

Sliding from greasy land? Migration flows and forest transformation caused by oil palm expansion in Riau, Sumatra and Berau, East Kalimantan

Summary

Indonesia has made significant investments in energy crop production (mostly oil palm), to a large extent in response to an increasing global demand for edible oil and ingredients for soap, cosmetics and paint. The demand for palm oil for biofuel applications was recently added to the overall market demand for oil palm products. The establishment of oil palm plantations is often mentioned as the main driver behind land use change and deforestation, peatland degradation and forest fires. This has put Indonesia among the top three largest emitters of greenhouse gases in the world (Trines et al., 2006).

The research component presented here (which includes 4 projects) takes an integrated approach to look at the consequences of the rapid expansion of oil palm plantations for sustainable development and – more specifically - rural development planning.

Three different perspectives (i.e. the people, the planet and the profit perspective) are integrated:

- The local government/institutional perspective focuses on the planning (profit) aspects, as local governments need to earn part of their development budget themselves.
- The environmental perspective (planet) looks at how indirect effects of oil palm plantations are accelerating forest transformation.
- The response mechanisms of local and non-local people, who try to make a living in areas where large and small scale oil palm plantations is expanding.

As such this research component aims to contribute to a clear understanding of the indirect effects of oil palm expansion. By understanding the underlying dynamics at work in forest transitions (the coping and adaptive strategies of people) we aim to contribute to supporting the national and local policy processes and to ensure that local communities become major beneficiaries of GOI's plans for establishment of forest and oil palm plantations on 'degraded' forest lands. The analysis made here may also provide opportunities to define degraded lands more specifically, as secondary forest patches may not necessarily be a degraded area. It may be (and often is) claimed and used by local communities. These insights provide good potential to look into the opportunity cost of avoided deforestation and forest degradation (REDD), as an alternative source of income rewarding forest conservation (WRI, 2007).

The role of local government in optimizing the development impact of oil palm production and reducing the negative implications of illegal logging.

Name researcher: Paul Burgers

Name supervisor: Prof. A. Zoomers, P. Verweij

Summary

In spite of the positive development at the international and national level with respect to and the availability of a facilitating legal framework for sustainable palm oil and sustainable forest management, current developments show that local governments are often not motivated or capable of stopping undesirable trends (deforestation, monocropping).

Whereas projects 2 and 3 will look into the agents of change that underlie the indirect effects of oil palm plantations and, associated with this, the drivers causing forest transition, this project will look at one important underlying factor associated with policy and institutional change. Besides analysing the policy environment, especially in relation to environmental planning, we will gain insights into the structure, products and main markets (within Indonesia) of logs and timber. This focus is taken because inappropriate logging activities have reached unprecedented levels and allow for intensive forest transformation processes by migrants and other people in search of subsistence and profit making. In a context where local governments have to deal with 'foreign companies' (oil palm production) and accommodating 'new migrant groups', rather than protecting the environment through sustainable land-use planning and complying with international agreements (e.g. FLEGT) and international standards (e.g. the Kramer criteria, FSC), local authorities have an interest in more direct economic gains, for instance to allocate the land to foreign investors (palm oil, forestry etc.). This enables them to secure the needed funds for local development. It is striking, however, that FSC timber is exclusively for export, hampering any initiative to develop a sustainable domestic timber market (Burgers, 2008). All these developments cause sectoral shifts and shares in the regional economy as GRDP growth, employment generation, social welfare and environmental impacts are all related to oil palm establishment.

Research questions will focus on how local governments deal with this multiplicity of interests, what the consequences are for local development, and the extent to which local institutions are sufficiently strong to be able to manipulate the benefits for their 'own' population.

In this research reference will be made to, for example, the theory of institutional complementarities and common pool theories. Much of this research will be based on quantitative and aggregate data analysis. The aim is to contribute to the formulation of various types of scenarios related to different policy options.

This postdoc research will be carried out by Paul Burgers, who has lived and worked in Indonesia for 4 years. Since his return to the Netherlands in 2001, he has been involved in various consultancy assignments in Indonesia in the forestry sector. The importance of this topic came to the fore when he conducted an evaluation of '15 years of EC's forestry support to Indonesia' in 2006, which also included the FLEGT initiative. He and M. Titus have recently finished a book on coping strategies in times of crisis in Indonesia, which provides valuable insights into how people cope with crisis conditions through migration towards natural resource rich regions in Indonesia.

Collapsing forest ecosystems through palm oil plantations

Name researcher: Ari Susanti

Name promoter/supervisor: Dr P.A. Verweij, Dr P.P.M Burgers, Prof. A. Zoomers

Research School: IDS/URU

Summary

Parallel to project 1 (Burgers), an analysis will be made of forest transition processes in the research areas, based on remote sensing data and satellite images. In this PhD project, an analysis will be made of the changes in land-use patterns: special attention will be paid to the transformation processes – from a continuous state of transformation from undisturbed forest to secondary forests, via logging and in-migration following logging roads, to the discontinuous state, meaning the threshold after which degraded secondary forests are targeted for complete conversion into oil palm plantations by local authorities (Kefi et al., 2007; Scheffer et al., 2000; van Nes et al., 2005). By factoring in socio-economic criteria, percolation theory (Kulkarni et al., 2000) and criticality theory, this research is very innovative, as hardly any research has used these theories to explain anthropogenic changes in forest cover. People (migrants), government policies (input from project 1), the private sector are all agents, transforming forest areas, thereby moving forests from one state to another state of degradation. Based on these theories, this research aims at finding certain social, economic and environmental thresholds after which the forest moves from a degraded state to massive conversion into oil palm plantation. The research will also build on and make use of forest transition theories from the social sciences, including the hollow forest frontier theories to explain the movements of people into the forest (the agents in percolation theory). This research will contribute to the understanding of how the process evolves from logging to logged-over forest, to increased forest patchiness, ultimately converting them into (in most cases) oil palm plantations. Questions that will be answered are:

