

RURAL COMMUNITY TRANSFORMATION FOR SUSTAINABLE DEVELOPMENT

Alfitri¹, Muhammad Izzudin¹, Abdul Kholik¹, Randi¹, Andi Alfatih¹, Azhar¹, Mohd Mahzan Awang², Sarah Khumairah Muchlis²

¹Faculty Of Social And Political Science, University Of Sriwijaya, Indonesia

²Faculty Of Education, The National University Of Malaysia, Malaysia

ABSTRACT

The Transformation community's interest in the necessities of life that depend on agricultural land. On the other hand, the conversion of agricultural land into oil palm plantation with a profit-sharing scheme which not profitable to peasant because cannot control the price. The aims of this study are to explain the structure and pattern of village space, spatial origin cluster of the transformation community and land use planning village for agriculture. This research was conducted in Mulyasari Village, Tanjung Lago District, Banyuasin Regency. This study took six months with a Participatory Rural Appraisal (PRA) and participatory mapping using Geographic Information System (GIS). The results of this study show that 1) the structure and pattern of Mulyasari village dominated by rice fields and oil palm plantations, 2) The most origin of the community are came from Java Island where they joined transformation program in 1980, 3) Half of the land use for agricultural land changed from rice fields from the beginning 198 become palm oil plantation in 2019.

Keywords: Rural community, transformation, participatory mapping, land use, agriculture

INTRODUCTION

The transformation of Indonesia from a colonized archipelago to an united sovereign nation state has changed the structure of the agrarian. Being predominantly an agrarian society with about 60 percent of its population employed in or living from agriculture, governments are forced to control natural resources such as land, water, and the wealth they produce as best they can to achieve public welfare. The presidents who have ruled the country for the past 50 years, however, have different views about their use, misuse and management.

Approximately 70 million ha (out of 192 million ha of land) are used for agricultural and settlement purposes in Indonesia. Agricultural policy's primary focus is rice self-sufficiency. The most fertile lowlands of Java, Bali, Southern Sumatra and Southern Sulawesi are already occupied by rice production. Therefore, to increase the production of non-rice food crops and estate crops, marginal lands must be created. It includes the coastal swamps on Kalimantan and Sumatra (about 35 million ha), as well as the erosion-prone (alang-alang) grasslands (about 15 million ha) and the vital uplands on Java and Bali (about 10-40 million ha). Therefore, transformation of forest areas would include the expansion of estate crop plantations. It ensures that farming uses compete in many cases with forest uses. In the last 3 years, 3 million hectares of state forest land have been converted to agricultural lands and used for transformation and construction purposes.

Indonesia, meanwhile, is one of the world's largest palm oil producers and has ambitious plans to expand its oil palm plantations further. There is a great deal of fear that such development will have negative effects on local people. In the recent past, large-scale development has repeatedly violated local customary land rights, leading to public disputes.

The transformation program is intended to contribute to the solution of a number of goals: reduction of population pressure on the inner islands (Java and Bali); economic development of the outer

islands; securing and/or increasing food production; incorporation of ethnic groups within the context of "nation building" and strategic securing of border regions.

One of the problems in the transformation region is that transformation of land use is not without problems-especially because land use optimization has led to disputes. Each single square meter of land for the poor-even if left unused-has its importance as a market for food, shelter and peddler. Thus, any change to "public interest" uses such as mini markets, parking lots, shopping malls would cause opposition. The concept of "efficient optimization" must therefore entail addressing the needs of the poor and seeking some sort of appropriate compensation. It is a matter of economic survival for them.

Rural community Mapping, Land use Planning and Land Conversion

Rural community maps can show not only the land borders, but also the different land uses, sacred places, wild animal feeding and breeding areas, river systems, communities and future plans. They allow local people to communicate with government and other stakeholders their views of land rights and resource management systems. Both the mapping process and the final map will help communities gather and reflect traditional knowledge, raise awareness, promote processes of land-use planning, and gain recognition of their natural resource management systems and related property rights. Public mapping can also help to prevent and resolve border conflicts (Peluso, 1995; Momberg et al., 1996).

