

# FOCALI COUNTRY BRIEF

## Malaysia

Lisa Westholm

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Focali Brief

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**Focali** - Forest, Climate and Livelihood research network - is a Swedish knowledge-based network aiming to contribute to the provision of relevant knowledge to Sida and other Swedish authorities for the effective use of forest operations to reach climate and poverty objectives. Focali also aims to increase the flow of relevant information between academia, government authorities, and civil society.

Focali is a part of the **Forest Initiative** which is a strategic partnership between Sida, the Swedish Forest Agency and the Swedish Forestry Association. Sida provides funding for Focali. Focali currently consists of representatives from **University of Gothenburg**: Departments of Earth Sciences, Human and Economic Geography, Plant and Environmental Sciences, Economics, School of Global Studies; **Chalmers**: Division of Physical Resource Theory; **Linköping University**: Centre for Climate Science and Policy Research; **Swedish University of Agricultural Sciences**: Department of Forest Ecology and Management, Swedbio. The Focali secretariat is placed at the Environmental Economics Unit at the **School of Business, Economics and Law**, University of Gothenburg.

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The **Forest Initiative** is a strategic partnership between **Sida, the Swedish Forest Agency** and **the Swedish Forestry Association**. The overall objective of the Initiative is poverty reduction through promotion of sustainable management and administration of forest resources within Swedish development cooperation. Sida is the main donor of the Forest Initiative, which is based on the belief that forests play an important role for poor people and can contribute to economic and social development as well as a better environment.

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## The Forest Initiative Partnership



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## Summary

Situated in Southeast Asia, Malaysia is a country with a high forest cover (58% or 72% if tree crops are included) and a significant forest industry (3% of GDP in 2006). In Malaysia a number of issues central to climate change take a concrete form. The country makes for an interesting case study of several questions essential to the discussions on mitigation of climate change. Issues of land-use competition, carbon offsetting and emissions accounting can be tangibly illustrated with the Malaysian example.

Competition and possible trade-offs between forest conservation and biofuel production (palm oil plantations covered about 4.5 Mha in 2008) is highly relevant in the Malaysian context. Malaysia still has a significant although declining area of tropical forests, rich in biodiversity, with high carbon content and standing on carbon rich soils such as peatland (average of at least 350 tC/ha). This creates a potential for REDD action, Clean Development Mechanism (afforestation and reforestation) projects, processes the country is presently not taking part in, as well as private forest offset initiatives. The Malaysian goal of maintaining a 50% forest cover further emphasises this potential.

Simultaneously, the Malaysian timber industry stands for a large share of global production, third after Russia and the US, of timber and timber products such as veneer and plywood. It plays a significant role in Malaysian economy (accounting for 3.6% of the workforce and generating export revenues of 6 billion USD in 2009) although its relative importance has declined. However, the Malaysian timber industry is characterised by corruption, illegal activities and a lack of sustainable practices. The government is making efforts to stem illegal activities through improved control mechanisms and certification schemes; both international such as FSC and national initiatives. Yet, it has been estimated that about 25% of Malaysian timber consumption and exports cannot be accounted for by legal production or imports.

In addition, Malaysian revenues from the production of palm oil are rapidly increasing and the palm oil industry is believed to hold a large economic potential, especially in the light of climate change and the growing demand for biofuels. Palm oil and palm oil based products generated export revenues of 16 billion USD in 2009. However, there is a discussion about the encroachment of palm oil production on natural forests and a fear that oil palm plantations may directly and indirectly crowd out forests. Oil palm plantations and natural forests compete to a large extent for the same lands. They are also both pieces in the climate puzzle. Great political consciousness of the possible trade-offs between different land-uses is required to manage these delicate issues, particularly since they are not merely a question of carbon, but also of economic interests, biodiversity and indigenous rights (to mention a few).

This political consciousness or will does not necessarily exist in Malaysia. The official forest definition, including also agricultural tree crops can be seen as an example of this ambiguity towards the trade-offs. Further, although the country does not participate in any of the REDD+ pilot initiatives, the government has expressed a positive attitude towards REDD and is committed to maintaining a significant share of the country's surface forested. At the same time timber and wood products, as well as palm oil are important exports and the government has created incentives for increased production. This indicates a lack of coherence in policies and intentions that may come to have devastating consequences for the country's forests.

## Country profile – Background Information

### Malaysia

- Malaysia is situated in Southeast Asia. Part of the country, called Peninsular Malaysia, is located on the Malay Peninsula, while another part of the country is found on the northern parts of the island of Borneo.
- The country is divided into thirteen states and three federal territories, most of which are found on the Malay Peninsula. The states of Sarawak and Sabah and the federal territory of Labuan are located on Borneo.
- Peninsular Malaysia borders with Thailand in the north and with Singapore in the south. On Borneo, the country borders with Indonesia, Brunei and the South China Sea. It covers a surface of 330 000 km<sup>2</sup> (CIA, 2010).
- Malaysia has a population of almost 28.5 million (in 2009) (Department of Statistics, 2010). About 70% of the population lives in urban areas (UN Dept of Economic and Social Affairs, 2008).
- About 50% of the population is defined as ethnical Malaysian, almost 25% as Chinese, 11% belong to various indigenous peoples and 7% are Indian (CIA, 2010).