- Can we identify the process of migratory behaviour in logged forests that results in a logged-over forest, based on informal logging by individuals?
- Can we identify the threshold value of forest patchiness, after which local authorities decide to clear cut/convert the remaining forest lands into palm oil plantation?
- Can we identify other agents (fires for land clearing, oil palm, etc.) that may cause the ultimate collapse of forest patchiness into clear cutting for oil palm establishment?

This research will contribute to the design of more appropriate land-use planning tools. It will be executed by Ari Susanti, with support from Dr Sofyan, both from Gadjah Mada University, Yogyakarta. Ari Susanti has a degree from the forestry faculty of UGM, and holds her MSc from ITC, Enschede, the Netherlands, in integrated land-use planning. Dr Pita Verweij will also be involved in setting up her research. At this moment she is involved in a study on how Forest Management Unit Plans can be part of an integrated land-use planning, using GIS methods. This is extremely valuable

for our project, as from 2002 onwards the FMU should be implemented at district level as a way to develop more integrated land-use planning, by combining forest protection with other land uses (e.g. oil palm).

Oil palm production and migration flows (people/ livelihood)

Name researcher: Suseno Budidarsono

Name promoter/supervisor: Dr P.P.M Burgers, Prof. A Zoomers, Dr M.J. Titus

Research School: IDS/URU

Summary

In Indonesia new migration patterns have developed along with the rapidly rising investments by foreign companies in oil palm plantations and forestry. On the one hand, in areas where the land is handed out in the form of concessions, indigenous people may be forced to move deeper into the forest – customary rights are often not sufficiently strong for defending their territorial rights – or must find alternative ways for survival (e.g. illegal logging). At the same time, foreign investments in oil palm and forestry attract ‘external populations’. Rural poor from all over Indonesia migrate to these areas aspiring to benefit from new employment and livelihood opportunities (see 1 and 2). This project will analyse the link between deforestation, land transformation and population mobility.

More specifically, an analysis will be made of the degree to which new migration flows respond to investment in oil palm plantations, making a distinction between forced migration/displacement as a direct consequence of the transition of family land into concessions, and new types of immigration.

Special attention will be paid to current settlement patterns, employment situation and the consequences of immigration for local development (and sustainability). Based on current research it is clear that migrations – despite being attracted of finding new jobs – are often not successful in relation to oil palm plantations, as was shown in studies by Burgers (2004) and Permana and Burges (in press). Even if they are, oil palm plantations only become profitable after about 8 years (when all debts have been repaid). This often forces smallholders to lead a life as landless colonists – to the extent that they settle, they occupy agricultural land elsewhere, and play a critical role in further deforestation. How can the new population dynamics be controlled, and how can they take care of the ecological and economic friendly integration of these new groups, focusing on short-term survival needs with long-term profits from oil palm? What is the role of local government?

The research will build on and make use of forest transition theories from the social sciences, including forest frontier and livelihood theories.

This project will be carried out by Suseno Budidarsono, who is now working with the World Agroforestry Centre, Bogor. As a socio-economist, Suseno has wide experience in profitability analyses of land-use systems, and socio-economic baseline studies. During his time at the Research

Institute, Satya Wacana Christian University in Salatiga, he also worked on migration issues. Further support will come from IPB in Bogor.

Balancing the needs for food and fuel with the provision of critical environmental services in local land use planning

Name researcher: Carina van der Laan

Name promoter/supervisor: Dr P.A. Verweij, Dr P.P.M. Burgers, Prof. A. Zoomers

Research School: IDS/URU

Summary

In order to complement and provide input to the other projects, this research focuses on the question: how can the introduction of small-scale and large-scale oil palm cropping system opportunities in forest frontier areas be balanced with the provision of critical environmental services? In local land-use planning many conflicting objectives need to be considered. An important challenge will be to demonstrate how and where local livelihoods can be improved by the introduction of oil palm cropping systems, while maintaining food security, minimizing greenhouse gas emissions due to land-use change, conserving valuable biodiversity, and maintaining hydrological cycles and water quality.

The indirect effects of biomass production systems in terms of land-use change due to migration need to be considered as well. GIS-based multi-criteria model analysis will be used to help analyse such complex problems. This research will use the results of the other three projects and integrate these into a spatial decision support model. The spectrum of resource exploitation systems resulting from the analysis of projects 2 and 3 will be used in this research as important building blocks, while the preferences of different stakeholders will be incorporated through interactive model development.

The growth of the bio-based economy will be modelled in terms of different scenarios, which incorporate global developments, trends in international market demand for biofuel feedstock, the development of the market for carbon credits in relation to Reduced Emissions from Deforestation and forest Degradation (REDD), and local drivers of land use change, in particular migratory behaviour. This project will contribute to an understanding of the combined environmental services derived from various potential resource exploitation systems in specific biophysical and socio-economic settings. The integration of the concept of environmental services in spatial modelling in support of land-use planning represents a relatively novel approach. The same holds true for the modelling of indirect land-use change effects.