Land-use planning is a comprehensive assessment of land and water resources, land-use alternatives and economic and social factors to identify and implement the best land-use options. The aim is to select and enforce those land uses that best meet people's ideas while safeguarding future resources. The driving force of planning is the need for reform, the need for better management or the need for a completely different land use pattern determined by changing circumstances" (FAO, 1993).

According to Kurdianto (2011), the shift in role of paddy fields to oil palm and rubber is caused by different things, namely oil palm and rubber farming income is higher with lower risk, higher sales / garden collateral price, oil palm farming and lower rubber production costs, and limited water availability. One of the impacts of transformation of the rice field, which is often the concern of the general public, is food security disruption. (Irawan, 2005).

Aim of Study

This study aims at analysis the structure and pattern of village space by description participatory village map with the head village guidance and instruction. It also examines in spatial origin cluster of the transformationrural community and how they own the land tenure. Furthermore, this study discussesLand use planning village for agriculture related to how the land conversion because of the rapid economic production in the palm oil plantation change the land use in the village.

Research Methodology

This research was carried out in the village of Mulyasari, Banyuasin Regency district of Tanjung Lago, Province of South Sumatra. The tool used was Participatory Rural Appraisal (PRA), aided by local leaders in collecting data primarily for determining the present status of the land tenure system in the study area as well as cross-checking the data collected. Data was collected via direct interviews by the researcher's personal visits to the selected farmers house.

The second method is Free Mapping process divided into 6 main stages, including; first, defining areas in the form of village sketching together with the rural community, specifically for village boundaries, focus group discussion with stakeholders (village officials, custom members, rural community representatives, youth, family, children, women). Participation / cooperation in the project allows the public to be fully involved in planning, decision-making, execution, assessment and monitoring as well as taking responsibility for the mapping process. Second, the training of village mapping facilitators to use the system in the form of the Global Positioning System (GPS), the use of software designed for the group

to work alone, and the training to use shape point coordinates to be used. The third stage is the compilation of primary data, where the rural community takes all accepted coordinates and will be checked together with the facilitator when the coordinates are put into ArcGIS software and digitized together, as part of the spatial correction and learning process for both the facilitator and the village population. Participatory mapping and the Geographic Information System (GIS) can be a framework that integrates interactions between people and climate, culture and landscape.

Findings and Discussions

a. Participatory Spatial Planning

Participatory mapping can be achieved in different ways, from ephemeral non-scale maps to analog and digital geospatial methods, each serving different purposes. (Corbett, 2009). The integration of local knowledge in a scale map allows for more informed spatial planning processes in which context map data (e.g. highways, utilities, water bodies) and participatory data collected (e.g. land use patterns, landscape values, important local areas) can be incorporated into GIS for more accurate and consistent decision-making (Brown & Kyttä, 2014; Craig, Harris, & Weiner, 2002; Fisher et al., 2017). Good spatial information and map performance ensure that local knowledge in the formal planning process is reliable and consistent with other spatial datasets and planning resources (Brown, Weber, & de Bie, 2015; Kahila-Tani, 2015). The benefits of participatory village planning mapping relate not only to information generation (Brown & Kyttä, 2014) But also inclusiveness and capacity building for the family. For example, Zolkafli, Brown, and Liu (2017) In a case study from Malaysia, it was shown that participatory mapping methods improve residents' knowledge of landscape and planning processes, improving their ability to discuss issues and needs in their living environments.

Participatory mapping with a satellite image improved the understanding of the details and the broader picture of the landscape as well as the spatial and practical understanding of the characteristics of land use. The resulting maps reflect this understanding and knowledge that was collectively created. The informants in the group discussion of the participants said that the combination of current land use maps of the two groups increased the accuracy of the map and increased collective learning.

