Underlying Drivers of Land Use Change in Indonesia

Nina Novira¹, Herdi², Darwin P Lubis¹, Puspitawati³ and Melinda Suriani Harefa¹

¹Department of Geography Education, Universitas Negeri Medan, Medan, Indonesia
²Engineering Faculty Institut Teknologi Medan, Medan, Indonesia
³Department of Anthropology Education, Universitas Negeri Medan, Medan, Indonesia

ninanovira@unimed.ac.id

Abstract. Shifting cultivation and poverty are often accused to be responsible for tropical deforestation and land use change. Without denying the importance of these factors, this paper argues that there are other factors that play a more important role. Thus, it proposes an alternative to the explanation of land use change in Indonesia. Literature study, expert interview, and in-depth interview are used to gain understanding of the overall global, national, regional, and local influences on land use change. To see how these affect land use change at a local level, a case study was conducted in Labuhanbatu Utara Regency of North Sumatera, Indonesia. The result indicates that power distribution among different actors hold a very important role in driving land use change. This contradicts the common assumption that shifting cultivation and poverty are the main cause.

1. Introduction

Shifting cultivation and poverty has long since been held responsible for tropical forest reduction and degradation. In reality, many deforestations involved external investors with huge capital. In this case, poor local people usually accused of the main actor are the ones who suffer the most. Such deforestation often designated for industry and excluded the locals from their natural resource. These are important factors indeed. However, seeing the problem from a different point of view, there are other factors that are not less important [1].

As an approach that examines human-environment relationship with the emphasis on power distribution among different place and non-place based actors in a politicized environment, political ecology sees land use change as a logical reaction to certain political settings and arrangement occurred under certain power control of different actors [2], [3]. This is clearly visible in the fact of massive land use change phenomena in Indonesia.

2. Methodology and Case Study Area

Overall insights of global, national and regional political settings are acquired from literature study and expert interviews. The understanding of the influence of global, national, and regional actors to local action is gained through literature study; in-depth interviews with regional and national actors, such as parliament member and National Land Authority official; and expert interview with scientists. To understand the reason of the conversion done by rice field owners, semi-structured in-depth interviews
were done with local actors, such as former farmers, landowners, pioneer converters, and oil palm transmigrants.

![Figure 1. Decreasing Rice Field in the Case Study Area](image-url)

To see how global, national, and regional actors were influencing the local phenomenon, a case study was done in Bulungihit, a former leading rice producer village in North Sumatera, Indonesia that was completely converted into oil palm estates. In 1987 before any conversion took part there was 1.130 hectares of rice field in the village. In 2000 it shrunk to 400 hectares before it finally vanished in 2008.

3. The Settings, Arrangements, and Responses

To be able to explain this period more in detail, it will be divided into three sub-periods, sub-period of 1990 – 1997, sub-period of 1998 – 2000, and sub-period of 2001 – to date.

3.1. Sub-period of 1990 – 1998 Later New Order Era

The government wanted to reduce the dependence of the wood industry to natural forest and therefore encourage the establishment of industrial forest plantations (hutan tanaman industri, or HTI) to serve as a source of raw material for the wood industry. Unfortunately, instead of stopping forest clearing it created a new form of deforestation since the establishment of the HTI was not always in the cleared forest but often by clearing new plots.

Oil palm redevelopment policies were beginning to show their side impacts. The integration of the oil palm redevelopment program to the rural development strategies in 1977 was the first program that introduces and announces the value and profitability of planting oil palm to the people. Before, the people act only as labor in the big oil palm plantation without ever knowing the financial value of it. The result is a record of first smallholder oil palm estate production in 1979. The integration of both programs into transmigration program in 1985 brought oil palm even closer to the people.

The program dedicated a certain parcel of land to the participants, which included readily planted oil palm estate, a smaller parcel to grow their own food, and a readily built simple housing, all provided by a mother company. All of these facilities were not for free indeed. However, the easy re-payment method helped the participants in the process. Using the so-called Nucleus-Estate-Smallholder scheme or NES, the trans-migrant as the estate are guided and trained to take good care of the oil palm estate by the Mother Company or nucleus, usually publicly owned. The nucleus purchased all the yield of the estate with fair price. The costs of all the facilities received by the trans-migrants are deducted from 30% of the estate’s oil palm yield. In a normal situation, the re-payment period would be around 20 – 30 years.

