

Mangku Purnomo

Governing Resources in a Changing Environment

Local Responses in Contemporary Rural East Java, Indonesia



Universitätsdrucke Göttingen

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Abbreviations, Acronyms, Glossaries

| | | |
|----------|---|--|
| BLU | = | Badan Layanan Umum/Public Service Agencies |
| BKKBN | = | Badan Koordinasi Keluarga Berencana Nasional / National Family Planning Coordinating Board |
| CBFM | = | Community Based Forest Management |
| CDM | = | Clean Development Mechanism |
| CDMA | = | Code Division Multiple Access |
| CSA/BPS | = | Indonesia Central Statistical Agency/Badan Pusat Statistik |
| DFID | = | Department for International Development-UK Government |
| Golkar | = | Golongan Karya |
| HVC | = | High Value Crops |
| ICDP | = | Integrated Conservation and Development Project |
| IMF | = | International Monetary Fund |
| INHUTANI | = | Industri Hutan Negara (Indonesian State Forestry Company operating in the areas outside Java-State Forest Company) |
| IUCN | = | International Union for Conservation of Nature |
| KADES | = | Kepala Desa/Head of Village |
| KASUN | = | Kepala Dusun/ Head of Hamlet |
| KB | = | Keluarga Berencana/Family planning program |

| | |
|-----------|---|
| KORAMIL | = Komando Rayon Militer/Municipal/Regental Military Office |
| KTH | = Kelompok Tani Hutan/Forest Farmer Group |
| LLNP | = Lore Lindu National Park |
| LRG | = Local Resources Governance |
| MOF | = Indonesian Ministry of Forestry |
| NGO | = Non-Governmental Organization |
| NTFPs | = Non-timber Forest Products |
| OCHA | Office for the Coordination of Humanitarian Affairs |
| PA | = Pecinta Alam/Nature Lovers |
| Pancasila | = Indonesian Five Principles |
| PATANAS | = Panel Petani Nasional/National Farmer Panel |
| PHBM | = Pengelolaan Hutan Bersama Masyarakat/ Community Based Forest Management |
| PKI | = Partai Komunis Indonesia/Indonesian Communist Party |
| PKL | = Penyuluh Kehutanan Lapangan/ Forestry Extension Field |
| POLSEK | = Polisi Sektor/Municipal/Regental Sector Police Office |
| PP | = Peraturan Pemerintah/ Government Regulation |
| UNEP | = United Nations Environment Programme |
| VOC | = Vereenigde Oost-Indische Compagnie/ Dutch East India Company |
| WCED | = World Commission on Environment and Development |
| WWF | = World Wide Fund for Nature |

Executive Summary

Human-induced global change such as agricultural intensification and climate change constitutes a serious threat to the rainforest even though the recognition of the value of biodiversity and associated ecosystem services at national and international levels is on the rise (Tscharntke et al. 2010). However, developing countries including Indonesia are hardly engaged in building up climate change adaptation strategies whilst still promoting the intense commercialization of forest management and the capitalization of the rural economy. In the long run, the decrease of land cover, the increase of agricultural residue, and the emergence of climate change related problems will be hazardous for environmental sustainability and will exclude rural people who depend on natural resources from economic mainstreams. Indeed, until 1998 Indonesia had been ruled by an authoritarian regime under which natural resources were exploited excessively so that the governance of resources was not appropriate anymore to accommodate the sustainability issue. Throughout the contemporary reform process with the decentralization of power via local and regional autonomy, natural resources are no longer dominated only by the direct power of the state, but also managed by more actors at various levels of society. Within this context, this study focuses on the following crucial questions: (1) How were spatial production and practices in the Upland Bromo created that had the effect of limiting local people's control over and access to resources?; (2) How have recent environmental changes affected local communities and households?; (3) How does the form of new local resources governance evolve after the Reform era?; (4) What are the adaptation strategies of the poor rural households to deal with new local resource governances?; (5) Are the new institutions associated with local resources governance that evolved and took shape in the Democratization and Decentralization era sustainable in term of conserving resources?

The theoretical approach follows the concepts of political ecology, new institutionalism, livelihood strategy, and social sustainability. The three villages around Bromo National Park have been selected as case studies due to their highly differentiated social-cultural settings. After conducting qualitative research involving 170 semi-structured interviews, 30 in-depth interviews with key informants, and 5 focus group discussions, the researcher found the following results: The spatial produc-

tion of Upland Bromo has always been developed by dominant powers with different goals and in different ways to serve the state's interests in order to establish their control over the land and the people. Nowadays, the situation has changed; the new regime has used economic development and conservation-biodiversity ideology to legitimize their massive exploitation of the National Park and the state forests. At the same time, on-going environmental change both socially and physically coincidentally lessens the availability and productivity of the resources, affecting turn the local people's livelihoods, leading to an increasing struggle for resources. For the accommodation of the actors' interests, resources governance is formally imposed through several social interactions where the norms and rules of accessing and controlling certain resources are decided. As a result, three kinds of new local resources governance, namely multi-institutional relationship, bilateral institutional relationship, and personal relationship based resources governance are formed.

To respond to the new local resources governance, the rural poor affiliate in certain associations involved in multi-institutional relationship based resources governance to gain access to resources, particularly the economic activities related to tourism and water. In bilateral institutional relationship based resources governance, the rural poor engage with forest farming groups to gain access to forest land through community based forest management. At the same time, family ties, neighbourhood bonds, and comradeship are also used to access resources through personal relationship based resources governance. The first strategy is dominant in the highly differentiated villages since the regulation in accessing the resources has been decided in the village meeting. In a medium differentiated village, there is no dominant institution through which the rural poor households (RPHs) can access resources. Whether resources are governed multi-institutionally, bilaterally with just one institution, or through personal relationships, usually depends on the kinds of resources available. In a village with low differentiation, the personal relationship based resources governance is a dominant type of access since the formal decision-making process does not regulate any other new ways to access resources. However, new local resources governances are often insufficient to meet the poor's needs at just the subsistence level, particularly in the areas where the competition in accessing resources is hard. As a result, they conduct surreptitious activities to maintain their livelihoods through accessing forest product and tourism-related activities illegally. The entire three types of local resources governance showed that the majority of the households only build up survival and coping strategies and that few of them are able to develop adaptation, let alone accumulation strategies.

In the light of the above explanation, the new local resource governances practiced in the last ten years to deal with the decentralization of politics and the commercialization of the rural economy, have many weaknesses and offer only few opportunities what the sustainability issue is concerned. First, in term of the participation process, actors have unequal bargaining positions and the elites (village leaders, National Park and State Forest Company officers) dominate the process, lessening the transparency of the decision-making process, particularly in highly differentiated

villages. Second, in terms of the quality of the decisions made in the new local resources governance system, the rural poor realize that the agreements are unfair to them due to the fact that the rich people who were previously prohibited to access the forest directly (based on the local tradition) now have formal legitimacy to access it. In conclusion, the new local resources governance is still far from being in line with the principles of sustainability if it addresses the question of how societies can shape their mode of change in such a way so as to ensure the precondition of development for the future generations. Furthermore, concerning the relationship between human society and nature, the Upland Bromo situation after decentralization is still questionable and uncertain when viewed from the perspective that sustainability refers to the viability of a socially shaped relationship between society and nature over long periods of time. So, according to the social sustainability framework, the new local resources governance is not really sustainable as signalled by the negative values revealed in the indicators analysed according to the ability to develop sustainability, to bridge sustainability, and to maintain sustainability.

This research gives a clearer picture by describing that the local communities' responses to recent environmental changes as well as the decentralization process concerning resources governance in contemporary rural Indonesia have so far not been resonant among society in achieving sustainability to increase its coping self-mechanism. Even though tourism becomes an alternative way in exploitation nature in line with promoting sustainable development (Kreisel, 2004), case in Indonesia that achievement is still poor. From the political ecology point of view, shifting power from central government to local government puts some constraints in the efforts to establish a more sustainable resources governance so that future researches need to pay more attention to the issue of power distribution, i.e. how the power must be distributed among society members at all social levels to promote a more equitable resources distribution. This situation shows, in accordance with the findings of Larson and Soto (2008:228), that without attention to social equity and inclusion, initiatives such as community forestry may be hijacked by internal elites. Creating more participative institutions that limit local elites particularly when they have no direct interaction with certain resources is needed to build meaningful local resources governance that avoids the manipulation of decision-making processes in the dynamics of local power structures with regard to specific contexts and the culture of local community. Koch et al. (2008) mentioned that local elites, with their traditional and/or economic power, decisively influence the access to natural resources and social cohesion that often prompt inequality and are not proponent to the poor in distributing resources. Therefore, the characteristics of resources and the dynamics of power structures shaping the distribution of resources are very important when taking into account more sustainable local resources governance.

1. Introduction

1.1 Background

Human-induced global change such as agricultural intensification and climate change threatens the rainforest very seriously even though the recognition of the value of biodiversity and associated ecosystem services at national and international levels increases (Tscharntke et al. 2010). Indeed, it has become increasingly harmful to mankind due to the exposure to climate risks, society's natural and manmade capital assets, human capital and institutions as well as income (Berbata, 2005). South East Asian countries, including Indonesia, are facing problems of deforestation, desertification, loss of soil fertility, loss of wildlife habitats and biodiversity, deterioration of aquatic ecosystems and lack of accessible, good quality water along with the process of industrialization and modernization. On the field, global environmental changes via climate change have negative impacts on some major agricultural products (Gornall et al. 2010) thus affecting the social economic status of villagers, particularly the poor (Heltberg et al. 2008; Helder and Rosch, 2010).

World Bank and DFID data (2007) in "Indonesia and Climate Change: Current Status and Policy", show that climate changes have affected cash crops, particularly rice and other non-food crops such as coffee, tea, cocoa, and rubber. For instance, in East and some of West Java, because of climate change, rice productivity is estimated

to decrease by 1% annually (Amin, 1996). Using the simulation model, Fischer et al. (2005) noted that the variability of climate change under climate change scenarios will affect land resources availability in most developing countries in the world and that a potential decline of cereal production of more than 5% will be realized by the year of 2080. In conclusion, climate change will increase the vulnerability of rural communities.

Moreover, natural resources have been exploited as economic resources since the integration of the South East Asian Nations into a globalized capitalist economy both in the Colonialist and Post Colonialist eras (Parnwell and Bryant, 1996:4; Weber and Faust, 2003; Beeson, 2004). In Indonesia, at the early time of the New Order administration until the 1980s, the exploitation of natural resources was given to corporate giants who had a close relationship with the central government and the military. Then, later in time, the Chinese giant conglomerates and business groups owned by powerful political families linked with the Suharto family became the new actors (McCarthy, 2000:103). The authoritarian regime exploited natural resources only to serve economic growth by giving concessions to private and state forest companies (Kasa, 1999), excluding local people from accessing and controlling resources. The monopoly of the resources management since the Colonialist era pushed most of those people into poverty that had benefitted from access to abundant resources before. Peluso (1994) mentioned it as an “ironic” condition in that the government limited the legal access and customary rights of the peasants to the forest, so that they were pushed into the illegal utilization of forest resources.

The new policy that was based on the professional management system adopted from the German-European tradition and FAO introduced by the government after World War II had no impact on maintaining the sustainability of the natural resources as well as the local people’s well-being. Moreover, corruption, collusion, and nepotism as the typical phenomena of the New Order regime in managing resources to deal with environmental change had no resonance with regard to their sustainability. The technical assistance provided by FAO and other organizations to arrange a more useful resources management system only resulted in changing the Indonesian Ministry of Forestry to become the biggest landholder in the region after colonialism had ended (Peluso, 2006).

The local people who accessed the natural resources were considered as criminals because of the government’s perception that their activities were illegal. On the other hand, at the same time, local people saw the outsiders supported by the state power exploiting the forest and making more devastating impacts on the resources without allowing for reserves. When the government’s control over the natural resources decreased due to the emergence of the Reform movement in 1998, local people returned to exploit the resources without any respect to them. McCarthy (2000:91) stated that this situation was an impact of the political turmoil in the wake of the currency meltdown in which the environmental devastation fished in a wider economic and political crisis. The political turmoil in the Reform era in 1998 and the decentralization policy offered by the new regime shrank the power of the central

government's control over the resources. Local elites, particularly those who had skills and networks with forest businessmen, gained more access and control over the resources, so that forest resources scarcity became worse than during the centralized regime (Palmer and Engel, 2007).

Thompson (2001:17) has explained this situation as the transition of resources management in which the process of concession damage, over-exploitation, illegal logging, underreporting of tree cutting, failure to reforest, and dissatisfaction among forest communities is still happening. According to the World Resources Institute (WRI, 2009), deforestation rates increased from 0.2 million hectares in 2000/2001 to 1.2 million hectares in 2004/2005. Hidayat (2007:92) found that in the Reform era, "illegal" logging was widely practiced not just in the areas of production forests, but had also greatly expanded to the protected conservation forests and some national parks. Two million hectares were destroyed in this era in which the state lost the potential profit of US\$ 4 billion from taxes raised from forest products. The cases in outer Indonesia show that the increased exploitation of timber was motivated not just by economic constraints but also by the decreased presence of the government forestry and security personnel in the natural forest areas at the early times of the Reform era (Sunderlin et al. 2000:26).

The uncontrolled resources governance at the beginning of the Reform era led the government to reorganize a decentralization policy in which some of the authorities given to local government were recentralized, particularly in relation to allowing forest land use. Barr et al. (2007:122) called it "the political and regulatory pendulum" in which power swing back to central government after swinging heavily in the direction of decentralization during 1999-2002. The unclear rules of the game on the decentralization laws related to the resources management system potentially increased the escalation of conflicts among actors on the ground level. The inconsistency of the law enforcement and the rising of local people claiming the territory through the *adat* movement endorsed by NGOs have added complexity to the structure of power at the local level. Competition of resources on the ground involved many actors, not only local actors such as villagers, NGOs, forest officials, and village governments but also the district government, international actors, and private sectors.

The International Monetary Fund (IMF) at the same time endorsed the state forest enterprises' decision to commercialize their activities as a strategy to deal with the crisis. It included the agreement stating that the government should stop the monopoly of state forestry companies and this also included several tycoons related to the Suharto family. The commercialization of state forest companies included the modernization and improvement of asset management companies to become more competitive companies and the relationship with the local communities. This prompted strict regulation of land use as well as expanding the areas of production and found new sources of revenue through environmental services. An area of 60,000 hectares of land in the three state-run teakwood plantations in Java (Cepu, Kebonhardjo and Mantingan) had become the first timber operations in Indonesia to be certified by the Forest Stewardship Council. The long history of conflicts between the state forest

companies and the local communities over the use and ownership of forest lands in Java cannot be stopped immediately. Rather than improving relations with the people, it even further enhances the commercialization of the escalation of resource struggles (Wulan, 2004).

Along with the commercialization of state forest companies, protected areas such as national parks were encouraged to maximize profits in order to earn their own financial support. The decrease of financial support from the government at the early time of the Reform era pushed local officers to take advantage of resources such as non-timber products and tourism. To that purpose, national park officers increased the supervision around the areas, limiting the opportunities of people to access the resources easily. The commercialization of national parks did not stop despite the increasing financial support rendered by the government as a result of the economic recovery and international donor funding. The government even encouraged the national parks to become environmental service companies, called Public Service Agency or *Badan Layanan Umum* (BLU). As a result, national parks had to increasingly restrict access to local people and invite investors to develop new revenues, thus reducing resources even further. So, according to the previously presented explanation, local people, particularly the poor, are subject to two main exposures, i.e. recent climate changes resulting in declining agricultural production and new resources governance limiting access to resources.

1.2 Problem Statement and Research Goals

After over thirty years of the New Order regime government, millions of Indonesian peasants still live alongside the state-controlled forestlands in one of the world's most densely populated agricultural regions. In mid-2000, the Ministry of Forestry (MOF) reported that 30 million people depended directly on the forestry sector for their livelihoods (MOF, 2000). According to research conducted by the Ministry of Forestry and the Indonesian Central Statistics Agency (CSA) in 2007 and 2009, the villages located within, around, and outside the forest consecutively add up to 3.85% (2,805), 22.80% (16,605), and 73.44% (53,406). The total number of population is 3,034,613 within the forest, 33,606,176 around it, and 178,923,472 outside it. According to these data, the number of villagers is quite large in that today more than 36 million people depend on forest resources directly and indirectly. East Java, the second largest Indonesian economic region, has 1,640 villages lying within and around the forest with 6,547,232 people who depend on it (MoF, 2007; MoF, 2009). Increasing demand to land in line with the development policy of the Indonesian government in the New Order era instigated farmers in the frontier areas to clear forest margins and other protected areas. Such process was more widespread when the government's control over natural resources declined in the Reform era. The state forests and national parks as common resources surrounding villages were susceptible to be replaced by

agricultural economic activities including the Bromo National Park and the state forests around it because it was profitable for agricultural activities.

Although the expansion of agricultural activities to the forest margins increases rapidly, poverty surrounding the rural areas is still high. It means that the economic growth has often been achieved at the expense of the environment and without generating sufficient benefits for the poor. Even horticultural cash crops that yield high revenue "High Value Crops (HVC)" raised cash generating activities in Upland Bromo without giving benefits for the poor. The introduction of the commercial crops by the Dutch colonial government in the nineteenth century had created more suitable conditions for the commercialization process taking place in this area to date (Hefner, 1999) impoverishing the population. This is in line with the findings of some scholars showing that large-scale commercial logging and improving the local economic infrastructure of local communities did not benefit local people in Indonesia (Dewi et al. 2005: 1431). STORMA's research conducted in Lore Lindu National Park shows that the expansion of agricultural activities improving the local economy is considered unsustainable because their business achievements are based on forest conversion and an increase of unproductive fallow land (Priess et al. 2006). In the case of Central Sulawesi, Barkmann et al. (2010:141) found that the high tenure security of the formal land titles increasingly available in the region attracted migrants who were aggressive buyers of lands for petty cocoa capitalism. The local farmers, who could not retain their land ownership, responded by encroaching forest margins inside of the national park as an alternative basis for their socio-economic security.

In the Decentralization era, poor people faced not only the marginalization process through the capitalization of the rural economy but also the increasing commercialization of forest management supported by the central government. This can be gathered from the rising economic activities related to tourism such as hotels, restaurants, villas, and other tourism infrastructure in the last ten years. The Bromo National Park is a top favourite destination for the international and local tourists compared with the other National Parks in Indonesia. In 2002, there were 149,921 local tourists and 5,925 foreigners visiting the park. Foreign tourists increased by more than two thousand persons in 2003, from 5,925 to 9,283 and then decreased rapidly, i.e. 1,571 in 2004. Then, foreigners decreased to 8,919 persons in 2005 and remained constant with 8,410 people in 2006. The Komodo Park, the second favourite destination, had only 6,148 foreigners in 2006 (MoF, 2006). The incredible panorama of the Bromo caldera, sunset, sand sea, climbing area, and the unique traditions of the Tenggerese ethnic group attract the attention of many tourists every year. Not only increasing petty capitalism, the Bromo area also has potential for investing more intensively uncertainly for tourism economic related activities. Therefore, to preserve the forest as a capital of eco-tourism, national parks prohibit local people to take forest produce in the area in the centre where visitors gather, which is meant to improve the tourist attraction.

The central government policy to decentralize government power and commercialize state enterprises including the forest state company and national parks that had

direct access to local resources governance in the post Suharto era had deep impact on the availability of resources in the local level. The financial crisis followed by the economic crisis reduced the government revenues, so that it was unable to finance its activities and development. The government was trying to find sources of financing by increasing revenues through the privatization of state enterprises such as forestry and national parks. It encouraged the shifting of the authority to the local governments so that local people had opportunities to participate in the decision making process concerning with resources governance. In the transitional era, the decrease of the central government's control over resources was made use of by the local officials to take advantage of their strong local personal networks and alliances, especially between companies and villages to organize forest exploitation. Such conditions potentially divert collusion, corruption and nepotism of resource management from the central government to the local elites, district officials and entrepreneurs to further their own interests to continue (Wollenberg et al. 2007). The local government's lack of capacity to make use of forest not only for short cash revenue but also for long time vision endangers the preservation. The unclear division of authority and the inconsistent regulations cause inequity on local resources allocation. It will give more power to local elites to control access to forests and to capture many of the benefits from forests, causing the marginalization of the weaker parties (Barr et al. 2006).

The other factor that becomes the pressure to local people's livelihoods is the environmental change, called El Nino-Southern Oscillation (ENSO) that has influenced rural household economy activities both farming and non-farming since 1998s (Binternagel et al. 2010). Such condition was more serious when agriculture production decreased due to environmental changes, particularly the variability in rainfall. Besides, ENSO appearing in Indonesia during the last decade have caused several natural disasters such as flood, drought, landslide, land erosion, and other climate variations and extremes. For instance, in 2006 there were 840 natural disasters, 7,303 deaths, 1,140 disappearances, 901,355 refugees, and a thousand of building loss In Indonesia (BNPB, 2010). According to the Meteorology Office, East Java had 122 disasters, 134 deaths, and 27,346 refugees in 2006 (BNPB, 2010). Therefore, agricultural production could potentially shrink rapidly in the long period and it would cause more vulnerability of the economy of rural communities. In this research, ENSO related rainfall variability is one of the main determinants of ecological productivity, which in turn becomes the basis of agricultural economies in term of distribution not only across space but also time.

Along with the negative impacts of environmental changes, household vulnerability is also affected by an impoverishing process. In Indonesia, in the latest decade, the modernization and commercialization implemented by the government and other agents increased the inequalities in village communities. PATANAS survey results in period of 1994-1998 showed that the average of wetland ownership had the tendency to decrease. On the contrary, the dry land ownership increased (Supadi and Susilowati, 2004:18-19). At the same time, household participation in wetlands during the period of 1994-1998 showed the increase of more economic pressure on the wet-

lands. The increase of ownership of dry land originating from deforestation was due to the availability of forest margin land and unavailability of other choices for farmers. According to the long report of PATANAS, that condition tends to skew in the future marked by the stagnation of the industrial sector to absorb rural unemployment. So forest margin exploitation is an important alternative resource to respond to rural unemployment and secure livelihoods.

Population growth and increasing demands for land along with the commercialization of the rural economy made the struggle over resources become even harder for the poor depending on the forest margins. Besides, institutional arrangement was the main factor determining forest degradation and not the population pressure (Agrawal, 1995); it still plays an important role in shaping demand for land (Faust et al. 2003). The evidence from Central Sulawesi-Indonesia shows that the population pressure is due to fertility and to migration from overpopulated areas to less densely populated areas, namely transmigration such as planned migration, spontaneous and voluntary migration. Coupled with the lack of capacity of the government to facilitate adaptation strategies, the poor become the most vulnerable group due to the increasing variability of the climate as a part of environmental change. In line with this explanation, the poor as a weaker party at the local level are getting more vulnerable not only due to the developmental process leading to the increasing demand for lands and recent global environmental changes such as ENSO, but also due to the dynamics of power relationships in the resources governance at local and national levels. The availability of resources both naturally and socially due to environmental change and impoverishment has deep impacts on their tenancy of the household economy. Rural poor households depend on resources as their main livelihoods. At the same time, the elites who occupy the lands and cultivate crops attempt to make their farming activities more efficient. They minimize their production cost by using fertilizers, seeds, pesticides, saving on and agricultural labourers. This situation deprives people of job opportunities so that the poorest farmers' livelihoods become more threatened.

To deal with such conditions, the example of Upland Bromo where highly valued crops production and tourism industries grow rapidly as a result of the commercialization of the State Forest Company, private forest companies and the Bromo National Park is illustrated as an enrichment context as to how the resources are defined and competed for. At the same time, they would elaborate certain adaptation strategies for poor households to address the limitation of resources and the nature of exclusion in the rural areas. Adaptation strategies in the contemporary democratization and decentralization process of rural Indonesia would be obtained in the different social settings in which a form of new resources governance was shaped. Then, to give a more elaborate explanation, this study analyses the sustainability of the new local resources governance that has existed in the last ten years as a social response to the environmental changes as well as the democratization of Indonesian politics. Therefore, there are five crucial questions in this research:

How were spatial production and practices in Upland Bromo created so that they limited local people's control over and access to resources?

How have recent environmental changes affected the local community and households?

How has the new form of local resources governance developed after the Reform era?

What are the adaptation strategies of poor rural households to deal with the new local resource governance?

Are the new institutions associated with the local resources governance formed in the Democratization and Decentralization era sustainable in term of conserving resources?

1.3 Structure of the Book

This book consists of nine chapters. Chapter 1 is concerned with the basic reasons why the researcher has chosen the topic, including the statement of the research problem. The formulation of the research question is summarized from the perspective of the problems posed by recent environmental changes to local people particularly in rural areas that are economically dependent from natural resources. Thereafter, Chapter II focuses on the theoretical framework which is employed to analyse the empirical data. Chapter III presents the methods which are employed in answering the research problems formulated in the previous chapter. The methods comprise data generation, verification and validation as well as how the data are analysed.

Chapter IV focuses on the historic socio-economic dynamics of the Upland Bromo area and the three villages researched in terms of the recent policy trend to decentralize increasing local people's participation in decision-making processes related to the resources governance. At the same time, the commercialization of the forest management both by the National Park and the State Forest Company has limited local people's access to natural resources that had previously become their alternative sources of livelihood.

Chapter V then explains the modalities of environmental changes (socially and physically) and their consequences on the local population. It also contains the picture of the classical narrative of impoverishing processes as an impact of the capitalization of the rural economy and the recent climate changes via rain variability faced by local people. This part finally explains the socio-economic background for the escalation of the struggle for power among actors as a result of increasing scarcity of resources.

Chapter VI describes the struggle for power and the new local resources governances created by society as a medium for actors to canalize their interests more democratically as an impact of the decentralization policy of the Reform regime.

Chapter VII focuses on the strategies of the rural poor in gaining resources which are regulated in the new local resources government in order to maintain their livelihoods. It also describes the illegal activities created by the poor when formal

institutions became inadequate to meet their needs. Eventually, based on the principle of the social sustainability concept, this chapter also describes the prospect of the new local resources governance in promoting more sustainable access to and control over the environment.

Chapter VIII focuses on answering the problems previously stated regarding how the actors have defined the Upland Bromo in order to legitimate their activities in gaining resources, socio-economic factors that shaped local resources governance, the strategies of local people as well as the sustainability of the new local resources governance.

Chapter IX, the last chapter, contains the answers to the stated research problems whether or not they are verified in the considerations of the researcher in developing the implications of the findings for the future and/or further researchers. Based on these explanations, the following figure depicts the structure of this book.

2. Theoretical Framework

2.1 Environmental Change: Political Ecology Perspective

This study employed the political ecology approach to understand the relationship between human beings and the environment in the Upland Bromo where the process of environmental change is very massive and plays a pivotal role in excluding local people, particularly the poor, from the economic mainstreams especially in the post Suharto regime. Political ecology is a theory that attempts to understand the political sources, conditions and ramifications of ecosystem change as a radical critique against the a-political and de-politicizing effects of mainstream environmental research and practice (Blaikie and Brokfield, 1987; Bryant and Bailey, 1997; Robins, 2004; Escobar, 2010). It explains the complex relations between resources and society at the local, regional, and international levels and employs the historical dialectic approach in the main inquiry; it becomes a new solution to replace a simplistic determinism of former environmental science to explain political dimensions in their theoretical thought.

The common premise of this concept is that environmental change and ecological conditions are the product of political processes. It is not a neutral process amenable to technical management. According to Watts (2000: 257), political ecology seeks to understand the complex relations between nature and society by considering the nature of access and control over resources and their implications for sustainable livelihoods. Political ecology explains a broadly defined concept of political economy and ecology within the recent debate on the interaction between nature and society and groups within society itself (Blaikie and Brookfield, 1987; Escobar, 2010). It is a robust framework that can be utilized to analyse how access and control of resources is defined, negotiated and contested among social groups in a multi-level social structure.

In the post-structural political ecology theory, institution facilitates all variables related to the degradation of natural resources as the consequence of a tendency to question the extent and ‘narratives’ of degradation (Jones, 2008). Focus on institutional level of analysis gives a more balanced explanation in which each variable can be captured in the same position. Rogers’s works (2002) in Mungo`ong`o (2009:193) show that resources governance is the best defined as constitutional politics and rules of conduct that define practices, assign roles and guide interactions by which it can reduce the over-influence of actor agency over social structures. The structure of politics and policy can explain the local, national, and even the domestic-foreign frontiers through institutional governance (Mungo`ong`o, 2009). In the local resources governance, this study employs village decision-making process as a local institution that facilitates to all the interested groups to get involved in the policy making process. Through such medium, each actor influences the process in which a powerful actor will dominate the construction of agreements. Following Bryant and Bailey’s (1997: 5) opinion, local resources governance is the socially local mechanism to address resources degradation. Therefore, political ecologists agree on locally based responses to resource management problems based on “local-level decision-making by grassroots actors” in which multiple actors exercise different levels of power, authority, and action to determine ‘who gets what’ and ‘who gets to decide’.

The second important concept employed in recent political ecology is the region where resources are contested. This research follows the definition of regions as historically contingent processes, wherein the reproduction and transformation of society is inseparable from the transformation of nature within prevailing relations of power (Neumann, 2010:372). Consequently, the Upland Bromo as a region is not only captured as an administrative territory or physical characteristic, but it also describes an intersection of dynamic relations among the areas themselves in which the local people and state and non-state parties are related over time. For more precise analysis at the institutional level where actors bring in their power to produce space, this research is confined to the scalar practices of social actors in building scale in order to assert their domination in accessing and controlling resources. Neumann (2009: 403) categorized a political ecology of scale into three main fields

that are (1) the interactions of power, agency, and scale; (2) socio-ecological processes and scaling; and (3) scaled networks. For this study, the interaction of power, agency, and scale is employed because power is at the heart of political ecology analysis.

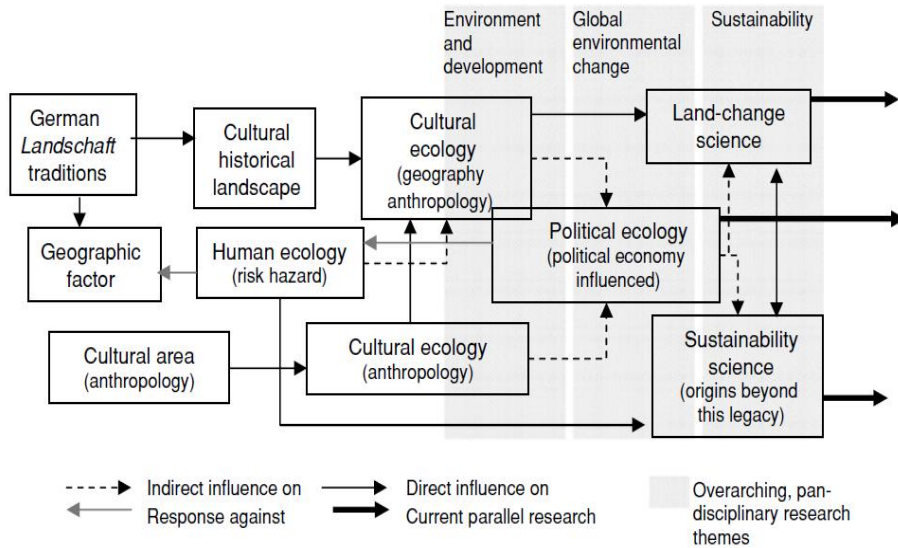


Figure 1: Relationship between political ecology and land use change research (Source: Turner and Robbins, 2008:297)

In the Upland Bromo context, the description of the history of the structure of local resources control and access is meant to provide a deeper understanding of the formation of contemporary local resources governance. Walsh (2008) suggested gaining understanding of the formation of a certain area, in case of a borderland, by analysing a broad network of political-economic and political-ecological relationships that change and evolve over long spans of time and structure global–local cultural and social arrangements. To follow Vanhaute (2011), in case of global subsistence crises, he argues that only a more integrated historical framework of analysis can surpass dualistic interpretations grounded on Eurocentric modernization paradigms, and proposes a blending of historical and contemporary famine research, food regime theory, and new peasant studies that can foster a more integrated perspective. So the contemporary policy of central government decentralization development policies by handing over power to the district and village governments and by introducing the commercialization of forest management via promoting National Park and State Forest Company takes into account analysis as well as current climatic changes in line with the historical dimension of the Upland Bromo socio-economic development.

Therefore, the cultural setting in the local decision-making process gives the contexts by which the flows of power between different actors are identified clearly as a basis to analyse how access to resources is defined, negotiated, and contested among actors. Cultural setting itself, according to the political ecology framework, becomes the bundle of factors that contribute to shape the patterns of interaction between human beings and nature. Additionally, for a balanced description, the factors of physical changes are taken into account to adjust political ecology as an emerging concept that tends to ignore environmental changes themselves as a factor shaping the interaction between society and the environment (Stonich, 2001:4057-4058 and Walker, 2005:73-82). Social and ecological dimensions of the issue are investigated simultaneously, which enables better attributions of the causation of change in a spatially variable environment. Including the cultural setting of a community where the struggle for power appears in line with ecologic dynamics avoids the problems of using generalized data for one of the components while the other is researched in detail.

The further vital concept in political ecology is landscape. It shows how the physical and social dimension of the society at a certain time and in a particular place was formed. There are three kinds of landscape in political ecology analyses, namely analyses of socio-ecological transformations, investigations into the contested meanings of nature, and interrogations of colonial narratives (Neumann, 2011:3). The first, the socio-ecological transformations, draws the process of how human activities as well as natural changes shape the material aspect of landscape from multiple angles. For more focus on this aspect, landscapes according to Neumann (2011:4) are conceptualized as falling into two distinct categories, which are linked to changes in the political economy of natural resource exploitation and conservation.

The second focuses on the definition of the meaning of nature through which social interest groups contest these different meanings of nature and natural landscapes. This leads to struggles over meaning and at the same time over social identity, belonging and exclusion, and land rights and use (Neuman, 2011:4). Furthermore, political ecology in terms of contesting meaning examines both how the spatial and temporal variability of biophysical phenomena are interpreted and understood by multiple social actors and how they alter and are altered by local knowledge and practice to produce material landscapes. The last analysis, the interrogations of colonial narratives, provides critical evaluations of long-lived colonial narratives about nature-society relations. That signals that political ecology puts more emphasis in explaining the discourses process of how resources were contested. Following the concept of discourse, knowledge and power, as key concept of Foucault, political ecology would provide a robust explanation of how human environment relationships as dynamic issues occur (Wingkel, 2010). Discourses are written language that provides meaning for the interpretation of social or physical events, which enables thinking and legitimizes the actions of individuals or actors. It pertains to the field of actors to create certain meaning out of the reality shaping the

patterns of power structures. Power itself is a consequence of the discourse activities through which the new truth can produce knowledge (Wingkel, 2010).

It follows, therefore, that the central theme of political ecology analysis is the access and control involving the dynamics of power behind the construction of landscape. Access is an opportunity to make use of resources, but without the authority of taking decisions on how to use them. Ribot and Peluso (2003) defined access as “the *ability* to derive benefits from things,” broadening from property’s classical definition as “the *right* to benefit from things”. Control, on the other hand, is defined as the complete authority to make decisions on the use of resources. Nature and society are socially constructed to significant degrees, yet both are determined to some extent by what may be glossed as system-like constraints that are neither deliberate nor inadvertent as products of human purposive activity (Greenberg and Park, 1994:1).

2.2 Recent Environmental Changes

2.2.1 Physical Environmental Changes

Physical environmental change was the important part of political ecology analysis besides “power”. It was a critique of conventional social science views which tend to ignore the role of physical dimensions proven to influence society significantly. Goldman et al. (2011:6-7) mentioned that political ecology uses a mix of methods to examine the many different ways how nature can be “known” and managed, including critical social theory, historical analysis, ethnographic techniques, and ecological analysis. Furthermore, political ecology combines three features of analysis that are (1) a commitment to incorporate the understanding of bio-physical processes that underlie environmental change and the availability of natural resources; (2) an emphasis on environmental politics as geographically and historically situated (i.e., the “case study approach”); and (3) strong commitment to social justice. These features convey the clear message that political ecology as emerging concept tries to compensate for the omission of conventional social science in involving bio-physical processes incorporating them to the centre of analysis together with historical and social theory, particularly policy economics.

Indonesia’s environmental and climate change policy brief (1998:3-5) noted that the country is facing the problem of deforestation, water resources–pollution and scarcity, air pollution, loss of bio-diversity and ecosystem services, natural disaster risk, climate change, and weak environmental governance and institutions. Climate change, the recent physical environmental changes which have become an important issue and international concern, particularly El Niño and La Niña, potentially shape human-nature interaction. Being among the countries with high dependency on natural resources as economic drivers, Indonesia is susceptible to damage and extremely disadvantaged. Whereas the impact of climate change brought about

by El Niño was difficult, the increasing number and intensity of events over the last 100 years is the signal that current El Niño conditions may serve as a proxy for future conditions in Indonesia under climate change. Climate change itself, according to the United Nations (1992), means a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is, in addition to natural climate variability, observed over comparable time periods.

According to the prediction of the four methods (HadCM3, GISS, UKMO, and GFDL), climate change will decrease 5% of the Indonesian rate of yield in 2080. Furthermore, Indonesia's agricultural capacity will decrease by -17.9% without fertilizer and -5% with fertilizer (Cline, 2007:77). In upland areas of Indonesia, there is a rapid decrease of agricultural production attributable to global climate change (Beniston, 1994:436). The other devastating impact of climate change in Indonesia is the loss of food security because of the unusual patterns of droughts and floods combined with the warming of the earth (Sagi, 2003:214, in David Brian Dewitt, Carolina G. Hernandez, 2003). In 1998, rice production was estimated to have fallen by eight per cent, the biggest single-year decline in the past two decades.

The crop failure and the decline in family income will see the incidence of dramatically increased poverty (Diermen, in Daryanto, 2008). Additionally, increasing input per agricultural production unit in order to adjust to climate change increases the production cost. In fact, increasing agricultural production through intensification with more fertilizer also adds carbon levels to the air. In conclusion, property rates in rural areas are more in danger because of the climate change phenomenon that decreases the agricultural productivity leading to an increasing poverty rate. On the community level, the response to the occurrence of climate change has depended on the local culture, particularly on how people give meaning to their environment. The construction of climate change events has often been different from the formal inquiry because it is constructed by the local community and based on their experience and local knowledge. Every community has specific knowledge and practice to shape their lives in order to survive in a variety of environments. It is a cumulative body of knowledge, practice and beliefs, involving adaptive processes handed down through cultural transmission, and the relationship of living beings (including humans) with one another and the environment (Berkes, 2008:10). For this reason, environmental changes and their impacts are explained in terms of the local perception though empirical evidence related to climatic changes and rainfall uncertainty.

As previously explained, the commitment of political ecology to incorporating the understanding of bio-physical processes that underlie environmental change and the availability of natural resources to the analysis encourages social scientists to find an appropriate theory to deal with it. One of the social science points of view has recognized physical environmental changes as local people's knowledge and perception as well as the technology created to address climate variability (Ellen, 2007). This knowledge depends on the kind of climate exposure. For instance, in

the outer Indonesian region, the Kalimantan Island, when El Niño struck in 1997 and 2002, droughts occurred, and farmers could survive only by applying their local knowledge selling rubber latex even though it fetched low prices. Increasing the prices of earlier plantation plants such as palm, pepper, coffee, cinnamon, and cocoa did not encourage local farmers to cut the rubber trees although these trees were not efficient. When the drought and El Niño occurred, they could generate cash income from that commodity if they replaced rubber with palm oil (Puri, 2007:46). This study is focused on such definitions to provide a clearer explanation in terms of the physical environmental changes than the definitions constructed by environmental scientists that often perceive them only as natural phenomena.

2.2.2 Development, Population Growth and Impoverishing Process

The process leading to poverty is a classical question for scholars and it is still important as a global phenomenon with emergence in all societies around the world. Poverty does not only occur in the developing or under developed countries but also in the developed parts of the world. Now, in the postmodern period in which the prosperity of many human beings increases strongly, poverty is still a crucial issue because of its rapid rise in recent times affecting social lives in the face of environmental and political changes. At the same time, the debate on poverty also spreads extensively covering many subjects of studies. In the past, poverty was the share of the population with incomes below one poverty line or another. Today, the definition of poverty is beyond the traditional expenditure based measures to include access to basic services such as health, education, justice, and infrastructure. Indicators of poverty involve opportunities for people to participate in social and political decision-making to capture comprehensive and more precise data on in order to obtain better knowledge for subsequent studies and policy planning. Chambers (1989) and Chambers and Conway (1992) suggest researchers combine both material and non-material dimensions of poverty in the strategy of analysis. Poverty analysis also includes non-material dimensions such as a set of interlocking factors, including physical weakness, social isolation, vulnerability, and powerlessness.

In Indonesia's rural areas, the focus on the relationship between land and poverty is a central debate in the agricultural economy transition to comprehend the poverty phenomenon clearly. Some scholars believe that poverty in rural areas has no relation to natural resources because of the massive changes in rural livelihoods called "*de-agrarianization*". It is marked by the expansion of work opportunities in non-agricultural sectors, accompanied by a more rigid boundary between agricultural and non-agricultural work as well as a decreasing pressure on the rural labour market and migration. At the same time, full integration between local and regional and even international markets has led to the process of de-linking land from rural poverty (Bryceson, 1996; Barrett, et al. 2001; Willson and Rigg, 2003; Rigg, 2005). Even though they were influenced by Darwin and Boserup on the model of popula-

tion pressure determinism, their framework of analysis was enriched by another factor related to innovation, technology, diversification, and resources scarcity (Byrceson, 1996).

To depict such de-linking of agriculture and poverty, Rigg (2006) called this condition as “farming in the process of losing its resonance and significance for the rural poor”. The case of Subang, Indonesia (Breman and Wiradi in Rigg 2006:185) shows that the share of the working population in North Subang engaged in agricultural pursuits fell from 75% to 58%. Indeed, the members of households working fully or largely outside agriculture increased from at least one member of two-third households to one-third in 1990. A more recent study conducted in Situgede Bogor, West Java, shows agricultural income was only 27.32% while non-agricultural income was 72.68 % (Rochaeni and Lokollo, 2007:150). Additionally, according to the National Farmer’s Panel (PATANAS) conducted by the Indonesian Ministry of Agriculture, agriculture contributed 58.9% to 98.4% in all surveyed areas. A higher contribution up to 50% is only found in the wetland areas that have wider lands. In conclusion, all households have more than two sources of income, which means that non-farming income plays a significant role in the present Indonesian rural economy (PATANAS, 2007). Furthermore, Collier et al. (2006) found that although landlessness is increasing, the unemployment of landless people is not a serious problem due to the rise in employment outside rural villages. They note there are various types of economic activities that are carried out by farmers such as migrant work, small industries, and others. If agriculture loses its resonance and significance for the rural poor, how will poverty reduction be achieved?