Government planning accuracy standards and mapping exercises can restrict local spatial awareness expression. This is because regional spatial awareness also involves blurred borders, vague or holistic interpretations of landscape features and symbolic meanings. (McCall & Dunn, 2012; Reid & Sieber, 2019) These are not renderable in accordance with the strict spatial data conventions; participants may not be able to express their expertise in these terms. However, the need to use nationally specified categories of land use forbids participatory legend and risks obscuring local characteristics, various forms of information and semantime accuracy (Rambaldi, Chambers, McCall, & Fox, 2006).

Spatial planning defines the structure form (settlement and network center) and spatial patterns (protected and cultivated areas). Here, the emphasis is on illustrating population trends and the existence of housing and social infrastructure: highways, drainage systems, schools, water services, etc. Security of the spatial plan is an essential basis for the effective management of natural resources, agricultural commodities and infrastructure for renewable energy. Setting village boundaries would enable the village administration to prepare medium-term village development plans and allocation of village funds.

Figure 1: The land use of Mulyasari Village

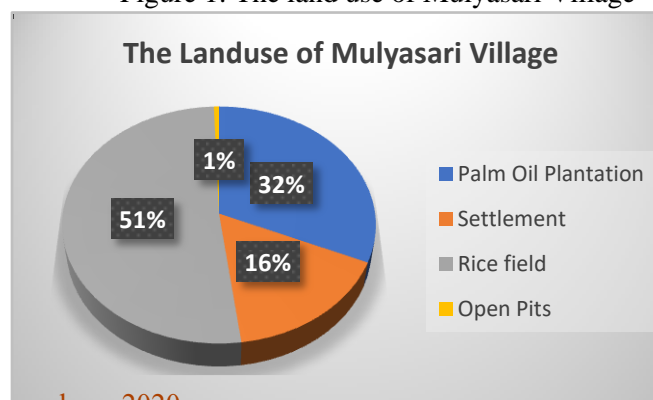


Figure 1. shown that mostly the landuse in the Mulyasari dominated by rice field (51 percent), the second is palm oil plantation (32%) and the other land used for settlement (public space, housing, village government and economic facility). Mulyasari Village divided in to 4 sub-districts called dusun. There's no name for the dusun, it just the number and the head village said it still in their discussion to get the name of the dusun.

The maps (Appendix 1) show the place where location of the village public administration, government and village market in the middle of the village and the pattern is horizontal linier pattern following the main road in the center of the village. In this area, a lot of rural community not only transformationrural community but also local villagers who going to this area for economic reason. In in the vertical linier pattern of the village is the housing or settlement where the transmigrate life and doing daily activity.

b. Land Tenure

The term tenure refers to the package of rights that a person, household or rural community may have in relation to land or water or other resources. The definition of land tenure is limited to land rights, their source and activity (Bruce, 1993). According to FAO (1993), Land tenure is the relationship between persons, individuals or groups, whether legally or customarily established, with respect to land. Clearly decide who can use what services for how long and under what conditions. Otsuka (2007) stated that in the sense of Asian countries, household farming or owner farming is the best form of production organization in agriculture.

Land tenure as a theory is a derivative of the concept of natural resource tenure (Amanor, 2008:66), whereas the concept of 'tenure' is a social structure that determines the relationships between individuals and groups of individuals by which rights and obligations are defined in terms of resource control and use. According to Clover (2008:111), land tenure consists of three main elements: land ownership, land use and land transfer, all of which dovetail into what is commonly called property rights.

In Indonesia, land tenure concerns have increased rapidly and explosively over the past few years for various reasons. In many rural areas, the diverse interests of forest concessions, industrial forest plantations, commercial farm plantations, mining concessions, settlement programs and the local population overlap. Consequently, disputes arise frequently in these places as land or asset claims are always declared by various interest groups.