In 1986, the registered Bulungihites from the 1985 transmigration call departed to their new home in Bagan Batu with only very limited resource at hand. They received 2 hectares of land with 2 years old oil palm estate, 0.75 hectares of land to grow food crops for private consumption, and 0.5 hectares of housing ground with readily built simple house. Oil palm normally starts to bear fruit at the age of 3
years, but the fruits in this age are usually not yet saleable. Not until it reached 5 years did the fruits are qualified to be sold. During these years of almost zero production, beside of working on their own estate, the trans-migrants also worked with the mother company until their estates are ready with ‘real’ production. This has also eased adaptation and welfare improvement process of the trans-migrants. It did not take long for the ex-Bulonghihites to have a better life in Bagan Batu. Their counterparts could clearly see this and logically, related it directly to oil palm. Oil palm has gained its prestige through the success story of the fellow Bulungihites transmigrated to the land of hope, Bagan Batu.

On the other hand various aids and programs launched to improve rice farmers’ welfare in order to support the commitment to meet domestic food demand from domestic production have proven not to be effective as there are tendencies that rice farmers shift to cash crops such as oil palm, switch to another land use, or even sell the land [4]. This action was earlier unimaginable. The New Order Regime with Suharto as President is well-known for being repressive. Aiming for rice self-sufficiency since the beginning of the governance, no rice farmers dared to switch to another crop or to change its use. However, after being in power for so long since 1966 it seemed that Suharto’s dominance was beginning to fade in the 1990s. People started to show the courage to fight and refuse to comply with restrictions. The beginning the openness era (era keterbukaan) initiated by President Suharto himself in 1988 could have been the cause of the increasing courage of the people [5]. The President started to allow loose censorship of the press, demonstration and criticism to the government, which was highly restricted before [6].

In Bulungihit even those who cultivated vast rice field area were not well-off let alone wealthy. Life was really difficult at the time of rice farming. A family of 4 could only survive 6 months with the yield of rice from almost 3 hectares of their own rice field, not rented. The family, usually the father, need to seek for another source of income to survive the other 6 months of the year, usually involving seasonal migration to another area that could take 3-6 hour ride. The well-established irrigation channels and weir did improve production, fertilizer and seed subsidy did reduce the cost of production, the credit facilities do lighten financial difficulties of the rice farmers. However, all of the supports are just not sufficient to bring welfare to the rice farmers in Bulungihit.

The establishment of some smallholder oil palm estate in the context of rural development program in areas in the radius of 2 – 4 hours away from Bulungihit took place even before the Bagan Batu transmigration call. First pioneer converter shifted from rice field to an oil palm estate in 1988 having learned the worth and success of oil palm farmers from those early smallholder estates. Before 1990 only 3 farmers dare to plant oil palm on their rice field. Out of fear to the New Order Regime’s representatives, they plant oil palm in their farthest most remote rice field at the beginning, and then slowly, as people beginning to show more courage, they plant oil palm in their nearer-to-the-road fields.

This sub-period marked a shift in land use change pattern in Indonesia. Deforestation is no longer the only dominant process. The conversion of agricultural land, especially rice field, to cash crops or to other uses begins in this sub-period. What is interesting in this sub-period is the less domination of government’s role in shaping land use change phenomena. The people’s will is more apparent and overcome the government’s political settings.

3.2. Sub-period of 1998 – 2001 Reformation Era
The 1997 Southeast Asian economic crisis that also hit Indonesia badly plus long time disappointment of the governance woken up the people and raised their spirit to be free from the regime. The courage mounted and resulted in the toppling of the New Order Regime. On May 21st1998 President Suharto announced his retreat. Domestic chaos and multi-dimensional crisis that has been going on in almost in all sectors was reduced, but, however, continued [7]. With economic crisis, political instability and the absence of lasting oppression in the air, the people did almost literally what they wanted. A source even mentioned that the people just hate all the things connected to the New Order Regime including, ridiculously, irrigation channel.

The authoritarian government has brought many disappointments that for some people grew into a feeling of hatred. As the regime collapsed, some people wreaked the hatred by destroying symbols and
'products' of the New Order regime. In cities this could mean monuments or government offices, in rural areas where agriculture were dominant, this could mean destroying agricultural infrastructure or abandoning institutional setting built to support agriculture such as farmers’ group and Village Cooperative Unit.

Irrigation channel destruction was not evident in Bulungihit. However, since the fall of the New Order Regime people no longer have fear to convert their rice field into oil palm plantation. Although the Regional Government of Labuhanbatu has issued a policy specifically ban the conversion of rice field into other uses, especially oil palm estate, the Regional Regulation (PERDA) No. 37 in 1998, crop shift continued. On the other side, the 1997 Southeast Asia crisis that weakens the Indonesia’s economy has different impact in the area.