Based on cases in northern Ghana, Yaro (2006: 153-154) called the process of rural transformation in Africa as *multiplex rural livelihood adaptation* not “*deagrarianization*”. He found that livelihood adaptation, implying both a diversification to new or secondary livelihood activities and changing the form, nature and content of the farming sector, characterised rural livelihoods. Then he argued that the adaptation process involves not only a move from the farming to the non-farming sector, but also an intensification of efforts in the farming sector with seasonal diversification into other livelihood activities. Breman and Wiradi (2002) noted that the relationship between non-agricultural income and agricultural activities cannot be considered as a simple tie. Actually, when the urban economy is in crisis, migrants from the villages working in non-farming activities, particularly unskilled labourers, re-enter the village labour market. Feridhanusetyiawan (2003: 325-326) stated that during the crisis period, agriculture certainly turned out to be a saviour for the economy by absorbing labour, with an increase of 13.3% a year. This workforce had been made redundant in the non-tradable sectors, especially the infrastructure, the inefficient financial sector, and the highly import-dependent manufacturing sector. Although the movement of unskilled labourers back to the agricultural sector did not last long, it has proven that agriculture can be a vital means of survival to them in a skewed economy.

Therefore, the poverty phenomenon is accepted as the consequence of interaction processes in society in which persons or groups lack economic, political, and social inclusion in the community. One of the innovative concepts is the social exclusion or impoverishing process. Social exclusion may therefore be understood as an accumulation of confluent processes with successive rupture arising from the heart of economics, politics, and society, which gradually distances and places people, groups, communities, and territories in a position of inferiority in relation to the centres of power, resources, and prevailing values (Estivill, 2003:19). At the local level, in particular at the household level, in the rural areas of Indonesia, poverty has been caused by the process of colonialism and modernization in which some of the groups in the society cannot access resources (White, 1973). “Cultuurstelsel” was operated by the Dutch colonial administration in 1830, which changed the land occupation system from the communal to the individual. Land as the main means of production for farmers entered the market system so that only a few people, mostly the elites, who could make use of the colonial policy, accumulated land. At the same time, poor farmers who got the land from the government planted as much as 20% of their fields with special crops such as sugar cane, coffee, tea, tobacco, and kina. On the other hand, landless people worked in the colonial plantations for 75 days every year as a substitute for being exempted from personal tax (Wiradi, 2005).

In the modernization period after independence, the impoverishment process continued in different ways. For instance, an increasing number of farmers in the Kulon Progo regency have become poor. The large scale of land ownership is getting smaller, which is influenced by the inheritance culture of the Javanese in which land is distributed to each descendant. Therefore, in the long term, the number of household members playing a significant role will decrease the ownership of the land size in each household (Zamal, 2008). Poor farmers also cannot access the non-farming economy because of their lack of capital and human resources. In fact, the type of poverty in the rural areas is determined by the social structure through the maintenance of the cultural norms that shape the traditional heritage mechanism though changes in the rural economy demand wider land to reach the economic scale. According to these findings, the availability of resources is diminished not only by environmental changes resulting in land degradation, but also by social exclusion, severing poor farmers from the mainstream of the local economy.

2.3 Ethnic Identity and Territorial Claim

New local resources governance usually cannot facilitate all the local people's interests due to the imbalance of power among the actors in the decision-making process. It encourages local people to create certain activities that violate the social consensus because their interests are not channelled. For the poor, the ethnic territorial claim takes the form of local resistance refusing production in the space de-

veloped by the state to form new local resources governance. Van Dam (2011:397) mentioned three factors that have contributed to the titling of indigenous territories: firstly, indigenous people's struggles for the ownership of their traditional territories; secondly, the development of new legal instruments in support of indigenous people at national and especially international level; and finally, the emergence of the environmental issue. Territory itself is defined as (1) a geographically defined group of people who; (2) share similar social, cultural, and economic interests, and; (3) believe they are part of the same coherent entity (Stephanopoulos, 2011:4).

The ethnic identity concept is not a romantic definition that fancies ethnicity as the inevitable existence of natural or predetermined groups in the modernized society. The works of Lee (2000) mentioned that group self-identification as tribal or indigenous is a positioning which draws upon sediment practices landscape, and repertoires of meaning, and emerges through particular patterns of engagement and struggles. In Indonesia, Dutch colonialists consolidated their authority indirectly through the ethnic power structure to simplify the control over territory and society. Java Island was the main territory where the Dutch colonial administration extracted more resources and undertook massive intervention than in the regions outside Java. During the New Order era, the categorization of the indigenous ethnicity as traditional and different from the majority as created by the colonial government was continued. As a result, the government introduced the mainstream ideology and practice of life to be followed by the community and this sometimes is in discord with the way of life of minorities. The activities are simply a tool of the central government to control resources for its own benefit rather than for developing the local communities (Brown, 1996:103-104). The decreasing control of the central government in the Reform era encouraged some communities supported by NGOs to try to revitalize ethnic identity to serve several interests compatible with the NGOs' interests.

Ethnic identities are a subset of identity categories in which membership is determined by attributes associated with, or believed to be associated with descent (described here simply as descent-based attributes) (Chandra, 2006). According to this definition, to associate people or a community with a certain ethnicity needs multiple characteristics embedded in the definition of the ethnicity itself. A combination of multiple characteristics gives a robust definition of ethnic identity and avoids language, common history, common origin, and other traditional ethnic characteristics.

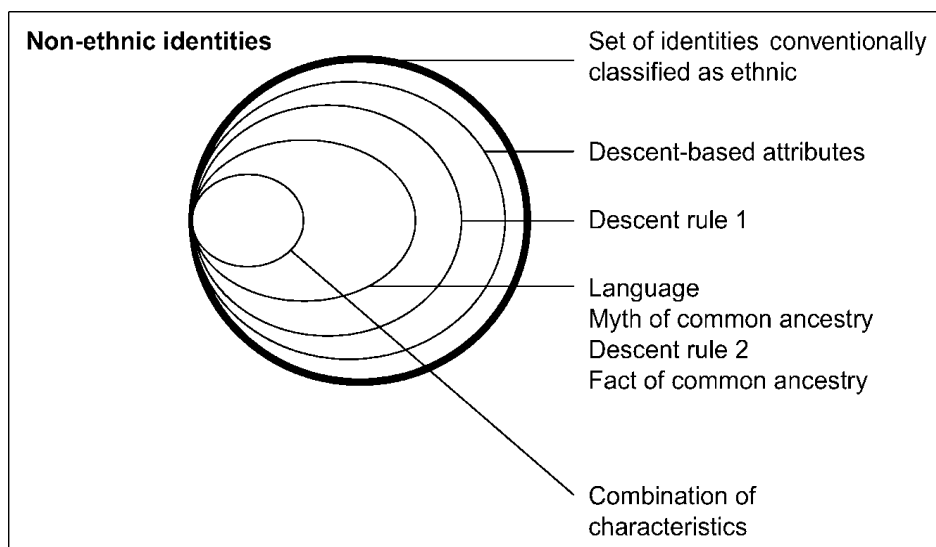


Figure 2: Subsets of the conventional classification of ethnic identities comprehended (Source: candra, 2006:4139)

Ethnic identity and territorial claim have mutual relationships due to the fact that territories are the process in which space and society are interconnected. In the territorial claim, identity plays a pivotal role to legitimate groups of communities to claim a certain space. People display a tendency to identify themselves with particular places (Storey, 2000:17). Territory is very vital to people and it may serve as an integral component of self-identity. Territory of ethnicity is socially constructed and embedded in social relations. Storey (2001:9-15) mentioned that territories are human creations, produced under particular circumstances and designed to serve specific ends. Claims over territories are not only related to large areas such as states, regions, or continents but also spatial scales such as claims of territories by street alleys or criminal organizations. They involve power relations by which claiming space is a territorial reflection of assertion of power. In this view, territories refer to both space and power.

Moreover, territories have the “tendencies of the territorial” that are: (1) involving the classification of geographic areas; (2) easily communicating via the use of boundaries; and (3) functioning as a means through which power is ratified. Re-mapping state forests for example is not only to give information to the society but also to give a sign as to who controls the areas. Therefore, territorial formation, control, resistance, and transgression are political phenomena. The counter mapping of forest territory by local people supported by NGOs in Kalimantan, Indonesia, is an example of contesting claim over territory (Peluso, 1995). This study employs the Tengerese identity as the source of legitimacy for their claim over the areas and resources in the Upland Bromo.

2.4. Livelihood Strategies in the Changing Environment

Household refers to a group of co-residents or people who live under the same roof and typically share consumption. Households are not simply the product of residence rules but are also affected by demography, life course, and political economic factors (Kertzer, 1991). In the field of household behaviour, a systematic wide range research in social science was conducted by Chayanov in Walker et al. (2002:170), who observed that peasant households held farms of different sizes with varying levels of surplus production in which each stage in the household life cycle had a different labour-consumer balance. The idea of household strategies has perennially resurfaced as a concept, a method of analysis and a unit of analysis in studying social life in different parts of the world (Wallace, 2002). It is relevant because of three factors. The first is the tendencies of women to enter the labour force. Household must reallocate tasks to the different household and/or family members. The second is the fact that in rapid social change, household is forced to become reflexive and drawn upon different resources in order both to thrive and to survive. The third is the fact that in formalization, large parts of the economy encourage households to gain resources both within and outside the household in order to manage their economic and social reproduction. The last condition is commonly seen in developing countries, which is marked by the process of agrarian transition in which farmers face many opportunities inside and outside the farming system.

Strategy on the other hand is conceived as a plan of how one would behave in different decision situations that might occur under certain circumstances. Household strategies are those implicit principles that guide household members when seeking household goods from society for survival or social mobility. People can choose, and do choose certain goods that they need, despite the economic or social constraints they face. Originally, the concept of strategy is borrowed from the military and adapted for use in sociology, business, politics, and other subjects. Strategy is connoted with the plan of action, goal, tactics, and choice that is arranged by an individual or groups. Crow (1989) noted that the term strategy as a concept has applications well beyond the traditional term. It has been encouraged by neighbouring disciplines such as anthropology, economics, philosophy, and political science.

Because strategy is related to a set of choices, it also involves some exercise of power because of the nature of choice action. Mann (1987) in Crow (1989:3) noted that where one strategy is pursued in preference to another, the choice might have involved some exercise of power, something implicit in the use of a term such as ruling class strategies. For example, the *Samin* community in Java offered passive resistance (they refused to pay the individual tax without violence) to the government to avoid military pressure (Ricklefs and Wahono, 2005:349-350). In households, exercise of power takes place when they earn or claim resources including the influx of material goods, education, government programmes, or other opportunities and when they must negotiate with society. Certain strategies are often sophisticated when faced with other strategies that are developed by other actors. Scott

(2004) identified that low class farm labourers were not overtly against their landlords to get resources from them, but they destroyed the plants or worked slowly as a form of resistance. To articulate their resistance against the powerful opponents, low class farmers avoided direct actions. This is a form of farmer resistance found as a common pattern of protest among the South East Asian peasantry.

Poor households' strategies do not only depend on structural aspects such as value and norm but also on their capabilities to transform resources to become useful for their economy. The capabilities of poor households affect their bargaining power with other parties in society occupying resources such as property owners, government, local industries, and others. They also influence their means of negotiating strategies facing the value and norm and the social conditions that produce poverty to maximize opportunities for their lives. In line with this explanation, Bebbington (1999) noted that the importance of the concept of strategy is that it is based upon the assumption that one must ask households or individuals themselves what they are doing in order to understand how they make sense of their own environment. Household analysis also involves the life cycle of poor households in order to depict the impoverishing process from generation to generation. Historical perspective gives clear illustration about the process of how poor households depend on their resource allocation in certain events in their household life cycle. Household cycle analysis also gives important information about household decision-making. In plenty of literature, it is found that the heritage system in Indonesia is one of the main causes for losing lands as an important resource in the rural economy (Geertz, 1963). Households' strategies can be viewed in several terms depending on the focus of the subject studies. Concerning the economic behaviour term, household strategies are divided in the participation of poor households in market and non-market spheres. The former refers to household participation in commercial markets through the selling of their products and this includes household members selling their workforce in the labour market. The latter refers to social activities aimed at gaining social connections and non-market transfer resources through social ties facilitated by local norms and values.

Whether or not poor households can make use of those opportunities depends on their capabilities of confronting the social conditions that produce poverty (Bebbington, 1999). He cited Habermas (1971) that considered assets as the vehicle for instrumental action (making a living), hermeneutic action (making living meaningful) and emancipation action (challenging the structures under which one makes a living). In society, poor households often access other instances directly because of their low awareness. As a result, low-income households are substantially less likely to have access to institutions created by the government to facilitate their access to financial resources (Beverly and Sherraden, 1999). In the case of the capitalization of Indonesia's rural area, rich households could make use of most of the government programmes to modernize their farming whereas poor households could not. In the light of the previously-presented explanation, the household as a unit of analysis is used in this study and so are the strategies of analysis to depict

how they choose several alternatives provided by the new institutions that have been shaping resources availability in the last ten years. The analysis also involves the dynamic interaction and exercise of power that takes place between households, individual households and society, households and the government. Life cycle analysis is also important to comprehend the process of how resources are lost from generation to generation. Capabilities of households as an active social group to maximize opportunities are also important to provide the reasons why poor households become viable or not viable.

Table 1: Selected Livelihood Classification Framework

| Typology of livelihood strategies according to activity | | | | | | | | | | |
|---|--|------------------|----------------------|--|-------------------------------|-------------------------|---|-------------------|-------------|-------------------------------|
| Ellis (2000) | Livestock Keeping and pastoral | Food cultivation | Non Food cultivation | Collection (from woods and forest, etc.) | Non-farm activities (weaving) | Rural trade | Rural services (eg. Vehicle and repair) | Rural manufacture | remittances | Other transfer (eg. Pensions) |
| | NR based activities | | | | | Non-NR based activities | | | | |
| Scoones (1998) | Agricultural intensification and extensification | | | | Livelihood diversification | | | Migration | | |
| Typology of Choice (& resilience)... (Vulnerability &) necessity | | | | | | | | | | |
| Devereux | Accumulation | | Adaptation | | Coping | | survival | | | |
| Siegel et al | Risk reduction | | | Risk mitigation | | Risk coping | | | | |

Source: Adapted from Morris et al. (2001)

Household strategies in the face of environmental changes, particularly when the natural resources can no longer support their livelihood, have been classified according to different criteria. According to the nature of activities undertaken, Scoones (1998) divided them into three broad types that are intensification or expanding the area of cultivation and intensification or increasing output by increasing inputs per unit of land, diversification or shifting away from farming to non-farming activities, and migration or leaving the village and moving away from home looking for employment in outside villages. Ellis (2000), according to the type of economic activities, divided livelihood strategies in natural based and non-natural based activities. Based on the ability of households to manage assets, Devereaux (1993) and Davies (1996) divided household strategies in survival, coping, adaptive, and accumulative strategies. Concerning recent environmental change, particularly ENSO,

Binternagel et al. (2010) divided household strategies into reactive as short term adaptation and pro-active as long term adaptation. This study employs the concepts of survival, coping, adaptive, and accumulative strategies as tools of analysis to categorize local people activities in accessing resources in certain institutions.

2.5 Transformation of Resources Governance and its Sustainability

Local resources governance refers to the mechanism of society to rule resources distribution in order to respond to recent environmental changes both socially and physically excluding the poor from the main stream of the economy. As an institution, according to Ostrom (1990), it refers to a shared understanding that is used by humans in repetitive situations and organized by norms and rules. The new institutionalism perspective defines institutions as socially constructed, routine-reproduced, programme or rule systems (Jepperson, 1991: 149). The study of institutions is the study of norm-governed behaviour. In this perspective, the processes by which institutions are formed and reformed tend to be interest-driven and highly political so that institutional theory can explain properly how institutions are created and how they change (Dimaggio and Powell, 1991). Institutions can be contextualized as clusters of rights, rules, and decision-making procedures occurring at all levels of social organizations and with an emphasis on environmental and resource regimes. Institution itself considers the processes by which structures, including schemas; rules, norms, and routines, become established as authoritative guidelines for social behaviour (Scott, 2004), and Ostrom (2005) mentioned that resources are regulated by a multi-layered nested hierarchy of rules. Therefore, institution in this study is defined as the kind of people throughout the Upland Bromo who have to decide who could use what resources, and when, where and how to use them.

Institution is a robust concept highlighting the central role of institution-regularized patterns of behaviour between individuals and groups in society in mediating environment-society relationships. Institution is concerned with norms and rules as the rule of the game in social relationships. Norms refer to the moral behaviour of a society whereas rules are sets of regulations which, to be effective, require enforceable sanctions (Ostrom, 2000). Indeed, institution is not a stable form but a dynamic one by which it changes every time depending on the needs of society. Clemens and Cook (1999:448) mentioned three possible sources of change that are mutability, internal contradictions, and multiplicity. Mutability is the condition when norms as references of action are not stable or change that leads to non-deterministic behaviour or the resistance of actors to apply established norms appropriately. Internal contradiction as a pre-condition or the character of prior arrangements of mutability refers to the instabilities inherent in certain systems of belief or practice of institutions, Clemens and Cook (1999:449). And multiplicity is the condition when internal contradiction is generated by the tensions among the

variations of multiple institutions. Furthermore, Clemens and Cook (1999:451-453) mentioned such changes to be successful if the variation of changes is powerfully conditioned through the process of containment and diffusion, learning and innovation, and institutional meditation.

Moreover, governance, following Larson and Soto (2008:214), has been defined as the formal and informal institutions through which authority and power are conceived and exercised and as the political-administrative, economic, and social organization and accountability of power. Governance itself is about the rules of collective decision-making in settings where there is a plurality of actors or organizations and where no formal control system can dictate the terms of the relationship between these actors and organizations (Chotray and Stoker, 2009:3). New local resource governance as a new institutional arrangement created by local communities to deal with uncertain climatic and social changes becomes the point of intersection of the interests of actors from all levels of society. In the Upland Bromo context, governance refers to how resources in that area are governed by the local system to avoid the wide range of analysis mentioned by Barr (2001), stating that often the failure to comprehend the environmental problems tends to generalize the problems at the macro level neglecting the role of local evidence.

In terms of governing natural resources, it refers to the system of norms and structure of how resources are regulated in a certain social system. Biermann and Pattberg (2008:278) mentioned that the governance concept generally implies some degree of self-regulation by societal actors, private-public cooperation in solving societal problems, and new forms of multilevel policy. As a consequence, the pattern of resource governance is always different in each society depending on its characteristics of culture and structure of power. So concerning governing the Upland Bromo resources, this research focuses on the form of new institutional arrangement of both the regulations or norms and the structure. It also explains how, where and under what conditions resources were regulated to meet the actors' interests. For more detailed analysis, Paavola (2007) introduced governance functions that are exclusion of unauthorized users, regulation of authorized resource uses and distribution of their benefits, provision and the recovery of its costs, monitoring, enforcement, conflict resolution mechanisms, and level of collective choice.

For further analysis, institution as the actors' medium to express their interests is employed according to its sustainability following the sustainable development (SD) concept. It was first formulated and promoted by the World Commission on Environment and Development (WCED) in a popular term used in the "Brundtland Report" as a reaction to the failure of development via modernization to increase the quality of human life around the world and the environmental problems deriving from it (WCED, 1987). According to the WCED definition, SD is the new development approach integrating different spheres of human activities in order to improve their quality of life not only under the current conditions but also for future generations through connecting social-economic matters and environment as one mutual relationship. Its approach involves a wide range of dimensions (moral to

practice), levels or scales (local to global), and spheres (society, politics, and economy). Hull (2008) pointed out that effective action in the name of SD is only possible if taken globally.

Sustainability in such a definition refers to the mechanism in which resources are governed in a more sustainable way. It has two kinds of dimensions that are technical and social dimensions. In social science, sustainability in terms of resources governance is an ability of social systems to deal with environmental problems for their lives and future development. Measuring social sustainability by analysing it at the global level or micro level is not an easy way and has varied criteria greatly depending on the focus of researchers. In Vallance et al. (2011), the researcher employs a threefold schema comprising: (a) ‘development sustainability’ addressing basic needs, the creation of social capital, justice and so on; (b) ‘bridge sustainability’ concerning changes in behaviour so as to achieve bio-physical environmental goals, and; (c) ‘maintenance sustainability’ referring to the preservation - or what can be sustained -of socio-cultural characteristics in the face of change, and the ways in which people actively embrace or resist those changes. So, beyond merely satisfying the physical dimension of human life quality, social sustainability also means the ability of a system to direct the actors’ behaviours which are friendly to the environment as well as to maintain the achievement.

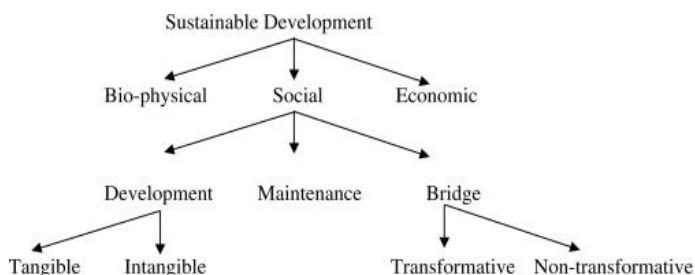


Figure 3: The position of social sustainability in the sustainable development concept (Source: Vallance et al. 2011)

This research employs all kinds of social sustainability dimensions. In the “development” dimension, both tangible and intangible dimensions are analysed through the impact of new local resources governance on the household economy, benefit or no benefit, including their satisfaction with tangible aspects and the transparency of the decision-making process of the new local resources governance with regard to intangible aspects. To provide a more detailed explanation, transparency, particularly information about benefits and disadvantages of the new local resources governance, is measured based on household perceptions. To address the bridge aspect, this research observes the commitment of the new institutions in achieving environmental preservation including the effectiveness of reward and punishment systems.

2.6 Working Hypothesis

According to the previously-presented explanation, there are many concepts that can be employed to comprehend the structure of access to and control of resources as well as poor household strategies to maintain their livelihoods in a changing environment. It is assumed in this study that resources are always constructed by dominant powers for a long time to maintain their control and access depending on the structure of power preponderant at their time. Resources themselves have many forms, not only landownership (based on the “*De-Agrarianization*” concept) but also other opportunities outside agriculture such as tourism which is both agricultural and non-agricultural. The new local resources management (new local resource governance) emerging from the decentralization policy and the commercialization of forest resources offers suitable conditions to the poor to express their interests due to the democratization in the local decision-making process. Democratization opens opportunities for the poor to deal with local norms, social values, and power structures concerning resources management that were previously not possible under the authoritarian regime. Recent environmental changes and the nature of the impoverishing process in rural areas coincidentally determine the form of new local resource governances. So, in conclusion, there are five working hypotheses in this research, namely:

Spatial production in the Upland Bromo was dominated by the respective regimes to serve their interests with different purposes and ways so that it limited the access and control of local people to hand over the resources.

Recent environmental changes both socially and physically have coincidentally reduced the availability and productivity of resources, increasing the escalation of struggles for power to gain the resources.

Such a condition in conjunction with the decentralization policy has pushed the changes in the local resources governance accommodating local people’s interests to access resources in a more democratic way.

For the poor, the new local resource governance has reshaped the availability of local resources leading them to develop certain strategies to determine the decision-making process where the “rules of the game” for accessing resources is decided.

- (1) Following the sustainable development concepts, new local resource governances formed after the Reform era facilitating the support of local people’s interests in a more democratic way via village decision-making processes as a pre-condition for sustainable local resources governance.

3. Research Method

3.1 Data Generation

3.1.1 Location and Sample Selection

The research was conducted in the Upland Bromo in two-phase data collection activities from March to July 2009 and from September 2009 to March 2010 in the East Java Province. In the first phase of the data collection, the researcher focused on identifying village samples, selecting respondents, cross-checking secondary data with the Bromo Park officers and village administration, and conducting semi-structured interviews with respondents on the issues of the impoverishment process and kinds of environmental change that had affected their livelihoods. In the second phase of the data collection, he focused on collecting data of the structure of local resources control and access, new local resource governance and the sustainability issue. To obtain detailed and credible data, he employed multiple methods, namely focus group discussions, semi-structured interviews, in-depth interviews, documentary data, and participatory observation, in line with the triangulation method to assure the validity of the data. For data analysis, qualitative descriptive analysis was employed accompanied by historical views particularly for the social change process concerning the transformation of structures of controlling and accessing the Upland Bromo resources.

The sixty-seven villages bordering the Bromo National Park were chosen as village population interviewees due to the intensive process of environmental change and social exclusion taking place in that region. Three sample villages where poor households live were chosen due to three considerations, namely: (1) land ratio occupation; (2) areas with non-agricultural economy, particularly tourism (3) distance to the centre of economic activities with both local market and tourism concentration. Data which supported such considerations were obtained from the village statistic data in 2009.

Table 2: Selection of Three Villages from the 67 Villages Directly Adjacent to National Parks

| Type of considerations | Low differentiated Villages | Medium differentiated Villages | Highly differentiated Villages |
|--------------------------|-----------------------------|--------------------------------|--------------------------------|
| Land ratio occupation | 35 | 12 | 20 |
| Non-Agricultural economy | 51 | 11 | 5 |
| Distance to the city | 16 | 22 | 19 |
| Selected villages | Ngadas | Wanakitri | Ngadisari |

Sources: Community Profile Data of Probolinggo, Pasuruan, Malang and Lumajang District (2009)

For the access to the prospective villages, the Bromo National Park office heads and persons who have responsibility in operating conservation activities and tourism at the field level were interviewed and so were the heads of tourist and forest offices of Malang, Pasuruan, Probolinggo, and Lumajang districts. These data provided a macro perspective about the environmental changes in this area and other policies related to the conservation and anti-poverty programmes. For the data verification at the field level, extension agents, and persons who work at the field level, were interviewed. Progress derived from these interviews became a precursor for the choice of the areas where the three assessments might occur. Then, with those considerations, the villages were divided into three criteria, namely into differentiated, semi-differentiated, and un-differentiated villages. This led the researcher to go to the prospective villages where the criteria might be fulfilled. In the prospective villages, all of the criteria were observed directly to find a representative study area. The village elites, heads of villages and hamlets were the key informants to verify all the data carefully. When the villages fully met the selected criteria, the field research

was conducted. Finally, the researcher chose Ngadas, Wanakitri and Ngadisari as low, medium and highly differentiated villages respectively.

3.1.2 In-Depth Interviews

The researcher also conducted 30 in-depth interviews (10 in Ngadas, 10 in Wanakitri, and 10 in Ngadisari) with key informants particularly with the purpose to give more detailed information concerning the impacts of environmental change on poor livelihoods as well as details on the commercialization of the forest and park management in the last ten years. In the in-depth interviews, the interviewer allowed the discussions to cover the topics that the respondents deemed important to gain personal, sensitive, or confidential information unsuitable to obtain in a group format. Sensitive or shame issues concerning their income or the process of selling land were explained in detail by the respondents. Legard et al. (2003) opinion could be confirmed that in in-depth interviews, respondents are encouraged to provide detailed explanations of their experiences, feelings, and beliefs. Thus, through in-depth interviews, environmental changes, the nature of rural poverty and household strategies could be elaborated on based on the respondents' perspective.

First, environmental change is a distinct occurrence in the environment related to weather, rain, wind, humidity, and other components causing inconvenience to poor households. How a household gives meaning and responses and evaluates uncertain conditions will be explored in depth in the light of this approach. Relationships between households and environmental changes particularly in the Tenggerese community cannot be depicted only from the material relationship perspective but should also involve their cultural values and the beliefs that shape the community for a long time as a human mode of adaptation.

Second, the nature of rural poverty as a sensitive issue touching poor households' self-respect can be depicted through an in-depth interview more clearly than through a survey method. For instance, in the Javanese culture, selling land is a disgraceful behaviour because a household depends on land as an inheritance property that must be maintained. In an emergency situation, when poor households must sell their lands, they must offer them to their closest relatives before they are sold to other households. Furthermore, the process of losing assets, particularly land related for a long time to the household life cycle, involves a complex decision inside the household and is shaped by social norms and values. Marketing land in the rural areas is different from that in the urban areas because of the influence of cultural factors. Therefore, to comprehend the process of losing resources causing poverty, an in-depth interview is a proper and precise method. Lastly, household strategies as a process involving political, economic, and cultural aspects can also be described more properly using the in-depth interview method than conducting focus group discussions. Each household has specific strategies, depending on their capability and the household resource availability.

3.1.3 Semi-Structured Interviews and Focus Group Discussions (FGDs)

The researcher offered 170 semi-structured interviews presenting the questions to the respondents without mentioning the answer categories to be used for coding. So the respondents were free to formulate the answers in their own ways, but the interviewers were supposed to record the respondents' answers in the pre-coded answer categories. This presupposes that respondents would give answers that would match these categories. As a result, asking questions that were based on specific themes might take place, but still allowing freedom for the interviewees. Setting the themes can build mutual trust upon each other and it grows as the interview progresses. In this method, before entering specific themes, the researcher asked the respondents about their social economic background such as age, education, status, race, religion, gender, and cultural context. Then he put forward more specific aspects such as themes of household strategies both involving certain institutions and creating resistance strategies.

This research conducted five focus group discussions in the three village samples where the sample group consisted of poor family households. The average number of participants per group was six to ten members depending on the population of the poor households at the hamlet level. FGDs were focused on common themes such as access to and control of important resources namely water resources, forest margins (products and land), and the tourist sector. Who controlled the resources and how control was executed was discussed to draw the structure of resources that shaped resources availability. Focus group discussions were also fruitful in confirming information concerning physical environmental changes that were often perceived differently among them.

A. Semi-structured interview in Ngadisari village on 6 of July 2009



B. FGDs in Ngadas village in 9 of Oktober 2009



Figure 4: Focus group discussions and semi-structured interviews

3.2 Verification and Validation

Verification and validation are needed to keep the accuracy of data and strengthen research findings. One of the rigorous methods to address that problem is the triangulation strategy. Formerly, triangulation was derived from topographic analysis and was developed by military and navigation sciences. Triangulation was initially described as the combination of multiple methods (two or more) in the study of the same phenomenon (Denzin, 1970; Denzin and Lincoln, 2003). Information coming from different angles can be used to corroborate, elaborate or illuminate the research problems. Triangulation strategy is used to make sure of the data and findings because the multiple methods of data collections and analyses employed in research are often susceptible to bias. Triangulation also strengthens the study results by helping to minimize misinterpretation, identify redundancy of data gathered because of repetitiveness and recognize challenges in the analysis (Denzin and Lincoln, 2003). There are four kinds of triangulation, namely (1) triangulation of data; (2) investigator triangulation; (3) triangulation of theories; and (4) methodological triangulation.

First, drawn data on the same theme are combined from different sources and at different times, in different places and from different people. Second, investigator triangulation is done by the use of different observers or interviewers, to balance out the subjective influences of individuals. Next to the investigators' subjective understanding, gender, race and culture can also bias qualitative analysis. In this research, to avoid subjective biases, the researcher invited research informants to read the findings and draft them in order to give remarks and corrections to enrich the research findings. Third, triangulation of theories refers to the interpretation of

the same set of data from multiple perspectives in order to make sure the theories are adequate to explain the data. This method can also assess the utility and power of theories to address the case. Finally, methodological triangulation entails the use of multiple methods to study a single problem. In this research, the researcher employed focus group discussions, in-depth interviews, participation observation, semi-structured interviews and documentary data in order to make the data balanced.



Figure 5: Methodological triangulation

In order to maintain the rigour and credibility of research related to its reliability and validity, qualitative research introduces four scientific claims, namely (1) credibility to replace the internal validity, (2) transferability to replace the external validity, (3) dependability to replace the consistency and reproducible finding or reliability, and (4) conformability to replace the objectivity as a main value of qualitative research. In this research, credibility was improved not only by in-depth interviews but also by detailed and direct observation in the small unit of analysis (poor households). Additionally, participatory observation has given more context and meaning to the data. As a result, credibility of research can be proven.

3.3 Analysis

This research employed descriptive analysis to depict the existing social economic conditions of the poor households, their everyday activities related to adaptation to environmental changes, the power structure of local resources control and access, and how local resources governance was created and how it influenced the strategies of the poor to maintain their livelihoods which mostly depended on forest resources. It also employed it to explain the recent process of the Upland Bromo spatial production that was often determined by the dominant powers, mostly the state from time to time. For a more comprehensive explanation, literature review was added for analysing the historical context of the Upland Bromo social economic development that led to an increasing scarcity of resources which triggered the escalation of the struggle for resources. It was the strategy of the researcher to deal with the weakness of descriptive analysis based on individual opinions held by sev-

eral researchers who are often dubious about its validity. A combination between literature review and descriptive analysis enabled the researcher to identify the commonalities in the experiences of the participants in order to make a generalized description.

For the analysis of environmental changes related to social exclusion, descriptive analysis is also useful for researchers to draw the process of losing household assets and their perception about the impoverishment process throughout their lives. It is also an answer to the question on how their views about the gap in resource availability among members of a community will be described by poor households and what their opinions about it are. Perception of the households that deals with the perception expressed in focus group discussions will make the explanation of the impoverishment process clearer and more meaningful. Event by event in the household lives experienced when they lose important economic assets can be described comprehensively.

Descriptive analysis is also done to understand the complex ways through which many kinds of local resources governance are accessed by the members of the households to develop their survival strategies. The entire household activities to adapt to the uncertain structure of power that rules the accessing resources can be described one by one to get the complete picture. Experiences of the poor households will also be described according to their subjective construction of reality. For the accomplishment of precise themes and effective time, this method makes use of the data obtained from the focus group discussions and interviews as the main sources of data. Through descriptive analysis, actors can be traced more deeply as to their influence in decision-making processes shaping local resources governance.

Common themes appearing in the focus group discussion activities are extended in the descriptive analysis to the household level. Related to the form of local resources governance support, the principles of sustainable development in descriptive analysis are also applied. Whether or not the new local resource governance is inherent with the principles of sustainable development, i.e. whether all members of society have opportunity to access resources, how the new regulation promotes fairness in the real activities, are explained using descriptive analysis, particularly to measure the sustainability of new local resources governance as the new institution to deal with the changes in the structure of politics. It is clear that descriptive analysis along with historical literature review does not only give a more comprehensive explanation of the process of struggle for resources at the field level but it can also capture the influence of regional, national, and even international actors in determining the form of local resources governance.

3.4 Research Site: Turn up To Upland Bromo

Prior to the attempts of understanding the process of socio-economic changes shaping the new local resource governance, the ecological and economic setting of the Upland Bromo must be described in line with the massive changes in the physical environment. This area is dominated by upland forests with fertile volcanic soils where high value commodities can grow easily. These products are sold to Jakarta, Surabaya, Malang and other cities outside Java so that the Upland Bromo becomes the main agricultural producer succeeding the rural economy after the agricultural modernization was introduced in the 1960s by the New Order regime (Pangarsa, 1995; Soetarto, 1996; Purnomo et al. 2010). Administratively, this area is controlled by four district governments namely Malang, Lumajang, Probolinggo and Pasuruan. Outside the village area, forest resources as the other sources of local people's livelihoods are controlled by the Ministry of Forestry for a national park, the State Forest Company for state forests and private forest companies for timber planting cooperation (Kemitraan Hutan Rakyat), and the households themselves for the community forest (Hutan Rakyat).

The centre of this area is a national park managed by the Ministry of Forestry. It consists of the Bromo-Semeru massif, a block of volcanic highland averaging 40 km North South and 20-30 km East West, covering an area of 50,276 ha with altitudes ranging from 1,000 to 3,676 meters. Geographically, it is located at 07°51' - 08°11' S and 112°47' - 113°10'. The temperature ranges between 3 to 20°C and the lowest temperature between 3 to 5°C, which happens mostly at midnights during the dry season. Based on Schmidt-Ferguson's climate classification, the area is classified as B type. The average rainfall is 3,000 mm per year (in the eastern and southern areas). On the sandy fields and surrounding areas, the climate type is C with the average rainfall being 166 mm per month (Nature Indonesia, 2010). Cold temperatures especially during the dry season encourage the villagers to make fireplaces; therefore, firewood is a primary need. The area of the park is divided into three areas namely Sub-montane (750 - 1,500 m ASL), Montane (1,500 - 2,400 m ASL), and Sub-alpine (2,400 m ASL). First, in the sub-montane area, the forest range was laid from lowland tropical rainforest to mountain forest. This area has several density levels of biodiversity and can be found at the southern, eastern, and western parts of Mount Semeru. Some of the vegetation comes from the family of *Fagaceae*, *Moraceae*, *Anacardiaceae*, *Sterculiaceae* and *Rubiaceae*. Crop covers mostly seeds from various genres such as *Calamus* spp., *Piper* spp., *Asplenium*, *Begonia* spp., and from the family of *Anacardiaceae*, *Araceae*, *Poaceae* and *Zingiberaceae*.



Figure 6: Map of South East Asian and East Java (Sources: Bromo National Park-2009)

Second, the montane area mainly consists of primary forests, but there is less biodiversity in it. Most of their vegetation is pioneers that grow well in the open bare area. Some of the species are Cemara Gunung (*Casuarina junghuhniana*), Cantigi (*Vaccinium varingaefolium*), Kemlandingan Gunung (*Albizia lophanta*), and Acacia (*Acacia decurrens*). Examples of crop cover species such as Edelweiss (*Anaphalis longifolia*), Senduro (*Anaphalis javanica*), Ferns (*Pteris* sp.), Rumput Merakan (*Themeda* sp.), Calingan (*Centella asiatica*), and Alang-Alang (*Imperata cylindrica*). Finally, the vegetation in the sub-alpine forest is mostly small and less diverse, such as mentigi gunung (*Vaccinium varingaefolium*), kemlandingan gunung (*Albizia lophanta*), and edelweiss (*Anaphalis longifolia*). The sub-montane and montane areas are very fertile where high value crops (HVCs) can grow well with high productivity even on steep slopes.

The Upland Bromo has become the largest vegetable producer in East Java. It supplies vegetables to the major cities in Java and outside Java such as Kalimantan, Bali and Sulawesi and certain areas in several cities of Sumatra. Some big traders export vegetables abroad from the Upland Bromo via Surabaya and Jakarta. It supports the opinion of Gulati et al. (2007:91-92) that stated that trade liberalization opens up markets for export to countries that have high demand for fruit and vegetables. At the same time, the growing domestic demand for high value commodities is driven by increasing income, urbanization and perhaps by changing preferences. Allowing foreign direct investment to the area increases competitiveness and opportunities of village products to be also included in foreign markets (Gulati et al. 2007:91-92).

Most of the vegetation in all the zones has been used by the villagers as firewood, cattle food, foodstuff, materials for ceremonies, and building materials which are for their own use and/or for selling. Like the unprotected plants, the protected plants whose commercial use is prohibited by law are also exploited by the local

people. For instance, they sell edelweiss illegally to local tourists for five to twenty thousand rupiahs for a single wreath. Edelweiss is one of the most protected plants and therefore it is prohibited for sale. The availability of edelweiss which is relatively abundant in certain seasons and missing supervision encourages the villagers to still sell it.

The forest area surrounding the National Park belongs to the State Forest Company that uses it for commercial purposes such as timber, NTFPs, and tourism as well as to the Community Based Forest Management (CBFM) or (Kontrak in local terms), and *Pengelolaan Hutan Bersama Masyarakat* (PHBM) by the State Forest Company. The main purposes of this programme are to guide forest resource management in a way that improves the community's welfare, their quality of life and their economic and social capacities and that increases the quality of forest resources, forest productivity, and forest security; as well as to form an adjustable forest resource management that can suit the social dynamics of the local community around the forest (Djayanti, 2006:67). In Wanakitri, more than fifteen households joined the programme from which they got one to two hectares of land for agriculture for two to three years depending on the development of the main crops. Normally, pine or acacia as main crops have a canopy that covers the land after two to three years so that access to land for local people in the CBFM scheme is temporary.

3.5 Research Villages Situation

Three research villages, namely Ngadisari, Wanakitri and Ngadas, lie in the areas bordering the Upland Bromo which depend on agricultural production. They are all situated in the middle of the East Java high land area zone. They have been selected for the case studies due to their highly differentiated socio-cultural settings and they represent the general conditions of the cultural, social, economic and agro-ecological settings of the current upland situation. The first village, Ngadisari, located in the Probolinggo district, is the most differentiated village where tourism has been growing rapidly in the last ten years. Additionally, an intensive agricultural system has been developed by villagers through planned commercial commodities such as potatoes, onions, and cabbages. The second village, Wonokitri, located in the Pasuruan district, is the medium differentiated village where agricultural production is the dominant sector followed by tourism. Even though the agricultural production is not as intensive as that in Ngadisari, when compared with Ngadas, Wonokitri's farming is still more intensive. Wonokitri represents the medium differentiated village in which the influence of the tourist industry is not very significant. The third village, Ngadas, located in the Malang district, is dominated by a purely agricultural economy in which the tourist industry just adds a small contribution to the village economy. Therefore, this village depends on the sustainability of natural resources. Most villagers work as farmers or go to forests to collect firewood, char-

coal, or herbs. Forests in all the three villages, mainly consisting of different eucalyptus species and scattering around the mountains, belong to the National Park and the State Forest Company.

While in Ngadisari and Wanakitri the service sector has become important as an alternative livelihood source, agriculture still contributes a big portion to the economic structure of the village. Ngadisari is a bit flat when compared with Wanakitri or Ngadas so that agriculture is very intensive, which is marked by the use of high-yielding crops, fertilization, irrigation and pesticides. Potatoes are planted three times every year, particularly in the areas where water is available all year-round and are located against the west wind. The west wind is recognized by local people as the main threat besides pest and sulphur due to the fact that the resulting damage is more severe when compared with other threats. Indeed, very fertile volcano soil along with the availability of water all year-round has allowed this area to become the main vegetables producer in the Upland Bromo. It is not surprising to find that Ngadisari has many middle class households and input production salesmen who serve the farmers in the surrounding areas. Compared with other villages, Ngadisari is highly populated and even the steepest slopes are cultivated.