Agriculture is the expected means of support for the vast majority of so far moved transmigrants. Every family receives a 0.25-ha house lot and home garden under the usual transformation scheme, 1.0 ha of possible sawah area and 0.75 ha of ladang or upland farming area. In projects initiated in the 1970s in the Sumatra provinces of Jambi and South Sumatra, such as Rimbo Bujang, transmigrants were given an additional 3 ha to clear themselves for rubber planting (Suratman and Guinness, 1977).

Table 1: Land Ownership by the Transformation Rural community Origin Destination

N o	Rural community Origin Destination	Palm Oil (Ha)	Settlemen t (Ha)	Rice field (Ha)	Open Pits (Ha)	Total (Ha)
1	Bali Province	60.98	54.77	97	-	212.75
2	Blitar Regency, East Java Province	16.91	55.37	128.06	-	200.34
3	Cilacap Regency, Central Java Province	44.86	60.55	45.3	-	150.71
4	Indramayu Regency, West Java Province	15.42	110.14	136.13	-	261.69
5	Kediri Regency, East Java Province	60.54	54.38	74.99	-	189.91
6	Lamongan Regency, East Java Province	46.02	60.55	35.52	-	142.09
7	Malang Regency, East Java Province	61.17	459.72	126.02	-	646.91
8	Ngawi Regency, East Java Province	9.18	83.86	91.21	2.07	186.32
9	Sragen Regency, Central Java Province	44.47	60.55	48.11	-	153.13
10	Sumedang Regency, West Java Province	72.84	96.62	66.99	12.87	249.32
11	Tuban Regency, East Java Province	70.76	54.77	66.55	-	192.08
12	Yogyakarta Special Regency	43.92	110.14	44.31	-	198.37
	Total	547.07	1261.42	960.19	14.94	2,783.62

Source: Primary Data, 2019

A number of agronomic problems affecting tropical agriculture concern transmigrants. Agriculture, as is everywhere, is a career needing as much skill and knowledge as any urban calling. Urban transmigrants can hardly be assumed to be productive farmers without experience in agriculture, even if the unique problems faced by transmigrants were to evaporate magically. Two major surveys in the 1970s found that one-third to one-half of transmigrants had never previously owned or controlled land, and 16% had never farmed at all. (Suratman and Guinness, 1977). Transmigrants have often been believed to be model farmers who will teach outer island native people farming techniques by example. Agronomic issues include poor soil, insects, plant diseases, and invasion of weeds, especially *Imperata cylindrica* grass. Transmigrant farming also suffers from low plant market prices, high agricultural product prices and poor market transportation.

From the table 1, shown the distribution of land ownership by the transformation rural community origin they born or lived before transformation programme. The oil palm plantation in The Mulyasari village dominated by Sumedang Regency rural community and Tuban Regency rural community which are 72.84 hectare (13.31 percent) and 70.76 hectare (12.93 percent). This meaning of this number describing how the very frustrated with the production of rice paddies and how hard they marketing the harvest. This condition makes the land conversion from rice paddies becoming oil palm plantation choosen by the rural community village to sustain their live. On the other side, table 1 shown the surviving rural community in the agriculture sector. The rural community consistant to produce rice, corn and water melon in one year circle of production. Indramayu, Blitar and Malang Regency rural community are the largest rice paddies land in The Mulyasari Village which are 136.13 hectare (14.18 percent), 128.06 hectare (13.34 percent) and 126.02 hectare (13.12 percent).

c. Land Conversion

Fauzi (2005) notes that the conversion of paddy fields is partially due to the lack of rice price certainty so that rice farming income is lower than oil palm and rubber plantations. The production of rice is just 3.74 tons / ha (BPS, 2007), Whereas the costs of these plants are very high \pm Rp.5 million per harvest resulting in lower income earned by rice farmers. Unlike oil palm and rubber, the productivity of palm oil is high at 24 tons / ha / year and 9.5 tons / ha / year for oil palm plantations \pm 8 million IDR per year and \pm 6 million for rubber plantations (Purwono, 2008).