In Bulungihit, Bagan Batu, and other smallholder oil palm estate centre, the 1997 crisis was not a crisis at all. The rising 4 – 7 folds exchange rate of US Dollars brought benefit for them as the price of oil palm is determined based on US Dollar value. The higher the US Dollar exchange rate is, the higher the price of the oil palm. The smallholder oil palm estate owners are probably a small minority of the people that benefited in the 1997 economic crisis. This has another implication. Having not only survived the crisis but also benefited from it raised oil palm’s prestige and attractiveness even more, as if it was calling everybody to come and join the party. In the case study area, this is the period of massive conversion from rice field to oil palm estate.

This sub-period also demonstrate how the people are more powerful than the political settings of the government. However, strong global influence, especially the rising foreign exchange, plays a significantly important role.

3.3. Sub-period of 2001 to date Regional Autonomy Era

Leaving authoritarian government of New Order Regime behind, Indonesia aimed for a better democracy. Seeing centralistic mode of governance practiced in the Suharto era as disadvantaging for regions, the people demanded for a decentralized government. With the spirit of maximizing regional development for public welfare by giving the regions more power to manage themselves without too many interventions from the central government, decentralization policy was issued [8]. Based on the Law 22 Year 1999 concerning Regional Governance all the Provinces, Regencies, and Districts have an autonomous right to manage their region. The policy was mandated to be fully implemented starting from 1st January 2001. This autonomous right mandated a significantly huge amount of power to regional leaders as executives and regional parliaments as legislatives. Together they have almost full power to define regional policies and to define the future fate of the region [8]. The implementation of this policy brought Indonesia to a new chapter of land use change. As a result of the centralistic way of regional development during the New Order era, many regions are literally underdeveloped. One of the aims of the regional autonomy is an equitable development among regions. However, what happened following the implementation is quite astonishing. Many regional leaders have gone way too far in translating his/her authority in the regional autonomy framework. Land use changes that were previously seen as an act against the law was legalized by the regional leaders. Forests were becoming oil palm plantations and rice fields turned into business complex or industrial area. The permits were granted in the name of raising regional revenue for regional development. There are very little that the central government could do against this, since the regulation at the national level also oftentimes leave holes and chances for wide interpretion [9].

What happens in this sub-period is almost similar to those happened in the 1970 – 1990 period. Enterprises are playing here taking advantage of the regional leaders’ ambition to increase regional revenue, just like the aim of the government in the 1970 – 1990 period to boost Indonesia’s GNP. The issue of the Master plan for Acceleration and Expansion of Indonesia’s Economic Development (MP3EI) in 2011 add the pressure to regional leaders to meet its regional development achievement targets, giving more reasons to the regional leaders to ‘sell’ their region to the entrepreneurs.
4. Conclusions

Indonesia has experienced immense land use changes in different types and for different purposes. In contrast to the often time accused, shifting cultivation does not play an important role. Referring to [10], agents of land use change in Indonesia changed over time. Before independence the dominant agents were the colonists. After independence, in the first period 1950 – 1970 land use change was state-initiated through its agricultural development program. During the second period 1970 – 1990 agents of land use change shifted to state and enterprise driven processes, while in the last period 1990 to date the people are the main land use change agents with political settings as underlying drivers.

At the beginning of the massive land use change in Indonesia, the ruling government and their political setting are the most responsible actor that shaped and drove land use change. The rising influence of military and Chinese entrepreneurs reveals that power does not always means the government. The emergence of agricultural land conversion to either cash crop or other more economically viable land use in the 1990 – 1998 sub-period is also an example of how the will of the people can be more powerful than the government’s political settings. This actually gave a signal to the government that the settings to support agriculture and rice farming are not attractive enough in comparison to the pulling factors of cash crops and other land uses, such as an industrial complex and business area. Massive rice field conversion to oil palm estate in the period of 1998 – 2001 evince that global factors could also be a major influence in the domestic affairs.

![Figure 2. Political setting in each sub-period with its consequences](image)

| Period | Key Events |
|--------|------------|
| 1950 – 1970 (New Order Era) | Repressive regime since 1966, severe economic crisis in 1997 and massive mass movement in 1998 led to the collapse of the New Order Regime in 1998, chaos in almost all sector in the transition period, foreign exchange rate rose 4 to 7 folds. |
| 1970 – 1990 (Reform Era) | Can also be named Legalized Land Use Change Era, regional autonomy policy, more freedom for the region, more power at the hands of regional leaders, master plan of Indonesia’s Economic Development (MP3EI) set targets for regional development achievement. |
| 1990 – date (Regional Autonomy Era) | December to date regional autonomy, uncontrolled regional policies and decisions, regions must follow MP3EI’s targets, many land use change were endorsed in the name of regional development. |
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