

An Imminent disaster? Socio-legal perspectives on sustainability of Jatropha projects in Eastern Indonesia

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Introduction

Jatropha Curcas is one of the priority crops in Indonesia's biofuel policies. Although there are many technical questions about cultivating this crop and the economic viability of its products, large scale production is propagated widely and implementation has already started in Indonesia. What are the risks of these programs for government, population and investors? Results of short research in Sumba (NTT) – one of the target areas for Jatropha plantations – show the weakness of the assumptions about the potential of this crop. Policy promoting biodiesel production and consequential investments implicitly assume a well-functioning legal system, good governance and harmonious adoption in local society. Current empirical situations in Sumba as well as academic literature on the subject in Indonesia seriously question these assumptions. This paper addresses the challenge to prevent an imminent disaster for all involved in Jatropha biodiesel production. It concludes with a research agenda for non-technical research on agriculture beyond food aimed at social sustainability of bio-based energy production.

National biofuel policies and legislation

New legislation facilitates large-scale Jatropha plantations financed by international corporations. Presidential Regulation 5 of 2006 regarding National Energy Production made production of biodiesel official policy. Presidential Decree 10 of 2006 installed a national team for biofuel development (Tim Nasional Bahan Bakar Nabati - Timnas BBN). Its task is to make a blueprint for biofuel development, with an accompanying roadmap delineating implementation. The terminology of the Decree indicates a top-down approach reminiscent of the New Order. Biofuel promotion includes the creation of "self-sufficient energy villages", but the bulk of policy is geared towards the macro level, where consumption targets are set and where national legislation should be adapted for "simplification of licensing issues". The chairman of the national team, Al Hilal Hamdi, announced in January 2007 that investment agreements totaling Rp124.2 trillion (about USD 13 billion) were signed already. The new Investment Law of April 2007 allows foreign investors to acquire land for an initial period of 60 years, offers tax incentives and the option of creating "special biofuel production zones".

Some national parliamentarians protested that the legislation meant "Indonesia is for sale". They argued that the law provides inadequate protection to local entrepreneurs, and that the equal status it grants to foreign and domestic investments shows the government's historical apathy toward Indonesia's colonial past. In the nineteenth century the Dutch East Indies government enforced cultivation of export crops to benefit the Dutch treasury. Indeed, colonial history and that of the more recent Green Revolution conveys two main lessons. First, an imposed system of commercial agriculture can threaten the food security of primary producers. Second, large-scale, high external input agriculture - as introduced during the Green Revolution - can lead to indebtedness, loss of tenure security and environmental damage. The production of Jatropha oil in the province of East Nusa Tenggara runs the risk of ignoring these lessons.

Jatropha on Sumba, November 2007

Pure Jatropha plant oil, obtained from the seeds, can be used directly in some engines or mixed into biodiesel. The Jatropha shrubs can be cultivated on marginal lands (grasslands, wastelands) that are not suitable for other types of cultivation. Sumba is full of "marginal lands", but they are not "empty". They are sparsely populated, but the local population considers them part of their ancestral lands, held either communally under *adat* law or in some cases even state-registered as cultivation land. The

marginal character of these lands is caused by poor soil, shortage of rainfall and other sources of water, difficulty of access, shortage of labour, or combinations of these factors.

During short exploratory research in November 2007, I found four types of *Jatropha* cultivation on Sumba. First was the “demonstration plot”, close to East Sumba's district capital Waingapu. Located only half an hour's drive from the district government offices was a one-hectare site planted in May 2006 by the state corporation Rajawala Nusantara Indonesia (RNI). The condition of the plants was very poor. Local farmers told me that the timing of planting had been wrong (just before the dry season), the site was wrong (too sandy so close to the beach), water was in short supply (in spite of irrigation with water driven in by truck), and there was minimal care for the crop. Yet, this plot was considered suitable to demonstrate to investors that *Jatropha* could grow on Sumba.

The second type I would call the “corruption plot”. One of these is located far away in the interior on ancestral land of the clan of a member of the district parliament. This MP received ample funds from government subsidies (channelled through the district government and RNI) to produce *Jatropha* seedlings. Opinions about the condition of the crop varied between 20% failed (according to the MP himself) and 60-80% failed (according to local farmers and the head of the government Plantation Service). The plot was poorly controlled.

The third type was domestic cultivation: *Jatropha* in hedges around home yards. The *Jatropha* plant has been known here since the Second World War, when Japanese soldiers introduced it to make oil for lamps. Many Sumbanese still remember how their grandparents followed this example. The leaves are also used as medicine. *Jatropha* for domestic use is now promoted by some NGOs. With relatively simple equipment, a neighbourhood community could produce their own biodiesel for certain kinds of engines and thus save on expensive fossil fuel.