Figure 1: Map of Malaysia (CIA, 2010)

### Economy

- Malaysia is a middle-income country whose economy has shifted over the past 40 years from dependence on production of raw materials towards becoming a multi-sector economy (CIA, 2010).
- According to estimates from 2009 services compose almost 50% of the Malaysian GDP, industry more than 40% and agriculture 10% (CIA, 2010).

- Malaysia has a positive balance of trade (Department of Statistics, 2010). Of the country's total exports in 2007, 16% went to the US and 13% went to the EU (Eurostat, 2009).
- The main exports are electrical and electronic products and other manufactured goods (Department of Statistics, 2010). As figure 2 shows, palm oil, liquefied natural gas and petroleum are also important exports.

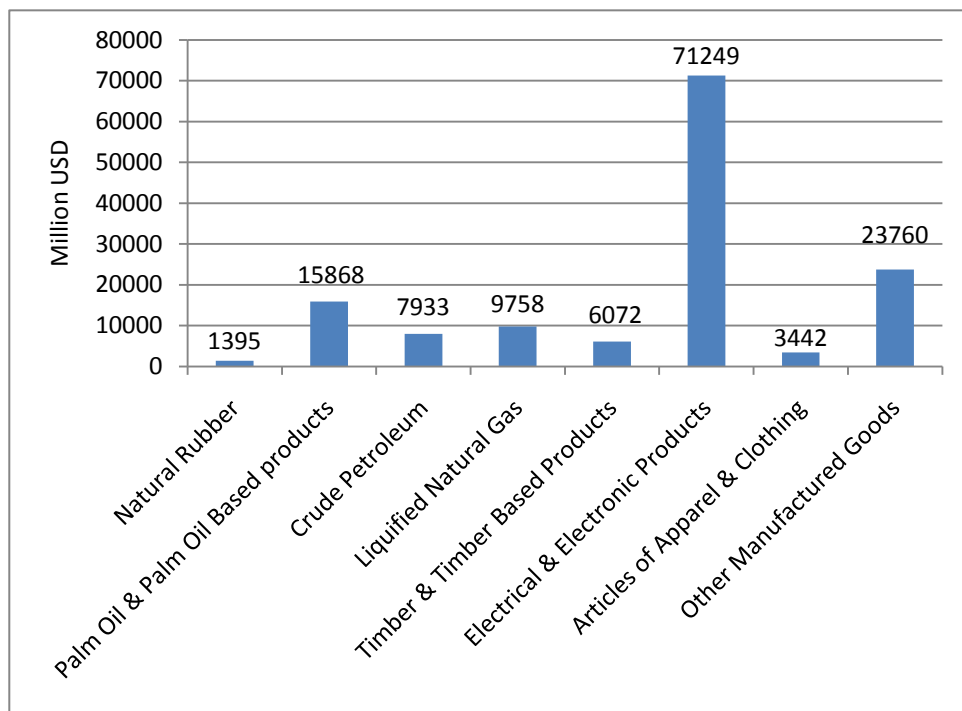


Figure 2: Major exports 2009 (million USD) (Department of Statistics, 2010)

- The main planted tree crops are rubber, oil palm, cocoa and coconut (FAO, 2008). Rubber tree is also increasingly used for wood production, in addition to its agricultural use.

## Emissions profile

The Malaysian Initial National Communication to the UNFCCC contains an inventory of anthropogenic greenhouse gas (GHG) emissions and sinks divided into five categories: energy, industrial processes, waste and land-use change and forestry (Ministry of Science, 2000).