The growth of palm oil is a major factor in shifts in the use of forest land. The crude palm oil (CPO) production of the country exceeded 19 million tons in 2008, and Indonesia now dominates 14.3 percent of the vegetable oil market worldwide. Indonesia's output of CPOs reached 20 million tons in 2009. While oil palm estates permit 9.7 million hectares of land, 7.9 million hectares have already been planted. It is estimated that 66% of all currently active oil palm plantations are converted into forests (Jakarta Post 2009a; Jakarta Post 2010)

Competition over land access in many parts of Indonesia is a source of conflict, especially on more densely populated islands. Conflict over cropland control (and former cropland) is often correlated with land that the government seized from individuals and communities during the New Order period (1965–1998) and allocated to companies for planting. Farmers desire for greater access to land is often followed by public indignation about past farm-taking by government (Wiradi and Suhendar 2002).

There are frequent conflicts over land. It has been estimated that there are still at least 1500 major land disputes unsettled in recent years. Disputes often include conflicts between farming communities on the one side and the forestry ministry or private plantation companies on the other. (Thorburn 2004). Since the early 1990s, land conversion to palm oil plantations has increased exponentially. Indonesia's production of crude palm oil (CPO) reached 19 million tons in 2008 and now dominates about 14 percent of the world's vegetable oil market. The rate of conversion to oil palm plantations alone in Central Kalimantan has increased by 400 percent with almost 3 million hectares of peat lands converted. Lastly, many of the most commercially viable minerals and metals are found in forest areas, especially in areas classified as protected forests. (Jakarta Post 2009b; Nelleman et al. 2007; Resosudarmo et al. 2009).

The Transformation and Population Ministry of State announced its decision to terminate the HTI-trans project in early 2000. HTI trans was planned to supply labor to timber companies growing pulp and wood-based tree plantations. The following reasons are given by SMTP (SMTP, April 2000) the relationship between the transmigrants and the private timber company is unfavorable; 2) the land ownership problems caused by the difficulty of conflicting land claims and the status of the land; 3) Transmigrants ' average income is too poor to support decent living. Besides the official reasons, it is common knowledge that the HTI scheme was a failure because timber companies can make money faster elsewhere, e.g. by endorsing or actively engaging in illegal logging or moving their businesses to other commodities. The fate of the transmigrants on HTI schemes brought to work is uncertain. Perhaps they have just entered the struggle of most Indonesians over this transitional period to meet ends.

The goal of the IMF structural adjustment program is to set up market mechanisms as a key resource allocation and management tool. Paragraph 39 of the first IMF reform package signed in 1998 pressured the Indonesian government to open its doors to further foreign investment in the production of oil palm plantations (Walhi, 1998). This deregulation of the oil palm sector is in line with Jakarta's priority to raise domestic export earnings, current world market conditions and the ADB's project findings that Nucleus estate settlements (NES) and PMU oil palm schemes produce higher income and debt recovery

rates than other tree crops such as timber, cocoa, cotton or rubber. It also ties in with SMTP's decision to end the timber estate transformation scheme (HTI) announced in early 2000.

While the production of timber estate has been phased out of the transformation program and other tree crops are less desirable, oil palm remains Indonesia's major commodity for further planting growth. Announced in 1999 under a new oil palm production scheme (Plantation Use Permit Regulation, 107/Kpts-II, 1999), the government encourages developers to work with local small-scale farmers and cooperatives to own and manage oil palm plantations. Via five new schemes, both cooperatives and private investors are given opportunities, but from the investor's point of view only one choice offers a realistic form of joint venture. This is the closest alternative to the current system of Nucleus estate settlements (NES) or "nucleus-plasma." This includes control of 35:65 shares, i.e. cooperatives purchase a 35% share in the equity of the plantation owner. The idea of the government is to break with past quasi-monopolies, "create a sense of belonging for local people" and "encourage local people to protect plantation areas from plundering, theft and destruction" (Muslimin Nasution, quoted in Jakarta Post, July 1999). Nevertheless, the complicated nature of the scheme and the lack of guidance for implementation as well as the concerns of investors about land security and political and economic stability have led private investors to take a "wait-and-see" stance (Casson, A., 1999).