Table 3: Percentage of Population Who Work Outside Agriculture

| Villages | Labour Farms | Tourist services | Other services |
|-----------|--------------|------------------|----------------|
| Ngadisari | 16 | 12 | 3 |
| Wanakitri | 23 | 3 | 2 |
| Ngadas | 29 | 0 | 1 |

Sources: Ngadisari, Wanakitri and Ngadas Village Statistics 2009

Unlike in Ngadisari where monoculture and intensive agriculture occur, in Wanakitri, a village with medium influence of tourism, agricultural practices are intensive but farmers prefer to mix potatoes with other plants to avoid fatal losses. In Ngadas, a village with no economic activities related to tourism, potatoes are not so popular for smallholder farmers in that they prefer to plant onion or cabbages that have relatively low risk. The fertilizer price is higher in Wanakitri than in Ngadisari because the location of Wanakitri is far away from the city so that farmers choose vegetables that fetch good prices and need minimum input. Farmers from Ngadas and Wanakitri referred to Ngadisari farmers as “crazy people” because they still invest much money in a very high risk business in the rainy season. They told that:

“Ngadisari farmers are crazy. They plant money, not potatoes. They apply fertilizer just like taking out the trash. Pesticide has been applied just like watering plants without limitation. If we follow them, we are sure that our families will eat corn cob in the next planting time.”

On the other hand, Ngadisari’s farmers consider Wanakitri and Ngadas people are old-fashioned because they still use traditional techniques and avoid risks.

Ngadisari is very popular for tourism not only for foreigners but also local or domestic tourists because it has adequate facilities and is very near the Bromo crater which is a main tourist destination. Paved roads with regular public vehicles support tourist transportation. In Ngadisari, guests can choose accommodation types based on their preferences, from luxurious hotels with rates of more than two hundred dollars per day to small lodgings for five to twenty dollars. Economic activities related to tourism absorb local labour to the amount of around 12% of the village population as local guides, restaurant or hotels attendants, food sellers, and jeep drivers. In Wanakitri, only three per cent of the population is involved in economic activities related to tourism and there are no people involved in tourism-related activities in Ngadas. In the last ten years visitors tend to increase the number of both local and international tourists. In line with the success of Indonesia’s economic recovery, local tourists have been increasing rapidly in the last ten years as shown by the growing hotel occupancy. Thus, in the village, rich families having enough capital begin investing their money in the tourist sector such as in jeeps, restaurants, horses and motorcycle taxis.

Table 4: Population, Number of Households and Average Land Occupation

| Villages | Number of People | Number of Households | Average Land Occupation (Ha) |
|-----------|------------------|----------------------|------------------------------|
| Ngadisari | 1.567 | 483 | 0.94 |
| Wanakitri | 2.911 | 682 | 1.30 |
| Ngadas | 1.649 | 564 | 1.26 |

Source: Ngadisari, Wanakitri and Ngadas Villages Statistic Data 2009

Although the service sector has become important, agriculture is still the main source of livelihood not only due to its ability to absorb rural labour more than other sectors, but also to the Tengerese people’s identity. In the research villages, households still control enough land while in lowland areas they control less land. Even though the productivity of land is relatively low particularly in areas where there is not enough water, according to the farmers’ opinion, 0.9 square hectares are relatively good for farmers. In Ngadisari, farmers can benefit by more than ten million rupiahs which is equal to approximately one thousand dollars if they are successful in planting potatoes, onions or cabbage that have high selling value. In

Wanakitri and Ngadas, where the slopes are high, landownership below one hectare is not enough. While the average land occupation is better in the villages researched, according to the interviews, land tends to accumulate to the several families who have enough capital to buy or rent it for agricultural activities. For several other families, it is very difficult when they have land below one hectare to plant potatoes that need a big amount of capital. It is a sign that resources are increasingly scarce pushed by the capitalization of the rural economy.

4. Socio-economic Background Shaping Local Resources Governance

4.1 The Narrative of Commercialization of the Rural Economy

4.1.1 The Influences of the Colonialist Regime

The region that is defined as the Upland Bromo has experienced significant economic, political, and social changes since the invasion of the Islamic Empire, colonialism, and the development under the New Order (Hefner, 1987, Pangarsa, 1995). Integrating the Upland Bromo economy into the regional, national, and international economy began in the mid of the eighteenth century (1772-1790) marked by the work of the German's extension worker in the Tosari District (Hefner, 1990). Germans introduced modern farming techniques and new commodities such as potato, cabbage, carrots, and other highland vegetables. Production was consumed by foreign plantation workers and visitors who spent their vacation in Bromo. Although detailed research explaining the activities of the German extension workers and their impacts on the local agricultural production is very limited, it can be considered as the precursor of later developments making the Upland Bromo an important area for the colonial economy at least to support the expanding large plantations in the lowland. In 1927, the Department *van Landbouw*, the colonial agricultural

department, introduced garden seed potatoes in Tosari, the centre of economic activities of the Upland Bromo people, to support food production. Potatoes for the Upland Bromo people have a historical context so that it is certainly understandable if those commodities are important until today as local economic sources.

The second wave of integrating the Upland Bromo with external economic activities was the development of coffee plantations in the sub-montane area from 600 to 1400 meters above sea level in the mid-nineteenth century. Coffee plantation was introduced to the Upland Bromo after the successful coffee programme in the West Java's Priangan upland (Geertz, 1963:58). Java and its climate were very suitable for growing commercial commodities for international trade. This encouraged the colonial government to increase exploitation in that area (Valkenberg, 1925). Coffee plantations were located in areas which nowadays link the economic region of Upland Bromo with big cities in Java. These areas are Senduro (Lumajang District), Tumpang (Malang District), Nongkojajar and Puspo (Pasuruan District), and Sokapura (Probolinggo District). Hefner (1990) described the coffee plantations surrounding the Upland Bromo as a "coffee belt". This programme was not as successful as that in West Java because of the shortage of local labour and the limitation of arable land due to the shifting of cultivation as the main economic pattern of Tenggerese people.

The claim over the Upland Bromo as the local people's territory which they had customary rights to access and control made it a major constraint, apart from labour shortage, for the expansion of coffee plantations surrounding this area. To solve scarcity of land and avoid local people's resistance, the Dutch colonial administration introduced individual ownership for land with no tax system. This was successfully applied in the Central and West Java regions. Although there is no evidence connecting the free tax policy in Upland Bromo with the resistance of local people, the very low productivity of the native agriculture was the rational reason why the Dutch colonial administration had chosen to adopt such policy. The individual ownership policy shifted land to the market, which gave more opportunities for capital to get space for cultivation of large plantations in the Upland Bromo. Linked to the problems of scant availability of skilled labourers that were very rare, the Dutch colonial administration introduced immigrants from Madura and other areas in Java to support the plantation activities (Hefner, 1987).

Coffee plantations were established by the Dutch government as a part of Cultivation System Policy (*Cultuurstelsel*) under the control of the governor-general Van den Bosch (1830-1870) after the bankruptcy of the *Vereenigde-Oostindische Compagnie* (VOC). According to the Cultuurstelsel policy, the production of selected plantations was to be grown and partly processed by Indonesians under the supervision of their own administrators and under the watchful eye of the European civil servants (Van Niel, 1960). Besides requiring the planting of commercial crops such as Cinnamon, Cloves, Coffee, Forestry, Gunny Sacks, Indigo, Livestock, Napalm and Cochineal, Pepper, Rice, Silk, Sugar, Tea and Tobacco, the government also hired local residents for planting, tending, and cutting the crops as well as preparing the

land, opening new lands, and extending the areas of irrigation. Therefore, this policy changed the local economic structure directly because of the commercialization of labour markets (Van Niel, 1972). Labourers were brought from the lowland areas particularly from Madura Island and Pasuruan district and also from several areas in the western region of East Java. Therefore, the area surrounding Bromo Upland today is mainly dominated by the Madura ethnic group such as Nongkojajar Puspo, Sukapura, Senduro, and Poncokusumo.

The situation changed in the late nineteenth century, marked by the shrinking of the coffee price in the international market brought about by the boom of the Brazilian coffee production rendering coffee plantations in Upland Bromo no longer economically profitable (Hefner, 1990). At the same time, the forced cultivation system collapsed during the 1860s under the weight of internal corruption, under the pressures placed upon it by private businesses and commercial interests that had grown politically powerful in the Netherlands, and under the ambitions of European entrepreneurs in Java that wished to terminate the governmental land control so that they might make individual fortunes (Van Neil, 1960).

The forced cultivation system was no longer in place, which was marked by the Dutch government allowing private companies to enter Java Island. Although it had no direct impact on the Upland Bromo, the development of the infrastructure connecting Upland Bromo with other areas in the lowland stopped. Tenggerese people went back to their native economy by planting corns and other plants to deal with uncertain conditions. To deal with those circumstances, the Dutch colonial administration replaced the coffee plantations by the sugar cane industry in the lowland and Upland Bromo's agricultural basis was changed just to produce food to support new plantations and leisure areas. Many sugar mills were built in the late nineteenth century, such as those in Kedawung in Pasuruan, Gending, Pajarakan and Wonolangan in Probolinggo, Djatiroto in Lumajang, Krbet and Kebon Agung in Malang. For the support of the sugar cane industry, a research institution named "*Het Proefstation Oost Java*" was built in Pasuruan in 1887 and became famous for its research centre for sugar industries until colonialism ended.

Booming sugar cane industries had great impacts on the Upland Bromo area from which the colonial administration developed access to lowland and between Tenggerese villages. The comparative economic advantages to plant vegetables encouraged migration from the lowland to the Upland Bromo during that period. The bad conditions in the sugar cane industries and the low salaries paid to labourers drove farmers from the lowland to undertake agriculture in the higher areas. At the same time, the developing infrastructure and increasing demand for vegetables encouraged migration. The crisis of the sugar cane industries at the end of the Colonialist era along with the world crisis in 1930s made Indonesian sugar companies collapse (Knight, 1992) and encouraged Upland Bromo to go back to the traditional manner of production through producing food for local and regional markets (Hefner, 1990).

A. Group of Students from Hoogere Burgerschool or HBS with H. Eggink in Mungal Pass, Bromo.



B. Indonesian Sugar Research Institute (ISRI) or Het Proefstation voor de Java Suiker Industrie built in 1887.



Figure 7: The influences of colonialism in the upland Bromo
Source: Eggink (1923:222) and Source: P3GI (2009)

Hefner (1990) mentioned that the Upland Bromo was economically shaped by external local dynamics rather than internal factors. The expanding sugar cane industries were supported by the introduction of the *Boschordonantie voor Java en Madoera* in 1865 then followed by the *Domeinverklaring* in 1870. According to this law, forest land was controlled by the government when there was nobody else controlling it. If people or someone claimed the forest land as his property, he had to provide evidence to the government. This law opened opportunity for private companies to access arable land, particularly forests for commercial plantation. Local people had the right to control their traditional land and private companies could rent land for a long period of time in the free land or from villagers. The local people's lack of understanding of the law and the corruption taking place in the local government caused local people to lose their control over the resources.

The Dutch colonial regime was replaced by the Japanese regime in the mid of the twentieth century. The Japanese regime devastated the economic situation in the Upland Bromo when all economic activities fell under the government's control. Sugar cane plantations were replaced by *Jarak* or *Ricinus communis* plantations for fuel. In this period, Tenggerese people and most of Indonesian people had shortages of food and clothing. The economy was ruined due to the obligation for villages to plant *Jarak*, limiting lands for corn or rice as a staple food and forcing labour to serve in the war (Sato, 1989). The adequate food supply during the late Dutch colonialist era was quickly devastated by the Japanese domination, which sharply decreased the food consumption of the Javanese people (Van Der Eng, 2008). All the resources including food were used to support the war so that there was no more land available for food plantations. In the local resources management context, the change consisted only in shifting the control of resources from the government to private companies without giving them back, in particular returning land to the local people. Also private companies became more aggressive in their endeavours to gain

concessions from the government and bought land from local people easily through market mechanisms.

4.1.2 The Influences of the *Old-Order and New-Order Regimes*

Integrating the Upland Bromo with the lowland economy was continued in the early Independence era in which there was almost no significant development activity during that period because the new government's concentration was focused on fighting the Dutch aggression. The situation changed after the crush of the Indonesian Communist Party (PKI) in the 1965 tragedy (McGregor, 2008) that led economic development to become stagnant because political issues had higher priority than economic issues. Beginning in 1966, the New Order created economic development through the modernization of the rural economy via the green revolution in line with the development of infrastructure such as roads and electricity starting in the mid-1980s and early 1990s. In upland areas where the land bears high risks for intensive agriculture and has specific social patterns, transforming society along the lines of the green revolution caused deep and far reaching upheavals with many negative impacts not only for the environment but also for livelihood security (Boomgard, et al. 1997)

Another factor that had a close relationship with the excessive exploitation of the land in the Upland Bromo was the introduction of the modern tillage technique along with the green revolution programme in the early 1970s. The East Java agricultural bureau sent its officers of agriculture called *mantri pertanian* to modernize agricultural practices such as making terraces, planting systems, utilizing new potato seeds, and implementing the training of other technical assistants to multiply cash crop production. The government also sent several farmers to production centres of potatoes like Batu (East Java), Dieng (Central Java), and Lembang (West Java) to study potato planting systems especially seed production. In the early 1980s, the government replaced the old Granola seed, a variety imported from Germany and The Netherlands and introduced in the 1970s, with a new seed that was more productive and resistant to plant diseases (Lacon and Hasanuddin, 2004, Purnomo et al. 2010). According to the Ministry of Agriculture, the potato area occupied 59,749 hectares in 2006 having a tendency to increase in line with the growing demand for vegetables (Dimiyati, 2008).

Along with the process of industrialization in East Java and Indonesia, the demand for horticultural products increased rapidly in the 1990s in which more than 80% of the land was planted with potatoes and other commercial products. At the same time, the government built infrastructure to connect the Upland Bromo with other economic centres such as those in Malang, Surabaya, and Jakarta. Stone-paved roads were replaced with paved roads, so that the Upland Bromo had direct connections both within the Bromo area and with other cities. The agricultural infrastructure built to connect the main roads and farming was supported by the village leaders. Horses were replaced by motorcycles as the main means of transportation

for agricultural products. Therefore, building infrastructure increased the circulation of goods and services at the village level. Increasing demand for horticultural products made the villagers cut their trees that had provided shade and protection to potatoes and cleared their private woods to make space for the plantation of agricultural commodities.

Rapid growth in the lowland economy along with the development of infrastructure increased the demand for vegetable products in the 1980 period. The fact that the price of potatoes went up three times as much as that of rice made Upland Bromo become a very profitable area for agriculture. Rich farmers recruited labourers from the lowland villages due to the limited local workforce available in their own neighbourhoods. Wonokitri and Ngadisari were favourite destinations for job seekers from outside the villages. They came in groups and lived for two or three months in the villages with their employers. When the road that connected the Upland Bromo with the lowland was paved and some of the farmers possessed cars, they picked labourers directly from the villages every day. The increasing income encouraged the villagers to increase their consumption of non-income generating goods such as electronics, house building, motorcycles, cars, etc. Some of them bought houses in the city for investment or bought land to expand their agriculture (Hefner, 1987; Pangarsa, 1995). This situation changed dramatically when the financial crisis followed by political turmoil occurred in the 1998s making the vegetable price plummet three times and more while increasing the cost of input production, particularly of pesticides, by more than ten times.

The situation of East Java where more than nine thousand international tourists come every year especially to the Upland Bromo has the effect of making this area economically dependent from the regional, national, and international economic dynamics. More than one hundred thousand local tourists every year come to this area, involving more than five hundred jeeps for rent, more than three hundred motorcycle taxis, a hundred local guides, hotels, restaurants, and other informal sectors supporting the tourist industry. During the peak season, every day more than 30 to 40 men cut and sell more than two or three loads of grass for horses in line with the increasing demand for local food and fruit sold to the tourists as their additional income. Tourism as a huge industry is very complicated and involves not only tangible services such as transportation and accommodation but also supporting systems such as local people's participation as well as regulation (Cochrane, 2000). Although new economic opportunities from the tourist industry provide an alternative source for local people's livelihoods, they potentially increase the competition among them to fight over resources.

The growing population at the same time has increased the demand for land as well as forest products such as firewood and charcoal for consumption. Energy consumption is also high, particularly for cooking and keeping the houses warm during the nights. Even though new energy sources such as petroleum and natural gas are introduced to the villages in order to replace firewood and charcoal, most Tenggerese people still use wood and charcoal for their everyday activities. It is an

inseparable tradition for them to make fire at night before sleep as an activity of social interactions. Moreover, timber prices are relatively high because of the increasing housing sectors in the cities. This potentially pushes the villagers to exploit forests to get benefits from them. At this point, the demand for forest products in the Upland Bromo is caused by the internal consumption for housing and energy as well as high prices of timber products due to the increasing housing activities in the cities. Besides, the commercial development in the villages encourages villagers to clear their private forests that previously functioned as stocks of energy.

Therefore, the Tenggerese as the native people of the Upland Bromo have lost control over their resources since the Dutch colonial government forced farmers to plant coffee in some parts of their own land. The policy was called *Cultuurstelsel* policy. The control over the resources by the government after that period was tighter when the Dutch colonial government introduced the *Boschordonantie voor Java en Madoera* in 1865 and was then followed by the *Domeinverklaring* in 1870 to limit the local people's access to forest land. Therefore, local people lost their customary right to access the forest resources due to their weakness in providing evidence of mastery. The principle underlying this law has been taken over by the Indonesian government until now. The state forest companies and Bromo National Park are an extension of the government in the forestry sector that has established them. The commercialization of forest management introduced by the central government in the post Suharto era that led national parks and State Forest Company as the main agents to implement conservation and tourism are increasingly restricting the access of local people to the forest.

4.1.3 Political Turmoil and the Reform Era

For more than three decades, Indonesia was led by an authoritarian regime in which all the resources were directed towards economic growth by giving concessions to private and state forest companies (McCarthy, 2001). On the basis of the colonial law legacy, the Suharto regime intensified control over resources, which excluded the local people from having access to and control of resources. Therefore, their activities were considered illegal according to the perception of the government. On the other hand, the local people, having seen outsiders given access to exploit forests, made more devastating impacts on the resources without reserve. The forest officers in this period had very full power to control the resources with support from the district and village governments. Additionally, the political configuration in the Suharto era related to the local resources governance was very monopolistic. The local people had just taken for granted all the government policies through which the resources were totally controlled by government. In the political stability doctrine "*Stabilitas Politik*" it was believed that stability brought economic progress; therefore, the central government developed a strictly centralistic government and organization. At the same time, the military had a strong role in the *Dwi Fungsi* (double functions) doctrine in which the military can enter socio-politic activities

besides the defence function. The government infiltrated and controlled all levels of society including the media. On the ground, the village governments, police departments, and forest and national park rangers were superpower actors who shaped the availability of local resources.

To limit the people's access to and control over resources, the Suharto regime suppressed all forms of resistance. In the beginning of its power, Suharto had eliminated the communist party and incorporated the other parties just into three political institutions. There was no opposition and even any (alleged) opposition was suppressed. The political system was based on a floating mass system in which political parties were just allowed to organize their followers at district levels. The government party called *Golkar* organized their followers at the village level through the village governments (Cribb, 1998). Many civil or professional organizations were established to support the *Golkar* activities at the village level including forest farmers' organizations to canalize the villagers' aspirations. At the village level, the government raised the military to monitor the political activities of the citizens. At the same time, with regard to the cultural issue, the Suharto regime promoted a national identity focusing on a unitary state with the five pillars or principles called *Pancasila* as a single ideology. All the citizens' activities in the Suharto regime were controlled by the government agents at the village level. Protests and criticisms against government policies were considered as subversive movements. Protesters and critics would be charged for being members of the Indonesian Communist Party or PKI sympathizers or followers, so that the police or military officer's could arrest them as lawbreakers or nuisance against order. As it is generally known, the Upland Bromo prior to 1965 was an area affected quite strongly by the Communist Party disbanded by the government. The rejection of the state control over forests was often claimed to be done by the supporters of the Communist Party so that the state could imprison them for treason without trial.

Though access to resources was restricted during the reign of the authoritarian regime, the local people still participated in building the infrastructure in the National Park. The village leaders also mobilized them to plant trees in the National Park area as social work. During the New Order, the government was a very strong power to control all activities of its citizens, especially in the voluntary work for public interests. In the eyes of local people, they still had the right to exploit the resources because of their contribution in the past. As to the forest officers, most of whom had graduated and were trained as professional foresters; they considered the activities of the local people as unlawful. The disharmonious relationship between the forest officers and the local community during the New Order era encouraged local people to devastate the forest, especially when the control of the government over the resources decreased, as was the case during the Reform era. It did not last for long as the new government has strengthened its power since the general election of 2004. Unlimited freedom had begun to be gradually regulated through inter-party dialogues starting at the village level.

On the economic side, the Suharto-clan controlled much of the economic resources. Forest concessions were given to the entrepreneurs who had a good relationship with the regime particularly in outside Java. The state-owned Forest Company called PERHUTANI controlled almost one-fourth of the Java Island in which the local people could access the forests just under the directions of the government. The economic downturn in 1998 followed by the political turmoil in the modern Indonesian democracy had serious impacts on the economic development in Upland Bromo particularly for the local people's livelihoods. The demand for vegetables shrank rapidly and was accompanied by the stagnancy of agricultural prices. On the other hand, the price for input production decreased more than ten times along with the fall of the *rupiah* currency against the US dollar. As it is known, most of the input production of the upland vegetables were dominated by multinational companies using foreign currencies. Some of the farmers returned to the traditional system again for fertilizers and pest control. Strong dependency on chemical products caused the traditional way to be no longer effective. Almost all villagers said the fall of Suharto was followed by the slump of the village economy, even for the rich.

After the Reform era this area of Upland Bromo has become more strategic because of its location is in the middle of two main cities in East Java namely Malang with more than eight hundred thousand people and Surabaya with more than two point seven million people (CSA-East Java, 2009). As it is commonly known, increasing income in the urban areas changes the structure of food consumption expenditures in the sense that people prefer to buy more and more expensive sources of nutrients such as meat, fruit, and vegetables while the consumption of staples, such as cereals prepared at home, may decrease (Regmi and Dyck, 2001:23). This study shows that vegetables become important sources of food for the urban population that – after reaching a certain income level when cereal consumption is sufficient to meet the daily energy requirements - vegetables are first picked to increase food diversity (Ali and Tsou, 1997). In Indonesia, studies indicate that vegetable farming in upland areas of the country is an important source of income for farmers because it is profitable with regard to private and social benefits as well as competitive and offers comparative advantages (Arsanti and Böhme, 2008). Additionally, Indonesia's vegetable production has increased by an average of 8% per year since 2001 from 6.9 million tons to more than 9 million tons (excluding almost 31 million tons of mushrooms) in 2005, from almost one million hectares of land with an average yield of 9.6 tons per hectare (White et al. 2007).

When the government's control over the natural resources decreased after the Reform movement in 1998, the local people started to exploit the resources with no respect for them. In this period, most people enjoyed the freedom of expression and opinions, freedom of information, checks and balances between the executive and legislative branches of government, and a depoliticized military. Siregar et al. (2007) mentioned that the decentralization euphoria was followed by the new Forestry Law no. 41 in 1999 causing many local community members to claim their

rights to forest resources, and even forested lands. This situation led to both extensive and intensive illegal logging (viewed from the central government's point of view), and more severe forest destruction. In the three villages examined more than half of the forest was logged by people for consumption and selling of firewood and building materials. Village authorities could not do anything due to the fact that they had tended to support the central government to exploit the resources in the past. As a result, there was no adequate control over the local people from the government apparatus such as the police, military force, village governments, national park officers, and State Forest Company rangers who had responsibility to save the resources because in the past this central government apparatus had also suppressed the local people.

Therefore, the vacuum of governmental power at the village level encouraged the villagers to access the resources at their will. Today there is almost no more forest with big trees in the state and private forests even in the National Park, particularly in the accessible area. The only remaining trees living are those on the steep slopes and away from the road. Good quality firewood is currently very difficult to obtain, so that farmers only collect small twigs for everyday purposes. Such a situation was caused by the waning of the government control at the village level marked by the lack of village leaders who organize villagers to conserve forests. In the Suharto regime, village leaders not only could ask villagers to plant trees in the forest margin as well as in private forests and national parks but also effectively prohibit illegal logging. Since the early times of the Reform era, the number of villagers who do not carry out public work has increased rapidly. Village leaders see the early time of the Reform era as an un-controlled situation in which all people could voice their own aspirations freely; in which villagers could cut trees in the forests or the borders of the roads which provided shade to their land at their will or without consent from the village leaders.

More and more villagers went to collect firewood and charcoal freely due to the decreasing confidence of National Park officers and State Forest Company to enforce the laws. Former village leaders described that condition as a release of "euphoria" from people who had been put under pressure for more than three decades. Police, military groups, and other state officials who had full responsibility to control the situation did not do anything. At the same time, according to the interview, the loggers who did activities in the area around the Upland Bromo were not only local people but also from outside the villages. They were sometimes only the receivers of stolen timbers from the local people and providers of the chainsaws and financial supporters. The absence of power in the early Reform era, therefore, caused more devastation of resources that used to be controlled by the government effectively. McCharty (2000:91) explained this situation as an impact of political turmoil in the wake of the meltdown of the currency in which environmental devastation was combined with a wider economic and political crisis. At the village level, people just tried to attract the attention of the government and do everything they

wanted that used to be banned by the previous authoritarian regime. Certain parties took advantage of this uncertain situation to gain illegal profits.

Throughout the contemporary reform process with the decentralization of power via local and regional autonomy, natural resources are no longer dominated by direct state power only, but also managed by more actors at various levels of society. Decentralization of power is provided in Law No. 32 of 2004, which replaces Law No. 5/1974, No. 5/1979, and No. 22/1999 granting more space to local people to participate in decision-making processes through *Badan Perwakilan Desa* (BPD) or the village council. Such regulation has promoted decentralization promising to move decision-making closer to people and make the government more direct and responsive. In fact, law enforcement concerning conservation areas has been strengthened in the last five years. At the same time, the local decision-making process concerning local resources governance was changed in that the participation of local people in the process has increased. Although the institutionalization of the new local decision-making is still in a process in which village elites are still the dominant actors, the local people have had more opportunities to participate.

4.2 Commercialization of State Forest Company and B Uional Park

The commercialization of the State Forest Company has a long history in the Javanese state forest management since the Colonialist era in which the German professional forest management was introduced to increase teak production in Java at the end of the nineteenth century (Peluso, 1992:76). The forest officers built rotation of the planting system based on quality of timber to control supply and demand for wood in national and international markets. In the post-war period, the government continued the policies that separated the forest from the agricultural land to support professional forest management. When the Japanese were in power from 1943 to 1945, the infrastructure of the professional forest management was destroyed and forest officers destroyed the offices and equipment as well as data and maps of forests to avoid Javanese exploitation over them. The vacuum of power after the Japanese period and aggression to Dutch colonialism caused the forests to be susceptible to destruction by the villagers and other actors. Furthermore, the new government after independence led by Sukarno tried to mobilize forest resources to develop the national economy but faced great resistance from the local people enhanced and endorsed by the political parties using it as a main issue for their campaigns. All this increased the uncertainty of the situation.

In the early period of the New Order, after Suharto seized power in 1965, the forest was one of the main resources that were made use of for achieving economic development in a more intensive way in addition to agriculture and industries. To support that purpose, the Suharto regime developed Law No. 5/1967 on Forestry Principles (*Pokok-Pokok Kehutanan*) by which forest was defined as “an area cov-

ered by trees which, as a whole, forms a living unity between bio-nature and environment and which is defined by government as forest'. According to this law, the government had full authority and power to claim certain areas as forest areas or not, even though such areas were controlled by the local native people. The state absolutely controlled massive forest exploitation in which in the early 70s could be marked as the onset of the commercial boom of timber extraction. Kusumanto and Sirait (2000:5) mentioned that the country was strongly driven by both domestic factors (the country was nearly bankrupt due to the political instability in the mid-late 60s) and external factors (foreign debts) seeking rapid economic growth supported by the exploitation of Indonesia's rich natural resource bases. On the field, forest was exploited excessively by Indonesian tycoons who had connections with the central government. Furthermore, the domination of the regime in defining forest did not change in the Reform era as it is shown in the Law No. 41/1999 in which the state still had space to define forest on the basis of legal formal aspects rather than on the community basis. On the ground, the definition of forest with massive influence from the state can be seen in the local resources governance that is coordinated by both the National Park and State Forest Company. Those institutions are the central government agencies that manage the forest area surrounding the Upland Bromo, including the people who live around it as unitary governance.

National park is a certain area owned and declared by the government as under environmental conservation. This area protects the environment, the animals, and the local people who live there and is also for human recreation and enjoyment. Furthermore, it is restricted from most of the commercial development. The main purpose of this area is to protect the grounds of the local community particularly in view of their customs and livelihood. It is a product of the international ideology and the political ecology project related to the biodiversity programme called Integrated Conservation and Development Project (ICDP) that has been addressed since 1980 by IUCN, UNEP and WWF in the *World Conservation Strategy*. The two largest ICDP projects in Indonesia are Kerinci Seblat National Park (TNKS) in Sumatera and Lore Lindu National Park (LLNP) in Sulawesi. Along with other national parks in Indonesia, Bromo Tengger Semeru National Park or Bromo National Park, the area where the Tenggerese group lives was declared in 1982 by the Ministry of Agriculture as part of a restricted area to preserve biodiversity endorsed by international institutions on the basis of a professional forest management system. The new government that was facing the the financial crisis at that time, took advantage of the increasing world tourist industry to obtain cash money for financing the activities of a government that was almost bankrupt. Therefore, National Park officers together with travel agents, local government, and hotel associations intensively promoted the Upland Bromo to attract domestic and international tourists. At the sametime, the infrastructure was developed to support the tourist industry such as parking areas, access roads, and other facilities to improve the tourists' comfort. This promotion of the National Park was also used by the park officers to limit the access of local people including the poor to forest products claiming it as a

potentially damaged forest area needing protection. Shah and Gupta (2000) mentioned that Bromo Tengger Semeru Park is one of the most successful parks in Indonesia, in terms of both income and visitor numbers.

Not only the National Park, but also the State Forest Company controlling state-owned forests in the margins of the national park was also commercialized. The State Forest Company is a commercial institution that was established by the government in 1972, adjusted under new regulations in 1986 and 1999, becoming more commercial under government regulation (PP) No. 30 of 2003 that determined that its operation was to be coordinated under the Ministry of State-Owned Enterprises receiving technical assistance from the Ministry of Forestry. During those periods, the company as a commercial institution encouraged efficient strategies to yield more benefits to the central government (Barr et al. 47-53). All the branches had been managed to generate profits not only through the production of timbers and other related products but also through the increasing environmental services of both tourism and non-timber production (NTFPs). In the Upland Bromo, after the political turmoil in 1998, the State Forest Company intensified the exploitation of the steep regions which had not been used as production areas before. Despite the difficult conditions for agricultural cultivation, the State Forest Company moved to the areas with steep slopes ignoring environmental risks such as degradation and deforestation. To avoid resistance from villagers, the government lent them on a temporary basis a piece of forest block for planting food commodities called the *Tumpangsari* system located in the borders of the forest. During this period, the restriction of people's access to the forest had increased the escalation of conflict between forest officers and villagers (Peluso, 1992:77).

Intensified exploitation in the high inclination regions began in 2004 when the State Forest Company introduced a CBFM that involved villagers in the forest management system in the border areas between village and forest. This system was called *kontrak* by the local people. More than 100 hectares of square meters of forests were cleared by the villagers who replaced the trees by potatoes, onions, cabbages and carrots. The villagers had the responsibility to plant pine and acacia trees every 16 square meters and take care of them until the canopy shaded the land in two or three years. Those activities continued every year in the steeper areas that could potentially provide benefits for agricultural activities without taking into consideration the effects with regard to conservation. Even in the very fertile land villagers did not maintain trees, so that they could still occupy the land for more than three years. Every year the villagers paid an informal and unofficial rent for land of around one to two million rupiah to the State Forest Company officers and gave some tips when they got profits from their plantations after every harvest. They had to be willing at any time to plant trees or build infrastructure in other forest areas for free.

The commercialization of the National Park and the State Forest Company in the last two decades has limited the opportunities of the local people to access forest resources. With the installation of boundaries in the 1990s along with the in-

creasing pressures on people, the government endeavoured to increase its claim over the National Park area. At the same time, the government added more officers who were trained as professional rangers in this area to make sure that the claim and control over resources was maintained as well as to provide more comfortable conditions for tourism-related activities from the tourist view point. Infrastructure such as hotels and other accommodation facilities owned by private enterprises were built to support the tourist industry. In the village, these activities became more commercial when the land could be rented to other people inside and outside the village for intensive agriculture. This was exemplified in the case of Wonokitri. There were five rich villagers who rented kontrak lands close to their lands. Each person received 10 more hectares of land than other villagers. Farmers from outside of the village also rented kontrak lands from the native farmers and developed very intensive agriculture with low respect for conservation. Temporary access to and control over land encouraged renters to squeeze out the fields in order to obtain higher benefit for themselves. All the transactions between the native villagers and the farmers outside were handled informally, so that it was very difficult to control the land renting market.

4.3 Territorial Claims of the Tenggerese Ethnic Group

The Upland Bromo is mainly inhabited by the Tenggerese ethnic group. These native people have been living in the area for centuries, depending on forest products and agriculture. They have much knowledge of the settlement history of the Upland Bromo which is articulated through their local legends. These legends are a source of their claims on the territory of the Upland Bromo. Others describe the Upland Bromo simply as the area surrounding Semeru and Bromo ridge where the Tenggerese live as an ethnic minority (Sutarto, 1998). The ethnicity of Tenggerese is not only an identity claim but also a territorial claim. A territorial claim refers to the right to control an area and gain access to the resources from there just like the ancestors did in the past. Different perceptions and views concerning who has the right to exploit forests are the main problem in the social relationship between the forest officers and the local community. More than three decades after Bromo National Park was declared as such in 1982, Tenggerese still consider the national park area as part of their territory. Concerning local resources governance, in fact, local people had dominated the forests long before the national park started regulating their livelihoods.

The territorial claim does not refer to the term as used in political economy or the aggregation of political administration, but refers to just an effort to preserve their identity and religious heritage without political action. As Hefner (1993: 44-46) mentioned, Tenggerese cannot be identified as a distinct social region. Today, along with the process of democratization, identity and territorial claims more or less support each other as legitimate sources of value to shape the control over and the

access to the resource system. Like the identities of the other ethnic minorities in Indonesia, the Tenggerese identity has been very dynamic in Indonesian modern history and is still looking for a new form to address both external and internal changes. In the history of the Tenggerese ethnic group, they are always the object of power. According to the *Walandbit* inscription in 851 Saka or 929 AD, the Tenggerese people were the group of people that were commanded to glorify Bromo and Semeru as the sacred mountains of the Majapahit Kingdom. Kasada, the annual Tenggerese ethnic ceremonial activity to sacrifice animals, agricultural products, and other valuable goods constitutes the articulation of that purpose. In the colonialist era, Kasada was recognized as a tax replacement by the Dutch administration to control the Tenggerese village. Soekarno, the first president of Indonesia, was believed by the community to have received an inheritance from the cave as a result of his meditation. All the activities of central power were basically just an attempt to enhance legitimacy.

In the Suharto regime, the process of cultural conquest by the state continued even to a higher degree. For more than three decades, the New Order regime tried to homogenize culture, not only that of the Tenggerese people but also of most of the other surrounding Indonesian ethnic groups both intentionally and unintentionally. An intentional intervention was an effort to change the village administration patterns including the leadership style and village development. An unintentional intervention constituted the impact of economic growth and outside cultural influences on the patterns of social relationships among them. In the Tenggerese culture, the head of a village was just the coordinator of development and representative of villagers to communicate their interests to the upper government and actors from outside the village. During the Suharto regime this role was changed; the village administration had to comply with the national law which stated that heads of villages were subordinates of the municipal leader and municipal leaders were in turn subordinates of the district leader. Finally, the whole power was concentrated on the central government in Jakarta that was fully controlled by Suharto and his cronies. The changing role of local governments made it easy for the central government to introduce the programme of cultural homogenization of the Tenggerese culture. Decision-making processes including local resources governance that had previously involved all the villagers in the village meeting process were replaced by village official meetings that tended to avoid local people's participation.

To legitimate the control of the Upland Bromo territory as well as the people, the New Order regime homogenized the spiritual orientation of the local population. One of the homogenization policies was the categorization of people into just five religious groups (Islam, Christianity, Catholicism, Hinduism, and Buddhism). There were traditional beliefs, *aliran kepercayaan*, at the individual level and the single ideology or *azas tunggal* policy at the organizational level. In this era, the people of Tengger faced a dilemma, i.e. whether to follow the existing religious groups or the traditional belief, the *aliran kepercayaan*. The Tenggerese people have the tendency to follow customs which were inherited from their ancestors in the Majapahit King-

dom. *Aliran kepercayaan* is not the best choice because it is associated with the *kejawen*-syncretism of the Javanese faith and Islam which is different from their tradition. Hinduism is chosen by most people because the Hindu cosmology is closer to their beliefs than those of other religious creeds.

Besides the pressure from the government, the Tenggerese identity is also under the pressure from Hinduism itself. This is because a religious treaty had been signed in the early 1980s in order to formalize the Hindu liturgy since the purification mission undertaken by Parisada Hindu Dharma (the organization of Hinduism in Indonesia) (Hefner, 1987). In line with this agreement, most villages built a temple or *Pura* as a centre for Hindu activities such as religious education for children, reading of the holy book, marriage ceremonies, and other activities. *Poten* (the central temple) which is close to the Bromo volcano is the biggest and the most influential Hindu *Pura* in the area. The Bromo volcano and surrounds constitute the most sacred area for the Tenggerese, not just for Hinduism. Although there does not seem to be an open conflict between the Tenggerese and the Hindu priests, both groups still have different points of view in regard to their religions and customs. Claims stating that the Tenggerese creed is identical to the Hindu religion have been rejected by traditional priests. For instance, the Ngadisari Balinese Hindu liturgy has just been accepted in the formal Hindu prayer and other ceremonial activities in the temples or village houses. Villagers who follow Hinduism totally can be identified through the altars of sacrifice called *padmasari* placed in front of their houses.

The other strong influence on the Tenggerese identity is the Islamic movement since the dark period in 1965. As it is generally known, the New Order regime not only used repressive power via military and bureaucracy but also employed cultural channels including religion. The most powerful and effective groups that could be exploited were the Islamic groups. As a result, today, only seventeen villages still maintain the Tenggerese customs through their priests and only one village *Keduwung* can keep up its indigenous customs with minimum changes. Activities of Islamic communities both in the politics and economy of several villages are dominant because they have skills and share networks with other Islamic communities outside the Upland Bromo. For instance, the Muslim community occupies just 20% of the population in Ngadas village but the village leader and his secretary and other village elites are all Muslims. Additionally, modernization and new life styles brought by immigrants as well as massive campaigns through television and radio gradually erode the Tenggerese's own identity.

Therefore, the Tenggerese as an identity is losing its potency as a source for upholding its own societal values, thus eroding this ethnic group's cultural confidence. This lack of confidence has serious impacts on their claims over territory, where increasing areas cannot be called Tenggerese anymore. In addition, the mapping process provided by the central government to separate the village territory and the forests decreases their claims over the surrounding resources. Peluso (1995: 383-384) mentioned that the mapping of forest resources is therefore an intrinsically

political act: whether the borders are drawn for their protection or production, they are drawings of a nation's strategic space. The local people are losing authority to influence the local consensus in refusing the state's claim over resources. This means that the state and the other actors have more opportunities to influence the decision-making process in the local political structure. Reclaiming areas through building *padmasari* (building for praying) in every border to signal that it is the Tenggerese territory has no impact on the access to and control over resources.

So what are the responses of the local communities to all the influences that may have the potential to destroy their native culture? How is the relationship between the responses of the local community and the availability of resources? The answers to these questions include the following. The efforts of the Tenggerese priests to revitalize their customary "adat" provide a clear description. Priests are the leaders who have the responsibility to maintain the Tenggerese habits. In the Reform era, when the majority who had supported the government was losing their power, some of them tried to revitalize their identity and territories to get more access to and control over resources. They encourage people in the village to engage in their traditional religious activities not only for religious reasons but also as a duty to maintain the heritage from their common ancestors. On the basis of this claim, priests justify differences of ideology that are based on religious institutions and assign roles and responsibilities to villagers to preserve their heritage. Hinduism, Islam, Buddhism, Christianity, even animism have the same responsibility to maintain their customs. The separation of religious ideology from custom activities gives more power to the priests to revitalize their power. The increasing power of the priests to control the "Adat" local custom influences the decision-making process in the village.

The *Tenggerese* priests make use of the formal institutions facilitated by the village government through village meetings to maintain *adat* activities. All of the agreements related to the *adat* activities are not only the responsibility of the priests but also of the village administration. Priests just lead the ceremonial activities. The village government organizes resources such as collecting money and mobilizing people. Therefore, the village government can give sanctions to the villagers who refuse or neglect their obligations. Moreover, the village government can refuse to give administrative services to the villagers who do not participate in the *adat* activities. In serious cases, the village government can stop the supply of water to households and even cast them out from the village and remove them from the list of recipients of government benefits. Adat has become a supra institution that canalizes all the religious and political orientations by which the local resources management can be more or less influenced.

In this respect, the priests have created ethnic norms and rules that in terms of local resources governance, commit local communities to make efforts to define contested and accessed resources as their customary rights. Therefore, in such a relationship, power is an important factor shaping the form of an institution where in most cases powerful actors not only have a strong influence when decisions are

made but also influence the rules about who makes decisions and how they are enforced. The Bromo National Park and the State Forest Company as state apparatuses have a powerful legitimacy emanating from the formal law whereas local people mostly rely on customary property rights. Legitimacy is a basis for claiming rights and conveys authority as the bundle of rights to access and control resources on the basis of state law, customary law, religious law, and informal local rules.