The fourth type I call the “forced plot”. The Agricultural Service has been promoting *Jatropha* cultivation in the area that is now Central Sumba since 2005. In Tana Modu, farmers were urged to plant the crop on an area that since 1994 had been a cashew plantation. Before 1994 the land was not used for agriculture, but it was part of grazing land for the local population's livestock herds. At the start of the cashew project, the land was registered with the National Land Agency and participating farmers received their land certificates. In 2005 the Agricultural Service sent large tractors to clear all remaining cashew trees and prepare the land for *Jatropha*. Afterwards the farmers were supposed to plant and care for the *Jatropha* themselves. Every three or four months, they received herbicides to clear the weeds in the *Jatropha* field. But in November 2007 I learned that none of these farmers had been given any information about the herbicide or how to apply it safely. Nor did they have any information about current prices of *Jatropha* seeds, nor about who would be willing to buy their crop. One farmer brought a bag with *Jatropha* seeds to town, where he was surprised to receive only 500 Rupiah (US 6 cents) per kilogram. The costs of transport to town and back were higher than his revenue. To produce one litre of biodiesel requires five kilograms of seeds. The farmers in Tana Modu were thus not motivated to continue cultivation, and that explains the poor condition of their *Jatropha* fields in November 2007.



This *Jatropha* project on Sumba failed because farmers lack information and markets (photo J.Vel)

International investments and local interests

On 16 August 2007 a headline in the online-edition of the Indonesian daily *Kompas* announced: "Swedish grow *Jatropha*: Investment of 1 trillion Rupiah. Land will remain property of population". The article continued: "Scan Oil Ltd, a company from Sweden, will invest 1 trillion in a *Jatropha* plantation in Central Sumba, East Nusa Tenggara. Planting will start from December 2007 covering 10,000-20,000 ha". I was amazed by this news, because from all the years I have been involved in this area I knew that foreign investments of this size – over USD 100 million - were absolutely beyond the imagination of the inhabitants of Central Sumba.

Not only the Swedish company showed an interest in Central Sumba, but companies from the United States, Japan, Malaysia, and India have also sent their representatives to assess feasibility. Central Sumba became an autonomous district (*kabupaten*) in May 2007. The district government is still busy organising itself. Its main target is to reach Rp 5 billion (USD 540,000) in local tax revenues by 2010, because otherwise the district will be absorbed into West Sumba again. The first district head will be elected in June 2008, and in November 2007 competition between candidates had already started. Contacts with international companies with an interest in investing in *Jatropha* had become an election tool, with each candidate presenting his own investor as guarantee for a social program they now called "corporate social responsibility". A fifth type of *Jatropha* cultivation on Sumba in November 2007 could thus be called the "imaginary commercial plantation".

The farmers group in Tana Modu received a visit from an American investor. He was accompanied by his Indonesian counterpart, PT Cecilisarah Abadi from Jakarta, and an election candidate. The investor offered the farmers a one-off price of USD110 per hectare for the whole period of thirty years. The farmers felt themselves in a strong position with their land certificates, and rejected the offer as too low. However, the interim district head told me on the same day that the district government had already issued the cultivation rights title to PT Cecilisarah Abadi, because they held investment permits from national and provincial levels of government. He felt all decisions regarding *Jatropha* plantations should be part of a memorandum of understanding between three parties: the government, the local producers/ land owners and the companies. Yet, a sound procedure to make these MoUs in a way that protects the interests of local producers was not yet available.

Large-scale biofuel plantations not only require land, but also labour and water. There is no precedent on Sumba for water management on this scale. Figures from comparable situations in India show that a well-maintained *Jatropha* plantation requires one full-time labourer per hectare in the first year, and one for every four hectares thereafter. A plantation of 10,000 hectares would thus need 10,000 labourers in the first year. In Central Sumba that would be a third of the present agricultural labour force. Given the perceived labour shortage in agriculture as it is, it is not very likely that a third would shift to *Jatropha* cultivation, nor that they could do so without harming the existing food cultivation systems. Either external labour or mechanisation would be required.

Conclusions

When even the remotest places in Indonesia - like Central Sumba - are drawn into the global value chain of biofuel production, there should be measures by the government to protect citizens involved in the chain. Current national legislation seems to favour large international companies that can provide the capital required. To find out how legislation can be made more responsive to the interests of primary producers, consumers and local entrepreneurs, as well as the environment, will require more research.

As long as farmers have no information about the crops, techniques, prices, laws and opportunities, *Jatropha's* miracle image remains imaginary. The few examples available on Sumba in November 2007 suggest that an equitable division of benefits in the *Jatropha* value chain remains far beyond reach

For the next years research on social sustainability of agriculture beyond food is necessary to complement the scenarios of bio-based economy as developed by technical sciences. It should include empirical research on socio-legal and economic aspects of biofuel production, research on legislation, and research linking history of large scale commercial agriculture in Indonesia to present approaches for biofuel production.

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