The recession that started in 1987 coincides with the fall in world oil prices in oil-rich Indonesia and its consequent budget constraints. Although diversified exports (although many involving the selling of natural capital) strengthened the economy of Indonesia in the 1990s, the government chose not to restart rapid transformation. However, World Bank-funded projects moved from the conventional settlement pattern of annual crops such as irrigated rice (sawah) and upland slash-and-burn (ladang) to a pattern of "country settlements"—villages surrounded by oil palm, rubber, and other perennial crops. (Colchester, 1987).

Research implications

The implication of this research related to local government is how they can protect the Mulyasari peasant sustainable both for their social live as a farmer and gain more production on their rice paddies land so they won't change palm oil plantation which not making wealthy on their live. For academic reason, this research implies to adding new knowledge about land conversion becoming oil palm plantation not usually wealthy rural community but it's could be opposite condition if the peasant cannot control the price of the palm oil harvest and they just following free market mechanism.

Conclusion

The conclusion of this research is first, participatory spatial planning for local village is important because the lack of data in micro area like Mulyasari Village. Spatial Planning with GIS and discussion with the head village to identifying the true boundary of the village, and plotting the village facility such as market, school, mosque, church, village office, sport area and banks, we could saw the development of the village by transmigrate agriculture. Second, the land ownership divided by 12 transmigrate rural community with each rural community had different style of the agriculture concern, that is rice paddies from the beginning of the transmigrate programmed in 1980s and half of the land has change become palm oil plantation. Third, Since the early 1990s, land conversion to palm oil plantations has increased exponentially. Indonesia's production of crude palm oil (CPO) reached 19 million tons in 2008 and now dominates about 14 percent of the world's vegetable oil market.

Acknowledgment

Thanks to University of Sriwijaya Professor research grant for funding this research, the Mulyasari Head Village who helping us to implement participation spatial planning around village. Big thanks to the Dean Faculty of Social Political Science who permit and supporting our research. This paper is based on the presentation at The 2nd International Conference on Sustainable Development and Multi-Ethnic Society (ICOSH2) 2019 and it has been reconstructed from the comments and suggestions by the experts at the conference. Appreciation to the funders from Malaysian counterpart GG-2018-013 and GG-2019-024.