The above explanations point to the fact that the Upland Bromo area and its people has been an object of power since the pre-colonialist era. Its culture has been developed to support the central power's legitimacy. In the Suharto regime era, the devastation of the Tenggerese culture hit the highest degree. The central government systematically modified the culture and system of the village government to support the dominance of the central government on the natural resource management. The shrinking of governmental power has provided more opportunities for the Tenggerese ethnicity to revitalize their customs. The claim of the Tenggerese related to both an identity and a territorial area has given more legitimacy to the local community led by priests. On the other hand, the success of the priests in revitalizing their customs has no resonance with the efforts to revitalize the culture. The priests' efforts to stop the influence of unintentional drivers for change demand very hard work, particularly due to the mainstream's individualism and consumptive culture. Resources have just become an object for economic development and respect to the resources as centrepiece of the Tenggerese culture still tends to disappear. As a result, the Reform era regime gives local people more opportunities to access and control resources through traditional legitimacy. Losing respect to resources will potentially devastate them in the future

Table 5: Transformation of the Meaning of Upland Bromo Territory

| Time | Meaning of the Upland Bromo Territory | Actors Involved | Dominant Ideology |
|---|--|---|-----------------------------------|
| Majapahit Kingdom (year 851 Saka or 929 AD) | As a holy land where residents were free of tax but made sacrifices every year on Mount Bromo. This status was to support the claim that the King of Majapahit was the embodiment of the gods. | King of Majapahit and <i>Siddhapandita</i> or Hindu priests | Feudalism |
| Demak Islamic Kingdom (sixteenth century) | As an isolated region equated with rebellion. | Sultan/king of Demak Islamic Kingdom | Expansion of the Islamic religion |
| Dutch colonialism phase I (Cultuur stelsel, 1830) | As a leisure area and extension of coffee plantations | Dutch colonialism and local government | Capitalism, via imperialism |
| Dutch colonialism | As an expansion area | Dutch government, | Capitalism, via liber- |

| | | | |
|----------------------------------|---|---|---|
| phase II (liberalism, 1830-1945) | and source of cheap labour. | private plantations, and local government | alism |
| Old Order (1945-1965) | As source of economic development. | Indonesian and local governments; Ministry of Forestry | Development dictated from above |
| New Order phase I (1965-1972) | As source of economic development and place of rebellion (PKI). | Indonesian and local governments, village leaders and State Forest Company (PERHUTANI) | Economic development |
| New Order phase II 1972-1998) | As source of economic development and conservation | Indonesian and local governments, village leaders, State Forest Company (PERHUTANI) and the National Park | Economic development and conservation (biodiversity ideology) |
| Reform era (1998-to-date) | As source of development and cultural heritage | Indonesian and local governments, village leaders, State Forest Company (PERHUTANI), the National Park and private forest companies | Economic development and conservation (biodiversity ideology) as well as ecological modernization through CDM |

Sources: Thomas Stamford Raffles (1978), Robert W. Hefner (1985), Hefner (1990), Pangarsa (1996), Li (1999) Sutarto (2006), and Purnomo et al. (2010)

5. Environmental Changes: Social and Physical Dimensions Shaping Local Resources Governance

5.1 Social Dimension: Marginalization of Rural Poor Households

5.1.1 Excluded from Forest Resources

The restriction for local people to access arable land particularly forest margins was begun in the late eighteenth century when the Dutch colonial government introduced the Cultivation System Policy (*Cultuurstelsel*) under the control of the governor-general Van den Bosch (1830-1870) after the bankruptcy of the VOC-*Vereenigde Oost-Indische Compagnie* (see Chapter 4). Through this policy local people including the Tenggerese people were banned from continuing their shifting cultivation system. They were encouraged to establish a permanent settlement, so that the government could easily provide forest boundaries which would limit the local people from having access to forest areas that could be used to expand the private plantations. The development of the liberal political group in the Dutch parliament that encouraged the operation of private companies entered Java Island after the forced cultivation era making local resources management more commercial. Sugar cane industries replacing coffee plantations encouraged the immigration of people from the lowland to Upland Bromo. An immigrant that started up an agricultural venture had more benefits than by work-

ing as a labourer in the sugar cane industry. This increased competition in Upland Bromo (Peluso, 1992).

The map of the region made by the colonial government remained a basis for the Indonesian government after independence. The *De dienst v/h Boswezen* or the colonial forest department was transformed to become the Ministry of Forestry (MoF) without giving back the rights to the local communities to control and manage the forest resources. Even in 1972 the government set up a company to manage the forest areas in Java and Madura islands on the basis of the colonial policies and gained new legitimacy. In the Upland Bromo, the Tenggerese people were banned from accessing forest lands for their livelihood without the endorsement and consent from the State Forest Company. The state forest that could previously be accessed by the local people, particularly for the procurement of building materials, fuel wood, and other purposes, was protected from such activities. They were just allowed to gather non timber products or make temporary use of certain areas for agriculture through PMDH in 1982 with a formal legal basis promulgated in 1991 through the Forestry Minister's authorization letter No. 691/Kpts-II/1991 by which state and private forest companies had the responsibility to empower the local people who lived inside and outside forest areas (Lindayati 2000; Peluso, 1992). Against this background, empirical evidence from developing countries suggests that forest products play an important role as a source of income for rural households, particularly for the rural poor (Schwarze et al. 2007).

The State Forest Company became more commercial at the end of the New Order era, marked by the changing of the company's goals, i.e. from social services to business. In the early time of the Reform era, the government tried to shift the State Forest Company as well as other state companies to pure business institutions to extract revenues quickly to solve the government's budget deficit. The forest areas that had been protected before as conservation areas were exploited to meet the increasing demand for timber products in line with the decreasing forest products from outside Java. The uncontrolled logging activities in the forest margins as a result of the vacuum of power were replaced by a more powerful control over forests after the direct presidential election in 2004. The new government pushed the commercialization of the State Forest Company due to the increasing demand for wood in the international and local markets which led to growing exploitation of natural forests and the extended plantation of forests by both private and state companies. The State Forest Company in the Upland Bromo re-planned production strategies through re-mapping of the areas potentially suitable for production through the CBFM programme for forest areas close to villages and the rejuvenation programme for the areas far away from villages.

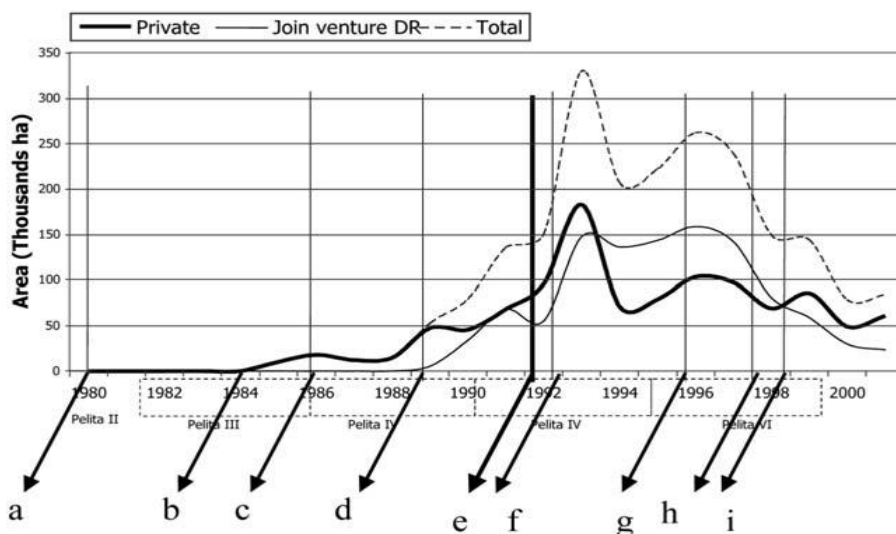


Figure 8: Progress of the plantation forest establishment
(Sources: Aruan, 2003:7)

Additionally, the government introduced another new actor called National Park in 1984 to control the areas traditionally used by local people for their livelihoods. In 2006, the Ministry of Forestry intensified the exploitation, enhanced by Regulation “PHKA No. 69/IV/Set-HO/2006” and Decree number “SK.128/IV/Set-HO/2006” establishing that 21 from the 50 national parks in Indonesia as “Taman Nasional Models” (Model National Parks) including the Bromo National Park. At the end of 2009, four national parks including the Bromo National Park were prepared as BLU (Badan Layanan Umum) allowing them to make use of all the resources for commercial purposes, particularly for environmental services to increase self-funding. As a result, national parks remapped all the resources that could be exploited for earning money. Charging more for the economic activities related to tourism such as hotels, jeeps, and motorcycle taxis, food sellers, local guides, etc. was the easiest way because it was very difficult to make extra money from environmental services in the short. Income from the tickets to the National Park was not adequate to finance the park activities even in the peak season with the largest number of visitors coming. At the same time, in order to avoid forest destruction, they would increase access restrictions to the forest areas for the local people who entirely depended on the forest products as their main source of livelihood besides agriculture.

BOX 5.1 Forests Always Dominated by the State

Reang Telu (male respondent number 3), 56 years old, who had participated in the planting of trees in 1978 and the installation of forest boundaries in 1994, compared the dominance of forest resources referring to the past in which people were allowed to collect forest products more freely both in kind and volume. He told that:

“In the past we were allowed to collect dry twigs even logs for building houses. This house also was built from state forest wood which was collected when I joined in planting trees in the state forest bordering my land. In spite of the ease of accessing the forest, Pak Mantri (forest officer) did not tolerate the people who tried to open the forest for agriculture or for building houses. Do you know Reang Nembelas (Male respondent number 16)? He was arrested for building huts and clearing forests to plant corn at that time. Pak Mantri told him that the forest belonged to the state and that it was prohibited for villagers to farm. Currently the situation has become even worse. People are scared even to just go through the forest because they will be suspected as thieves, let alone of taking the wood.”

That is the sign that the forest is always being dominated and controlled fully by the state as the dominant power with different sources of legitimacy. Local people's access with no restriction can be done only when resources availability is abundant and there is low state interest in the forest, particularly for economic reasons. When the forest has economic benefits for the state, step by step they restrict local people's access to it.

In the previously presented explanation, the common resources that could traditionally be accessed by the local people became scarce. In the National Park, access to the forest in search of agricultural land as well as forest products was entirely banned, especially timber. People were just allowed to collect dry twigs, grass, mushrooms, mustard seeds, and certain flowers for selling and consumption. In conclusion, there was no easy access for the local people to the forest margins as a result of the commercialization of the State Forest Company and National Parks. The medium for local people to access forest land was only community based forest management by which local people had to be included in forest management fully. The system practically made no difference, meaning that local people were allowed temporary access mostly to certain marginal areas of the forest to plant agricultural commodities. At the same time, the National Park can no longer be accessed easily since the last ten years due to the government's policy to commercialize the park management, thus leading to the restriction of the local people's access to those forest resources.

5.1.2 Losing Control over Agricultural and Settlement Lands

Before the marginalization process related to the access to land, both forest and private, is presented and explained, the reasons why the landstill an plays an important role in shaping the rural economic development is provided. As it is generally known, in the rural development debate, some of the scholars have begun to doubt the validity of such opinions as strengthening the role of the non-agricultural economy (Rigg, 2006). In the Javanese culture, there is much evidence pointing to the ownership of

and access to land (especially where irrigated) as the main factor in the social stratification in rural Java in the past and present (White and Schweizer, 1998). A similar situation also takes place in Upland Bromo in which most of the economic activities were based on land as the main means of production although non-economic sources particularly tourism were increasing rapidly. Irrigation facilities as a factor shaping the value of land was replaced by the position of the land: land on the side where a water source appears or the position opposite the sunset can be planted all year-round.

Taking the local lands to market on the basis of the liberal economic system initiated by the Dutch colonial government was the beginning of the resources competition in the rural economy. This process still takes place till today although the Indonesian government through the rural development policy has promoted a free land market system as a stimulation to increase economic growth. In every society, free market competition usually causes local people to become losers due to their poor ability to create the appropriate strategies to maintain control over economic resources. In Javanese society, the process of capitalizing rural economy led rural households, particularly the poor, to become more vulnerable. According to Pincus (1990), land is still the main household means of production differentiating rich farmers, wage labourers, and small holders. Control on durable resources shape the relationship among households; therefore, this reflects the massive differences among rich farmers, wage labourers and small-scale farmers in which poor households are the vulnerable group in society (Pincus, 1992).

The marginalization of rural poor households (RPHs) is not very surprising for social science, because it has become a common finding in the field research in the twenty first century. Growing population along with limitation of resources is the important factor leading to rural marginalization. In Indonesia and the Upland Bromo context, economic prosperity increased the life expectancy of children under five years, which in turn has caused the population in this area to grow. According to the villages' statistic data, population growth in Upland Bromo remains high in comparison with the average population growth in East Java.

Brought about not only by economic factors, the high population growth is also related to the tradition of the Tenggerese people to encourage women to marry already at the age of 16 or even younger. The officers of the *National Family Planning Coordinating Board* (BKKBN) who have the responsibility to campaign the family planning programme (KB) mentioned that it was very difficult to engage Tenggerese people in that it. Most of them get married at a young age even under 16 years, have more than two children, and do not have access to proper primary health and nutrition services.

According to the local government, the Upland Bromo situation widely differs from the success achieved by East Java in making the average birth rate sink below the average national population growth. On the basis of the interview results with BKKBN officers, it is a fact that the Tenggerese people still want to have more children. It is contradictory with what Gertler and Molyneux (1994) found in their study showing that recent changes in socio-economic variables played a much more im-

portant role than those in family planning programme variables. This means that although the family planning programme has no significant impact, the socio-economic status automatically decreases the preference to have more children. However, in the BKKBN officers' opinion, in Upland Bromo, the socio-economic status had no significant impact on the decrease of the preference to have more children.

The main factors that hindered the family planning programme to succeed were the culture of healing diseases and the high demand for agricultural labour. First, Tenggerese families tended to go to village priests to get medicines rather than to the governmental doctors or other health counsellors in spite of the fact that they also believed in the modern health system. The family planning programme was actually embedded in the village health services system that potentially decreased the role of local priests. Therefore, in the early times of the introduction of the family planning programme, BKKBN officers were rejected by the village medicine men. Second, the upland agricultural system still needed much labour due to the less massive introduction of modern agricultural machines like those used in the lowland so that the demand for labour still increased, thus having no impact on the local preference for having more children. The upland agricultural system still uses less mechanization particularly agricultural machines for soil preparation and harvesting methods which absorbs much manpower. Therefore, local people still clearly prefer to have more children to meet the households' demands for labour. For the poor, it was very difficult to get involved in the labour market since they had less capacity to earn cash money. Now that the agricultural production is not adequate anymore like in the past to satisfy the economic needs of the household,, young people prefer to have a small family.

The results of the interview with the head of the Ngadisari village indicated that prospective couples are relatively bad prepared for good family planning before marriage. Many of them still receive financial support from their parents and are even allowed to stay for a long time with them until they are able to build their own home. Social support from the families increases the number of couples who marry at a young age. Additionally, the family planning programme introduced by the government has small success in reducing the population growth. As a result, population growth remains a big problem that has been given high priority and is expected to be solved by the village, central, and district government policies till today. Following is the view of the parents and their son concerning early marriage:

"If you move, you will get food. There is no God's creature that is hungry if she / he wakes up in the morning and tries to find food in the field. Even for small worms, they can find food in the drought season because they always work hard collecting food in the rainy season. Don't you be afraid, marry and find your fortune. Work and find the food everywhere."

At the same time, the village authorities are ready to penalize both parents (for example by charging some amount of money for the village treasury) as well as young cou-

ples through obligatory assignments to do social work. The head of the Ngadisari village said that:

“It is very difficult to stop young people postponing their desire to marry even if the economic situation is very difficult today. They only know that marriage is happy and without any problem. The support from parents which provides shelter and food for the young couple until they become independent is the main factor. We cannot do anything more. They, parents and young couples, want to pay fines and social work although expensive and embarrassing. It is difficult to change local people’s perception of the fact that marrying too young is risky not only for economic reasons but also for the health of the young couples.”

It is relatively clear that losing assets in Upland Bromo is the result of marginalization and cultural factors.

From the demographic point of view, migration to urban areas is the rational strategy applied to deal with scarcity of resources, particularly outmigration from overpopulated areas to less densely populated areas. In the Upland Bromo, there is a different situation in that migration as the main strategy of RPHs to adapt to uncertain conditions has not happened till now. Not only can the capacity of local resources support the economic development, but the different cultures and religions from the other Javanese in the low area can also be the main constraint for the Tenggerese to move to a new destination. The results of the interviews with several former migrants indicate that they are more satisfied living in Upland Bromo because it is easy for them to get jobs, to be close to relatives and colleagues, and to be able to get involved in the local ceremonies to worship their ancestors.

Another factor which pressurizes the poor households to sell their land is the socio-cultural tradition of celebrating a ceremony called *Entas-entas*. Entas-entas is a traditional ceremony to commemorate the death of the ancestors of a family held by the adult sons to give tribute to their parents after a thousand days of their death or at another time, depending on the family’s economic situation. RPHs must spend more than a minimum of twenty million rupiahs for this ceremony, which is relatively expensive. Selling family land is the only way for RPHs to get cash money for this activity. On the other hand, within the Tenggerese community, it is prohibited to sell land for the Entas-entas ceremony so that RPHs usually borrow some amount of money from their families or neighbours. They will return the money a year later after selling their lands. For the poor, selling their land long after the Entas-entas ceremony is their strategy to avoid making a bad impression in society because they have sold land for honouring their parents. This is a kind of breakthrough system created by the community to sustain and uphold the honour of a person and maintain the culture. Hefner (1990:163) depicted the great expenses of the Entas-Entas ceremony by stating that “no other ceremony so exhaustively reveals the emphasis of the Tengger tradition and its differences with the lowland ritual tradition”.

BOX 5.2 Selling Inherited Land to Worship Ancestors

Reang Papat (male respondent number 4), a 33-year old from Wanakitri, just has 0.45 hectare of agricultural land 0.20 of which was inherited from his father-in-law and 0.25 from his father. His father had 1.00 hectare of land that was allocated for his three sons including him, which means 0.25 hectare for each son. He set aside 0.25 hectare for his funeral needs and salvation called *Entas-entas* that requires an expenditure of nearly twenty million rupiahs. In this case, his sons until one thousand days after his demise did not have money for this salvation ritual so that they sold the remaining land. Additionally, ten years after his marriage, Reang Papat has not been able to increase his landownership. He mentioned that if the economic situation did not improve or even deteriorated, it would be almost impossible for him to buy land even though he earned an additional income from tourism and farming labour. He said that:

“Although I did not sleep day and night to collect treasure, there is almost no way I could buy back my land even though the price has not increased. Rather than buying back the land, if I can eat every day and restore the Entas-entas debt, I will be lucky.”

Indeed, although households have sold some land, it does not mean that they have discharged their burdens. In the Tengerese tradition, when one family stages the *Entas-entas* ceremony, all the members of the extended family will donate rice, sugar, and tobacco/cigarettes in relatively large amounts. However, the hosting family has to return these donations later to the same amount. Sometimes donations are two quintals of sugar or rice with a value of more than one million *rupiahs*. When Reang Loro’s parents offered *Entas-entas*, they got more than twenty million *rupiahs* cash money, five quintals of rice, one quintal of sugar, and twenty packs of cigarettes that had a value of more than ten million *rupiahs*. Most of the donations were used for the ceremony, leaving them only ten million *rupiahs* when the ceremony ended. After the ceremony, Reang Loro’s parents gave back all of donations. This was also the reason why Reang Loro’s parents sold some land and were unable to give more land to his son even when he got married. They only left 0.5 hectare of land from 4.50 hectares to their son because they still had to manage the *Entas-entas* issue. Under normal circumstances, if a son gets married, his parents will give the land to him immediately to ensure his livelihood.

BOX 5.3 Do Not Bequeath Land to Children to Worship Ancestors

Reang Limo (male respondent number 5), 27 years old from Wanakitri, just has a small piece of land with an amount of 0.50 from 2.5 hectares of land belonging to his parents. In the case of Reang Siji's family, the father had a small piece of land, i.e. one hectare so that his father set aside only 0.25 hectare for himself. According to the people of the Tenggerese community, Reang Loro's parents were considered rich farmers so that he had to offer a gala *Entas-entas* ceremony. Unfortunately, Reang Loro's mother was the only child in her family so that she had the obligation to conduct *Entas entas* too. For this purpose, he had to spend money amounting to fifty million *rupiahs* for the first ceremony and forty million for the second ceremony. This family eventually had to sell 0.5 hectare of land two years after the ceremonies. He said that:

"I am not willing to give land to my son today. Not because I'm stingy, but to keep the family honour. When the time comes, I will give him all of the land provided that he would respect me as I respect my parents. It is the rule among the Tenggerese. Nobody can avoid it, including me and him."

At the village level, almost all RPHs lost control over their land due to the inheritance process (Soewondho, 1995). The classical reason why RPHs lose control over resources is the inheritance system. In the Javanese culture, the inheritance system is implemented on the basis of bilateral kinship in which men and women have equal access to inherit land. They have three categories of land ownership, namely (a) land solely owned by the husband; (b) land solely owned by the wife; and (c) land with joint ownership (locally called *gono-gini*). The first and second types of land will go back to each property if they get divorced while the third type will be divided equally. Some or all of the land will be shared equally by parents among their children before dying in accordance with their wishes. If they do not have children, the land will be given to each family of origin in accordance with the initial ownership of the land.

Table 6: Average Land Occupation of Recent RPHs, Their Parents, and Grandparents (in Hectares)

| Villages | Present RPHs | Their Parents | Grandparents |
|-----------|--------------|---------------|--------------|
| Ngadisari | 0,85 | 1,25 | 2,25 |
| Wanakitri | 1,25 | 2,25 | 3,50 |
| Ngadas | 1,45 | 3,25 | 4,25 |

Sources: Personal Survey N= 170

For the poor, the problem is not only agricultural land but also land for settlement because the price of housing land is very high in the village. In Ngadisari, for instance, land that is located in the village centre or in a strategic area costs around one to two

million *rupiahs* more per square metre. At the village's outskirts the price is still high, i.e. around five to seven hundred thousand *rupiahs*, depending on the slope and access to roads. Those prices are the same as those of the housing land in Surabaya or Malang cities. For that reason, young couples from poor families build their houses on the slopes under very minimalistic conditions. Most of their parents are poor too so that they prefer to build their own houses even in the marginal areas that are normally not used for housing. They build the houses only for resting and meals and these usually consist of one bedroom and a kitchen with an area of not more than twenty square feet.. Most of them build houses with only one room where all the activities such as eating, sleeping, and bathing take place.

Therefore, the factors that cause farmers to lose their assets particularly agricultural land are many, not only the capitalization of the rural economy but also their own socio-cultural traditions principally with regard to both the inheritance system and ceremonial activities. These are the complex problems faced by the Upland Bromo today while some of the religious elites and the village government address those problems with several policies both by minimizing the funding of ceremonies and imposing tighter restrictions on marriage age. The local priests allow villagers who do not have enough money to change several requirements of the ceremony that can be very expensive such as reducing the time for the ceremonies from seven to three days, replacing roast chicken with poached eggs and reducing the number of places that should be given offerings.

- A. New hamlet appears in Tosari, formerly it was only for agricultural land B. Settlement of the poor in Wanakitri, mostly young couple



Figure 9: The poor establishing a new home on the outskirts village

5.2 Physical Dimension: The Variability of Rain, Fog and Wind Cycle

The villagers perceive three main kinds of weather conditions related to climate change that have direct and significant impacts on their economic activities: the changing intensity and cycle of the monsoon, the windy season, and the foggy season. In the perception of the villagers, the three kinds of changes are in line with the contemporary climate change literature on the ENSO phenomenon in Indonesia. The increased inter-annual variability in rainfall and temperature present the most worrisome component of climate change from the point of view of smallholder farmers (Verchot et al. 2007: 913 in Binternagel et al. 2010). Therefore, the villagers' perception of the component of climate change which has a direct impact on their agricultural activities has empirical support from technical literature.

The direct impact of climate change on agricultural activities poses difficulties for farmers to determine the beginning of the planting times. The Tenggerese people know that the months of "Kasa or Karo" or "October or November" normally constitute the beginning of the rainy season in which farmers can begin their first planting. They have a local calendar based on the lunar system that has nearly two weeks less than the 365 days of the solar calendar, i.e. 354 days (Proudfoot, 2007). The lunar calendar is used to keep track of events within the Tenggerese ceremonies as well as events within the community such as planting time and individual ceremonies. In the last ten years, villagers have been unable to predict the exact time of the rainy season because of the changing of the cycle pattern (Syahbuddin and Wihendar, 2007). The situation is very disturbing for the villagers whose planting activities are fully dependent on the availability of rain water. If the rain comes early, farmers cannot plant potato seeds at the best time. On the other hand, the lack of water supply because the rain comes later will burden potato growth so that some additional works are needed, for example, making a drainage system. The villagers, particularly the rich who have land situated far away from water resources and who do not have the required equipment will irrigate the land using water wagons or pipes. Those activities are too expensive for the poor.

Not only the raining cycle, but the also the changing intensity of rainfall can damage the plants, the infrastructure, and cause landslides. The result of the interview with the National Park officials showed that land slides and flooding have been increasing lately due to agricultural practices that do not pay attention to the preservation of nature. Therefore, the intensity of rainfall coupled with the degradation of the forest cover and poor ecological practices have been increasingly augmenting the scarcity of resources. As many researchers found out (Faust et. al. 2003; Berbata, 2005; Tscharncke et. al. 2010), the capitalization of the upland rural economy as an effort to save food and produce for export has hardly been conducted in conformance with conservation practices. Barbier (1989) mentioned that food self-sufficiency and export crop promotion strategies carried out by the Indonesian government to

deal with poverty and enhance rural economic development have encountered many problems of environmental and resource degradation.

- A. Rich people from Ngadisari using a car for watering and spraying insecticide/pesticide
- B. Location of Ngadisari village susceptible to damage by heavy fog from the Bromo caldera



Figure 10: The risks of local people's economic activities due to physical environmental changes

Additionally, in the last ten years after the long drought in 1998-1999 following the impact of the ENSO drought phenomenon, the rainy season has been longer causing some problems for farming. Potatoes and other high-value commodities (HVCs) are very sensitive to excessive water stress. At the same time, many kinds of fungi (*Phytophthora infestans*) grow as the consequence of the increase of humidity. Therefore, the increasing number of fungi potentially threatens to decrease produce if they infect the plants during growing time. More fungi calls for more pesticides so that villagers must spend more money to protect their plants. Under normal circumstances farmers spray pesticides once a week or once every five days depending on the fungal attack. If humidity increases, they must spray pesticide once every two days or even every day, particularly when the fungal attack is huge.

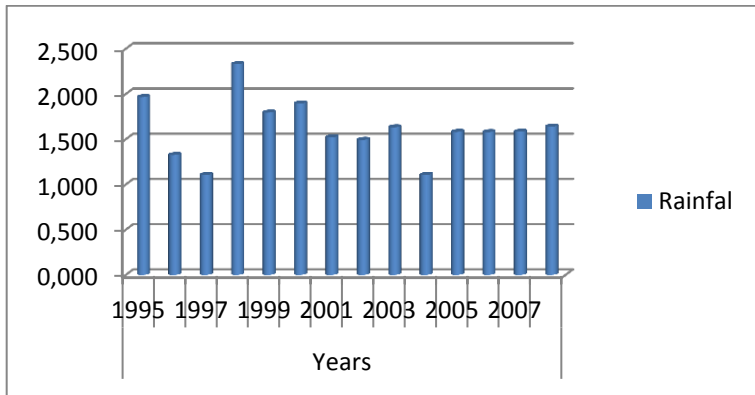


Figure 11: Average rainfall in east java during period 1995-2008 (mm)

Interview results show that farmers could lose their harvests up to forty per cent or even experience crop failures. Rich farmers use a spray machine to speed up the work if it rains continuously to avoid widespread damage to crops. This activity is more expensive than the other costs such as those for seeds, labour, and land preparation. For this reason, RPHs have chosen to plant other crops such as cabbage or onions that are resistant to fungal attacks and relatively cheaper. Economically, those commodities fetch low prices in the market and are relatively affordable for RPHs in spite of the fact that they yield little profit. According to the adaptation strategies literature, while vulnerability is the function of multiple factors, the status of assets, according to a large body of research, plays an important role to determine the ability of RPHs to cope with adverse weather conditions (Adger et al. 2005; Agrawal, 2008; Binternagel et al. 2010; Fisher and Choudhury, 2010). In Upland Bromo, therefore, RPHs are the most vulnerable groups because of their lack of assets which impairs their ability to adapt to external exposure.

Table 7: Months of Emergence of Rain and Wind and their Impacts after Five Years

| Villages | 2005 (month 1-2) | 2006 (month 12-1) | 2007 (month 2-3) | 2008 (month 2-3) | 2009 (month 1-2) |
|-----------|---|--|---|--|---|
| Ngadisari | <ul style="list-style-type: none"> • 2 land-slides • 0 house impacted road access cut off for 0 day | <ul style="list-style-type: none"> • 3 land-slides • 1 house impacted road access cut off for 0 day | <ul style="list-style-type: none"> • 7 land-slides • 3 houses impacted road access cut off for 1 day | <ul style="list-style-type: none"> • 4 land-slides • 1 house impacted road access cut off for 0 day | <ul style="list-style-type: none"> • 3 land-slides • 0 house impacted road access cut off for 0 day |
| Wanakitri | <ul style="list-style-type: none"> • 5 land-slides • 1 house impacted road access cut off for 1 day | <ul style="list-style-type: none"> • 5 land-slides • 2 houses impacted road access cut off for 0 day | <ul style="list-style-type: none"> • 14 land-slides • 23 houses impacted road access cut off for two days | <ul style="list-style-type: none"> • 7 land-slides • 2 houses impacted road access cut off for 0 day | <ul style="list-style-type: none"> • 4 land-slides • 1 house impacted road access cut off for 1 day |
| Ngadas | <ul style="list-style-type: none"> • 3 land-slides • 0 house impacted road access cut off for 0 day | <ul style="list-style-type: none"> • 4 land-slides • 0 house impacted road access cut off for 0 day | <ul style="list-style-type: none"> • 8 land-slides • 5 houses impacted road access cut off for 1 day | <ul style="list-style-type: none"> • 4 land-slides • 1 house impacted road access cut off for 0 day | <ul style="list-style-type: none"> • 14 land-slides • 23 houses impacted road access cut off for two days |

Source: Focus Group Discussion and Interviews with Bromo national park officers and Village Leaders

The second kind of climate change that has negative impacts on the villagers is the changing of the wind season cycle. There are two kinds of wind, namely the rainy season wind which blows in the middle of the rainy season, and the dry season wind which blows at the end of the dry season. Rainy season wind disturbs the plants, such as potato during the growing phase because potato is a vegetable very prone to suffer from wind particularly in the areas situated directly opposing the direction of the wind. In the past, villagers planted potatoes in October or November to avoid the peak of the windy season in December or January. Nowadays, to avoid the rainy season wind, villagers cultivate potatoes one month before the rainy season starts or during the windy season. They hope that when the wind reaches the potatoes, their

roots have grown strong enough to hold them. However, when a very heavy wind blows, like it did in 2007, in spite of having enough roots, all their potato plants directly opposing the wind were destroyed.

A. Erosion in the rainy season in Ngadas



B. Dry land in the drought season in Pusung Tutup Wanakitri



Figure 12: Droughts and erosion coming early in the last ten years

In Ngadisari village, more than two hectares of potatoes were damaged because they were buffeted by the winds that blew for two weeks at high speed. At the same time the soil became very loose due to the heavy rains so that the potatoes were easily uprooted by the wind. In the regions not directly facing the wind direction, potato plants were also damaged, but they were not uprooted from the soil.

BOX 5.6 The Weather is Always Fair: The Rich or Poor All Bear the Loss

Reang Wolu (male respondent number 8), of one of the poorest families in Ngadisari, was facing the threat of crop failure and just got a third of the common output. In Wanakitri, Reang Songo only harvested four of the six quintals of potato seeds that he planted in a field of half a hectare. Reang Sepuluh (male respondent number 10) even had no harvest at all from the five quintals of potato seeds he had planted. In 2007, almost all the villagers suffered losses due to wind and heavy rain which came at an improper time. The rich farmers had spent more money for irrigation to plant potatoes because the rain came too late. Reang Sewelas (male respondent number 11) spent more than ten million rupiahs to irrigate his land for the whole two months in his two hectares of land. He thought the rain would fall one month after planting, so that he kept on planting potatoes with the hope that when the wind came, the roots of plants were already strong. Rain delay for one month at a time caused wind delay, which in turn would not only increase costs but also reduce crop yields. Reang Rolas (male respondent number 12), also a rich farmer, planted potatoes a month late to avoid the wind and reduce the cost of irrigation. The rain came so late that he apparently had to spend an extra fee for it. The plants had not grown strong roots yet when the wind came at great speed. As a consequence, he only got ten out of the thirty quintals of potato seeds he had planted on a field of three hectares. Reang Wolu said that:

"We have been very disadvantaged by the weather lately. If we plant potatoes earlier, the rain comes late. If potatoes are planted in January, the wind comes and damages the plant roots. Nevertheless we are not disappointed because everyone bears it."

Another wind that has a devastating impact on the Upland Bromo is the heavy wind at the end of the dry season. It comes every year from the mountains to the lowlands at very high speed. It often spreads dust on the fields particularly in the dry season, which make the potato leaves dirty, so that it influences the process of photosynthesis and plant metabolism. In the last ten years this kind of wind has also accelerated the process of desertification in the northern part of the Ngadisari village that covers two hundred to three hundred hectares of land including both agricultural and forest land. Farmers call the land "lemah kuning" meaning land with low fertility for agriculture or forest. Sandy soil is easily carried away by the wind in the dry season which speeds up the process of land degradation. Differently from the wind in the rainy season, it has a more devastating impact on the villagers damaging not only plants but also houses and other infrastructure. Additionally, heavy wind can bring down trees, which triggers landslides during the rainy season. Local people call the heavy wind during the dry season "Angin Gending" in Javanese, meaning the wind of song. Angin Gending is a form of hot wind (Foehn winds) that blows from the Iyang Mountain to the plains of Gending in Probolinggo and Pasuruan districts where the village research was conducted. It happens between the dry season and the rainy season, i.e. between July and September as a transitional season with puff wind that is quite rough and dry. It is a strong wind speeding about 81 km/hour from South East (SE)

to North West (NW). It just occurs in the Upland Bromo, making the local people very scared due to this wind's high destructive power.

The third kind of climate change that has negative consequences for the villagers surrounding the Upland Bromo is the changing of cloud or fog cycles. Clouds combined with volcanic sulphuric fog can damage and rot plants, wither trees and grass, and be the cause of sore throats and eye irritations. Withered trees and grass in farmlands trigger landslides during the rainy season and increase the production cost. In a high concentration, clouds mixed with sulphur can damage plants and therefore potentially decrease production and even kill them. It really becomes a constraint for agricultural activities in the Upland Bromo due to the high level of damage caused by the attack of clouds. For instance, "Cemoro Lawang" and "Pusung Gede", both in Ngadisari, are susceptible to damage by sulphuric fog. Those areas constitute the principal agricultural land for Ngadisari villagers whose fields are directly opposite to the Bromo crater spreading sulphur. There is no forest in that area so that it cannot halt the fog before it reaches the farms. In 2006, the village leader noted that more than eighty per cent of potatoes grown in Cemoro Lawang over a surface of 300 hectares had been burned by the fog and the farmers lost their harvests. At the same time, in Wanakitri, in the "Pusung Tutup" area, more than two hundred hectares of potatoes had been exposed to the fog. In Wanakitri, the potato damage was not as bad as in Ngadisari because the area is surrounded by forests.

Summarizing the above explanations, the impacts of physical environmental change at the centre of village research are those caused by the changes in the rainy season cycle, heavy winds during both the rainy and the dry seasons as well as the sulphuric fog cycle. Cycle changes make it difficult for the villagers to plan their planting time so that they can only think short term. Therefore, in the last ten years they have suffered substantial losses due to increasing production costs and crop damage. Rich farmers still grow potatoes as the most profitable plant even though they may spend more money for irrigation and pesticides to save their crops. On the other hand, RPHs have replaced potatoes by other plants that are relatively resistant to weather pressures, such as onions and cabbage despite their low selling prices. They prefer to work for the tourist sector, to exploit forest borders and become farming labourers who face relatively minimum risks.

Growing demand for land leads farmers to clear their private forests even though they provide energy for households. The rising selling price of potatoes encourage farmers to cut down their private forests for agriculture. This process increased rapidly in the early Reform era due to the vacuum of the village administration control that had forbidden the clearing of private forests before. In Ngadisari, there are no more private forests belonging to farmers and only ten per cent in Ngadas and five per cent in Wanakitri. The interview results show that farmers, particularly the poor, tended to collect fuel wood from the state or national park forests that were relatively easy to gather in the early time of the Reform era. Therefore, the clearing of private forests is triggered by both the demand for agricultural land and the unhindered access to state forest wood as fuel replacement.

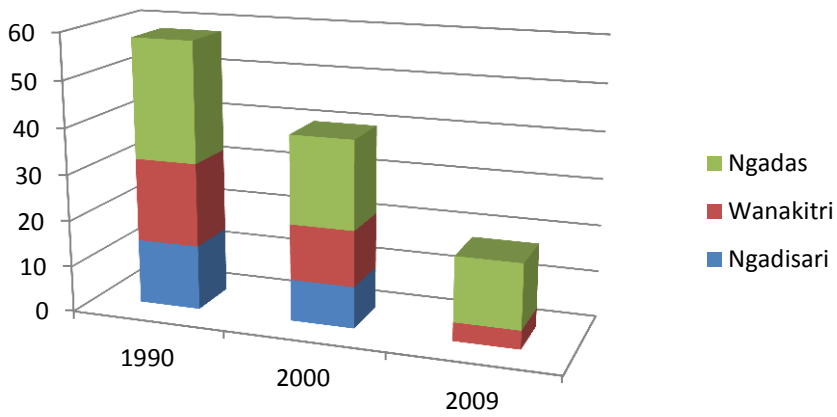


Figure 13: Percentage of respondents who still kept a private forest from 1990 to 2009
(Sources: Interviews with 170 Households in Ngadisari, Wonokitri, and Ngadas Villages)

6. The Emerging New Resources Governance

6.1 The Structure of Local Resource Tenure

6.1.1 The Role of the State Forest Company

The main resources in Upland Bromo that can be accessed by the local people are the state forest, the National Park, and private forests including tourism-related functional features, sources of water, animals, timber, charcoal, fuel wood, and other forest output. The access to resources is divided into three categories, namely access to forest products including NTFPs, forest land in the community based forest management and illegal clearing, and economic activities related to tourism. On the ground, there are five actors who are related directly to the resource management at the local level; they are the State Forest Company, the Bromo National Park, the private forest company, village governments and households. They have legal rights to access to and exert control over the resources for certain purposes, based on different sources of power and legitimacy. The first, the State Forest Company controls at least 1.1 million hectares of forest land in East Java and more than thirty thousand hectares of forest in the Upland Bromo. The State Forest Company controls the forest area outside the National Park in which most of the areas are directly adjacent to the village. Administratively, the State Forest Company forest is located in four districts namely Malang, Pasuruan, Probolinggo, and Luma-

jang. Most of the areas are protected because the forest is located in the areas with high slopes with several endemic animals and plants.

Table 8: Total Area of Forest in Upland Bromo Controlled by the State Forest Company

| District area (KPH) | Unit of Officer (BKPH) | Area of Forest (HA) |
|---------------------|------------------------|---------------------|
| Probolinggo | Sukapura | 11.390,9 |
| | Senduro | 8.697,7 |
| Malang | Tumpang | 11.226 |
| Pasuruan | Tosari | N.A |

Sources: Ministry of Forestry Statistical Data 2009

The legal legitimacy of the State Forest Company originates from Government Regulation No. 15, 1972 with its working areas initially covering the state owned forest resorts in East and Central Java. Then, in 1978, the State Forest Company area was extended to West Java through Government Regulation No. 2 of 1978. In 1986, the status of the State Forest Company was revised through Government Regulation No. 36, 1986 in which the company was endorsed to rather increase profit than to serve the environment. After realizing the flaws of the forest commercialization process, in 1999 the government issued the new Government Regulation (PP) No. 53 of 1999 on the State Forestry Public Corporation (Perum Perhutani). The purpose of this regulation was to facilitate to local people the right to access forest areas. In 2001, when the government needed new sources of revenue to finance development, it issued another Government Regulation No. 14 of 2001 stipulating the commercialization of the State Forest Company. The government stipulated that Perhutani as BUMN would adopt the legal form of Limited Liability Company (PT), shifting it to become a pure business institution. The public pressure regarding the State Forest Company status as PT encouraged the central government to issue Government Regulation No. 30 of 2003, which returned Perhutani to the status of a public corporation (Perum). However, commercialization practices continued.

Although the State Forest Company is a public corporation whose official mission is to meet social commitments rather than make profit, the commercialization process of all business units is still high. Burgeoning timber prices along with the shrinkage of forest products from outside Java encourage the State Forest Company to intensify their forest production. The units of officers called BKPH of Sukapura and Senduro in Probolinggo, Tumpang in Malang and Tosari in Pasuruan were designed to become more commercial. BKBH is the frontline in forest exploitation, especially in relation to security, planting, maintenance, and labour mobilization.

Therefore, it has direct interaction with the local people to bring in labourers and other resources to conduct company activities. The PHBM or CBFM programme to deal with the increasing pressure of local people to benefit from forest margins is fully operated by BKBH. As generally known, after the Reform era, the forests have been damaged by illegal logging precipitating the State Forest Company into a very bad situation. The CBFM called “Kontrak” by the villagers around Upland Bromo is a system that allows villagers who are members of a certain forest farmer group to clear some forest areas of one to two hectares for agricultural activities. The villagers then plant crops in between the trees that serve them as main crops for two or three years and leave them when the trees have grown forming large canopies. The villagers have the responsibility to secure the areas surrounding their land and to participate in planting trees and building forest infrastructure as coordinated by the forest officers. From the State Forest Company’s point of view, PHBM has the most effective ways to respond to financial limitations brought about by huge illegal logging activities in the Reform era. On the other hand, involving the villagers living around the forest areas in the forest activities will increase their conservation awareness. At the same time, the State Forest Company gains additional revenue from non-forest products, particularly agricultural products (Nomura, 2008:171).

