

Indonesia consists of about 17,508 islands and divided into 33 provinces. The total population of Indonesia was estimated at 215 millions people which approximately 60 percent of them earned their living from agriculture (MoA, 2002) with the total of agricultural area around 75 million hectares (MoA, 2003). During the economic crisis in Indonesia (1997 – 1999), the agriculture sector including food crops and horticulture, estate crops, livestock, and fisheries, proved its importance to Indonesian economy, with 17.13 percent of share to the GDP in 1999 (World Bank, 2006). Also, the average growth rate of agricultural sector to the GDP was increased from 0.88 percent per annum during economic crisis to 1.83 % per annum in the year 2000 - 2003 (MoA, 2005).

Bali is one province in Indonesia which is well-known as the famous tourist destinations in the world with the agriculture sector as the mainstay of Balinese culture and economy. In 2005, the share of this sector to the GDRP Bali province is 20.29 percent, and absorbing more than 32 percent of the 1.8 million labor forces of Bali (CBS, 2006). The total area of Bali is 5,636.66 km² (CBS, 2006) and geographically it categorized into two parts of landscape, northern part with mostly upland and mountainous areas and southern part with mostly lowland areas. Based on that landscape, the utilization of land is classified into rice-growing areas, other food

crops, and plantation crops areas with intensive and semi-intensive farming systems (Nitis *et al.*, 1990).

Coffee has been cultivated in Indonesia since 1699 (more than 300 years). Indonesia produces Arabica and Robusta coffees, which are cultivated by smallholding farmers, government estates and private estates. Coffee is an important commodity for Indonesia, even though it shares less than 1 % of the total foreign exchange earning (Mawardi, 2007)

Coffee is one of the major plantation crops that mostly grown by smallholders in Bali. Nowadays arabica coffee is more popular than Robusta due to its high price and provincial government policy. The major producer of arabica coffee in Bali is Bangli district which contributes 1,590 tons of the total 2,677 tons of Bali province's production in 2006 (Estate Crops Service of Bali Province, 2007). In the year 2000 – 2002, coffee price has been fluctuating between US\$ 0.33 – US\$ 0.67 per kg. But in 2005, the price was getting better and became US\$ 2.89 per kg (Mawardi *et al.*, 2005).

1.2 Rationale

Coffee is an important agricultural commodity in Bali province which particularly absorbed 93 percent of employment for arabica coffee grower in Bangli district in 2003 (Anonym, 2004).

Coffee is a kind of plantation crops which has several different harvesting periods dependent highly on climate and geographic location. In the period of 2001 – 2003, the total area of Arabica coffee production in Bali province has been decreased from 14,597 ha to 8,046 ha where 46 percent of it is in Bangli district and almost 96

percent is in Kintamani sub district. At the same period, its production also decreased from 5,822.13 ton to 3,852.14 ton. From the production aspect, Kintamani sub district contribute almost 99 percent of the total production of Bangli district and 51 percent from Bali province (Anonym, 2004)

Previously, farmers have grown their coffee with traditional monoculture ways, with the shade trees such as *Erythrina*, *Albizia*, *Gliricidea*, and *Leucaena*. The price fluctuation had affected their farming systems and lead to high risk to their livelihood. In order to minimize the price risk and maximize their returns, some farmers cut off their coffee and replace it with tangerine, but most of them implemented the integrated farming system based on coffee (Mawardi *et al.*, 2005). Nowadays, there are several patterns of the integrated coffee-based farming system that farmer applied such as integration of coffee with tangerine (*Citrus nobilis Lour*), clove (*Syzygium aromaticum*), and ruminant cattle.

Recently, the Provincial Government of Bali also support the development of arabica coffee in Bangli district, by introducing the technology to improve the quality of coffee production and encourage farmers to implement Good Agricultural Practices (GAP) in their integrated coffee-based farming systems (Darmawan, 2003)

Due to seasonal and long term price fluctuation, these make it difficult for smallholders to sustain their livelihood. There are fewer studies on the sustainability of integrated coffee based farming system in Bali province. So, it is essential to assess whether the current practices is a sustainable agricultural systems or not, in terms of ecological, social, and economic dimension.

1.3 Objectives

This study therefore has its objectives:

1. To characterize the integrated coffee-based farming systems in Bali
2. To assess the sustainability of the integrated coffee-based farming system in terms of ecological, social, and economic aspects
3. To identify the potentials and constraints to the sustainability in the coffee-based farming system

1.4 Usefulness of the study

The outcomes of this study will help the stakeholders, particularly the provincial government of Bali Province, as the primary information or suggestion for the further development plan in the area.