REFERENCES

- Amanor, K. 2008. *Land and Sustainable Development in West Africa: Africa Institute for Agrarian Studies Working Paper*. Harare, AJAS.
- Asian Development Bank. 1997. *Impact Evaluation Study of Bank Operations in the Industrial Crops and Agro-Industry Sector in Indonesia, IES: INO 97010*
- Brown, G., & Kyttä, M. (2014). *Key issues and research priorities for public participation GIS (PPGIS): A synthesis based on empirical research*. *Applied Geography*, 46, 126–136.
- Bruce, J. 1993. *Do indigenous tenure systems constraint agricultural development?* In: Bassett, T. and Crummy, D. (eds). *Land in African agrarian systems*, Madison, WI: University of Wisconsin Press. pp. 35-56
- Casson, A. 1999. 'The Hesitant Boom: Indonesia's Oil Palm Sub-Sector in an era of economic crisis and political change' *Programme on the Underlying Causes of Deforestation, Centre for International Forestry Research (CIFOR), Bogor*
- Clover, G. 2008. *Towards an Articulation of Land Regulation Modes. Recent Progress and Issues at Stake (French Speaking West Africa)*.
- Corbett, J. 2009. *Good practices in participatory mapping*. Rome: International Fund for Agricultural Development
- Colchester, M. 1987. *Programme slashed in response to transformation campaign*. *The Ecologist* 17:35-41.
- Donner, Wolf. 1987. *Land Use and Environment in Indonesia*. University of Hawai Press, Honolulu
- FAO. 1993. *Food and Agriculture Organization of the United Nations. Land tenure and rural development. Chapter 3. What is land tenure?*
- Fisher, M. R., Workman, T., Mulyana, A., Moeliono, M., Yuliani, E. L., Colfer, C. J. P., & Adam, U. E. F. B. 2017. *Striving for PAR excellence in land use planning: Multi-stakeholder collaboration on customary forest recognition in Bulukumba South Sulawesi: Land Use Policy*
- Irawan, B. dan S. Friyatno. 2002. *Dampakkonversilahan sawah di Jawa terhadapproduksiberas dan kebijakan pengendaliannya*. *Jurnal Sosial-Ekonomi Pertanian dan Agribisnis*. SOCA: 2(2): 79-95.
- Jakarta Post. 2009a. *Indonesia allocates 18 million hectares of land for palm oil*. 12 February. Jakarta
- Kahila-Tani, M. 2015. *Reshaping the planning process using local experiences: Utilising PPGIS in participatory urban planning*. Aalto University
- Mitchell, Robert, Roy L. Prosterman, and AkhmadSafik. 2004. *Land policy challenges in Indonesia: Final project report of the land law initiative*. Report submitted to USAID by the Rural Development Institute, on file with Rural Development Institute
- Otsuka, K. 2007. *Efficiency and equity effects of land markets*. In: Evenson, R.E., Pingali, P., editors. *Handbook of agricultural economics*. Volume 3. Amsterdam (Netherlands): Elsevier.
- Pramono, A. H. 1991. *A brief review on forest land use and "deforestation" in Indonesia*. Report prepared for Climate Change Program, Wahana Lingkungan Hidup Indonesia (WALHI), Jakarta, 76 pp
- Reid, G., & Sieber, R. 2019. *Do geospatial ontologies perpetuate Indigenous assimilation? Progress in Human Geography*

- Rhee, Steve, Darrell Kitchener, Tim Brown, et al. 2004. *Report on Biodiversity and Tropical Forests in Indonesia*. Jakarta: USAID/Indonesia
- SMTP. 2000. *Press Release in response to Far Eastern Economic Review questionnaire*. State Ministry of Transformation and Population. Jakarta.
- Suratman, and P. Guinness. 1977. *The changing focus of transformation*. *Bulletin of Indonesian Economic Studies* 13:78-101
- Thorburn, Craig C. 2004. *The plot thickens: Land administration and policy in post-New Order Indonesia*. *Asia Pacific Viewpoint*, 45 (1):33-49.
- Wiradi, Gunawan and EndangSuhendar. 2002. *Land problems in the context of regional autonomy*. Rural Development and Natural Resources Sector Unit, East Asia and Pacific Region (EASRD/World Bank). Washington DC: World Bank
- Utomo, M., E. Rifai, dan A.Thahir. 1992. *Pembangunan dan alihfungsilahan*. Universitas Lampung. Lampung.
- Van Noordwijk, M. 1994. *Choice of benchmark sites and soil C data for ASB-Indonesia*. Pages 9-34 in D. Murdiyarso, K. Hairiah, and M. van Noordwijk (eds.), *Modelling and measuring soil organic matter dynamics and greenhouse gas emissions after forest conversion: Report of workshop/training course 8-15 August 1994, Bogor/Muara Tebo, Indonesia*. Alternatives to Slash-and-Burn (ASB) Project, International Center for Agroforestry Research (ICRAF)- Southeast Asia, Bogor, Indonesia, 118 pp
- WALHI/ FoE Indonesia. 1998. *Indonesia for sale. A case study of IMF policies prepared by WALHI /FoE Indonesia*.

Appendix