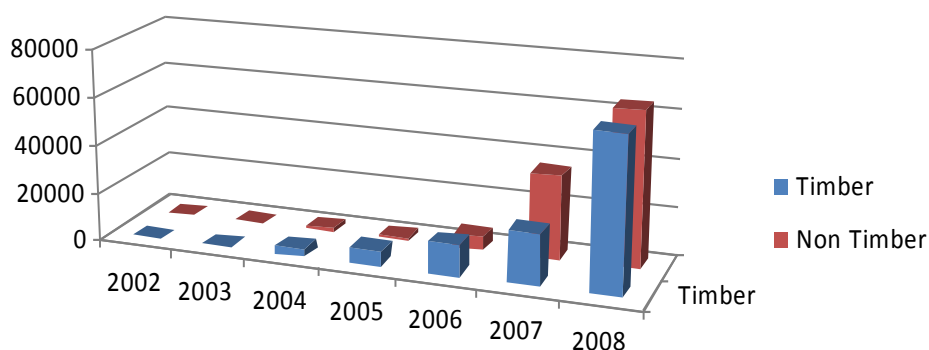


Figure 14: State forest company revenue from the CBFM programme from 2002 to 2008 (in Million Rupiah)

(Source: Publication of the State Forest Company 2009 at http://www.perumperhutani.com/index.php?Itemid=49&id=109&option=com_content&task=view, 2010-07-01, 15:17 hour)

Actually, the State Forest Company exploits the areas surrounding the Upland Bromo normally unsuitable as production forest because the topography is very hilly with high slopes thereby ignoring environmental risks from degradation and deforestation. Even the New Order regime limited the exploitation of this area lowering the timber production in BPKH Tosari to levels below other regions. Commercialization companies after the Reform era forced all production units to try to make profits in all the ways possible. The villagers say that today the State Forest Company does not only cut down old trees but also young ones. The increasing demand for timber due to the rapid growth of the housing sector and industries in cities induces the State Forest Company to accelerate tree logging before the wood has reached qualifying maturity levels. It carries out the exploitation of traditional and steep areas that had been forbidden for tree cultivation before. Moreover, marginal forests which are reserved areas have been exploited for agricultural purposes in order to earn income for the company.

Additionally, the increasing trend to natural tourism as a new type of touristic focus provides an opportunity for corporate earnings as well. At the same time, it requests more space for infrastructure so that it limits the availability of resources for local people. Furthermore, the existence of and demand for forest products other than wood, such as resin, eucalyptus oil, pine sap, and others encourage forestry to increasingly commercialize its region. To pursue its income-earning activities, the State Forest Company intensifies exploitation and limits the access of local people to forest products. Developing the rafting sport as tourist attraction in the Coban Pelangi and Madakaripura waterfalls and Pekalen is an example of an effort undertaken by the State Forest Company to raise more money from non-forest products in the Upland Bromo area. To support the company policies, the State Forest Company has founded subsidiaries, i.e. the PT. Perhutani Alam Wisata as a holding company for the tourist industry and PT. Perhutani Anugerah Kimia for manufacturing resin and other non-timber products (MoF, 2009). For this purpose, the State Forest Company has limited the local people's access to touristic areas to offer more services to tourists.

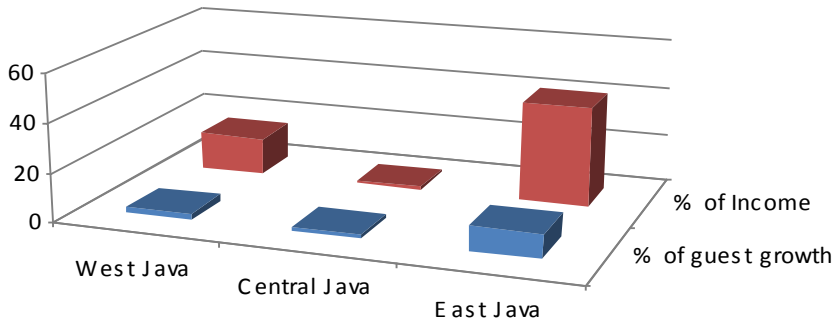


Figure 15: Increasing number of guests and income from tourism services in Java from 1993 to 1998

(Source: Karyono, Rachman Efendi and Sabarudi, 2001)

The increasing commercialization of forest utilization in the state forest has shaped the availability of resources to households particularly for collecting timber, fire wood, charcoal, grass, and other. Forestry officers closely and regularly supervise the activities of villagers to reduce their space. Some of the charcoal burners illustrated that they had to walk for more than four hours in the night to avoid forest rangers and find good timber. Today it is very difficult to find good quality timber for charcoal though even on the outskirts of the forest. In 2009, in three villages, only six people were burning charcoal. The decreased quality and number of timbers due to the intensive exploitation by the State Forest Company diminished the interest of local people to work as charcoal burners and keep up their trade. At the same time, forest rangers have intensified their security activities to limit the villagers' access to forest products. Indeed, the penalty for burning charcoal is heavier than for taking timber or firewood and grass.

6.1.2 The Role of Bromo National Park

The second actor who controls the Upland Bromo resources is the Bromo National Park. It controls more than fifty thousand hectares of land in the Upland Bromo. Viewed from the function of the area, the National Park can be divided into four zones namely the core zone (22.006 ha), the intensively used zone (425 ha), the traditionally used zone (2.360 ha), and the rehabilitation zone (2.000 ha). The *core zone* located in the south of the park includes the Semeru mountain bordering villages in Malang and those in Lumajang. This area is the most important source of water for the Brantas Watershed that is the longest watershed in East Java. This area is well maintained because of the lack of infrastructure that makes logging impossi-

ble. The natural conditions are hilly and difficult to reach by vehicles making it difficult for thieves to transport stolen timber. The *intensively used zone* is a very strategic area where most tourism industries and intensive agriculture are located. Pananjakan (200 ha) and Cemoro Lawang (50 ha) are the areas fought for by various parties to develop tourism-related businesses such as hotels, trade, restaurants and other tourism supporting businesses.

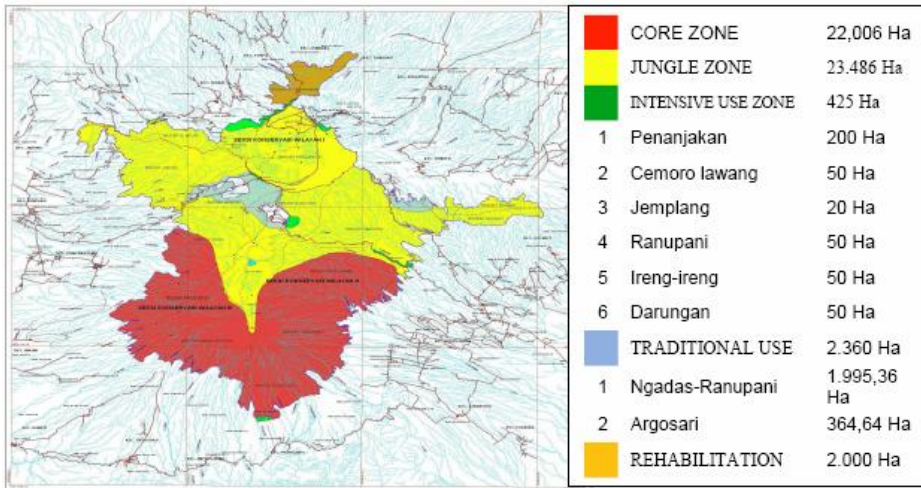


Figure 16: Zoning maps of national parks based on their functions
(Source: Statistic of Bromo National Park, 2009)

Though categorized as the intensive utilization zone, most of the areas are more suitable for nature conservation as they are prone to landslides and very hilly. Facts show there are five hotels and restaurants that have obtained the license by the National Park to develop businesses. Most of the hotel buildings are located close to the crater of Mount Bromo to get beautiful views. The local residents owning land around the area have also built houses for rent to tourists and to obtain other benefits. Properties in the intensively used zone, especially for the tourism-related industries, have high value because they are hotly fought for by many parties. Only people who have a close relationship with the National Park are able to access the areas.

In the *traditionally used zone*, the National Park's control over the natural resources is relatively low because the claim of the local communities on forest territory is very strong. The fact that this area is located inside the park as an "enclave" has made it difficult for the officers to be in control as in other villages. The mapping of the National Park in 1994 and the installation of boundary stakes in the following years became the only sign denoting local access restrictions. The abundant resources in the past led the villagers to exploit the forests surrounding them for consumption. The habit of the village households to make fireplaces to warm the rooms at night before bed has remained until today so that fuel wood consump-

tion remains high in this region. In the traditionally used zone, the customary rights of the local people to access the forest are well maintained and local resources governance is established by the local custom. In the Reform era, some of the poor cleared several areas in the park for agriculture without any restriction from village leaders and park officers. Today, they still occupy the land though park officers point out that those areas are National Park territory. There is a kind of “unofficial agreement” between the villagers and the park officers, allowing the villagers to plant in the areas as long as they do not sell and expand to other areas. In an informal statement, the village leaders and other elites supported such an agreement in order to give sources of livelihood to the poor to minimize forest destruction.

The fight for resources before reform was not very extensive due to the full control by the central government. The local people could access the traditionally and intensively used zones, with the authorization of the park officers, for agriculture, grassing and collecting fuel wood. The National Park officers were the main actors who had authority to distribute the resources of the National Park to the villagers. Occasionally they asked the village government as a third party to mediate the agreement and legitimacy of the park policies. The National Park had a more intense relationship with the sub-district or district government than with the village government because it was only an extension of the sub-district and district government. Therefore, the stakeholders involved in the local resources management were simple and tended to pursue a few key actors.

In the early Reform era, the actors involved in the National Park resources management were of various types including NGOs, villagers, village government, and National Park. Each actor tried to gain more access to and control over the resources, based on their perception of them. At the same time, the National Park introduced the commercialization policy to improve the park profits from tourism and other environmental services although the local people pressured the National Park management to allow more access. Since the 2000s the National Park has been even more protective against local people’s activities to increase the number of tourists. As a result the National Park has increased the protection of the area, making natural resources scarcer for villagers

Currently, similarly to the State Forest Company, the process of commercialization of the National Park is more intensive due to the central government’s policy to maximize the benefits from all governmental unit activities and the units with potential opportunities to gain benefits were those like the National Park. The central government endorses the transformation of the National Park institution from total governmental ownership to a public service institution (Badan Layanan Umum or BLU) in which they can manage their income without consulting the central government. As a result, the National Park maximizes the function of its resources to earn more income. In this scheme, the National Park becomes a more commercial institution because it must collect money to finance itself with minimum support from the central government.

In the BLU policy mechanism, the National Park has been intensifying its resources for environmental services business and tourism activities as its main source of revenue. It began to explore the possibility of intensive forestation in certain areas through the CDM programme in the intensively used and rehabilitation zones for forest production. Some of the private forest companies have given a signal to develop the areas for forest production within the CDM mechanism. This programme arouses more doubt among villagers because it is relatively different from the role of the National Park which in their perception is to conserve the area. In the tourist sector, the National Park has built roads, hotels, and other infrastructure increasing competition over resources and excluding the villagers from the area. As compensation, they can access the forest for consumption and other traditional needs in the area far from the reach of tourists. For the core zone, the National Park just allows some limited tourism-related activities, particularly climbing the Semeru Mountain.

Other resources controlled by the National Park are water sources, roads in the park and economic opportunities such as parking, tourist markets and local guide licenses. The location of the water sources in the park empowers park officers to put pressure on local people to conserve the area surrounding it. They encourage agreements stipulating that villagers must conserve the area around the water sources via village meetings. The village government has the responsibility to control its villagers and in case of infraction gives preliminary sanctions before sending law-offending villagers to the police. The sanctions for those who cut trees in the area surrounding the water sources are heavy such as planting trees for 2 till 4 weeks and stopping their access to water for a certain period of time. In certain cases, when the damage to the forest is serious, park officers can send them to the police for formal sanction in compliance with national law.

Table 9: Number of Villages in Bromo National Park

| District | Number of Villages | Area (Hectares) |
|-------------|--------------------|-----------------|
| Malang | 23 | 19.005,10 |
| Pasuruan | 12 | 5.553,60 |
| Probolinggo | 9 | 5.828,10 |
| Lumajang | 22 | 19.889,50 |

Sources: Ministry of Forestry (2007) and Central Statistical Agency Districts of Malang, Pasuruan, Probolinggo and Lumajang (2009)

The National Park, furthermore, also controls some areas in the villages for tourism infrastructure and as check points for security and ticketing. The buildings are located in certain areas that can be easily accessed by tourists and other guests. During the New Order era, the National Park accessed certain public lands. They lobbied with the heads of villages to allow the use of village space for parking purposes. In Wanakitri, for instance, in 1992 the guardhouse and inspection office were built in the public lands without obtaining any permission from the villagers. The village meetings were held just to give legitimacy to the National Park to build infrastructure. At that time the power of government was quite strong in controlling people's aspirations and criticism of the government was considered as a criminal act. At the same time, the lobbying of National Park officers with the village government to allow a courtyard for ceremonies to be used for parking was successful. That strategy was also applied to other villages in different manners, depending on the National Park purposes. The tourist industry on the other hand requires environmental sustainability as a major attraction in addition to the completeness of the supporting infrastructure. For this reason, park officers need to increase the protection activities to limit the access of villagers to forest products. They just allow villagers to collect firewood from dry trees, herbs, flowers, and other products in certain areas that tourists never see. The National Park just conserves the areas surrounding the tourist routes intensively and benefits from the activities of tourism. It is quite contrary to many of their campaigns for villagers in many village meetings.

6.1.3 The Role of the Private Forest Companies (PFCs)

In addition to the National Park and forestry, the institutions which also compete in the fight over natural resources in the Upland Bomo are private forestry companies.

They have established cooperations with the farmers to develop community forest partnerships with contracts of three to four years depending on what they plant. Most of them plant sengon (*Paraserianthes falcataria*) trees that are relatively easy to grow and to maintain, and relatively cheap to finance. Siregar et al. (2007) mentioned that sengon, as a fast growing species, has benefits for farmers because they can mix it at the same time with seasonal crops such as pineapples, bananas, and some vegetables. Sengon can grow fast in the Upland Bromo especially in the areas at an altitude of about six hundred to one thousand five hundred metres above sea level. At the same time, PFCs have also tried to gain access to the National Park area to plant the forest using the clean mechanism development scheme. These conditions are supported by government policy, which increases forest plantation to replace the exploitation of the natural forest and automatically enhances the role of private forest companies. As a result, the contribution of natural forests to Indonesia's log supply to the market went down very fast even though Ensters et al. (2008:109-110) mentioned that the strategic involvement of the private sector is in its infancy and plantation development is still at the initial stage.

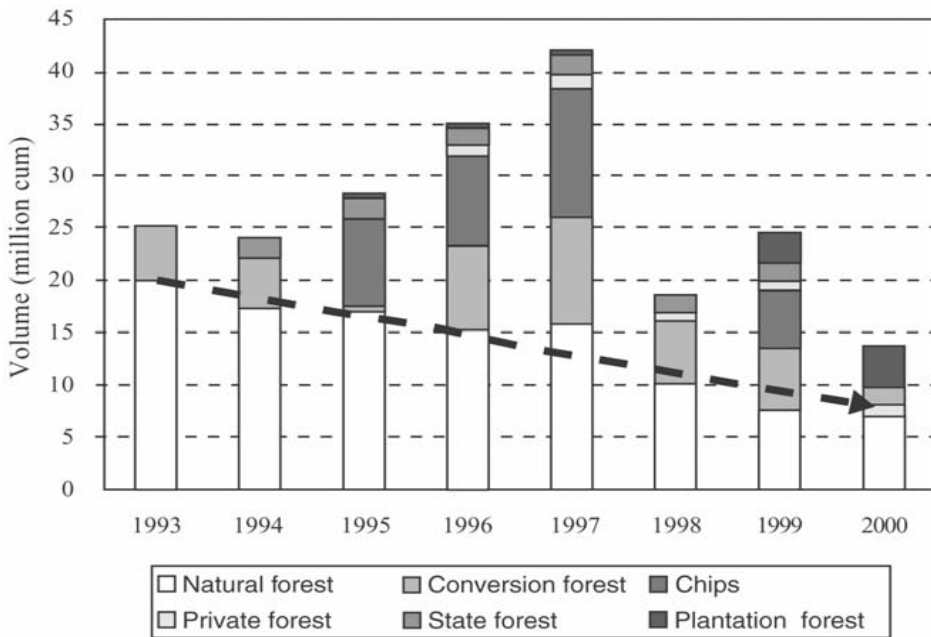


Figure 17: Indonesia's log supply from 1993 to 2000
(Sources: Aruan, 3003:9)

At the national level, to increase the role of private forests, central government has provided the community with a timber plantation. According to this policy, the actor who develops the forest will be rewarded with incentives from the govern-

ment with regard to both the financing and support system. There are three models of community forest that are the independent type model (*pola mandiri*), the partnership type model (*pola kemitraan*), and the developer type model (*pola developer*). Under the first model, the Ministry of Forestry will give incentives when the applicants demand funding personally to establish plantations, but the initiative and cost should originate from their own money. In the second model, private forest companies and village cooperation create partnerships in establishing plantations and they jointly request funding from the Ministry of Forestry. In the last model, private or state forest companies, as developers, establish plantations with concessions for up to 60 years. Supporting this programme, the Ministry of Forestry noted that by 2008 the cumulative area of timber plantations reached 4.3 million hectares, producing 22.3 million m³ of timber (Obidzinski and Dermawan, 2010).

Table 10: Projected Annual Development of HTR, Community Timber Plantations, 2007–2016

| Year | Planted Area | | | | Total Area (ha) | Total Planted Area (ha) | Budget (million Rp) | Budget (million US\$) |
|--------------|--|--|--|--|--------------------|----------------------------------|---------------------------|-----------------------------|
| | Annual Allocation of 1.4 million ha | Annual Allocation of 1.4 million ha | Annual Allocation of 1.4 million ha | Annual Allocation of 1.2 million ha | | | | |
| 2007 | 200 000 | | | | 200 000 | 200 000 | 1 600 000 | 177.8 |
| 2008 | 200 000 | 200 000 | | | 400 000 | 600 000 | 3 200 000 | 355.5 |
| 2009 | 200 000 | 200 000 | 200 000 | | 600 000 | 1 200 000 | 4 800 000 | 533.3 |
| 2010 | 200 000 | 200 000 | 200 000 | 170 000 | 770 000 | 1 970 000 | 6 160 000 | 684.4 |
| 2011 | 200 000 | 200 000 | 200 000 | 170 000 | 770 000 | 2 740 000 | 6 160 000 | 684.4 |
| 2012 | 200 000 | 200 000 | 200 000 | 170 000 | 770 000 | 3 510 000 | 6 160 000 | 684.4 |
| 2013 | 200 000 | 200 000 | 200 000 | 170 000 | 770 000 | 4 280 000 | 6 160 000 | 684.4 |
| 2014 | | 200 000 | 200 000 | 170 000 | 570 000 | 4 850 000 | 4 560 000 | 506.7 |
| 2015 | | | 200 000 | 170 000 | 370 000 | 5 220 000 | 2 960 000 | 328.9 |
| 2016 | | | | 180 000 | 180 000 | 5 400 000 | 1 440 000 | 160.0 |
| Total | | | | | 5 400 000 | | 43 200 000 | 4 800.0 |

Source: Sugiharto Cited by Obidzinski and Dermawan (2010)

Therefore, the activities of private forest companies in the Upland Bromo are not only encouraged by the increasing demand for timber but also supported by government policies. In the areas surrounding the Upland Bromo at an altitude of 1,500 above sea level, forest farmers are mobilized by village leaders to join this programme. In the areas where vegetables cannot grow well due to high steep slopes or low fertility, sengon becomes popular to replace the traditional trees such as *acacia* or *pinus*. Through this programme, farmers get sengon seeds and fertilizer as well as technical assistance from the private company which must be paid at the time of harvest. For the farmers this system is very profitable because planting trees in the non-fertile area is a side job and they do not have to speculate on the value of trees. Planting trees is the volunteer work for the next generation. The interview results show that most of the farmers who have land with low productivity located on the slopes are participating in this programme.

6.1.4 The Role of Non-Government Organizations (NGOs)

Other interest groups colouring the competition for control over natural resources are the NGOs. They actively campaign political awareness to increase the capabilities of social institutions with full international funding support. Before the Reform era, some of them hid their real aspirations and focused on supporting technical assistance for the rural developmental programme, the aim of which was to improve the villagers' skills and knowledge in relation to agriculture and conservation. The process of decentralization has allowed the direct election of local leaders such as governors and mayors. This allows local NGOs to get involved in the political practices carried out by villagers they trust. In the villagers' point of view, when NGOs are involved in political practices, they will assist their voters to access to power in political institutions. As a result, NGOs will gradually lose their importance when the central government introduces the decentralization policy.

The influence of NGO activities in the Upland Bromo has two consequences, namely the changing of the traditional definition of forest and the increase of awareness of villagers' rights. In the traditional perception, forest could be accessed by local people for their everyday needs such as collecting fuel wood, grass, charcoal, mushrooms and hunting animals. Those activities were just allowed for household consumption and not for sale. The ideology of modern conservation that is campaigned by NGOs has changed that perception so that the local people feel uncomfortable when they access the forest even for everyday consumption purposes. The National Park in the conservation ideology should not be permitted to conduct exploitation activities, not even to a limited amount. NGO activists in the field are often very stiff in their ideas so that the social function of the conservation area is often lost.

For an illustration of the ideology of modern conservation limiting access of the local people to the National Park spreading massively on the ground, it should be first understood how they perceive the National Park as an institution. The local people do not call the National Park a park nor use other titles but they call it *PA* that is the abbreviation of *Pencinta Alam* or Nature Lover. *PA* refers to a group of people that make efforts to conserve natural resources in a very rigid way and refuse all exploitation activities in the forest. In the light of this definition, local people become dissatisfied with the exploitation of the National Park because they perceive the National Park purely as a conservation area. This perception was spread around massively in the 1980s by young activists from universities who were involved in the conservation movement. This phenomenon was in line with the growing modern conservation ideology in the west where young educated people from universities were the first influenced.

The National Park officers made use of this perception to legitimate their activities in the park. At the same time, the villagers' awareness of their rights was rising and this was in line with the human rights campaign introduced by the NGOs trying to revitalize ethnic identity as part of the human rights of local people. Their campaign

was not only to revitalize *adat* or custom that had resulted in destructive outcomes before during the authoritarian regime but also to activate the awareness of local people to claim their territory as a native heritage. Participation in political institutions, village decision-making processes, and community meetings were encouraged by the NGOs to beef up the local people's awareness of their rights. The control of the National Park over some public lands for infrastructure has been criticized. The interview results with the National Park officers describes that they have become dissatisfied because of the objection of villagers to their control over public lands. For this reason, they have proposed to the central office in Malang to move their office to the National Park territory though it is relatively far from the centre of the village and offers with minimum facilities.

6.1.5 The Role of the Village Administration

The last actor who controls the resources in the Upland Bromo is the village administration. The village government appears in two types of roles that are as an active player referring to the actors who have the right to control and to use certain resources and as a mediator referring to the actors who only serve as mediators in decision-making processes concerning regulating the access to resources. In the role as player, it controls public lands, infrastructure surrounding the village, water resources, and public buildings that can potentially be utilized as an economic resource. At the same time, it also has the authority to manage development, law enforcement, and social order. The control over many economic resources and the authority to govern the local people has been made use of by the village government to develop power in order to increase the bargaining power with the district government as well as the local people and the National Park. The village administration becomes the representative of the villagers in the district government's perspective and becomes the representative of the district government in the villagers' perspective.

The second role is as the mediator by which the outside actors who want to interact with local people might be assisted by the village government. It is the consequence of the central position of the village administration as the mediator between the district government and the villagers and between the villagers and the National Park. The position of the Forest State Company and private forest company has become very strategic after the decentralization era. They can develop the power needed to pressurize all the actors into participating in the village development such as to build infrastructure, to organize education, health and many other programmes. The capability of the village administration to provide development aid is an instrument to control the villagers' activities. In terms of regulating the access to resources, in Wanakitri for instance the village government is always involved in the process of decision-making such as recruiting the members of forest farmers group, facilitating association meetings, distributing water supplies and subsidized rice, and connecting private forest actors with farmers.

The mutual relation between the village authority and the district government becomes a source of power for the village authority to control the villagers' activities related to forest resources. Furthermore, the control over villagers is used to create a bargaining position with the National Park and the officers in the forest company. At this point, the village authority plays an important role in the power structure among parties in the resource management system in Upland Bromo. In the Ngadisari village, for instance, the village government can collect some money from the owners of the tour jeeps, horses and motorcycles for the village treasury. Despite objections, the National Park still allows such action as long as it is not excessive and burdensome to the business owners. In fact, a measure declaring that those charges are burdensome or not depending on the judgement of the village head is very subjective. Although all decisions concerning such pronouncements go through the village meetings, almost everybody simply accepts the village head's decision and no one protests against it. At the same time, the village government also gets additional money from the park for the development programme by using village facilities for tourism activities.

6.2 The Struggle for Resources

6.2.1 Struggle for Power within Groups

As described above, actors are divided into those who control resources and those who shape the patterns of resources management into three categories, namely the state (National Park and Village Governments), companies (PERHUTANI and the Forest Company), and civil society (NGOs and households). There are two types of struggles in the competition for power, namely the struggle for power within a group itself and the struggle for power among groups.

First, the struggle for power occurs among state actors due to the instability of the laws during the decentralization area in addressing the issues of how to manage the resources. The issues of how to do it rightly and how to determine the responsibilities of the village authority and the Bromo National Park came to the fore when the central government who previously controlled the resources drifted into a power vacuum. For instance, the water resources belong to the village but the village authority actually ignores the need to conserve the natural surrounding resources. They even protect the people who violate the agreement by taking firewood and charcoal near water sources. In the tourist sector, the village administration makes use of the position of the village as an entrance for tourists to gain benefits from it through informal agreements between village leaders and the National Park. As a result, the setting and activities of tourism are always discussed with the village administration. In this way, the village authority is endowed with the legitimacy to benefit from the income of tourism such as car/jeep rental fees, fees from accommodation and outdoor activities.

Not only about benefits from the park, state actors also often have a doubtful perception about who will be responsible for the forest and infrastructural damage caused by the activities of the villages such as transportation for agricultural production and ceremonies such as Kasada. The village administration refuses to improve the road or other infrastructure when it is located inside the National Park although it is the village residents who most often use the facility. On the other hand, the National Park has limited financial support from central government for building infrastructure. The same situation exists when the National Park as the district government is responsible for the problem. To solve this problem, the National Park finally allows various fees imposed by the village or the district as a condition for their involvement in managing the infrastructure within the park. Allowing district governments to charge for tourism activities grants them the legitimacy to allocate development funds, particularly for infrastructure. In the Reform era, local governments have the responsibility to mobilize their own financial resources for development. The budgets given by the central government depend on the ability of local governments to collect local resources called *Pendapatan Asli Daerah* (PAD) or Local Genuine Income. The greater the PAD, the greater the money allocated by the central government to local authorities. This has encouraged local governments to search for all potential revenues including those from the tourist sector in the Upland Bromo to increase their PAD.

In their business fields, the State Forest Company and private forest companies have no open competition. However, each actually tries to gain resources, particularly land and sympathy from the village authorities and the Bromo National Park in order to stabilize their business interests in the Upland Bromo. The main interest of private forest companies is a permanent access to land in the park and villagers as well as the local labour support from villagers. The private forest companies, through their agencies, have explored the possibilities of creating businesses there for more than five years. In a first step, they used the social corporate responsibility programme as a tool to approach the Bromo National Park, the village governments, and the villagers. They lobbied with the head of the Bromo National Park to endorse the clean mechanism development programme in approximately 100 hectares of the restricted areas by signing a 50-year contract. This will be extended to the other sides of the National Park. On the other hand, the State Forest Company is very dependent on the support of the local communities, especially as a source of manpower and security. At the same time, private forest companies make use of the villagers as a source of manpower although not so many have been hired until now. Differences in the salary system will more or less affect the labourers' relations woven by the State Forest Company. Most of the labourers engaged in the State Forest Company activities, particularly planting and security, actually employ the villagers who have agreements to manage their lands in a *kontrak* system. PFC, on the other hand uses the cash money to pay their workers. Therefore, PFC becomes a potential competitor for the State Forest Company because their activities will exploit resources and labour in the same area.

Within civil society, the struggle for power between the NGOs and the households at the grass-roots level is not too flashy. The differences are just associated with the re-interpretation of conservation efforts conflicting with their culture and their livelihoods in some cases. NGOs have no direct control over local resources so that the villagers have no interest in them. At the same time, the NGOs usually make use of the religious leaders or the village governments to offer legitimacy to their programmes that sometimes are not in the interest of the households. According to the researcher's surveys, the NGOs' activities that are related to the conservation of natural resources through a simple technology are hardly ever used consistently by the farmers. The households will simply ignore all the NGOs' programmes without any overt resistance if they perceive they are not consistent with their first goals any more. Knowledge about the politics of conservation and conservation practices, however, to some extent influences the perception of the villagers about the rights and obligations related to access to and control over resources around them.

6.2.2 Struggle for Power among Groups

Second, the struggle for power among groups (between the state and business, the state and civil society and business and civil society) takes place as an impact on their efforts to develop an appropriate power to control resources. For instance, the village administration approaches the State Forest Company (representing the struggle between the state and business) to allow the villagers make limited use of the forest resources such as grassing, logging firewood, and collecting other products that can be tolerated by conservationist principles and that do not damage the main trees. They also facilitate the Kontrak programme in which the villagers can open forests in certain areas on the condition of assuming many rights and responsibilities. In the same cases, the village governments ask the State Forest Company and private forest company to contribute to community activities such as ceremonies and infrastructure development. On the other side, the State Forest Company and private forest company ask the village governments to ensure that their activities will not face any disturbance from the local people. Apart from the State Forest Company and private forest company, the village authority also pushes the Bromo National Park to allow the villagers to exploit certain plants such as flowers, klandingan or *Leucaena leucocephala*, herbs and mushrooms in certain areas for their livelihood. In the tourist sector, villagers are allowed by the Bromo National Park to earn cash money by working as local tour guides, renting cars/jeeps, or selling food and handicrafts. The fact that the authority of each village government controls and enforces the laws is used optimally to allow other actors to follow their interests. At the same time they also make use of this power to mobilize the villagers. The village authority also influences the NGOs' activities by determining the target groups of the programme. The village governments make use of their strategic position to mobilize the villagers to participate in developmental programmes

such as social work for public infrastructure by contributing both their money and labour.

Struggle for power between the state and civil society occurs when the village administration tends to support the National Park or State Forest Company rather than the villagers over the access to resources. In Ngadisari, for instance, the villagers disagree on the policy of not allowing horse, jeep, and motorcycle owners to get in touch with their consumers on the road or hotels because it would disturb visitors. At the same time the village government offers a voucher system in which all the visitors have to buy a voucher from the village cooperative to rent horses, jeeps, or motorcycles via a village cooperation led by the village leaders and their family members. The village cooperation will garner 15% of the voucher value as administrative fee and village treasury fee. As a result, villagers begin to tear down the policy because it is considered to reduce revenues, especially for the young who actively offer tour services to the visitors. Some of them have begun to influence the association where they become members to reject that policy. It is not only because of the access to the tourist industry that the villagers protest, but they also protest against the cost of installing water pipelines considered too expensive for the poor. Arguing that the costs of the old pipelines are high, the new users are required to pay the same price for the new installations even though they are poor. A village head said that the revenue from the new customers would be used to repair the installations as well as operational costs. On the other hand, the residents say that the water managers have often received help from the local government to improve water installations. Although the villagers do not say it directly to the public, they feel there has been a monopoly on water management so that the reasons given to justify the high fee to the new customers are far-fetched. Even the provision by water managers of the public taps that can be accessed for free by the villagers in some places does not seem equitable to them.

The struggle for power between business and civil society, particularly civil society and the State Forest Company is very complicated. In the Reform era, local people tried to reclaim some of their rights over the resources that had been previously appropriated by the state. Traditionally, villagers were allowed to collect fuel wood in the forest as a reward for the participation of their family members in planting trees in the State Forest Company forest. The local people still remember the forest planting done by their family members in the past so that they were given the right to collect fuel wood from there. However, along with the commercialization, the State Forest Company has limited the access of villagers to forests. The security issue was also invoked to legitimate the restricted access to farmers by the State Forest Company.

Formal relationships by which the rights and obligations of both were written in a formal agreement were increased by the community based forest management or Kontrak system. Step by step agreement between the villagers and State Forest Company shifted to formal relationships more conducive to intensify the exploitation of the state forest. In the hierarchy of power, the villagers have a low bargain-

ing position in comparison with the other actors because they have no formal position to gain access to and control over resources. The identity as a Tenggerese and a village inhabitant is the only reason to gain access to the forest resources legally. Forest officers still allow them to access forests in a limited way. However, they often need to abide by a common agreement which includes the prohibitions in collecting herbs, fresh wood, edelweiss flowers, charcoal and animals in the tourist areas and in the National Park. Despite the fact that some of the villagers' activities have a fatal impact on the sustainability of the forests, forest officers tend to give light punishments like planting trees without salary for two or three weeks.

6.3 Kinds of Local Resources Governance

6.3.1 Multi-institutional Relationship based Resources Governance

The multi-institutional relationship shaping the resources governance refers to the mechanism of society employed to regulate the distribution of resources in which the agreement concerning such regulation takes place in village meetings and involves several institutions, namely associations, village administration, village representatives, and the National Park. The village meetings as a formal village decision-making process is the main medium in which access to and control over the natural resources are agreed and regulated. Also all the struggles for power of the actors in order to develop power of access to and control over resources can be described by analysing their relationships with the institutions involved. In the pre-reform era, the village authority and the National Park government representatives had unlimited power to control civil society and all the policies related to a resource management practiced by the elites of institutions with very limited concerns for the participation of villagers in the decision-making process. The NGOs and other civil society organizations were given no chance of involvement in the village decision-making process. On the other side, forest companies just took all the decisions of the government for granted. To control the resources, the State Forest Company, the private forest company and the National Park cooperated with the state apparatus such as the police and military officers to intimidate those who wanted to gain access to the forests illegally. As it is generally known, under the "New Order" administration, Suharto constructed a strong, centralized and military-dominated government not only to maintain power but also to control resources for economic development.

The situation changed after the advent of a directly elected president in power with a strong popular mandate within the context of a new government that slowly built a new system where all resources were deployed to restore the state revenue and the economic and social order. The village governments, the Bromo National Park, and the State and private forest companies began to gain legitimacy and authority to regulate the use of resources within their authority. On the other hand,

the NGOs and the villagers could also put forward and integrate their needs and aspirations in the decision-making at the village level, a participation that had been forbidden before. Concerning access to resources, village governments initiated a deal with the State Forest Company and National Park to allow local people to plant in a certain areas of the forest because of the pressure from farmers who did not have adequate lands for farming. In fact from the villagers' perspective there are several areas in the forests which could technically be cleared for agricultural cultivation. The initiative met strong opposition from the Bromo National Park for the reason that such a move would end up with the opening also of other park forest areas in the future. In addition, the Bromo National Park was also concerned about the security of the protected forests because they had been cleared in the proximity of the borders of the National Park at the early time of the Reform era. Furthermore, opening the National Park for agriculture would generate negative reactions among tourists who are the National Park's main source of income nowadays. After negotiations, a decision was made stating that the village authority guarantees there will be no clearings in the park forest. Meanwhile, in relation to the utilization of forest products, farmers can only take the dry twigs for firewood, grass for fodder, mushrooms for personal household consumption, and certain other items for sale as long as they do not exceed the limit.

Not only access to forest products was subject to negotiations. Also the issue of the regulation of economic activities related to tourism was taken to the village meetings when the number of tourists was rapidly increasing yielding more benefit to the National Park as well as to the local people. During the New Order period and at the beginning of the Reform era when the tourist industry had not yet generated a lot of income for the National Park and only few people were involved, there was no special arrangement involving the village administration. The Bromo National Park coordinated the people involved in tourist activities personally. Nowadays, when many people are involved (370 horses, 367 jeeps, and 237 motorcycle taxis for rent, and more than 70 food and craft vendors, 16 hotels, 39 local guides who work both legally and illegally, and more than 28 home stays) in two principal tourist destinations namely Wonokitri and Ngadisari, the Bromo National Park is forced to encourage the village councils to participate in regulating their activities. Through village meetings, all actors who are involved in the tourism activities are regulated to avoid conflicts of interests that may occur among the Bromo National Park officers, village governments, the villagers, and also the owners of the hotels, horses, jeeps and motorcycle taxis. The main agreement is the establishment of various associations such as a horse and jeep owners association, traders' associations, motorcycle taxi associations, and tour guides associations, and so on. Those associations are the elements of the strategy implemented by the Bromo National Park officers to simplify the coordination process and build self-regulation.

A. Villagers after a village meeting in Ngadisari



B. Hansip (village security officers) guard village meeting in Ngadisari



Figure 18: Village meeting shaping access and control to forest and tourism

For example, a village government particularly in Ngadisari has the responsibility to control the villagers who work in the tourist sector so that everything may run orderly without disturbing the tourists' comfort. For instance, today tourists cannot rent motorcycle taxis, jeeps and horses directly from the owners on the streets because other tourists often feel uncomfortable about it. In addition, tourists must pay a fixed fare that has been determined and announced by the parties involved. This regulation also allows to avoid fare competition among horse and motorcycle taxi owners, which reduces the conflicts that often occur among them due to unfixed fares. Because horse owners have to wait for their turn, they can allocate their time better. They have time to work in agriculture or as farm labourers so that there is not a lot of time wasted. To operate the agreement, through village meetings held by the village government, the villagers form a working group consisting of the village cooperative board members, youth clubs, and several village officials. It collects rental income from jeeps and horses, and cuts it by 10 to 15 per cent allocating them to operating cash and handling fees for the group. The fare for renting a horse is seventy thousand rupiahs and two hundred fifty thousand rupiahs for a jeep. The money is then managed by the village cooperatives to be distributed to the managers every month and the owners of the horses and jeeps in accordance with rates agreed upon in a meeting under the supervision of the village head. Horse and jeep owners also have the responsibility to deposit two to fifty thousand rupiahs of their earnings so they can be drawn or taken every year for the Karo ceremony.

BOX 6.1: Fight against Structuring Economic Activity Related to Tourism

At the beginning of the agreement inception, there had been some tough opposition against it as this had the potential to restrict the villagers' business activities and reduce their income. The village government together with the National Park eventually implemented a unilateral policy in which people who were not included in the association were not allowed to get engaged in the National Park. Through these associations, the village government and the National Parks could get additional revenue from the monthly contribution by members. At the same time more and more people have become involved in tourism activities and begin to disturb the comfort of visitors. On the other hand, farmers with large estates begin to feel the shortage of workers because villagers prefer to work as horse or jeep renters even if their income is unpredictable rather than as labourers. Some villagers also ignore agriculture as their main occupation and prefer entering the tourist sector. Although their choices are rational, the head of the village considers this can endanger their families and the village economy because tourism income is basically just an extra income. Reang Siji (male respondent number 1), 37 years old, living in Wanakitri, illustrated such a situation as follows:

"It is easy to say that "you are farmers, so you must go back to your land". He does not understand that I have no land anymore. He only wants to send me away from Sandsea (the main area of tourist destination) to work for the Juragan (people who have large pieces of land) without enough salary. It is the same everywhere. The rulers do not care about us, the poor"

The other resource that is regulated through the village meetings is the control over and access to water sources because it is a persistent issue which always gets serious attention and involves the lives of many, especially in the mountains where water resources are rare. The village meeting as the highest decision-making forum at the village level has always insisted every year that the control over and access to water is fully held by the villagers and managed by an elected board of water management and formed through a village meeting. Water sources are fully controlled by the villagers without any external interference even from the central government. Therefore, the forest companies and the National Park as the parties that control the area where the sources of water are located still do not have the right to manage it. There is an informal agreement between the village governments, the villagers, the National Park, and the forestry companies that outsiders cannot use water for commercial purposes. Village governments are supported by the people in allowing only drainage repair without changing the existing management as done by the district government and international donors. The restaurants, hotels and other tourist facilities must pay a certain fee for the water supply, which is determined by the board of water and the village heads. Some hotels even choose to take water from more distant sources to avoid conflict with the villagers. Some make a huge water reservoir that can accommodate large amounts of water in the tank procured from water sources in the lowland for free.

6.3.2 Bilateral Institutional Relationship based Resources Governance

Another kind of resources management pattern that has occurred in the last ten years is the bilateral institutional relationship. According to this system, two institutions, the masters who control resources and the clients who refer to the actors to gain access to resources, make several agreements on how resources are distributed. In the Upland Bromo the model has been adopted by the private forest company in cooperation with the National Park; the National Park with telecommunication companies; and the State Forest Company with forest farmer groups. For instance, the private forest company made an agreement with the Bromo National Park to gain concessions in certain areas of the National Park for planting trees within the framework of the CDM mechanism. They involved the village government and other actors just for social contacts; this means the material agreement was determined only by the State Forest Company and the private forest company. Involving the village government and other actors by the private forest company and the Bromo National Park was only to ensure legitimacy from the village leaders to avoid rejection by the elites, youth leaders, and NGOs, and in order to easily recruit labour among villagers for planting and security. The same pattern was used by the private forest company to gain access to community forests through partnership programmes. They negotiated directly with the villagers via forest farmer groups who had private forests to be developed into forest production, especially sengon (*Albizia Falcataria*). In the pertinent interview conducted with the private forest company leaders, they stated that involving too many actors, particularly the elites and NGOs, was not efficient in terms of time and cost.

Another bilateral relationship is between the State Forest Company and Forest Farmer Groups (Kelompok Tani Hutan/KTH) in the Community Based Forest Management (CBFM) which has been adopted by the State Forest Company in the last ten years (MOF, 2007). This programme was formerly called PMDHT launched in 1985 by the State Forest Company in 13 social forestry projects on Java's public lands. The farmers contributed to planting timber tree species as the main commodity and other plants such as fruit trees and horticultural crops in between the timber trees, a method called intercropping system or "Taungya" or "tumpang sari" in Indonesian. This policy was taken to decrease forest disturbance due to the increasing illegal logging activities at the early time of the Reform era by villagers and outsiders. Involving villagers in forest management was believed to directly reduce the levels of forest disturbance. In addition, in this programme, villagers also had economic advantages because they could access the land for agriculture even though just temporarily. Although it received much criticism from the local governments and Bromo National Park officers, this programme is still being offered by the State Forest Company today because it is an effective strategy to protect forests and to get cheap labour from villages near forests. As described in the previous chapter, the contribution of such a programme to company revenues increased sharply and reduced forest damages because it gave an alternative source

of income to local people, particularly the poor, who lived in the forest margins and depended directly on forest products. Those benefits both for the State Forest Company and local people encouraged this company to extend the CBFM programme to all the State Forest Company areas and along with the process, the spacing between the timber trees was increased. Such strategies provided higher benefits to farmers as well as to the State Forest Company since they could increase both the areas of lands available to farmers for non-timber crops and the revenue share for State Forest Company.

The State Forest Company formally conducted dialogues with the community facilitated by the village administration to attract the villagers who had interest in CBFM. Participation in the PHBM programme occurred through a series of discussions involving the local community, represented by LMDH, NGOs, local government and the State Forest Company in which the village leaders invited prospective participants who matched the criteria set by the State Forest Company, often choosing some participants on the basis of their own subjective reasons. The corresponding interview revealed that some of the criteria applied in the programme were not in accordance with the needs of the local people because only the villagers who lived close to forest margins were allowed to join such a scheme. For this reason, village leaders often included farmers from the outside forest margin to distribute resources more fairly while in some cases they prioritized their relatives or did it on the basis of some political considerations. On the other hand, most of the other actors, though they were involved in the process, only gave suggestions since there were no possibilities to change the programme procedures because these were actually set and fixed beforehand at the State Forest Company level. The series of discussions claimed as participation was only an activity to get social legitimacy for implementing such a programme. The State Forest Company's purpose, as a matter of fact, was the formation of KTHs and the introduction of the system's rules of the game, particularly the procedure concerning how to manage the specific areas of a programme called lap compartments located within the State Forest Company to be distributed to the farmers (Djayanti, 2006:70-71).

A. CBFM programme in Pusung Tutup-Wanakitri



B. The jungle of towers in Mount Pananjakan-Wanakitri



Figure 19: Bilateral relationship based resources governance

Not only are certain areas of the Upland Bromo suitable for timber products and agricultural land, but they are also compatible for transmitting communication signals so that many towers were built by several telecommunication companies especially at Panajakan. In the past, communication towers were allowed in the conservation area just for military purposes. Today there are more than twenty towers, three hundreds antennas and fifty repeaters that have been built at Panajakan (also main vantage point for tourists) for television, radio, telephone and communication companies since the 1970s. The widespread existence of cellular phones has caused many companies to build numerous towers that in turn very much disturb nature conservation activities. Not only are they used by amateur radios, but also by major mobile operators such as PT. Telkom, PT. Indosat, and some CDMA-based cellular operators. Although they are not only used for military communication anymore but also for business purposes, none of the heads of Bromo National Park dare to dismantle them (the towers and antennas). Most of the respondents in those areas mentioned that most of the operators associated with military businesses have “connections” with persons in the Ministry of Forestry. Indeed, there is no strong evidence for it but in 2007, when one of the heads of the National Park tried to calculate and rearrange the function of the area for conservation purposes, he was not successful. He was finally seconded as head of another national park before his efforts to manage the existence of the towers and antennas worked.

Another institutional relationship is the managing of the infrastructure, particularly the roads in the Upland Bromo forest created by the State Forest Company and the Bromo National Park for the security and transportation of forest products. Building a road that connects forest circuits in hilly areas is extremely difficult so that the two institutions often cooperate. They also perform the maintenance of the roads during the rainy season, because hilly areas are prone to landslides. On several occasions they are also on patrol together to safeguard forest areas prone to illegal logging. Therefore, it is not only the State Forest Company, the private forest company and the telecommunication companies who get profits from Upland Bromo, the district and village governments whose territory becomes a tourist destination also have their share. The village government is allowed by the National Park to collect some money from tourists as well as from the district government. In the past, each party had to open its own booth, so that it was uncomfortable for tourists. A number of complaints from tourists encouraged the park managers to unite all the booths in one place run by the National Park, an arrangement put in place in 2008. At the same time, the village government was allowed to charge hotels and restaurants located in the village area a contribution to the village treasury.

Economic institutions such as restaurants, hotels, handicraft shops, banks, and other tourist services were granted access to the intensively used areas also through bilateral agreements. They negotiated with the Bromo National Park access to particular locations perfect for opening a business, especially in areas directly facing the Bromo mountain scenery. Most of them accessed the areas in a manner similar to the one practiced at the times of the New Order era when corruption and collusion was massive, and this means that people who have capital and a close relationship with the central government can get concessions easily. Currently, no fewer than four big hotels are located in the National Park and placed in direct proximity to the Bromo crater. The forestry statistic of 2009 showed that there was no record of income for the Bromo National Park from various business services. The result of the interview with the local people indicated that it was almost impossible to say that the officers of the park did not get any benefit from their presence. On the National Park side, they only stated that the presence of such a business had existed long before they took charge of the management of the area so that they did not know the mechanism as to how the agreements had come to pass, even though most of the hotels are directly facing the Bromo crater which is against the formal law.

6.3.3 Personal Relationship based Resources Governance

Natural resource management in the Upland Bromo is regulated not only through formal village meetings and agreements among institutions in multi or bilateral ways, but also through individual agreements between the owners and parties that utilize the resources. This is the case primarily in Ngadas and Wanakitri to access forest products and economic activities related to tourism and very restrictively in

Ngadisari. The agreement that applies only to resources that have economic value is relatively low in worth and does not endanger the environment such as the collection of grass, flowers, mushrooms, seeds and dried branches for firewood. This type of resources governance occurs in the National Park and state forests to deal with the customary rights of the local people that still apply, particularly when the products used are for ceremonial or household consumption. Such a type of access to forest products is rather based on traditional practices than formal agreements. It is also supported by the habits of the people of Upland Bromo who have no tradition to plant grass as the lowland farmers do for their cattle and horses so that they could collect grass from forests near their villages. The same thing happens with regard to their habits of collecting dry firewood for household consumption such as cooking meals and heating rooms. Although most villagers have private forests, many of them still access the National Park or state forest to secure their stock, especially in the rainy season. Some of them even buy firewood for storage, especially those who have no private forest and are rich farmers.

BOX 6.2 Ignoring Formal Law to Avoid Conflict with Local People

Reang Loro's family (male respondent number 2), who belong to the poor living in Ngadas, collects firewood and grass every day to be sold to other villagers as the main source of livelihood. He collects two bunches of fuel wood and one large sack of grass daily to be sold to his neighbours to whom he sells each for twenty and fifteen thousand rupiahs. The park officers tolerate such activities even though they are banned by formal regulation. They do it to gain legitimacy from the local people and to prove that they still respect the poor. He only has one thousand square meters of land on the eastern side of the hill exposed directly to the devastating wind during the rainy season and to sunlight during the drought season so that it is not profitable for agriculture. Therefore, Reang Loro's family only plants cabbage that yields no high economic benefit just twice in one year. Normally, he can plant three times if the position of the field is on the western side of the hill because in such a position the land still has water during the drought season and is off the wind. In the case of Reang Loro's family, the way that can be utilized to sustain his livelihood must be integrated with the exploitation of forest products though this has been much restricted by the park officers lately. The local community recognizes that Reang Loro has the right and must be allowed to benefit from forest products so that forest officers have a dilemma to enforce the law. A local farmer said the following.

"We recognize that Reang Loro must be allowed to access the forest particularly for collecting fuel wood and grass both for selling and consumption. He is very poor and has no alternative for his livelihood. If he is banned, let alone arrested, we would not hesitate to contest it in the village meeting."

The forest officers' opinion is:

"We actually have the right to arrest the firewood seekers including Reang Loro. As long as he is not too detrimental to the forest and uses it for his own consumption, we would rather leave him alone than conflict with local residents because we are considered inhumane."

Personal relationships with the forest officers can also be used to access resources from the tourist industry. In Wanakitri, where the tourist industry is not so dominant, the villagers can take advantage of the proximity to forest officers to have direct access to economic opportunities without having to join the association. The villagers can become food sellers, local guides, flower sellers, photo makers, or motorcycle taxi drivers with permission from the Bromo National Park officers. Many peddlers are allowed to sell their wares as well in circuits where economic activities should not be allowed because the number of visitors is low. Park officers will allow them to enter the park if they do not disturb the visitors. Additionally, they serve not only the visitors but also the farmers who are working around the National Park. Policies that allow traders to enter some tourist areas are used by the park officers to maintain security and cleanliness.

A. Collecting flowers for tourists in Wanakitri



B. Collecting grass for livestock in Ngadas



Figure 20: Personal relationship based resources governance

The villagers have the obligation to clean the surrounding areas and keep the tourist facilities that are not damaged by visitors. They are also required to do voluntary work cleaning some areas and improving damaged facilities if requested by the park officers. Moreover, they do not charge the park officers and the village government an additional amount of money for their work as it is done in Ngadisari. As to sanctions, the park officers will directly confront the persons who violate the agreement since the relationship between the National Park and villagers is based on personal relationships. Very rarely do the park officers arrest villagers for minor offences such as picking edelweiss flowers, approaching tourists, hunting, or picking a wet twig. They usually warn the villagers of first and second infractions. They will ask them to plant trees for one or two weeks or to pay a fine if they ignore the warning. Only in case of huge infractions such as cutting down many trees or burning large amounts of charcoal in the preservation area will the offenders be arrested and taken to the police.

7. Adaptation and Typology of Rural Households Strategies and Sustainability of the New Local Resources Governance

7.1 Adaptation Strategies

7.1.1 Involvement in Multi-institutionally Based Resources Governance

Members of Tourism Association

Access to tourism industries after the commercialization of the National Park and State Forest Company supported by the central government to maximize the revenues to meet the state budget during the economic crisis in 1998 has been very difficult for the poor. Non timber products, particularly the tourist sector that had previously become an alternative livelihood of the villagers in Ngadisari and Wanakitri, have been exploited more commercially by the National Park and the State Forest Company. To provide a more comfortable situation for tourists, the National Park has limited the access of villagers to sell foods, crafts, flowers, to rent motorcycles and horses and to become local guides. Additionally, the National Park via the village administration has also charged them some additional money as contribution to the village treasury as well as a contribution to the National Park officers. To support those ventures, National Park officers, particularly in Ngadisari as main

destination of tourists, has forced villagers who want to access tourism industries to get involved in an association, locally called “Paguyuban”, consisting of the horse owner association, food and craft seller association, and jeep driver association. To regulate the rights and obligations of all actors freely and democratically, the National Park and village government have offered to hold village meetings as a forum.

In the village meeting, the National Park officers will present their planning in managing the park, particularly those activities related to tourism such as jeep, horse and motorcycle taxi renting as well as the settlement of parking and food traders. In that meeting all the people who have access to the tourist sector must join a certain association to simplify the communication process. The fact that involving villagers in an association makes it easier for the National Park as well as the village administration to control their activities and to collect unofficially levied money is apparent. It also facilitates communication between the National Park and villagers so that the dissemination of information related to the management of tourism-related activities can become more efficient. Besides, it is also able to reconcile internal conflicts between members that often occur, which can reduce the burden of the National Park. If there is any member who violates the agreement, he will get a warning from the association so that a direct conflict between the National Park and the farmers can be avoided. The village leader and the National Park officers are even able to mobilize the associations to work in service projects such as repairing the road in the National Park area, collecting garbage or just giving a free ride to their guests.

According to the village meeting regulation, it is only the members of the associations who are allowed to have access to tourism activities, particularly in Ngadisari and Wanakitri. It is very strictly implemented in Ngadisari, which is the reason why villagers cannot access tourism activities at will and without membership in one of the associations. The interview result with food sellers surrounding Ngadisari reveals that it was very difficult for new sellers to enter the tourist sector without membership in an association. The association also has concluded an agreement to limit the number of sellers who have the operation area surrounding the main tourism destination, particularly the Cemoro Lawang area and the sandy beaches in the seaside area. They often protest because of the National Park officers when they drive them away from the area because they have no membership in a tourism association. It is very difficult for sellers to displace other sellers because they are also Ngadisari inhabitants or from the villages nearby.

The members of the motor cycle taxi and jeep associations will forbid other drivers to offer jeeps for rent directly to tourists in the tourist areas without consent from the National Park officers. This regulation is applied very strictly to outsiders though they have personal relationships with the National Park officers or village leaders. The association holds a monthly meeting to discuss its planning related to its relationship with the National Park and village administration. Without coordination with the National Park officers, they can independently repair roads in the National Park, particularly for the jeep lanes on which they usually take tourists. This

association also has a bargaining position with the National Park and village administration because it contributes more money than other associations do. The jeep association also has a large amount of cash money that comes from the membership fee contribution that is nearly as much as two hundred thousand rupiahs every month for every member and one and a half million rupiahs for each new member. It is relatively independent from the National Park and village leaders. For instance, the jeep association repaired on their own initiative the road in the Pananjakan area that had been damaged by heavy rain in November 23, 2009 without any contribution from the National Park officials. The association charged its members twenty thousand rupiahs each to buy the cement and pay the labourers.

BOX: 7.1 Restricted Access of Local Residents Selling Food by the Food Merchants Association

Ingsun Loro (female respondent number 2), 56 years old, sold snacks such as bananas, tofu and sweet potato fries on a vacation location last October 1999. Although she was only selling food in just small quantities, other traders protested and also the food she was selling was questioned by the trade association. When many traders defamed her, she argued that she only sold a little food with little profit and she just joined her relative, Ingsun Telu (female respondent number 3), who happened to have a membership in the association. She sold food just for two weeks after the officers raised her case through a report to the other traders. She eventually traded outside the tourist area although it was not so profitable because buyers were very rare. When she was interviewed, she said the following.

“Not only the members of the house of representatives who have squabbled to gain access to money but also me, ordinary people. Almost the same, all people only want to secure their lives and to ignore the others”.

To attract buyers, she usually charged a lower price and sold various kinds of snacks. In case her goods were not sold, she travelled home to sell them directly to avoid more losses. After this case, there has never been any further RPH from Ngadisari selling food in the area surrounding tourist attraction areas.

For the poor, selling food is the only benefit from the tourist sector that can be accessed easily because it does not need much capital and any specific skill like motorcycle taxi and horse renting or becoming local guides. The access limitation imposed by the association and supported by the village leaders and the National Park officers has been a great blow for the RPH's alternative livelihoods, particularly in Ngadisari where other opportunities such as exploiting forest margins have been strongly limited. At the same time, working as farming labourer as a means to earn an alternative income has also been invaded by the workers from outside the village who are willing to be earn less. As a result, some of the RPHs in Ngadisari finally sell flowers or handicrafts or work as farming wage labourers for increasingly lower wages because too many people are involved in those activities.

This situation is profitable for the members of the association because they can limit the number of sellers which means reducing the number of competitors but it makes it more difficult for the new traders, particularly for the poor, who also want to access the market. It has also been very difficult for other RPHs to become new members of the seller association because they can later replace their membership permanently or temporarily by another as an alternative. The fact is that one person may have many memberships at the same time and be member of the jeep, motorcycle taxi, and trader associations. It is the case with people who have worked in the tourist area long before the associations were founded or have a good relationship with the village leaders or the National Park officers. They can swap memberships with an additional charge that is not so much. For a certain membership such as that of the jeep or motorcycle taxi association someone who wants to replace membership to it must pay an additional charge to the association treasury. Normally, for the new membership, people can spend two million rupiahs for a jeep membership and five hundred thousand rupiahs for the horse association. Thus, it is nearly impossible for the poor to assemble so much money.

In Wanakitri, membership in a certain association is only needed for jeep drivers and owners who have their operation area in Wanakitri and food sellers who have their operation area in Pananjakan. Other professions such as flower sellers, local guides and motorcycle taxi drivers, do not need membership in a particular association. People who want to become sellers just need a recommendation from the senior sellers and generally most of the senior sellers accept them as long as they are inhabitants of Wanakitri. The limited number of economic activities which can be accessed through the associations is attributable to the fact that the tourists who travel via Wanakitri are relatively fewer than those who come through Ngadisari. Differently than in Ngadisari, in Wanaktri it is only Wanakitri inhabitants who can access tourism activities, particularly by becoming food sellers and local guides. Therefore, in Wanakitri the poor can access the benefits from tourism without any competition with people from outside the village. The competitors if any are only meatball “Bakso” sellers for whom the tourist sector offers profitable activities. The meatball sellers in the view of the local people are the pioneers who have triggered economic benefits in the tourist area. They have been selling meatballs since 1980s when there was no one who realized that the tourist area would become profitable in the future. The villagers also consider the meatball sellers as their inspiration to enter tourism-related business. As known, most of the villagers in the Upland Bromo are farmers who consider trading as a bad profession because they suspect that traders have the habit of deceiving customers.

A. Local guides waiting for tourists near a National Park check point in Wanakitri

B. Local people sell food in mount Bromo area



Figure 21: Economic activities related to tourism

In Ngadas, the economic benefits yielded by tourism are very limited because its position is quite far from the famous tourist destinations. In the last three years, investors from Malang have been opening villas for tourism but without success in the sense of making a substantial contribution to the village economy. The occupancy of villas is very low so that local people have not got any significant benefit from it yet. One of the potential tourist attractions is trekking to Semeru Mountain. Trekking activities are not a continuous activity as in other areas so that the economic benefit of it is very limited for local people. Only three to four people work as local guides for trekkers in Ngadas. They generally accompany guests for only eight to ten times in one year with two hundred thousand rupiah salary for every trekking. Most of the trekkers prefer starting the climbing journey from Ranu Pane village as the nearest village to the peak of Semeru than from Ngadas because in this village the National Park officers have checkpoints to examine and control the entire trekkers' equipment. The local guides from Ngadas get customers just through their friends who own travel agencies in Malang. Therefore, tourism in Ngadas makes only a small contribution to the local economy as well as RPHs so that the local guide association does not so much control their activities.

Research on the three villages found that abundant resources emanating from tourism-related activities are inherent in the tightening of regulations as to who will get access. In Ngadisari as a main destination of tourists, every access is determined by the association so that the poor have no discretion to utilize resources. There is no free market mechanism in this village regarding the management of resources. The influence of the National Park officers and village leaders is very dominant in shaping the supply and demand of traders who can enter the tourist area. In Wanakitri, where tourism resources are abundant, the association as a medium of the

National Park and village leaders controls the villagers in order to sure they only work as jeep drivers and food sellers in certain areas. Everyone, including the poor, can easily access tourism-related economic benefits without any restrictions from the National Park or village administration. In Ngadas, there exists no association due to the limited number of tourists who come to visit.

Members of the Water Consumer Association

Another resource which must be regulated in the village meeting is the distribution of water both for drinking and irrigating land. As is widely known, water is an important resource but very scarce in Upland Bromo particularly in Ngadisari, Ngadas, and Wanakitri. Ngadisari has three main water sources and the water is distributed to three villages, namely Ngadisari itself, Njetak, and Wonotoro. In Wanakitri, despite its four available water sources, the villagers still fear the decrease of the amount of water in the dry season due to its diminution in some of the major water sources in recent years, particularly those that have been tapped in the state forest controlled by the State Forest Company. Although there is enough water for all the villagers, according to the manager of the water organization, the volume has been diminishing in the last ten years because of the deforestation taking place around the surrounding water sources. To avoid conflicts, village leaders have shifted the water management from individual access to a more organized institution established through the village meeting.

- A. Rich farmers can pipe water for their farming in Wanakitri B. A poor household has no water tap in Ngadisari



Figure 22: Poor families not members of the association should take their own water

In the agreement, the villagers can access water services if they are members of the water customer organization and active in the village voluntary activities. On the other hand, the management of water distribution is done by working groups, the members of which are selected via the annual village meeting. These working groups manage the pipelines, water reservoirs, and the installation of new pipelines

for customers. As known, the villagers have to spend some amount of money in order to be able to pump the water into their houses directly. Therefore, of the thirty families interviewed, there are only two families that channel water into their houses because they have been members of the water user association since the first time the water flowed through the pipes. For the new members, including the poor, to pipe water into their houses, they are required to pay between five hundred thousand to one and a half million rupiahs, depending on how far their houses are from the water distribution stations. The result of the interview conducted shows that even if charged the lowest rate, the cost is still too high for the poor to afford, whose income is just about ten to fifty thousand rupiahs a day. So the poor who cannot pipe water directly make use of public taps installed in every neighbourhood unit, the “Rukun Tetangga” or RT. Sometimes they must bring water from taps located more than a half kilometre away on an uphill road, in particular the RPHs whose houses are far from the public taps.

BOX 7.2 No Pipes for the Poor

Reang Songo (male respondent number 9), 37 years old, living in Wanakitri, must walk six hundred metres for a gallon of water every day in the morning and afternoon. This job has become heavier since he has to provide drinking water for pigs or cows. It is different from the households whose houses already have pipes because they will just be charged some amount of money monthly for the maintenance of drinking water pipelines. Although the working groups have earned much criticism from the poor concerning the cost of pipelining water, it was decided in the village meeting that the cost shall remain high and even be increased every year. Reang Songo said the following.

“Actually, water is abundant for all the villagers. I can easily take it from the public taps but far from my house. We need more than 750 thousand rupiahs (75 dollars) to pipe water. Normally the committee only needs 100 thousand rupiahs for creating a new tap for me. They say that we did not contribute to building up water storage and channelling water from the forest in the past so they charge me more for that reason. Therefore, it is impossible for me to channel water today!”

For the village administration, particularly the village leaders, water is one of the sources of power to control the villagers as well as the poor. In Ngadisari, for example, the village leaders will cut the water access and refuse to handle any request for administrative services if they are not active in voluntary working activities assigned by the village administration such as repairing roads, bridges, sanitation, preparing village ceremonies, and so on. In case of serious infraction, such as absence from a village ceremony, village leaders will always cut water access. In Ngadas, village leaders, according to the village meeting agreement, cut access to water for eight families who had refused to contribute the requested amount of money for an annual village ceremony called “Karo”. They refused to contribute because it was against their religious beliefs. In the village secretary’s opinion, the village admin-

istration made such a decision because these families did not convey their objection in the village meeting appropriately so that all the villagers could understand it.

Members of Village Working Groups

In the village meeting, particularly in Ngadisari and Wanakitri, RPHs can be involved in several committees, namely parking management committee, management committee for tourist fees, ticket management committee for horses and jeeps, and anti-poverty programmes. In the past, before the Decentralization era, the government determined all the rules concerning the committee members to make sure central government via the village leaders had the absolute control over them. Today, as a member of a committee, an RPH can express its aspirations and get some additional amount of money, i.e. ten thousand to twenty thousand rupiahs per day depending on the money collected. In the peak season such as Kasada, Christmas and New Year and Iedulfitri, they get more than thirty thousand rupiahs every day and money for eating once a day for five thousand rupiahs. Actually, through the village meeting, RPHs get priority to handle a committee even if those activities are interrupted. They are usually in charge of managing the parking of motorcycles and cars to help the registrar. In the past, only people who had a close relationship with the village leaders could access those jobs. In the Reform era, through the village meeting forum local wisdom can be exploited to provide opportunities for the poor though they have just become manual workers.

In Ngadisari, to collect money from ticketing jeeps, the cooperative makes use of the village security guards consisting of more than fifteen RPHs as members. The cooperative retains ten per cent of the ticket price for the meal allowance of five thousand rupiahs per person, five per cent for the village treasury, and the rest is distributed to all the members on duty at the time. The result of the interview conducted shows that with some security guards in charge, the members of village administrations and the National Park officers get some amount of money too but this is not an issue revealed to the public. Together with the cooperative board, they take money from the five per cent allocated for the village treasury. Although there is no adequate evidence of these dealings, it has become common knowledge among the villagers that the management of tourism activities only gives profits to the village administration members and National Park officers.

Another opportunity that can be accessed by RPHs is membership in the parking committee. In Ngadisari, there are nine RPHs involved in the parking committee every day in centres of tourism activities such as seaside beaches, hotel yards, and small car terminals at the entrance to the National Park. The Committee works under the control of the village cooperatives in coordination with the National Park officers and village heads. The result of the interviews conducted with the members of committee indicates that they can collect more than thirty thousand rupiahs every day and fifty thousand rupiahs during the peak season. Differently from the ticketing jeep committee that uses percentages for the profit distribution, the parking

committee uses deposits between three hundred thousand to five hundred thousand rupiahs per day depending on the number of visitors so that they have more discretion to manage the money.

Apart from the business of parking and ticketing jeeps, the village meeting in Ngadisari has also decided to manage tourist fees for the village treasury on the grounds that all tourist activities use the village facilities so that they must contribute to rural development. Before 2009, the decision did not involve the National Park officers so that hidden conflicts took place between the parties because of their exclusion. The village leaders then established a working group consisting of young people to open the ticket post outside the park at the entrance of the village. The action of the village leaders received protests from the National Park because it was considered disturbing for the tourists' comfort. Through some processes of negotiation it was agreed to unify the entire National Park entrance fees in one post managed by the National Park officers. The agreement was very detrimental to the working group but beneficial to the village head and his staff because their incomes did not need to be cut for the working group.

As members of the committee of the poverty alleviation programme, the poor can access some resources easily such as rice, cash money from net safety programmes (*BLT-Bantuan Langsung Tunai*) as well as health services and education for their children both as a poor household and committee members. Together with other resources, the committee members for the anti-poverty programme are elected in the village meeting though the village leaders control the process by introducing their candidates as prospective committee members so that the villagers do not dare to refuse them. In case of programmes that have clear regulations and are supported with the assistance from *Gerdu Taskin* and PPK, the village leaders tend to relinquish power. Differently from the programmes offered by the New Order government, the PKK or family planning programme (KB), PPK and other programmes offer relatively more opportunities to the poor to participate in the decision-making process.

Box 7.3 People Deft: Strategies Attract Sympathy of the Elites and Win the Colleagues' Trust

Reang Sepuluh (male respondent number 10), thirty years old, is very active in the village activities such as the youth association, sports groups, and several leadership training courses organized by the government party. He is always chosen by the head of the village to be the coordinator of the several ceremonial activities as well as for the distribution of the government cash transfers programme and other poverty alleviation programmes since he is 20 years old. He is also a member of the parking committee and water distributor. This answers why he can pipe water, a service normally difficult to obtain for poor people like him. His position enables him to always earn an additional income not only in form of goods as a gift from village leaders, but also money from such activities. He is poor and has three children and a piece of land for agriculture. For that reason village leaders have legitimacy to involve him in the many activities related to the village administration. He is not only honest but also has low political ambitions and is faithful to village leaders so that all the elites tend to accept him as their coordinator. He told the following.

"Whatever my position in the village committee is, I would accept it because it is the only way for me to gain additional money and goods. I am poor, but I work to serve society so that I have the right to get benefits from it provided that it is reasonable."

For several people he is considered as an opportunist due to his full support to village leaders and other elites. In the logic of the household strategies concept, it is a very rational behaviour as resources are controlled by elites and village leaders. In the interview, he said that he actually did not agree with all the elites and village leaders who always make use of people as legitimacy for bargaining with the National Park side and the municipal government.

As previously explained, in the last ten years, the village meeting as a medium where actors have the opportunity to express their interests concerning water supply mechanisms, has no longer been dominated by the village leaders. Also the committees have no longer been dominated by the village leader families and relatives, therefore, the poor have more opportunities, particularly in the anti-poverty programmes. In the committee for parking or jeep renting, the RPHs dominate with more than fifteen people involved. Clear rules and guidance offered by the new administration concerning resources management determine the village decision-making process which was previously dominated by the village head. However, new actors such as the jeep association that is dominated by rich people and has adequate financial support have become powerful and can influence the village decision-making process. At the same time, National Park officers and village leaders have created the policy to support the commercialization of the park, which only opens up more opportunities for corruption. As a result, the poor only access resources with low advantage due to their lack of skills and economic assets.

7.1.2 Involved in Bilateral Institutionally Based Resources Governance

Bilateral institutional relationship based resources governance is a resources governance system created by the relationship between poor households who are incorporated in a certain organization and other actors, particularly the State Forest Company, private forest companies, and national parks. This sub-chapter elaborates on the partnership between RPHs and the State Forest Company through Community Based Forest Management (CBRM/PHBM). This system does not involve many institutions like those in the previous sub-chapter because the resources to be managed are not common goods so that resource owners can independently decide on certain management systems more profitable for them. In the past, this programme became a medium for the central government to mobilize the people to support Golkar as the ruling party so that although it could be offered only to the villagers and the State Forest Company, the central government broadened the number of members of the committee to include many actors namely the village leaders and elites, the local government, even the police department and the military. After the Reform era began, the State Forest Companies and other actors have excluded irrelevant actors such as police and military departments as well as the village leaders that previously functioned as the central government apparatus so that they could create partnerships directly.

PHBM is the recent programme provided by the State Forest Company that is claimed as a company initiative to increase villagers' participation in the forest management as a part of *Corporate Social Responsibility*. During the New Order era, this programme was called PMDH (*Pembinaan Masyarakat Desa Hutan*) and was characterized by its top-down approach mechanism with the assistance from the Ford Foundation since 1982. Djajanti (2006) mentioned that PHBM is intended to guide forest resource management in a way that improves community welfare, its quality of life and its economic and social capacities. To implement this guidance, multi-stakeholder meetings are held to allow the flow of different interests by coordinating their role and responsibility concerning forest resource management in order to increase the quality of forest resources, forest productivity, and forest security and to form an adjustable forest resource management that can suit the social dynamics of the local community around the forest (Djajanti, 2006).

In the transitional period of 1998, the programme was replaced by LM3 (*Lembaga Mandiri yang Mengakar pada Masyarakat*), an independent institution that was rooted in the community and which opened more opportunities for the people to participate than PMDH where the Ford Foundation still acted as a partner. After the consolidation of the company in 2001 to adjust the business, environmental changes, and the political situation, the State Forest Company conducted a PHBM programme in which LM3 and other programmes concerning rural communities were repacked. This programme was called "Kontrak" by the local people referring to a set of activities to temporarily clear forests for agriculture for the poor, and the poor were obliged to plant trees as main plants. In the village research, this pro-

gramme is located in Wanakitri in the three main regions namely *Pusung Tutup* hill, *Pusung Ompen* hill, and *Pusung Lemah Mendek* hill.

Those three regions normally constitute the conservation area because they have steep slopes highly vulnerable to landslides during the rainy season. In the Pusung Open region, for example, the villagers plant potatoes in fields with more than forty-five degree slope. Although it has received much criticism from NGOs and the National Park officers, the State Forest Company still implements this programme and it even wants to open up forests in other areas. It harms the National Park because those areas are bordered by public forests so that villagers can access to National Park forest easily. For the National Park officers, it is very difficult to control the villagers' activities due to the agreement written in the *Kontrak* system allowing them to access fuel wood from the forest with the permission from the State Forest Company officers.

In Wanakitri, there are twenty out of fifty RPHs involved in this programme in which every household has an average of half a hectare of land. To get access to the PHBM programme, they must join the Forest Farmer Organization (KTH) as a formal institution that accommodates their interests. KTH is not very productive to stimulate the villagers' participation because there is no serious effort to raise its quality. The existence of KTH is just a formality of the programme so that participation is only an idea or a discourse of the programme but does not take place in reality or on the ground. The PHBM guidance is still the product of the previous government that applied it as a conventional tool, even though it was called a participatory approach, with which it was very difficult to democratize the relationship between the State Forest Company and villagers. Nomura (2008) reported that the PHBM programme was facing a backlash from the remaining representatives of the old authoritarian state, who demanded a state-created participatory forestry scheme. It was a consequence of legal uncertainty and conventional political culture persisting at the local and national levels, and state actors were able to produce outcomes contrary to local regulations (Nomura, 2008).

Box 7.4 Maintaining Involvement in the Project to Gain Access to the Forest

Reang Sewelas's family (male respondent number 11) has one hectare of forest land, within the framework of a concession made in 1994 also to other forty seven RPHs from Wanakitri village. For five years Reang Sewelas has planted potatoes and onions with unsatisfactory results and has even been in risk of loosing the crops in the last two years. Additionally, the family is forced to plant trees in the forest at any time especially in the rainy season in accordance with the command of the State Forest Company officers. Sometimes he has to spend up to two to three weeks to catch the right time to plant trees for free. Although these activities are not economically profitable, he retains the concession because he needs the firewood that can only be obtained from the field or the surrounding forest. If he lets go of the concession, he has no longer the right to collect firewood, so that for that reason he still holds on. The same is done by some other members of the RPHs. They still join the CBFM programme though it adds no benefit to increase the agricultural production. As it is known, firewood is the main energy resource besides charcoal and Liquefied Petroleum Gas (LPG) for cooking food and heating buildings in the Upland Bromo. Therefore, the membership in the KTH is the only strategy for poor households to maintain their right to access state forest products legally.

“Actually I have no benefit from the Kontrak programme because the soil is very poor so that potatoes and onions cannot grow easily. I have just planted corn and cabbage needing less money for planting to convince the authorities that I was serious about it. As a member of the CBFM programme, I am allowed to access forest for fuel wood.”

At the local level, the PHBM programme has faced many distortions from the original idea of a participatory scheme to maintain the sustainability of local resources management as well as to improve local people's welfare. The fact was that the relationships seemed to be like those between landlords and tenants where there was no productive communication regarding forest conservation. Normally, each farmer can grow seeds in these areas for two or three years while waiting for the principal crop canopy to cover the ground. The villagers still planted cash crops for almost six years since the forest had been opened by the State Forest Company, although the principal crop was quite large. High production of cash crops encourages the farmers to keep the land by giving bribes to the State Forest Company officers during harvest and at the end of the year. This practice became known to all the villagers so that it decreased their respect to the State Forest Company officers. According to several respondents, they wanted the access to forest margins not only for additional agricultural land but to gain free access also for fuel wood. In the *Kontrak* system agreement, members of the forest farmer organization allowed to take fuel wood found in their land as well as in certain forest margins with the permission of the State Forest Company officers. This right was exploited by the villagers to fool the National Park and State Forest Company officers when they brought fuel wood to pass through the checkpoint. Although the State Forest Company officers knew

that practice, they tended to allow it because they required free labour for planting trees and building infrastructure.

This finding indicates that the decentralization has no impact on the patterns of the local resources management, particularly the bilateral relationship between the State Forest Company and the villagers within the PHBM programme though this scheme has been claimed by the government to be based on participatory principles. PHBM is a medium for the State Forest Company officers to recruit cheap or even free labourers to support company activities such as planting and harvesting trees, building and repairing infrastructure as well as keeping timber thieves away from the forest margins. As compensation, the members of KTH were allowed to collect fuel wood and certain forest products surrounding their land concessions. This right has been abused by the villagers who collect fuel wood not only in their lands but also in the National Park area. It happens because of the lack of control from the State Forest Company and the National Park officers. The State Forest Company officers seem to let these deviant activities go unpunished to maintain their good relationships with the farmers so that they act only in severe cases brought to their attention, in particular by the public. In conclusion, the decentralization of power from central government to local actors does not improve the governance of natural resources because in reality each actor exploits the resources very aggressively with very weak supervision.

7.1.3 Involved in Personally Based Resources Governance

Personal Right to Access Forest Margins

Forest margins for the poor in the Upland Bromo are important to provide goods not only for their everyday lives such as firewood, grass, and other forest products but also stock for food and sources of income. Almost all the respondents have access to forest margins and more than twenty households make use of them for income generation such as burning charcoal, selling fire wood, flowers, grass, mushrooms, and wild mustard seeds. Ngadisari, an area with very limited resources, has the least number of people who can access the forest margins when compared with Wanakitri and Ngadas. In Ngadas, where the resources are still abundant, all the RPHs get access to forest margins for their own consumption as well as for sale. These data are inherent with the tendency of the villages with limited resources where institutionally based relationships are more dominant than personal relationships. As a consequence, to access resources, actors are engaged relatively more closely to associations or organizations than to personal relationships.

Table 11: Number of RPHs Accessing Forest Products

| Villages | RPH Consumption | Selling | Did Not Access |
|-----------|-----------------|---------|----------------|
| Ngadisari | 20 | 9 | 10 |
| Wanakitri | 27 | 15 | 3 |
| Ngadas | 30 | 21 | 0 |

Sources: Personally Collected Data (N=30)

In the villages, some officers of both the National Park and the State Forest Company are local people so that they have close relationships with some RPHs, as neighbours, friends, or relatives. As neighbours and/or relatives, they face difficulties in separating their roles, i.e. as forest officers and as neighbours. According to local custom, everyone must give the opportunities to the people to maintain their livelihood including access to forest margins even though it contradicts the principles of nature conservation. In the local people's perception, forests are the main resources available to all people and serve as strategic resources, in particular water, which means that everyone must conserve them and even have many ceremonial activities to express those beliefs. At the same time, forests are also an economic commodity that can be exploited, particularly by people who have limited land as an alternative source of income. The people who go to the forests for their livelihoods, in the local people's perception, are also considered as belonging to the poor because only people who have no alternative do that. The term "Ngalas" refers to people's activities of collecting products from forests and *Ngalas* is not only hard for some people but also bears many risks with regard to sanctions from the forest officers. As persons involved in the local customs, forest officers have many conflicting roles in their tasks so that they tend to compromise with the villagers' interests and not fully comply with their formal tasks as forest officers in order to meet the demands of the local customs. To also fulfil the goals of their formal task, i.e. "saving the National Park forest and its resources without reserve", they have created an agreement stating that the villagers can access specific forest products in certain forest areas.

Personal access to forest margins has many constraints and needs relatively more power and time because the forest adjacent to their homes can no longer be exploited, so that they must go farther into the forest which entails heavy work. Additionally, they must travel longer than they do in normal conditions to avoid tourist tracks and regular park patrols. Although they are informally allowed to take firewood, forest officers always tell them to avoid the official patrols to maintain the authority of the officers. If they ignore the agreement and are arrested, the officers

will release them just after the interrogation. Usually they only get a reprimand with no other sanctions so that farmers often ignore the agreement particularly in the Ngadas village where the forest resources are still abundant and the number of tourists is very minimal.

The resources which are accessed by RPHs are not very harmful for conservation because the forest officers are not willing to bear high risks by letting severe damage take place. The access by the RPHs is a form of the forest officers' good will to the poor because they know that forest margins are important for their livelihood, even as a main income source for several poor households. Therefore, they try to reach a compromise between the local situation and their task in order to meet both the demands of the villagers and the pressure of their supervisors. These are based in Malang and normally not knowledgeable of the practices of their forest officers, i.e. allowing villagers to access forest areas. To minimize the damage, on several occasions, forest officers always ask the villagers to restrict their activities only to forest areas distant from the main road.

Personal access mainly for firewood is basically valid only for their own consumption so that access for commercial purposes is strictly prohibited because it exceeds the limits of the forest except for grass, flowers, wild mustard seeds, and mushrooms that have relatively minimal negative impacts. In the village research, it was found there are only three households selling firewood in Ngadisari, seven in Wanakitri and fifteen in Ngadas. They only go to the forest twice in a week to carry firewood worth twenty thousand rupiahs. They cannot go to the forest daily because they will be warned by the officers who would see that as abusive. Between the forest officers and the households there is an informal agreement regarding the intensity and amount of firewood that can be acceptable to exploit. The forest officers also select the areas where they can take firewood, i.e. chiefly in the areas where there is abundant firewood, grass, flowers and the like and are relatively far away from tourist destinations.

High consumption of firewood and some forest products such as flowers, grass and wild mustard seeds directly provide markets for small farmers. Although the government has replaced firewood with LPG subsidies to reduce the villagers' dependence on fuel wood and kerosene, fuel wood needs remain high because it is not only used for cooking food by the Tenggerese but also to heat the rooms which is traditionally of great social value to them. According to the sellers of firewood in the Tosari market, every day more than fifteen loads of firewood are purchased by the people living in the market surrounds that do not much depend on it for cooking purposes. The habits of villagers to warm the rooms before going to sleep at night are the reason why firewood demand remains high. Therefore, firewood remains the main need of the villagers so that it also opens up opportunities for poor families to generate income.

Box 7.5 Simple Tools for Collecting Fuel Wood

Reang Rolas (male respondent number 12), who collects firewood in the forest twice a week, has to travel for nearly two hours five miles to reach the forest and it takes longer for him to travel back home because he brings firewood weighing nearly eighty pounds. For collecting firewood, he needs almost four hours and uses simple tools like machetes and small axes that do not make much noise when cutting wood. The use of modern tools such as chainsaws, although small, can be regarded as excessive and therefore illegal. Simple equipment is also considered a hallmark of the Tenggerese in the wise exploitation of forest products, not for commercial purposes but for family needs. This supports the basic outlook of the Tenggerese who consider the forest and Tengger people as a unity so that their existence depends on each other. This norm is made use of by the forest officers to reduce the damage that the use of modern equipment may cause. To recognize that he has the right to access the forest, he said the following.

“As a Tenggerese I have the right to collect fuel wood as long as it does not damage the forest. I only use a small machete, so that they (forest officers) see that I only collect fuel wood for my family.”

The demand for flowers as other forest products has also increased in recent years along with the development of the tourist sector. In Wanakitri, more than fifteen households consisting mostly of poor families sell flowers every day and may even swell to twenty-five people during holidays. In Ngadisari, flower sellers are relatively few, about ten people, because the forests surrounding the village have almost gone so it is quite difficult for them to get good flowers. In addition, florists in Ngadisari are regarded by residents as having low social prestige because they do not have any capital at all. Meanwhile, wild mustard seeds have become the main food for birds and some rodents such as mice, hamsters, and rabbits that are now a pet trend in big cities like Malang and Surabaya. The price of wild mustard seeds per kilogramme can reach up to twenty thousand rupiahs, especially in the rainy season when it is very difficult to obtain them. On a regular day, the price per kilogramme ranges from ten to fifteen thousand rupiahs depending on the market demand. The middlemen from Malang usually come to the village every week to buy seeds of wild mustard and pay them in cash.

Personal Rights to Access Tourism Activities

The Upland Bromo territory not only provides material resources such as firewood, grass, and flowers which can be accessed by its local people, but is also becoming an intangible economic commodity, particularly tourism, that is already being exploited, and prospective environmental services planned by the National Park and the State Forest Company. As already explained in the previous chapter, tourism-related activities are very important for the villagers and the poor in line with the increasing number of tourists who have chosen Mount Bromo as their destination in the last

ten years. The result of the interview with some foreign tourists who have visited Indonesia more than twice indicates that they will include Bromo in their journey list because they are very impressed by the scenery. Better still, they even want to stay longer on their next visit to make sure they have visited all the tourist attractions the region can offer. For young tourists, trekking to the Peak of Semeru Mountain which can be seen from Pananjakan in their first trip is very challenging so that they plan to come back the next time. Certain foreign tourists, particularly from the USA, France and Switzerland, have already included trekking to Semeru Mountain in their agenda along with touring to the crater of Mount Bromo. Therefore, the higher the number of tourists visiting is the more the economic opportunities for the National Park, local people, and the village administration.

In contrast to the exploitation of forest products, the tourist industry requires special skills and capital that cannot be owned by the poor families to invest in profitable sectors such as hotels, lodgings, and rental cars. Additionally, access to the tourist industry is dominated by the associations supported by the National Park and village leaders, a fact that often becomes an institutional constraint for the poor. In Ngadisari village, the poor do not have the opportunity to access touristic activities because these are all organized within the pertinent association. Although they may have relatives or neighbours who work in the National Park and/or village administration, the members of the association will refuse them access to resources in spite of these connections.

Box 7.6 No Area for Non-Members of Associations

Engsun Telu (male respondent number 3), 47 years old with five children from Ngadisari, is not allowed to sell staple food and snacks in the parking area though she is a neighbour of one of the National Park officers who have the duty to manage the informal sector surrounding the park. Although her presence is just temporary, the complaints from permanent members of vendor associations make her give up and leave the area in order to minimize the conflict. The National Park officers state that actually they do not have the heart to chase away their own neighbours because they know that people like her are very poor and that selling snacks inside the village is no longer profitable. He said the following:

“Actually I do not have any heart to oust her, but many association members have urged me to do that. I take pity on her. She is my neighbour, she is poor and has many children. I suggest that she sell food outside the association areas but visitors are not very many.”

In Wanakitri, where the tourist sector is not profitable when compared with Ngadisari, the poor can make use of their personal relationships with the National Park officers to access benefits from the tourist sector, particularly for vending flowers, foods, becoming local guides, being in charge of motorcycle taxi parking, but not for renting jeeps. To access tourism activities, the poor only need to obtain permission from the National Park officers and this does not arise any protest from the

association so that they can work in accordance with their wishes, particularly during holidays. The sellers who sell their goods everyday only have the obligation to clean the area surrounding it after selling and pay some money charged as administration fee. The easy access of the local people to tourist areas is a consequence of the lack of rules, which in turn leads to lack of public participation in maintaining the cleanliness of the environment and the safety of the visitors. Additionally, village leaders and National Park officers are not allowed to charge the people who have activities surrounding the park as in Ngadisari village any monetary contributions for park maintenance and the village treasury.

The settings of tourism-related economic activities in Wanakitri are not as tight as in Ngadisari but the village administration and National Park officers as well as the central office of the park in Malang have begun to discuss the area's recent developments. They try to avoid the conflicts and difficulties in regulating it as shown by a case in Ngadisari where local people refused to accept the inputs received from the National Park related to the management of economic activities supporting tourism. All parties were determined to impose their interests, which caused the negotiations to be very tough and even tended to trigger conflicts. With this experience in mind, National Park officers began to organize tourism support activities early in Wanakitri before many people were involved so that the situation was easier to handle. It is clear that personal relationships carry plenty of weight in a village with just medium tourism activities because such business is less economically profitable so that market mechanisms work correspondingly less perfectly. Most of the local people enter the tourist area only during holidays or on Sundays when touristic activities increase. On normal and regular days there are not more than nine people involved in tourism activities while on holidays there are as many as twenty-five, either as tour guides, sellers, parking guards, photographers, or renting motorcycle taxis and jeeps. This situation tends to change because some activities have started disturbing the comfort of visitors so that National Park officers and village administration have started implementing some regulations through the village meeting because the smooth running of of tourism involves the continuity of the villagers' livelihoods and a potential increase of incomes.

7.1.4 Illegal Activities for Accessing Resources

Illegal Access to Forest Margins

Although villagers, particularly the poor, have many ways to access the forests legally, in reality they are still not satisfied with them. For several households, formal access is very limited so that it cannot meet their needs, particularly for the poor who rely on forests as their main source of income. This sub-chapter elaborates on some illegal activities undertaken by the poor concerning access to forest products and tourism-related activities including their reasons why they conduct these activities and the local customs that support them. It provides a clear picture showing that activities considered illegal from a formal perspective serve as a resistance pat-

tern of the local people in response to the unilateral claim by the state over forest resources that had previously functioned as a relevant source of income that contributed to their sustenance. Despite the small cash this source of income generates in total, it provides an important contribution that complements the diverse livelihood strategies practiced within a household, especially for the poorer sectors of rural society. RPH strategies have changed the meaning of resources through a social process as part of a first step of contentious activities signalling their resistance. The activities have been carried out to counter the state mapping of resources creating a national park and conservation area that contradict customary traditional usage. The transformation of the physical environment into landscapes reflects the people's definition of them and how these landscapes are reconstructed in response to their changing definition. The definition of forest as a common resource is always updated and based on the local meaning to meet local needs and with this in mind people can access forests for ceremonial activities and to sustain their livelihoods legally. Such definition gives more suitable conditions for local people to counter the formal law imposed by the state. The increase of the local people's participation in public decision-making processes after the political turmoil has given suitable conditions to introduce the local meaning of forest and forest governance though it is not compatible with formal laws and environmental conservation programmes. As a result, when legal access to the forest is limited, poor people are forced to access its resources illegally despite the already scarce forest products and the threat of severe punishment for illegal activities.

The local people's access to the forests increased sharply after the New Order fell, which was worsened by the lack of control over the forests by the state. The decentralization policy, imposed by the central government after the political turmoil, supported local people's rights to pressurize the utilization of forests for traditional purposes in spite of the rising damage they entail. The result of the interview conducted with forest officers indicates that the number of local people and wood collectors from outside the village who logged trees in the preservation areas was rising. At the beginning of the Reform era, the forestry and police officers took no action against illegal logging activities. After the new administration was elected through direct election in 2004, the state tried to redefine the meaning, function, and pattern of the exploitation of forest resources. At the same time, the state also undermined the claim of local people to adopt as national law the traditional customs that had previously entitled them to access forest resources. Through the local agreement via the village meeting process that included all the stakeholders, the National Park and State Forest Company officers as representatives of the state apparatus managed to rearrange the patterns of resource utilization to reinforce the legitimacy of their control over them.

The illegal access to forest products is a feature shared by all the village samples in this research. In the Wanakitri and Ngadas villages, it mostly occurs because of the availability of relatively abundant forests. At the same time, village governments, forestry and National Park officers often ignore the activities of their villag-

ers who cut down trees in the protected areas, although the activities can damage the preservation of forests. In fact, villagers are left alone and cut down trees in the protected areas as long as it is not visible for the officers or tourists. There is a kind of informal agreement between the loggers and the forestry workers so that forest officers can avoid direct warnings from their supervisors if the forests are damaged and at the same time poor people can still access the forest, albeit with restrictions. Actually, the forest officers often avoid direct conflicts with the poor while also trying to avoid a reprimand from their superiors.

According to the agreement, the villagers are allowed to access forest products such as firewood, wild mustard seeds, flowers, and grass only for their own consumption in the areas located relatively far away from the main park road. In the National Park area, villagers are mostly forbidden to access forest products even though there is plenty of them such as grass, dry twigs, and fallen trees as well as birds and some wild animals. On the other hand, several poor households traditionally make use of forest products such as charcoal and firewood as their main livelihoods due to the limited profits yielded by tourism and farming labour. As known, without enough capital and skills, it is very difficult for the poor to access tourist or other service sectors in spite of their involvement in many associations or forest farmer groups allowing them access to those resources. Therefore, they still access forest margins illegally because otherwise they would not be able to maintain their livelihoods notwithstanding the fact that park officers intensify and tighten security to minimize illegal access to forest margins.

Restricted local access to forest resources was part of the central government policy to gain more income from the exploitation of the forest in order to replenish the state treasury that was almost bankrupt due to the economic crisis in 1998. Then the new government encouraged all government agencies including the State Forest Company and national parks to finance their own operations as well as to provide a financial contribution to the central government. For that purpose, the state strengthened the position of the State Forest Company and national parks as the main actors granting them the privilege to control the state forests in Java, including the Upland Bromo. The meaning of forest functions was changed from its former focus on preservation to become more commercial, which was marked by the exploitation not only of timber but also of environmental services and additional business activities such as sharing profits earned from forest products with local people, NTFPs, land management partnerships, and tourism.

Previously, the State Forest Company used to focus on non-economic activities though in reality it still exploited the forests in certain areas, for both traditional forest products and tourism as well as forestry services. The PHBM programme for instance becomes important for the company to reap more benefits from the forests in spite of the fact that it has the potential to damage the forests because they are often situated in the very steep uphill area. It derives the company income not only from timber but also from agricultural activities. Therefore, local people have changed their perception so that forest is no longer a common good but an eco-

conomic commodity. Consequently, they recognize the changes of the forest function as legitimization to access the forests illegally though this is prohibited according to the village meeting agreement. Several respondents burned charcoal taking advantage of this situation as legitimization for their activities in case they are arrested by the forest officers.

The changes of meaning and function of the forests do not only take place in the state forests controlled by the State Forest Company, but also in those controlled by the National Park, marked by the intensification of forest exploitation in the park area. In the past, local people recognized that the National Park was an area of the countryside for public use designated by the national government as being notably scenic, environmentally significant, or historically important. According to this definition, the resources surrounding the area should belong to and be controlled by the state through the National Park officers as local operators. As a result, the traditional exploitation of forest products by the local people was abandoned entirely notwithstanding the abundance of forest products in some areas. The exploitation of the forest products was allowed only for environmental services and tourism providing that it did not damage the environment and the local people's heritage. The changes in the function of forests imposed by the state have been facing the resistance of local residents. In spite of the fact that the formal institutions entrusted to meet the local people's interests have already been established by the state, many poor people who directly depend on forest products think that they are not enough.

For some people, their illegal activities are not only meant to meet their needs but they also to resist the claim of the state represented by the National Park and the State Forest Company over the local resources legitimized through the village meeting forum. Before, the local resources used to be their sources of livelihood. In the past, they recognized that the forest area surrounding Mount Bromo was a preservation area, and therefore excluded from economic activity. The intensification of forest exploitation by the National Park and the State Forest Company in the Decentralization era has changed the former meaning and function of forest. Consequently the local people make use of that situation as their legitimization for accessing forests in spite of the fact that they have accepted the formal agreement decided in the village meeting. Besides, the lack of law enforcement and decrease of people's respect to forest officers has caused illegal activities to rise, particularly in the areas where resources are abundant such as Wanakitri and Ngadas.

Accessing forest products illegally has been a part of the poor people's strategy to adapt to uncertain conditions for a long time. Before the Reform era, when the control of forests by the state was tight, poor people could still access certain forest products in some of the National Park and State Forest Areas. Moreover, the commercialization of the forest management policy increasing the exploitation of the forest not only for traditional forest products (wood and NFTs) but also for environmental services did not restrain the poor households' activities. With the commercialization policy along with the decentralization of the government administra-

tion, it can be concluded that, at least for some key products such as timber and NFTs, the poorer households are currently facing more restricted access to the forests than 'less poor' or relatively better off households. On the other hand, the agricultural sector that has traditionally been an alternative source of income is facing the environmental changes that directly decrease its production. Thus, illegal access to forest products is the most rational choice for the poor families when they cannot freely access the resources through normal channels although the risk is serious enough if they are caught by the forest or National Park officers.

A. Cutting wet trees for fuel wood in Ngadas



B. Making charcoal in the state forest in Wanakitri



Figure 23: Making charcoal and cutting wet trees illegally

Illegal access to the forests does not necessarily mean an open and large-scale activity, rather, it involves some hidden activities such as stealing some small bunches of firewood and stumps, or burning twenty or thirty pounds of charcoal. The purpose of their sale is to meet the daily necessities, such as buying rice, sugar, tea, coffee, salt, salted fish, and cigarettes. This condition is consistent with the findings of Scott (1989) that shows that the pattern of the peasants' resistance in Southeast Asia was never open because open confrontation or fight with the landlords could jeopardize their lives. They pursue this strategy also to reduce risk. It was very difficult for the peasants or farmers to create a well-organized organization to resist the relatively fixed and institutionalized form of power of the landlords' domination whereas their situation was very difficult especially in a famine season. Although the theory of resistance is critical, i.e. "as a resistance or just a survival strategy", farmer activities to gain access to forest margins illegally in Upland Bromo support the contemporary definition of resistance stating that resistance implies the actors' intention to oppose in some way coercive institutions – whether by means of small, everyday acts of defiance or by an organized revolt – they need to be endowed with the psychological capacities to do so (Seymour, 2006:316).

Illegal Access to Tourist Industries

The regulation of the local people's access to the tourist industry in the last ten years has limited their activities to gain additional revenue, especially at the peak of tourist visits. On the National Park side, the number of people who access tourist industries has been increasing rapidly in the last ten years along with the decreasing revenue from the agricultural sector due to the uncertain climatic conditions. At the same time, the people from the villages away from the tourist areas have also tried to access tourist industries because it turns out that the new economic activities as a result have significantly increased the number of visitors in the last ten years. The number of people engaged in economic activities in the tourist areas has disturbed the tourists so that it is used as an excuse by the National Park officials to regulate them. According to the poor people's perception, the new regulation decided upon in the village meeting to reregulate their activities is more profitable for the rich people who have had enough capital to engage in the economic activities which are allowed by the park officers such as jeep, motor cycle taxi rental and/or the opening of craft shops and restaurants and hostels. As it is known, poor people do not have enough skills and capital to engage in such economic activities so that they are directly excluded from their access to the tourist sector. As a result, many poor people still try to gain access though they must break the agreement decided in the village meeting.

There are many opportunities which can be accessed by the poor from tourism activities such as selling food outside the tourists' hangout areas, vending guide services to tourists who want to approach the beach by the seaside particularly at night, and peddling motorcycles, taxis and jeeps as well as horses. Some of them also seek additional income by offering hostels, hotels, or villas to the guests who want to stay overnight and have not reserved accommodation. They sell hotel rooms or other lodgings at a price far above the normal prices to get more money so that some hotels often reject them to avoid the guests' complaints. Therefore, these local salesmen advice guests to stay in small lodgings or hostels owned by the local people who are relatively less expensive. Usually the tourists in the area of Bromo just need a place to rest for a little while because they want to climb the mountain at two in the morning to see the sunrise.

Local people are salesmen offering hostels owned by the local residents who are unlikely to be able to promote their businesses as big hotels can do. Sometimes they get extra money from the owners of the lodging rooms in addition to the extra money received from the guests. It is very difficult for them to access big hotels because most of them usually only serve foreign tourists or visitors from outside the area who take well planned holidays. The association of the hotel sector has an informal agreement to refuse to pay commissions to local people who take guests to their hotels. They believe that these people will also charge the guests the same amount of money they receive from the hotels so that guests or tourists will feel less

at ease. Market segmentation of hotel rooms is the self-mechanism of the local economic activity to distribute opportunities among the actors more freely.

A. Processing flowers formally prohibited in Wanakitri



B. Selling food illegally in the area of the National Park in Wanakitri

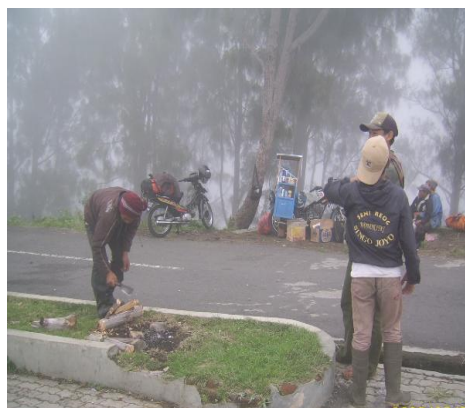


Figure 24: Selling food and processing flowers illegally

In the local people's perception, they still have the right to access the area surrounding Mount Bromo without being given permission by the forest officers as legitimate action against their illegal activities. The National Park and State Forest Company officers are seen as outsiders who occupy their motherland and who are supported by the state so that they have no obligation to recognize such a state as legitimate. Upland Bromo is the land for the Tenggerese people and for everyone who lives and finds a livelihood, not only in the village territory but also in the forests as well as by the sea where tourists concentrate their activities. Some of them said that before the area was managed by the National Park, they had led tourists from abroad not only to cross the sand sea or climb Mount Bromo, but also Mount Semeru without being blocked by anyone. Now that guests are numerous and business becomes profitable, the government has simply snatched away the opportunity and set aside the local people.

Illegal activities are allowed informally by the National Park officers during a quiet time when visitors are rare, especially at night. Sometimes there are several jeep or motorbike and taxi drivers waiting all night in the guardhouse to serve guests or tourists who come beyond the official opening hours. The jeep drivers or local guides will demand from visitors some additional amount of money for such a service even though it contravenes the forest officers' and village leaders' prohibition. Most of the people who look for that opportunity are usually not members of the various tourist-related associations so they are not allowed to access the forest during official opening hours. Although the existing resources are very limited, local customs still enable the people who are formally not allowed to access the forest to

derive some opportunities. Although it rarely happens, visitors who rent jeeps outside the arrival gates will wait until the next morning to get a normal price or contact the park staff. Most of them will negotiate directly with the local people to hire services even though they have to pay higher prices.

Additionally, the illegal access to tourism activities takes place due to the inconsistency of the National Park concerning the law enforcement of the agreed rules passed in the village meetings. For renting jeeps, for instance, visitors should buy the tickets from the village guards in charge though at night when the counter operators are not in place, to get extra money, some drivers offer to sell them directly to the visitors, often charging more than the normal price. Park officers do not check the jeep tickets to make sure whether or not all the jeeps which go into the park area are registered in the association to protect the visitors' rights. Although they know this 'modus operandi' or practice, jeep drivers still easily drive into the park even without legal tickets from the association. At the same time, the guards who should charge a price in accordance with official regulations, allow drivers to buy the tickets after opening hours. This shows that the system of the centralized ticket purchasing is only a strategy applied by the forest officers and village elites to control the association as well as to extract money from tourism activities without respect to the interests of visitors.

The rapid growth of the income from selling tickets in the last ten years has given more chances to the park officers to gain extra money outside their salary by reporting the number of purchased tickets lower than those sold in reality. For instance, some tourist guides from travel agencies do not report the real total of tourist tickets, particularly to foreign tourists, so that they can easily cover extra payments to park officers in exchange for permits. At the same time, however, the officers charge the hotels, restaurants, and food peddlers as well as jeep, horses and motorcycle taxi owners some amount of money for security and cleaning services of the areas in the tourist destinations. The result of the interview conducted indicates that the local people complain that activities are not fair because park officers can exploit the resources easily, but limit at the same time the local people's access. The increasing prosperity of park officers, particularly those who live in the village, has been causing a social gap in society in the last ten years. Those situations together with the uncertain situation of the local economy decrease the respect to the park officers so that the number of the local people who access the tourist industries rises illegally.

7.2 Typology of Rural Livelihood Strategies

According to Devereaux (1993) and Davies (1996), the types of livelihood strategies can be divided in four types, namely survival, coping, adaptation, and accumulation strategies. In the three kinds of local resources governance found in the villages researched, the differences appearing among the households depend on their social status. In the multi-institutionally based resource governance, accessing new resources from the forest and tourist sectors was very important for the poor because it made a significant contribution to their household income. In Ngadisari, just after the multi-institutionally based resources governance was formed, 0.4% of respondents were in the position to develop an accumulation strategy, 1.2% an adaptation strategy, 2.9% a coping strategy and 4.4% a survival strategy. According to the interview results, investment in the tourist industry such as the purchase of horses, jeeps, and motorcycle taxis has become a new source of income for several rich households in Ngadisari. Even at the end of 2009 after the queuing system was applied for hiring horses, many people sold their horses as well as their membership numbers to the rich. In Wanakitri, the trend was relatively similar and through the multi-institutionally based resources governance the number of people able to develop an accumulation strategy reached 0.8% and 1.2% for adaptation, 1.5% for coping and 6.1% for survival strategies.

In the bilateral relationship based resources governance, the situation was not really different in that through this governance the number of people who derive a minimum benefit, i.e. to develop a survival strategy from the new resources governance, reached the highest percentage compared to the other strategies. This was the case in all the villages researched, reaching the highest percentage in Ngadas with 7.6% and 7.3% in Ngadisari. Surprisingly, in Wanakitri, there were 6.9 % of households that made use of the access via bilateral relationships to develop a coping strategy. According to more in-depth research results, the households made use of the CBFM programme as a medium to access forest and land as well as earn additional money from working occasionally in the state forest, but it was not enough to develop adaptation or accumulation strategies. Meanwhile, the households able to develop an accumulation strategy were very rare due to the fact that programmes such as CBFM and private forests were distributing resources more fairly as a consequence of increasing the role of farmer groups in controlling the distribution of resources.

In the personal relationship based resources governance, the survival strategy was dominant and prevailed over the other household strategies in all the villages researched with the highest percentage in Ngadas. This is normal because an access to the forest based on personal relationships was only allowing households to acquire fuel wood or grass that yield low benefits. Most of such products were just used for household consumption and only little was sold to the market or to the neighbours. This situation occurred in Ngadas and Wanakitri where people who went to the forest were considered as poor people and therefore the forest products

were only to meet their needs just at subsistence level. It was similar with the poor who worked for the State Forest Company planting trees or building the infrastructure due to their personal relationships with the forest officers and their being paid lower salaries compared with the wages paid for farming. According to the typology of the household strategy, they were only able to build a survival strategy.

Table 12: Percentage of Households in Developing Livelihood Strategies in the Three Local Resource Governance Patterns

| Type of re-sources governance | Accumulation | Adaptation | Coping | Survival | Total (%) |
|-------------------------------|--------------|------------|--------|----------|-----------|
| Multi-inst. | 1,8 | 2,4 | 5,3 | 10,0 | 19,4 |
| Bilateral-ints. | 2,4 | 3,5 | 17,1 | 24,1 | 47,1 |
| Personal-inst. | 1,2 | 4,1 | 10,6 | 17,6 | 33,5 |

Sources: Personal Survey N 170

It was different for the rich people who could access tourism activities because they had relationships with the park officers or village leaders. In Wanakitri, for instance, some households opened a small food stall permanently in the Pananjakan hill, the central tourist vantage point. At the same time, they rented out jackets for five to ten thousand rupiahs and toilets for five hundred rupiahs for every person. The poor only became waitresses or salespersons for the jacket renting. During the holidays, they could collect more than one million rupiahs every day with profits ranging between two to three hundred thousand rupiahs. As the public knows, sellers in the tourist area charge higher prices for all kinds of food, doubling and even tripling the normal prices. For the poor, even though they had permission from the National Park officers, it was impossible to build stalls for fifteen to twenty million rupiahs per unit or spend one to two hundred thousand rupiahs per jacket.

The rich consider forest and tourism-related activities as additional incomes outside agriculture to access resources so that they are not very important to them, particularly the resources which generate low benefits such as fuel wood, flowers, mushrooms, or charcoal. Through the new resources governance, they can tap more resources than before the new regulation was introduced. This advantage was achieved through full engagement in village meetings, providing them with additional income, though not significant. There has been widespread speculation that the system, particularly the multi-institutionally based relationship resources governance through the village meetings, a forum dominated by the elites, has caused the

distribution of resources to be unfair. This situation offers favourable conditions for the rich to create accumulation strategies and to increase the number of people who can only develop survival or coping strategies.

7.3 The Sustainability of the New Resources Governance

In fact, forest products and tourism industries have been the important sources for the local people's livelihoods, particularly for the poor, in the last ten years in line with the capitalization of the village economy and the forest management in the Upland Bromo. Additionally, the decrease of agricultural benefits due to the environmental changes impacting land productivity raises the rate of unemployment so that forest products and tourist industries become the main alternatives for the poor. Although the formal access to the forest and tourist sectors is decided in the village meetings to meet the local people needs and the National Park and State Forest Company interests, local people still feel dissatisfied because the products and kinds of economic resources from tourism-related industries that may be exploited are not profitable for them. As a result, several RPHs reject the deal on the prohibition of collecting forest products even in the conservation areas.

For the analysis of this phenomenon on whether or not the new resources governance is sustainable, the operational definition of sustainability in the social context should be made. Sustainability addresses the question on how societies can shape their mode of change in such a way so as to ensure the precondition of development for the next generation. The crucial point of the sustainability of local resources governance as institution is how it facilitates more transparent mechanisms in the decision-making process through which information is disclosed in order to gain legitimacy and the self-mechanisms of institutional systems to find the best solution. By creating information transparency, parties interested in action or decision-making processes of an organization gain understanding so the institutions can be told everything they need to know (Gower, 2006). Transparency presupposes that the actors involved, i.e. the households, village leaders, and national park and state forest officers, should receive similar information about the resources distributed within the Upland Bromo context, including the positive and negative impacts on the resources and stakeholders themselves.

The fact is that democratization of the local decision-making processes is taking place in which all the stakeholders display their power through a more transparent mechanism, but it is still not enough. The fight for resources does not increase the local people's satisfaction; on the contrary, it limits their access to forest products and the tourist industry as their main sources of livelihoods, particularly for the poor. According to the interview result, participatory models in decision-making processes claimed to be transparent by village leaders as well as national park and forest officers are still considered as non-transparent because the resulting decisions do not facilitate impartial access to resources. Even in the villages where access to

the forest is relatively easy, people still consider the formalization of resources governance as more profitable for the national park and the State Forest Company. Most of the respondents feel that the village leaders, national park and State Forest officers had already predetermined the regulations before these were decided in the village meeting. Such circumstances are opposite to the basic meaning of transparency that is widely associated with more accountable, legitimate, democratic, and effective governance, partly because of the assumption that transparency can empower those at its receiving end (Gupta, 2010).

Table 13: Opinions of Respondents on the Transparency of Decision-Making Process in Village Meetings

| Village | Transparent (%) | Not transparent (%) | No opinion (%) |
|-----------|-----------------|---------------------|----------------|
| Ngadisari | 13 | 84 | 3 |
| Wanakitri | 21 | 73 | 6 |
| Ngadas | 43 | 40 | 17 |

Sources: Personal Survey N= 170

Additionally, the impact of the decision, i.e. the changing of the local resources governance from authoritarian to more autonomous in the Upland Bromo in which resources governance is implemented through a local decision-making process, has no impact on the poor people's recent economic situation. The fact is that the local community, particularly the poor, does not receive financial benefits from the tourist sector and the forest; therefore, they will still cultivate the steep slope fields and hunt in the preserved areas, which results in ecological degradation so that the sustainability of the new institutional arrangement is still questionable. Such a situation occurs in Ngadisari and Wanakitri where forest resources are limited, tourism-related industries are abundant, and resources management is mostly governed through the village meeting medium.

Table 14: The Level of Satisfaction of Respondents to the Formalization of Access to Natural Resources (Forest and Tourism)

| Villages | Satisfied (%) | Not satisfied (%) | No opinion |
|-----------|---------------|-------------------|------------|
| Ngadisari | 34 | 61 | 5 |
| Wanakitri | 44 | 53 | 3 |
| Ngadas | 62 | 20 | 18 |

Sources: Personal Survey N= 170

At the local level, according to the survey result, the local people feel they have received no satisfactory benefits from the tourist industry and forest products and believe that the state is represented by the State Forest Company and park officers as outside actors who limit their traditional right to access forest products and the tourist industry. From this perspective, the changing of the National Park and State Forest Company management from centralized to decentralized is not successful despite the apparent increasing opportunities for the local people to be engaged in local participation in the decision-making process. This is contrary to the current academic understanding of community participation which has suggested that if local people want to benefit from tourist industry and forest products, they must be integrated into the decision-making process.

Table 15: Average of the Number of Tenants for one Week before and after the Formalization of Access to Tourist Areas (Persons)

| Villages | Renting Horses | | Renting Jeeps | | Motorcycle Taxis | |
|-----------|----------------|-------|---------------|-------|------------------|-------|
| | Before | After | Before | After | Before | After |
| Ngadisari | 15 | 4 | 10 | 6 | 18 | 8 |
| Wanakitri | - | - | 9 | 6 | 11 | 8 |
| Ngadas | - | - | - | - | - | - |

Sources: Personal Survey N= 30

On the other hand, when resources are managed more informally so that the allocation of resources depends on the National Park and the State Forest Company officers personally, poor people can still access the resources freely though it becomes more limited. Furthermore, the local people still have respect to the State Forest Company and the park officers. As a result, they try to exploit the forests carefully and hesitate to cut down trees near the main road or in the preservation areas as a self-mechanism to control the excessive forest exploitation. From this case study, it can be concluded that local participation modes are related to the different institutional arrangements. Thus, there is no universal mode applicable everywhere. However, the present mode in the new local resources management system is likely to be one of a series of necessary stages for local participation in tourism and forest sectors in most of the natural reserves in Upland Bromo. Furthermore, being involved in a decision-making process is only one of the ways to ensure that local communities receive the benefits of ecotourism, and it is not a goal in itself. Only when this is achieved can tourism and forest be developed in a sustainable manner that conserves the natural resources, the ultimate goal for a reserve.

Additionally, in the Upland Bromo, especially at the early stage of the decentralization era, the management agencies of the natural resources, like the natural reserve administration and local elites, still play an important role in dominating local decision-making processes and distribution of benefits from the utilization of the natural resources. This is not meant as an opposition to community participation in the decision-making processes, rather, it is not a necessary condition in all contexts. In most villages where resources governance is decided through the village decision-making process that is relatively democratic, after the Reform era, the poor can participate more freely in such processes though they are still dominated by the local elites and state apparatus. So the sustainability of new local resources governance in terms of the transparency of the decision-making process, the feasibility of the outputs of the agreement and the impacts of such agreements on giving an equal position to all actors in accessing resources is still questionable.

Following the social sustainability framework of analysis, most of the categories tend to have some negative values in all types of local resources governance. First, for the development criteria, there is no decreasing pressure on the forest as local people still access the forest without any respect to it while they are involved in deciding the rules of the game for accessing forest products. For the increasing economic benefit, bilateral and personal based resources governance as perceived by the local people has a medium impact and is still low for multi-institutionally based resources governance. However, such assessments are still questionable due to the fact that the economic benefit was obtained by the rich in the society. This finding is in contrast with the common argument of resources governance research that posits that local institutions with formal decision-making processes are of relative support to the sustainable purpose.

Second, for the bridge criteria, the situation is not really different in that the local people still perceive forest as the common pool which can be accessed by every person. In the multi-institutionally based resources governance approach concerning local people's willingness to conserve the forest, most of them said that they do not feel any obligation in conserving forest personally. On the other hand, concerning the willingness to follow new regulations, local people had a tendency to disregard the agreement. It was the reason why in the bilateral and multi-institutionally based resources governance the value was low. Different conditions accrued in the personal relationship based resources governance in which local people who have access to forest personally have a better perception of conserving resources.

Third, for the maintenance criteria, in multi-institutional and bilateral relationship resources governance, the binding sanction as an important part of building sustainable society exists but the sanction for offenders does not exist in neither of the resources governance types. Only in bilateral relationships the law enforcement has medium value and the sanction for offenders exists. It is not surprising because in bilateral relationship based resources governance accessing resources is regulated with business measurements between the State Forest Company and farmer groups. When the local people violate the agreement, the State Forest Company via farmer groups can easily revoke land controlled by the farmers in the CBFM scheme. If this finding is examined with the commitment of political ecology to endorse social justice as mentioned by Goldman et al. (2011:6-7), the emergence of new local resources governance is still far away from sustainability principles.

Table 16: Sustainability of Local Resources Governance in the Last Ten Years

| Sustainability Indicators | Type of Resources Governance | | |
|--------------------------------------|------------------------------|-----------|--------------|
| | Multi-Institutional | Bilateral | Personal |
| To development | | | |
| Decreasing pressure on forest | Low | Low | Low |
| Increasing economic benefit | Low | Medium | Medium |
| To bridge | | | |
| Willingness to conserve forest | Low | Low | Medium |
| Willingness to follow new regulation | Low | Low | Medium |
| To maintenance | | | |
| Binding sanctions | Exist | Exist | Not existing |
| Law enforcement | Low | Medium | 0 |
| Sanctions for offenders | Not existing | Existing | Not existing |

Sources: Personal Survey N= 170

8. Discussion: Governing Resources in a Changing Environment

8.1 Spatial Production of the Upland Bromo

The unequal access to and control over the resources was begun with the process of spatial production in which the dominant power, mostly the state, defined the meaning of territory and the role of people to establish authority. In the Upland Bromo, spatial production has been developed since the time of the Majapahit Kingdom, through the Dutch colonialism, the Old Order, the New Order up to the Reform era, each of them with different goals and in different ways. In the Majapahit era, according to the *Walandit* inscription in 303 Saka or 1381 AD, the Upland Bromo was a special area devoted to worship the Hindu gods so that local people were exempted from taxes as well as special duties to serve the Kingdom. As a substitute, they had to hold a special worship ceremony every year at Mount Bromo in which every farmer sacrificed his land produce such as corn, vegetables, and other agricultural products as well as animals to Mount Bromo. The ceremony was led by religious figures who received the blessing from the king. In the political ecology concept, the Upland Bromo was developed as a pilgrimage area so that the local people got endorsement from the state to meet that purpose. They were kept away from political activities through the provision of specific tasks serving religious activities. It was the government's strategy to control their activities to curb their military power. This was rationally understandable as during that time, the Upland

Bromo made almost no economic contribution to the Majapahit Kingdom that relied on rice and various other low-income generating agricultural products as main trading commodity.

In the Colonialist era, capitalism was the government's main orientation, developing the Upland Bromo as arable land and preservation area that could potentially be exploited as plantation and tourist area to gain more economic benefits. The development of the coffee plantations on the 18th century followed by the sugar cane cultivation on the 20th century around Upland Bromo, known as the coffee belt, was the form of production serving the colonial government's economic interests in the area. For these purposes, the government enacted an agrarian law to give legal rights to private companies to open large scale plantation companies. Under the agrarian law, farmers were placed in a special area and prohibited to shift cultivation activities. The forest area outside the village was traditionally used by the local people for shifting cultivation, and was then claimed by the state as falling under the regulations of that agrarian law. From the political ecology point of view, spatial production was created by the colonial government by relocating local people to particular kinds of spaces. It prescribed an exact border for them so that the state could exploit the area behind the border freely and avoid local conflicts. It was often difficult for local people to carry out business activities, particularly those related to plantations that mostly depended on local resources such as land and labour. Although the local population at that time was not so large, around three to four thousand people, the colonial government did not want to take the risks of any local rebellion. To make sure the system was running, the colonial government did not collect taxes from the local residents, the had been done by the Kingdom of Majapahit before. They were only required to offer sacrifices of crops and livestock on Mount Bromo each year in lieu of taxes. The colonial government knew that the capacity of the local people to pay taxes was very low; therefore, it was much more profitable if it focused on providing land for plantations. It knew that taxes were always a source of unrest and discord throughout the world, especially in areas with very low economic productivity, where local residents were only able to survive under minimal conditions.

Developing the Upland Bromo as a region with a particular function to serve the dominant power continued at the early time of independence. Ir. Soekarno, the first president of Indonesia, according to local people, came personally to the Upland Bromo for meditation to get inspiration in a very secret area called Widodaren cave before he proclaimed Indonesia's independence. This replicated what had been done by Gajah Mada, a powerful military leader and *Mahapatih* or prime minister of the Majapahit Kingdom, in Madakaripura near Upland Bromo searching for inspiration to conquest all the Southeast archipelago of Nusantara for the Majapahit Kingdom. At different times and within different contexts, both elites used the region and its resources to legitimate their power. From the political ecology point of view, their activities aimed to strengthen their reigns by increasing their legitimacy among the local people in order to get absolute control over the region. In the economic

field, Ir. Soekarno introduced agricultural policies to increase food production that had fallen sharply during the Japanese occupation. As generally known, food was very important at that time, not only for the interests of residents but also for the establishment of the elites' power. The fall of the Soekarno government in 1966 could not be separated from the prolonged food crisis marked by the price hike of the staple throughout the country. The economic situation during that period was very difficult and the new government was hardly able to develop economic growth and food production due to the country's economic disintegration (Mark, 2010).

The situation changed sharply by 1966 when Soeharto, the second president of Indonesia, introduced the New Order's development strategy that focused on the modernization and green revolution in the rural areas after he succeeded Soekarno as president. The new agricultural technologies increasing crops production were implemented in rural areas followed by the creation of markets and the development of infrastructure as well as the establishment of education and health facilities. Centralized resources control continued and was followed by more intensive exploitation led by the Forestry Department and the State Forest Company, particularly in Java. The Upland Bromo was defined as a preservation and tourist area with limited exploitation in particular areas, which restricted the access of local people to resources. The collaboration between the village government and state agents, "Bromo National Park and State Forest Company", was supported by military institutions, i.e. "Koramil" and "POLSEK", and central government implemented a centralized control and top down approach to manage the local resources. Professional forest management was implemented by the Bromo National Park and the State Forest Company clearly to keep away local people from the forests by building borders and implementing modern forest management though in the 1980s the government ratified the concept of the World Commission for Protected Areas supporting the utilization of resources for local people.

After the political turmoil in 1999, then followed by the reform of the local resources governance, power structures at the village level changed rapidly. The democratization of village decision-making processes allowed local people to be able to express their aspirations to resist all the policies imposed by the central government to gain more access to and control over resources. During that period, the decentralization of the local resources management had no clear direction due to the vacuum of power following the turmoil and the absence of a state apparatus. As a result, each actor accessed resources at will and according to their respective interests without considering public interests irrespective of the harmful effect of this behaviour on forest preservation. Temporary profit seekers supported by local people took advantage of the vacuum of power to access the forests in an abusive manner. On the other hand, local people also began to cut back the shade plants in their fields to get more sunlight, although this increases the risk of landslides. As known, potatoes and other upland plants need more light to support the process of photosynthesis. Before the Reform era, they feared to cut shade trees even in their own property because they would be reprimanded and warned by village leaders due

to the danger of triggering landslides affecting not only their own land but also the public infrastructure. The same situation took place in Ngadisari, Wanakitri, and Ngadas where village leaders were supported by the central government in exerting power to put pressure on local people to engage in conservation activities. After the Reform era, village leaders, forest police, and State Forest Company officers allowed them to cut shade plants and even trees in the forests to prevent unrest and conflicts that could break out easily at the time of the power vacuum.

The 2004 general election succeeded in forming a new government, which enabled the elected president to consolidate the government's power to establish new institutions for natural resource management that could serve the new government interests. A new policy to commercialize the forest management was made by the central government to increase the state treasury and open new opportunities for local people but in fact it limited their traditional right to access the forest. For instance, the State Forest Company introduced the PHBM programme in a certain area that had previously become a preservation area, by allowing the local people to access land for agriculture. At the same time, they limited the areas that could be accessed and the kinds of forest products that could be collected by the local people. In the National Park area, the intensification of tourism-related activities opened new economic opportunities related to the tourist industry that could also be accessed by local people, particularly activities requiring low-skill workers. To support this policy, the state, together with the local leaders, the State Forest Company, and National Park officers promoted a formal decision-making process via village meetings as forum, arguably as a participatory approach.

It was verified that the Upland Bromo landscape had been more or less influenced by colonialism as shown by the integration of that area with international capitalism expanding large scale plantations. The following governments such as the Old and the New Orders continued that capitalization process via rural development programmes. The latest policy of the Reform regime to formalize "the rules of the game" by accessing resources via village meetings was a medium to endow the State Forest Company and the National Park with the legitimation to manage the area more intensively and avoid conflicts with local people. As a result, the State Forest Company and the National Park had a very strong legitimacy emanating from both the central government by being entitled to enforce national laws and by the local people through the village meeting process to continue the integration of Upland Bromo with national and international capitalist production via tourism and forest products.

Outsiders, the most dominant power, were to hand over the power to local elites who had close relationships with the people and were therefore morally legitimated. It was an efficient and effective strategy of regimes to maintain power without being confronted with direct conflict with the people at the same allowing them to spend less money for keeping territories. It was similar to Kuitenbrouwer's (1991:18 in Weber et al. 2003:424) opinion that the ethical policy adopted by the Dutch colonialism was just a camouflage to convey a "non-imperialistic image". The

colonial administration intended to present this system to their European opponents as an example of a morally strong colonial power while extracting plenty of profit from the local economy both through goods and labour. Although in different ways, the Majapahit, Soekarno, Soeharto and the Reform regimes did the same by using local elites who had social legitimacy as a tool enabling the central government to control the land and its people. Under the colonial administration's policy to free local people from taxes, conservation and professional forest management became new sources of legitimation to exclude them from forests notwithstanding their traditional customary rights.

The state claim today that Upland Bromo is a "conservation" area exemplifies the process that Goldman et al., (2011:9) not only see as developmental of conservation areas but also the process through which the different notions of scientific understanding of environmental protection are packaged, stabilized, and circulated within and across the scientific and resources management communities. In line with conservation "ideology", maps were made signalling to the local people that national park areas belong to the state and are reserved for conservation activities so that all those local activities that can potentially disturb the environment, of course it was based on what is claimed by the National Park as "modern" conservation science, are considered illegal. Spatial production was fully dominated by powerful actors in which local people took such a definition for granted. The resistance of local people to the erosion of their ethnic identity has no significant impact on the reclaim of their customary traditional rights as their plight loses out when competing for meaning (discourses field) and building appropriate practices to legitimize power. The conservation ideology introduced by outsiders as *an order of knowledge* as mentioned by Wingkel (2011) is able to develop power to determine societal 'truth'. It is in conformance with Neumann's (2011) notion that the contemporary politics of nation building and sub-national autonomy influence natural resource policies, especially in developing countries. In Indonesia, particularly in Upland Bromo, decentralization resources governance in has only shifted the power from the old elites to the new elite with a different legitimation and in other ways.

8.2 The Emergence of New Local Resources Governance

In the Majapahit era, the local resources management was aimed at supporting the continuity of the Majapahit power controlling local people and their territory absolutely by the Kingdom via local religious leaders. Although common people had no obligation to pay taxes, the spiritual leaders sanctioned by the King were entitled to take their crops and animals to worship to the gods on Mount Bromo. According to the traditional Javanese belief, land and people belonged to the King so that they had to serve him as an obligation and when the people did not carry out the tasks assigned by him, their behaviour could be interpreted as rebellion. Moreover, the King via the local leaders and religious elites controlled the people and land to serve

the Kingdom's interests such as providing food for war, defending the territory, or only serving several religious activities aimed at maintaining the symbol of the Javanese Kingdom's power. The Upland Bromo people's ceremony of sacrificing crops and animals annually to Mount Bromo was an activity created by the Kingdom to legitimate their power. When the local people and their leaders were against the King's power, the King did not hesitate to use military force to attack them and curb the rebellion. Therefore, the Kingdom was in absolute control of the entire resources, but local people in turn had unlimited access to the resources as long as they remained subjected to the King's command.

In the colonialist era, resources management institutions were created by the local leaders and the colonial government as part of a power sharing system. The local leaders that traditionally had legitimacy to mobilize land and people were an effective actor to facilitate the colonial government's interests. At the same time, the colonial government could avoid direct conflicts with the local people that often took place as a result of the struggles for resources. To support the imperialist activities, the Dutch colonial government established the first fort at the Pasuruan region in 1707 that later became the capital of a regency from 1811 to 1934. Its move to Malang in 1934 precipitated the industrial decline of the town. In Upland Bromo as part of the Pasuruan regency, during that period, an agrarian law was introduced by the government to facilitate to private plantation companies the opening of large scale plantations. It stated that the companies had to cooperate with the local government to get the local people's support at least to guarantee security. The central government very rarely sent official troops to the plantation areas to minimize the resistance of the local people and financial cost. In fact, the central government even tolerated the local leaders' corruption. Though central authorities knew that some money out of the obligations to the central government was being channelled elsewhere in order to maintain a good relationship with the local leaders to sustain plantations, they still continued to keep up the system until it crumbled in the mid twentieth century.

In the Old Order era, the Soekarno administration asserted that ownership of the forests should be by way of taking over the Forestry Department from the colonial government's control. At the macro level, such as mentioned by Peluso (1992), there were no significant changes with regard to the colonial period in the structure of the natural resource tenure in Indonesia because the new government only took over control without sharing the resources with the local population. In Upland Bromo, according to the local people, there was still plenty of land for agriculture during this time period though product diversity and land productivity were low. The local people could access the forests freely for agriculture, particularly in the areas near their own lands for a certain period of time with the permission from the village leaders. They also had the right to access the forest products for their everyday necessities such as firewood, charcoal, and timber for housing materials. Although they had access to the forests for land and forest products, all the resources still belonged to the central government; therefore, their access was tempo-

rary. Additionally, there was no competitive wood market leading to the increase of illegal logging for wood so that the forests were relatively well maintained. Therefore, the local resources management was very simple, involving local people, village administration, and spiritual leaders as the main actors. On the other hand, coffee and sugar cane plantations could not be resumed anymore in areas at an altitude of 1,500 metres above sea level, including those in Ngadisari, Wanakitri, and Ngadas. At this time, the central government was paying more attention to the efforts to defend their freedom in international negotiations so that they were losing the control over natural resources. The government only made an appeal to the villagers to always support the guerrilla war in which Bromo became a strategic place for the army of the Republic of Indonesia.

In the New Order era, the local resources management absolutely followed the direction of the central government that was aimed at increasing the economic development. Not only exploiting traditional forest products, such as timber, the State Forest Company also introduced the partnership system with the local people to manage the forests close to the farmers' lands or in margin areas called the PHBM to gain more benefits on top of the timber products. Although some researchers have mentioned that land sharing and right sharing to harvest non-timber forest products (NTFPs) increased for the local people through combining forest vegetation and multipurpose trees, the State Forest Company still earned larger profits. Although the increasing access of the local community to non-timber forest resources was verified (Djajanti, 2006), the equality of benefit sharing was still questionable. With simple statistical measurements, she could prove that the access to land and rights of local people to harvest NTFPs increased as a result of the introduction of the system. From the political ecology perspective, access to land and other forest products was still unclear because it was very difficult to measure indirect contributions, such as guarding the area and providing cheap labour for tree planting. It was a challenge for political ecology in which the contribution of actors denominated as "local people" is not calculated integrally with the contribution of the companies due to the separation of the accounting system.

In the protected area, the domination of the state in shaping the local resources management in the New Order era was very vigorous, and people were absolutely kept away from the park by developing borders around it. As the consequence of the conservation ideology and principles and practices of professional forest management, the limitation of the local people's access to the forests was tightened though it ran totally counter to the local tradition. Even though the concept of National Park had a very friendly connotation for local people who directly depended on the forest products, forest officers tended to follow the conservative conservation ideology holding that human activities on the environment are perceived as harmful. In the Upland Bromo, the limited number of forest officers who understood the concept and practice of the conservation-friendly local community caused park officers to limit the local people's access so that the existence of a national park did not provide benefits to the local residents. At the same time, corruption

practices by forest officers such as allowing elites or important persons to access certain forest areas and cutting down on ticket sales diminished the local people's respect to the park officers. In the local people's perception, the power of the park officers supported by the village leaders, military office, and police department was quite powerful exerting strong control over the local people's activities in terms of local resources management. As a result, local people became marginalized by the process of establishing conservation areas due to both the park officers' lack of the right understanding of the concept of national parks and corruption.

In the Reform era, the marginalization of the local people particularly the poor continued along with the imposition of the modernization policy by the central government to increase food production to support industries. At the end of the New Order regime, the modernization policy through the green revolution had reached its climax and began to decline, which was marked by the rapid decrease of land productivity during the last ten years of its tenure. The low out-migration and high population growth in Upland Bromo increased the scarcity of natural resources so that it displaced the poor to the outskirts of the villages. At the same time, land-ownership was also declining due to the system of inheritance and customary obligations that were relatively expensive under the very difficult economic conditions at that time. These conditions became worse and more harmful for the local people when climate change, called "Howo" by the local people, started having effects that are not friendly for agriculture. Therefore, local people in the last ten years really have been facing the environmental changes in terms of both social and physical dimensions, making their lives harder, particularly for the poor. The rich farmers who had enough capital applied mechanization to reduce labour as the biggest cost of production besides fertilizers and pesticides. At the same time, peasants from the lowlands who were willing to be paid less deteriorated the labour market in Upland Bromo. The combination of several factors, namely the marginalization of the people from development, the system of inheritance, population growth, low out-migration, climate change, and labour market inequality between low and high areas caused the local residents to have to fight quite hard for resources. At the same time, local resource management was still dominated by the state through the National Park and the State Forest Company that collaborated with the local leaders.

According to the new system, the local resources management in this period, as claimed by the State Forest Company and the National Park, adopted the principles of decentralization in which community participation was an important part of the decision-making process. The village meeting was an instrument of the actors to get legitimacy to support the spatial production, fighting for and practicing resources in accordance with their interests. The consolidation of the power of the central government encouraged the local state apparatus such as the military, police department, local government and village leaders as well as the State Forest Company and National Park officers to increase their bargaining power. The decentralization policy gave privileges to the National Park, State Forest Company and village government to shape the local resources management. In the past, village leaders

were subordinated to central government so that forests, parks, police and military officers as part of the central government apparatus were the dominant actors shaping the local resource management.

Therefore, the decentralization as a new direction for governing the local resources has given more space for the local people and village leaders as main actors to shape the local decision-making process at the local level. At the same time, a new policy to encourage all the governmental units including the National Park and State Forest Company to generate cash money (that decreased after the financial crisis) to finance government activities has stimulated the commercialization of the resources management. In this way, the State Forest Company and National Park exploit new economic opportunities, not only the traditional forest products such as timber and NTFPs but also environmental as well as tourism-related services at a very intensive level. The policy of the government on the decentralization and commercialization of natural resources as well as on increasing local people's participation has automatically changed the local resource management institutions that accommodate the interests of the local communities, village elites, and central government itself.

The new local resources management institutions that emerged after the decentralization have different patterns due to the variety of the social economic background of the villages: (1) multi-institutionally based resources governance; (2) bilaterally based relationship resources governance; and (3) personal relationship resources governance. In Ngadisari, a village with abundant resources outside the agricultural sector (highly differentiated village), multi-institutionally based resource governance was dominant. The decentralization policy provided by central government encouraging the decision-making process related to resources management was very structured and all the agreements were made through formal village decision-making processes. According to the principles of democracy, all actors have an equal right to access the forest and tourist industry depending on their capability to bargain with other actors. In the past, in line with traditional resources management principles, the poor had the priority to access forest and tourism-related activities for their livelihoods. Nowadays, when the access to such resources has been opened, villagers, namely "the rich and the poor", have the formal legitimation to exploit both the forest products and tourist industry on an equal basis so that the poor have a competitor in exploiting forest products. Concerning the function of resources governance to exclude unauthorized users (Paavola, 2007), in the case of the Ngadisari village these users do not exist, even though the new system contemplates also these actors also if they are not interested.

At the same time, the regulation limiting the access of people who are not the members of a certain association limits the access of the poor to touristic activities, particularly to activities that yield much benefit because they do not possess any capital and almost no skills. But the poor do not only lack the skills and capital conditioning the access to new economic opportunities, they also do not have enough power to bargain in the village meetings whose decisions are often detrimental to

their interests. Meanwhile, local people cannot access new economic opportunities from the tourist sector and the commercialization of forest management due to the complexity of the new system. They have limited power to bargain with other actors in order to be able to engage in formal agreements concerning how resources are distributed, drafted by the State Forest Company and National Park and supported by the village leaders. For instance, in the tourist industries, the village meeting decision has agreed that villagers can access the tourism-related economy if they become the members of an association such as that of jeep owners, motorcycle taxi owners, merchants, horse rental, hotel and villa owners, and local guides. In a highly differentiated village, the role of an association is very important because it has the authority to allow people to become members and to give sanctions to members, and even to withdraw their memberships or expulse them. While the function of governance to regulate the authorized resource uses and distribution of benefits (Paavola, 2011) was clear in Ngadisari village, the benefit however was not for the poor who traditionally had premium access to the forest.

In Wanakitri, the village with an agriculture based economy and small tourism-related activities, the village meeting does not decide on the totality of access to resources so that the poor still can access them through their personal relationship based on the traditional system. Bilateral relationship based resources governance is dominant followed by multi-institutional and personally based resources governance. Multi-institutional governance appears only when regulating access to tourism-related economic activities and personal appears for accessing forest products. As in Wanakitri, the village meeting is the formal medium for actors to channel their power to seize control over and access to resources, particularly access to forest land and tourism-related activities. Because the benefits from the tourism activities and CBFM are relatively small when compared with those in Ngadisari, the parties involved in resource management have no difficulty in putting forward their interests.

Additionally, forest resources management shaped by local values and beliefs still restricts rich people from availing themselves of forest products, particularly firewood and charcoal, to the benefit of the poor because there are no other competitors. The rich often ask the poor who regularly collect forest products as a livelihood to maintain their social status. The rich access the forest directly only for collecting materials for ceremonial activities or for hunting animals as their leisure activities. This situation is also the case in Ngadas, a village of agricultural economy and no tourist industry. The rich would lower their status if they looked for firewood or other forest products directly. Therefore, in Wanakitri, the decentralization policy does not have any significant impact on the local decision-making process in that the management and distribution of local resources particularly the forest still follow traditional values. The formal decision-making process via village meetings is only applied to regulate new resources that emerge as a consequence of the commercialization of the forest management via CBFM by the State Forest Company and tourism-related activities via environmental services by the National Park.

In Ngadas, a village that has a mere agriculture based economy and no opportunities in the tourist sector, formal institutions ruling over resources are not structured like those in the other villages, even though resources are very limited. Therefore, personal relationship resources governance is predominant in regulating access and control over resources. The decentralization of the local resources management only serves to revitalize the right and obligations of the National Park as well as the local people in terms of the mode of exploitation of forest products. The village meeting only reviews the position of the National Park and the new commercialization policy in which Ngadisari village will be projected as a rural tourist destination like Ngadisari and Wanakitri. The rules of the game of exploiting the forests still follow the old method stating that the resources surrounding the village are controlled entirely by the National Park officers and that local people can access the resources only if allowed by the officers. Even though they have tightened their control over resources to limit the local people's access as a consequence of the commercialization of the park; they can still access several areas of the forest as long as they do not cause excessive damage the forest. At the same time, the local people have their own beliefs with regard to giving opportunities to the poor to collect forest products partly for their own consumption and partly for sale to supply the demand of their neighbours. For many villagers, to find firewood or charcoal is very hard because the forests that have abundant wood are far away from the village, as far as five to eight kilometres. In their agricultural practice, they continue to plant crops without high risks but low profits, to minimize the application of technology, and to avoid the mechanization of the production equipment.

8.3 Rural Poor Household Strategies

The strategies of RPHs to gain access to the forest and the tourist sector are shaped by the new local resource governance as the formal institution to facilitate the distribution of resources at the village level. In Ngadisari, the RPHs are involved in certain associations to get formal access to economic activities related to tourism such as those of peddlers, horse owners, or local guides. There are almost no poor people who become members of such associations because it requires capital and specialized expertise. Additionally, the associations have raised the fees for new members who want to access the facilities in order to limit their number. Actually, most of the recent members do not require the addition of new members to limit competition. In fact, the associations are only a medium for them to access the economic activities associated with tourism so that they are increasingly marginalized. The "rules of the game" in accessing the resources are set by the National Park officers, village leaders and heads of associations prior to the village meeting. At the same time, via the village meeting medium, all the villagers are allowed to access the resources from the forest in certain areas that used to be reserved exclusively for the poor.

In Wanakitri, the situation is different in that the new local resource governance only regulates new resources that have emerged in the last ten years such as accessing land within the scope of the CBFM programme and economic activities related to tourism. The decentralization of the decision-making process did not change all the rules of the game regarding resources access and control so that the poor still can access forest products without any competitors. Like in Ngadisari, poor people are only able to access the tourist industry that has low economic value. The regulation of the association states that only people who have jeeps or motorcycles and who have money can join the association. At the same time, they have no capital to build any lodging houses or restaurants which yield more benefit than just becoming local guides or selling flowers. Furthermore, they cannot make maximal use of the opportunities from the CBFM programme since they do not have enough capital to plant profitable vegetables such as potatoes or scallion. Some of them only plant cabbage to avoid having to spend much capital but cabbage has low economic value. Some of them even lease their fields to rich farmers to get cash money. Even though this is forbidden, the lack of sanctions for non-conformance causes farmers to divert their land tenure to someone else. Thus, the new local resource governance that appears to manage access and control of resources has no significant impact on increasing the access to the poor to these new resources. In Wanakitri, resistance as a result of the unequal distribution of resources is solely related to accessing forest products such as flowers and charcoal. A contrast situation can be found in Ngadas where the new local resource governance does not change the rules of the game in accessing resources since there has been no new resource emerging in the last ten years. The village meeting is only a medium for forest officers to send back the new forest encroachers emerged right after the reform. The resources that were opened during the Reform era are still controlled by the villagers but forest officers have asked local residents to maintain the remaining forests or they will take the land back.

In line with these explanations, in differentiated villages where new local resource governance has become formalized in that all the rules of the game of accessing and controlling resources are decided through village decision-making processes, the poor cannot gain access to new resources and even lose their customary traditional rights to access the forest for their livelihoods. In a village with medium differentiation, new local resource governance only regulates the new resources that emerge after the commercialization of the forest area, particularly economic activities related to tourism and land from the CBFM. The customary right of the poor to access the forest is still recognized by the forest officers, National Park, and village leaders so that the process of marginalization is not as fast as in most differentiated villages. In the low differentiated village, the new local resource governance is only a medium for forest officers to affirm their claim over the resources by sending back new forest encroachers who emerged after the reform and ask the local people to maintain the remaining forest. As a consequence, they allow local people to plant in

the areas that had been opened illegally in the early Reform era and the poor can access the forest in certain areas on a limited basis.

From the political ecology perspective, the differentiated areas where dominant actors can consolidate their power to shape the local decision-making processes become more favourable for their activities though they diminish the poor people's customary rights to access the forest and economic activities related to tourism. In a highly differentiated village, for instance, they affiliate with certain associations to get access legally. That strategy is called multi-institutionally based resources management in which to gain access, people must be involved in a certain association. Some of them access the forest and economic activities related to tourism illegally though they are still charged a fee by the association and National Park officers. This situation shows that the formalization of the rules of the game is only a medium for the elites to gain more benefits from the forest and the tourist sector. The arrangement of economic activities related to tourism limits the access of the villagers to the tourist sector, increasing the demands on the labour market. The complaints of rich farmers about labour shortage because people prefer to work in the tourist sector rather than farming encourages the village elites to pressure the National Park officers to decide to limit access of the workforce to the tourist sector. At the same time, it is very difficult for the officers to enforce order since many people are involved in the tourist area and that often disturbs the comfort of visitors.

This finding is in line with Schwarze et al.'s (2007) statement that the village agreement has a strong negative influence on the likelihood of selling forest products beyond other factors. The case of the Upland Bromo shows that the village elites and the National Park officers, as actors enacting a formal village agreement, pursue certain policies to further their own interests and make use of village decision-making processes to legitimate their activities to limit the local people's access to forest. It was verified that local people do not only lose their set of values conveying meaning to the Upland Bromo but they also fail to build up environmental practices in terms of accessing and controlling their territory. The local people in the Decentralization era where their participation in the decision-making process was accommodated have proven that they fail to shift from power to legitimate authority and from access to consolidated resources.

It is clear that the new local resources governance that has emerged in the last ten years has caused unequal situations among the actors involved, i.e. the actors who have dominant power determine the village decision-making processes. They tighten the local people's access to resources through building formal decision-making processes as institutional barriers. As a result, local resources governance is hardly effective in supporting local people to develop adequate strategies enabling them to deal with recent environmental changes. The entire three types of local resources governance mentioned by Devereaux (1993) and Davies (1996) show that the majority of households develop survival and coping strategies and that few of them can build up an adaptation strategy, let alone an accumulation strategy. Rather

than offering equal opportunities, a local institution may instead get rid of the poor and give additional access to the rich, especially in tourist areas such as Ngadisari and Wanakitri.

8.4 The Sustainability Question of New Local Resources Governance

Concerning the sustainability issue in terms of availability of resources, in a village with abundant resources outside the agricultural sector, the level of exploitation of the land is quite high when compared with that in other villages, which is marked by the selection of the plant species, the application of technology, and the mechanization of production equipment. Normally, with abundant resources for livelihood outside the agricultural sector, local people would save their land to maintain the sustainability of production. The fact is that in this study, in villages with very abundant resources outside agriculture, local people are more exploitative of the land with minimum respect to conserve it than those in the villages with minimum opportunities outside the agricultural sector. It is still open to questions why the opportunities outside the agricultural sector do not have direct impacts on the decrease of the exploitation of the land though it is a fact that farming production has been declining in the last ten years, due to both climatic change and soil degradation. Furthermore, the survey conducted indicates that the poor in such areas encounter even more difficulties still to access resources. The number of poor people who illegally access resources is a sign showing that they are increasingly being marginalized by the changes in local resource management institutions. These findings indicate that scarcity of resources in terms of their availability is not the determinant factor shaping the sustainability of the local resources governance. The structure of access to and control over resources is more important because the dominant actors who control more resources also play at the same time significant roles in shaping decision-making processes.

Is the new local resource governance system emerging in the last ten years to deal with the decentralization of politics and the commercialization of the rural economy sustainable? According to the previous explanations, associated with sustainability issues, this emergent new local resource governance has many weaknesses but also offers opportunities at the local level. In terms of the participation process, each actor has unequal bargaining positions because the elites (village leaders, National Park and State Forest Company officers) have dominated the process, diminishing the transparency of decision-making, particularly in highly differentiated villages. The participation of the stakeholders in the village meeting process is as a medium for them to easily channel their interests but the dominant powers such as the village leaders, State Forest Company, and National Park officers manipulate the

process. The state represented by the State Forest Company and National Park makes use of the local leaders who traditionally have the legitimacy and formal authority to shape the decision-making process to serve their interests. As a result, the decentralization of the local resources management imposed by the central government to accommodate the local people's interests constitutes only a shifting of power from the central government to the local elites. The idea of the canalization of the villagers' aspirations through association is one of the strategies of the elites to localize these aspirations. The National Park and State Forest Company as well as village leaders even become more powerful in that they can decide for themselves the pattern of the natural resources management without the consent and endorsement from the central government. It supports the findings of Koch et al. (2008) that local elites based on traditional and/or economic powers decisively influence access to natural resources and social cohesion. The actors who control and access the resources are the same but they have different sources of legitimacy so that the sustainability of the local resources management that is assumed to be better when the participation and transparency of the decision-making process increases, is still questionable.

Do decisions taken within the framework of the new local resource governance give equal opportunities to the local residents to access resources? In terms of the quality of the decisions taken, the RPHs have found out that the agreements are unfair to them since the rich people are allowed to access the forest for their needs while they should actually only collect materials for ceremonies. In the village meeting, all kinds of resources are regulated, particularly in the differentiated villages such as accessing firewood from dry twigs for their own consumption in a certain area far away from the main road since burning charcoal is prohibited in all areas of the National Park, involving CBFM, and accessing the tourist sector related economy. In the medium differentiated village, only new resources that have emerged after the decentralization process are regulated such as accessing CBFM and those related to tourism. In the low differentiated village, the village meeting does not regulate the ways used to distribute the resources, meaning that the new local resource governance is only the medium for the villagers to maintain the old patterns of forest use. For the National Park, it is used to revitalize the claim of control over the resources surrounding the village. In relation to sanctioning infractions, the violators of the agreement are to be arrested and stand trial on the basis of the laws applicable in all the villages. In reality, however, almost none of the trespassers have been arrested in the last ten years, although some people really poach large amounts of timber in the area of conservation. Wrapping up, the agreement in the village meetings tends to give equal opportunities to all the villagers to access forest products though the elites still dominate the process so that it potentially becomes sustainable when based on the normative point of view. However, in relation to the distribution of resources, the new local resource governance emerging after the Decentralization era has shown no significant impact on local people, particularly

the poor, though the community's participation in the decision-making process is relatively better, especially in highly differentiated villages.

According to the framework of Vallance et al. (2011), the new local resources governance is not really sustainable and is marked by negative values in several of the indicators analysed. Of course an important indicator such as binding sanction does exist in Wanakitri and Ngadisari, but the law enforcement of that sanction does not happen in any of the villages researched. Therefore, local resources governance is at fault in decreasing pressure on the forest either in multi-institutional, bilateral or personal relationship based resources governance. As to the economic aspect, the benefits are only enjoyed by the people who are involved in bilaterally and personally based resources governance, in particular the CBFM in Wanakitri and selling forest products in Ngadas village. A similar situation exists in the indicator development in terms of the willingness to conserve in that it is only in personally based resource governance that the local people still make efforts to conserve the forest at the medium level. The same situation occurs in the bridging indicator in terms of the willingness to follow new regulations in that it is only the people who are involved in the personally based resources governance who obey those regulations. In the last indicator, the maintenance system, all the indicators show a negative effect and only in the bilateral relationship based resources governance law enforcement is implemented, even though at the medium level.

9. Conclusions and Implications for Future Research

9.1 Conclusions

This research deals with five crucial questions, namely (1) how spatial production and practices in the Upland Bromo have been dominated by the state; (2) how recent environmental changes (social and physical) have increased the escalation of the struggle for power to gain access to and control over resources; (3) how the form of the new local resources governance (new local resource governances) arises as a medium for actors to express their interests to gain more control over and access to resources after the Reform era; (4) what are the adaptation strategies adopted by poor rural households to deal with new local resource governances shaping the availability of the resources in order to maintain their livelihoods; and (5) whether or not the new institutions related to the local resources governance formed in the Democratization and Decentralization era are sustainable in terms of conserving resources. In relation to the first question, as presented in the results and discussion, spatial production in Upland Bromo has always been developed by dominant regimes with different goals and in different ways to serve the state's interests in order to establish their control over the land and people. Every regime has its

own ways to revitalize its legitimacy using a certain ideology to legitimate their control over and access to resources.

In the Majapahit era, religious ideology, particularly Hinduism, was made use of by the Kingdom to define the Upland Bromo as a pilgrimage area in which the local people had to hold ceremonial activities to honour Mount Bromo and those who did not attend the activities were considered as resisting the King. The meaning of the Upland Bromo and control over the area was absolutely dominated by the Majapahit Kingdom. In the Colonialist era, the colonial government cooperated with the local leaders in implementing the new agrarian law prohibiting the shifting of cultivation activities and encouraging local people to settle in a particular location so that the government could easily control the remaining forests to establish plantations. In the Independence era, the Indonesian government made use of development and modernization as its legitimacy, including the conservation ideology in the post Suharto era. Nowadays, in the Reform era, the reform regime has employed the conservation and decentralization ideology as a new tool of legitimacy strengthening the access to and control over the Upland Bromo. The main purpose of such policy has been to promote the commercialization of the forest management to gain more cash money to finance government expenditures. These gains have been decreasing after the financial crisis; therefore, decentralization has limited the local people's access to resources. The initial thesis of this research stating that the spatial production of the Upland Bromo has been shaped by the dominant powers to maintain their access to and control over the land and people in order to establish the ruling regime, not only during the Majapahit Kingdom and the Colonial government eras in the past but also under the current regime, has been verified.

The efforts of the dominant powers to define the Upland Bromo as a pilgrimage or conservation area that tends to obey the human role in shaping the landscape is still a political concept; in accordance with Uggla's (2008) analysis of the ambiguity of the separation between the concepts of nature and culture in the IPCC work, these definitions have to be negotiated and filled with meaning according to particular circumstances. In the contemporary Upland Bromo situation, the National Park efforts in defining that area as conservation area are very questionable due to the fact that the National Park also commercializes certain areas for economic activities not only for environmental services and tourism but also for other production activities. Even though tourism activities claimed by the National Park support the local economy, from the conservation point of view it is still questionable for the researcher due to the lack of evidence to find the connectivity between conservation and tourism, particularly in the Upland Bromo area where the structure of soil is very prone to damage because of the building of tourist infrastructure and transportation (Cochrane, 1997).

The contemporary environmental changes, both socially through the capitalization of the rural economy, and physically through climatic changes related to rain variability, coincidentally have lessened the availability and productivity of resources, impacting on the uncertain conditions of RPHs' livelihoods. The agricultural pro-

duction has sharply declined in the last ten years and this is accompanied by the increase of the production cost due to climatic changes related to the variability of rain. As a result, rich farmers have reduced the production cost thus, decreasing the number of workers and do not raise the wages to avoid greater losses. On the other hand, the marginalization of the poor due to the capitalization of the rural economy and heritage system has caused the RPHs to lose their lands as important assets. As in the lowland, the RPHs in Upland Bromo cannot access economic opportunities outside the agricultural sector due to their lack of capital and skills as well as information. At the same time, introducing intensive cash crops that need capital via the green revolution cannot be made use of by small farmers. The forests as the other source of the RPHs' livelihoods cannot be accessed anymore due to the commercialization policy imposed by the central government via the State Forest Company and National Park. Therefore, the availability of resources that can be accessed by the RPHs has decreased in line with the contemporary climatic changes related to rainfall variability and the nature of the marginalization in development. Furthermore, the local culture that supports early marriage has caused the children's education to be neglected by their parents, encouraging a population growth higher than that in East Java in general. The financial institutions that emerge in line with the capitalization of the rural economy and the modernization process cannot be accessed easily by the poor since they call for modern procedures that cannot be met by small farmers.

It is quite clear that institutional arrangements arising in line with the capitalization of the rural economy as well as the commercialization of the State Forest Company and National Park, such as mentioned by Agrawal (1995), play a significant role in determining the availability of resources. In the Upland Bromo, the population growth from migration contributes in increasing the demand for land and this is marked by the clearing of private forests and the increase of the local people's pressure on forest resources. Indeed, local cultures which prevent local people from migrating and which support early marriages increase the population's pressure on these resources. It is inherent with the finding of Faust et al., (2003) that shows that population growth via internal migration increases pressure on forest margins. On the other side, even though environmental influences on the production of food (crops and livestock on land, wild and cultivated fisheries) are diverse, complex and interactive, many researches provide enough evidence that resources are threatened (McMichael, 2001: 201). In the Upland Bromo, this situation is very clear in that the variability of rain as part of recent climatic changes has decreased agricultural productivities and increased production cost. Therefore, the findings of this research have supported the second thesis stating that the recent environmental changes (social and physical) and the commercialization of the forest management increase the scarcity of resources, leading to the increasing escalation of the struggle for power to gain control over and access to resources.

The increasing escalation of the struggle for power has encouraged the local community to create a new local resources governance to facilitate the variety of

interests as a societal mechanism to respond to uncertain conditions. It has replaced the former local resources governance, controlled directly by the central authority, in which the participation of local governments and local communities in the decision-making process as related to the local resources governance was low. After the Reform era, the local people can now express their aspirations, not only in the political field but also in regard to the local resources management issue, through the redefinition of the customary traditional access to resources that had been previously lessened by the central government. Access to resources is not dominated anymore by the state (State Forest Company and National Park) but managed also by the district and village administrations and the villagers. Thus, there are three types of new local resources governance facilitating the local people's access to resources, namely multi-institutional relationship, bilateral relationship, and personal relationship based resources governance. They are decided at the village level through a local decision-making institution called "Rembug Deso" or village meeting, so that they become more formal and through which norms and rules of accessing to and controlling over certain resources are decided following more formal procedures.

The adaptation strategies of RPHs to deal with environmental changes both socially and physically have specific patterns depending on the structure of the local resources management system regulating them. The pattern of adaptation strategy involves the struggle for power among actors in which the powerless usually avoid direct confrontation with the powerful actors to minimize the risk that may potentially disturb their livelihoods. For this reason, when the normal strategy is very troublesome, the RPHs create surreptitious activities as a pattern of resistance to get instant access to resources when the legal way is not satisfactory for them. Formal resources managements often do not provide greater opportunities for the poor because the decision-making mechanisms are dominated by the powerful parties. The village decision-making process, for instance, will never talk about the specific interests of the poor such as how to maintain livelihoods and how to compensate the loss of income when the poor are not allowed to access forest margins. In fact, in the village decision-making process, they just talk about the normative roles of forests as preservation areas so that the aspirations of the poor are neglected. As it is known, RPHs have been socially excluded from the mainstream of the economy as a consequence of the impact of the capitalization of the rural economy since the Colonialist era and this has been followed by the commercialization of the forest management as a consequence of the Decentralization era. RPHs are totally involved in the three kinds of local resources management system namely the multi-institutional relationship, bilateral institutional relationship, and personal relationship based resources governance as well as surreptitious activities in order to gain access to natural resources surrounding them which were formerly controlled by the more powerful actors, i.e. State Forest Company, private forest company and National Park.

The first strategy is that they affiliate with a certain association to be involved in multi-institutional relationship based resources governance to gain access to re-

sources particularly economic activities related to tourism and water. The process is facilitated by the village leaders and thereby reduces the conflicts between the State Forest Company and the National Park. Through multi-institutionally based resources governance, RPHs are involved in three kinds of organizations to get access to resources, namely the economic activities related to the tourism associations and water consumer groups, and village working groups. Such resources are regulated in the village meetings in which the management system is established by the relationship among several institutions in order to regulate the rights and responsibilities of the institutions regarding resource utilization. In the village meeting, the villagers are represented by the head of the association or group to negotiate their interests though they are also present in the meetings. The second strategy of the RPHs is that they affiliate with the forest farming groups in the CBFM programmes to access the resources, regulated in bilateral institutional relationship based resources governance. The two institutions, both the State Forest Company and KTH, have an agreement to manage a certain forest area for agriculture together within the framework of the CBFM programme, in which the KTH have the right to plant agricultural products with a profit sharing system. The last strategy of the RPHs to deal with personal relationship based resources governance is to make use of their personal relationships such as family ties and bonds so they can access forest margins and activities related to tourism without getting involved in certain associations or groups. Indeed, they are only allowed to access the resources that have low economic value, not causing any extensive forest damage, or any potential conflict with other villagers.

The first strategy is dominant in Ngadisari, a highly differentiated village, since the implemented regulation for accessing resources was decided in the village meeting. The associations, village leaders, National Park and State Forest Company have important roles in determining the practices of accessing the resources. The second strategy is common in Wanakitri, a medium differentiated village, since there are no dominant institutions in which RPHs can access resources through multi-institutionally, bilateral relationship or personally based resource governance depending on the kinds of resources. In a medium differentiated village, formalizing the rules and norms in accessing resources only applies to the resources that emerge because of the commercialization of the forest management and the National Park. The last strategy is the dominant type of resource access in a low differentiated village since the formal decision-making process does not regulate the new ways to access the resources. In low differentiated villages, the new local resources governance is only a medium for the National Park to reassert their claims over the forest and a medium for the local people to legitimate their control over the land they had developed during the early time of the Reform era.

For the RPHs, new local resources governance is often insufficient to meet their needs just at the subsistence level, particularly in the area where the competition in accessing resources is hard like in Ngadisari where the multi-institutional relationship is dominant. Thus, they undertake surreptitious activities to maintain

their livelihoods at the subsistence level that remain illegal under the formal agreement decided in the village decision-making. From the perspective of the motive and methods of the illegal activities to access forest margins and the tourist sector related to the economy, the RPHs resort to defiant action to claim the resources controlled unilaterally by the state. As highlighted before, the forest is an important source for their livelihood as a complement to the diverse incomes in their household, especially for the poorer sectors of rural society. The domination of the state's power has caused uncertain conditions for the RPHs in which the new local resources governance restricts their access to resources. As a result, when legal access is limited, poor people are forced to access the resources illegally even though the forest products have become scarce and there is severe punishment for illegal activities. Furthermore, the weak law enforcement and unofficial permission practices of park officers have encouraged the RPHs to access the resources illegally. At the same time, park officers and village leaders get benefits from such activities and this lessens the RPHs' respect to them leading in turn to attitudes fostering the willingness to engage in illegal activities. The RPHs realize that the limitation of access to resources is a strategy of the elites to exclude them from accessing resources.

Based on the livelihood strategies framework, most rural households are only able to develop survival strategies. As revealed by the village research, only one or two households, particularly those that are rich and have enough capital and skills, can work out accumulation strategies through involvement in tourism and CBFM. Only few households have been able to adopt an adaptation strategy as most of them are unskilled and have limited access to the new resources shaping the new local resources governance. At least most of them are only able to adjust to uncertain situations by resorting to a "coping strategy" without being able to build up a better strategy such as anticipation or "adaptation strategy", or the safest strategy which is "accumulation". In conclusion, the new local resources governance emerged in the last ten years after the Reform era which expected to be able to further local people's interests has failed to encourage more fairness in regulating the access to resources.

According to the above, when associated with the sustainability issue, the new local resource governance emerged in the last ten years to deal with the decentralization of politics and the commercialization of the rural economy, the National Park management, and the State Forest Company, have many weaknesses and offer few opportunities. In accordance with the framework of Vallance et al. (2011) that divides social sustainability in three different roles, i.e. development, bridging, and maintenance sustainability, new local resources governance is not really sustainable and this is signalled by the negative values in several indicators analysed. First, in terms of the participation process, a part of the bridging aspect, actors have unequal bargaining positions and the elites (village leaders, National Park and State Forest Company officers) dominate the process, which in turn lessens the transparency of the decision-making process, particularly in highly differentiated villages. Although the distribution of resources is no longer dominated by the National Park and vil-

lage leaders but through the village decision-making process, the public remains unable to supervise the process due to the domination of the local leaders who have mutual economic relationships with the National Park and the State Forest Company.

Second, in terms of the quality of the decisions made in the context of the new local resource governances, as an aspect of the development in social sustainability, the RPHs realize that the agreements are unfair to them since the rich people who were previously prohibited to access the forest directly (based on the local norms), now have formal legitimacy to access it. For the RPHs, increasing their participation in the village decision-making process has no significant impact on the fair distribution of the resources due to the domination of the village leaders and the park officers.

Last, in terms of maintenance sustainability, the new local resources governance is still far away from following the road to sustainability failing to keep this direction due to the weak enforcement of laws and sanctions agreed among the actors. Even though law enforcement is still weak in the multi-institutional relationship based resources government, many actors are involved and the sanctions are relatively rigid.

All this means that the outcomes of the new local resource governance after the Decentralization era do not provide equal opportunities to the local residents to access resources, though the system was meant to facilitate their participation in the decision-making process. In conclusion, the new local resource governances are still far away from the principle of sustainability if sustainability addresses the question of how societies can shape their mode of change in such a way so as to ensure the precondition of development for future generations. Furthermore, concerning the human-nature relationship, if sustainability refers to the viability of socially shaped relationships between society and nature over a long period of time, the Upland Bromo situation after decentralization is still questionable.

9.2 Implications for Future Research and Policy

Recomendation

According to the results of this research, there are five important recommendations which can be developed to promote more sustainable local resources governance. *The first*, it needs to pay more attention on how to balance the structure of power through which each actor can influence the meaning of Upland Bromo on equal terms. The equitable balance between the parties involved furthermore becomes the only basis or referent or legitimacy of local society in creating more sustainable resources governance. As explained before, spatial production in the Upland Bromo has been dominated by the state from time to time and the local people's aspirations have been neglected even in the Decentralization era when local people theoretically have the right to define their territory freely. Although they are free to express their

opinions in the formal decision-making process concerning the regulation of the access to resources, the definition of entitlements on the Upland Bromo which has been dominated by the powerful actors, mostly by the state, becomes the main constraint in developing more sustainable local resources government at the ground level. In the three villages researched, the researcher found that the tendency to formalize the decision-making process concerning natural resources governance is more profitable for the state and private companies as well as local government than for the local people, i. e. in terms of controlling and accessing resources. Therefore, for the future research, engaging and promoting more local people's participation in defining the Upland Bromo territory based on their customary rights is strongly required to gain a balanced meaning of what accessing and controlling resources refers to.

The second, re-scaling the impact of environmental changes beyond the household level and local institutional i.e. regional, national, and international levels is needed to provide more elaborate data for promoting the right household strategies. According to the findings of this research, household strategies were determined not only by local level environmental changes, but also by the dynamics of regional socio-economic situations. It was found in the village with a high share of non-agricultural production, particularly tourism, that changing regional, national, and international socio-economic situations has a direct impact on their strategies. Even though the *de-agrarianization* process has not been really verified in the village research, new economic activities which use natural resources as main capital such as tourism have been proved to be highly vulnerable to environmental changes. So, re-scaling the impact of environmental changes is needed due to the fact that local economic activities have a direct connection with national and international socio-economic situations.

This research provides more profound explanations concerning local society's response to the recent environmental changes (socially and physically) and the decentralization process with regard to resources governance which has no resonance in achieving the sustainability of society to increase its self-mechanism to cope with uncertain conditions. The new local resources governance emerging after the Decentralization era through which the actors can be involved in the decision-making process is at fault in distributing resources more equally among the members of society. The state apparatus, the village governments, and the National Park have become the most powerful actors in shaping the regulation of resources because they have a new legitimacy, i.e. as the representation of the local people at the village government and the commercialization policy for the National Park. So, as *the third* recommendation, it is needed to find the factors constraining the ability of local society in creating sustainable new resources governance.

Related to the households' strategies in dealing with the new local resources governance regulating the access to resources, future research needs to explain the constraints of the local people in creating more suitable strategies beyond the traditional livelihood framework. It will answer the question of how and why most of

the local people are only able to develop survival strategies while there are only a few households that can develop an accumulation strategy. Not only within the traditional framework of livelihood strategies that sees physical and social capital as the main factor shaping household strategies, but based on the findings of this research, analysis must also be focused on the pattern of the new local resources governance that shapes the availability of resources determining the households' strategies. The availability of resources has been proven as the function of multiple factors, not only structural and cultural problems but also physical and environmental changes. It leads to *the fourth* recommendation that the real determinant factors of local society strategies beyond the asset based livelihood analysis need to be identified, particularly in Upland Bromo and other areas that have the relatively same socio-economic background.

Related to the sustainability issue, unequal shifting of power from the central to the local government has some constraints in conjunction with the efforts to solve some issues such as the sustainability of local resources governance. This leads to *the fifth* recommendation that the future research needs to pay more heed to some issues, such as how the power must be spread evenly at all social levels to control the equality of the resources distribution. This situation is compatible with the findings of Larson and Soto (2008:228) that without attention to social equality and inclusion, initiatives such as community forestry may be hijacked by the internal elites. Creating more participative institutions that limit the local elites' power, particularly when they have no direct interaction with certain resources, is needed to build a meaningful local resources governance that avoids manipulation of decision-making processes in the dynamics of local power structures in the specific contexts and culture of the local community. This situation is relatively similar to the perspective of Koch et al. (2008) finding that without implementing some essential design characteristics, local self-governance of natural resources would be ineffective. Even if such characteristics are implemented, they may have less egalitarian and pro-poor outcomes. Indeed, related to the social sustainability of measurements, to elaborate indicators in a more specific way is important as well as expanding measurements to the regional and national levels.

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Until 1998 Indonesia was ruled by an authoritarian regime under which natural resources were exploited excessively so that resources governance was not appropriate anymore dealing with sustainability issue. Throughout the contemporary reform process with the decentralization of power via local and regional autonomy, natural resources are no longer dominated by direct state power only, but also managed by more actors at various levels of society. To employ the concepts of political ecology, new institutionalism, livelihood strategy and social sustainability, the research showed that spatial production of Upland Bromo have always been dominated by state actors in order to establish the control over land and people. On the other hand, the contemporary environmental changes, socially and physically, coincidentally lessen the availability and productivity of the resources, which in turn has affected the local people's livelihoods, leading to the increasing struggle for resources. As a result, three kinds of new local resources governance, namely multi institutional relationship, bilateral institutional relationship and personal relationship based resources governance are formed. In association with the sustainability issue, these new local resources governance was not really sustainable signalling by negative value in indicators analysed; ability to develop sustainability, bridge the sustainability, and maintenance sustainability. This research gives clear explanation that transformation of regime from authoritarian to democratic in developing countries do not always has significance impact in promoting sustainable resources governance.



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