In the National Communication total emissions in 1994 are estimated to 144 million tonnes of carbon dioxide equivalents (tCO<sub>2</sub>e) (Ministry of Science, 2000). Net emissions, after accounting for sinks, total 76 million tCO<sub>2</sub>e. This equals net emissions of 3.7 tonnes CO<sub>2</sub>e per capita, which can be compared to an average of 4.2 tCO<sub>2</sub>e per capita for non-Annex I countries in 2004 (IPCC, 2007). Carbon dioxide (CO<sub>2</sub>) composes 62% of emissions, methane (CH<sub>4</sub>) 32% and nitrous oxide (N<sub>2</sub>O) less than 1%. Landfills and fugitive emissions from oil and gas were the major sources of CH<sub>4</sub> emissions (Ministry of Science, 2000). The third largest source of CH<sub>4</sub> was flooded rice fields. N<sub>2</sub>O emissions came almost exclusively from burning of traditional biomass fuels and agricultural residues. The main part of CO<sub>2</sub> emissions come from fuel combustion, whereas forests are a major CO<sub>2</sub> sink according to the National Communication. However, there were difficulties in the collection of data from the forest plantation sector, due to differences in database formats between the forestry departments in Peninsular Malaysia, Sarawak and Sabah (Ministry of Science, 2000). Since responsibility for forests lies with individual states there are sometimes discrepancies in data collection and forest definitions. Also, the methodological difficulties related to estimating emissions from forest fires led to these emissions being excluded from the inventory. The Human Development Report estimated that Malaysian forests emitted on average 3 million tCO<sub>2</sub>/year between 1990 and 2005 (UNDP, 2007). The carbon content of Malaysian natural tropical forests has been estimated to 190 tC/hectare and the



carbon content of peatland rainforests has been estimated to at least 350 tC/hectare (Fargione et al., 2008).

According to the Human Development Report 2007/2008 Malaysian CO<sub>2</sub> emissions from fossil fuel consumption, gas flaring and cement production grew by 221% between 1990 and 2004 (UNDP, 2007). Emissions from fuel consumption (liquid, gas and solid) contributed most to the increase (CDIAC, 2010). At the 15<sup>th</sup> session of the Conference of the Parties of the UNFCCC (COP15) the Malaysian Prime Minister, Najib Razak, pledged a voluntary reduction of up to 40% of the country's emissions per unit of GDP by 2020, compared to 2005 (Najib, 2009). The pledge was however conditional on receiving transfer of technology and finance of adequate levels from developed countries.

A large share of Malaysia's emissions comes from its export industries, producing goods that will be consumed elsewhere. Malaysia is what Davis and Caldeira (2010) call one of the top 10 "exporters of emission" in the world, i.e. it exports goods whose production is very emission intense. As can be observed in figure 3 below, emissions from the production of export goods amount to 68 Mt CO<sub>2</sub>/year. Per capita, Malaysia is the second largest exporter of emissions, with 2.7 t CO<sub>2</sub>/person/year, which accounts for 73% of the over-all per capita emissions of 3.7 CO<sub>2</sub>/year (see above).

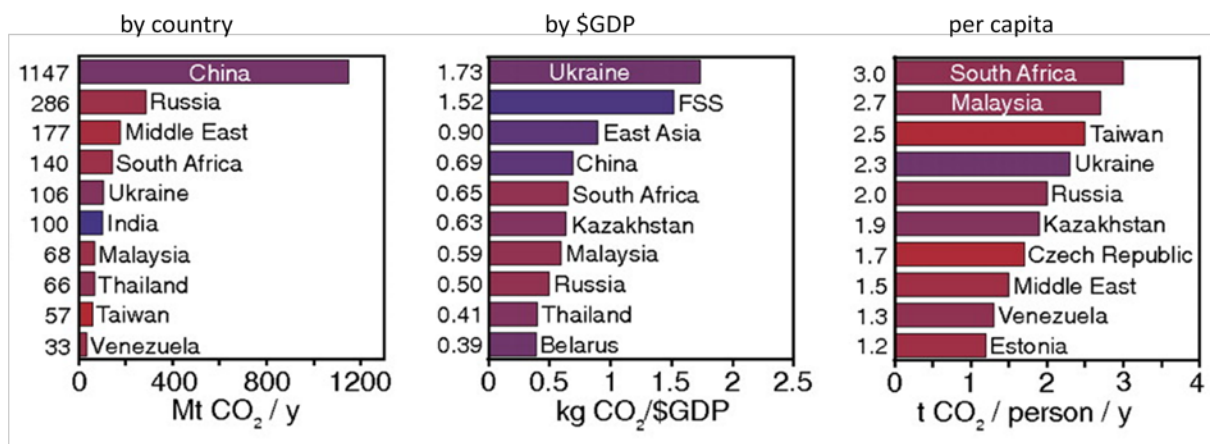


Figure 3: Top 10 net exporters of emission-intensive products (Davis and Caldeira, 2010).

## The role of forests

Forests have long played an important role in the Malaysian economy and they still do. After the Second World War, Southeast Asia turned into a significant source of hardwood timber in the world market. Malaysia, together with Indonesia and Brunei yielded around 30% of the world's output of non-coniferous tropical timber between 1970 and 1990 (Brookfield and Byron, 1990). In the end of the 1970s and beginning of the 1980s forest revenues contributed between 60 and 70% of Sabah state revenues (Jomo et al., 2004). However, the importance of the forestry sector has been declining in the past decades. In 2006 it contributed 3% of GDP (FAO, 2010). This was a decrease by more than half in terms of share of GDP compared to 1990.

Ninety-eight percent of natural forests and nearly 70% of forest plantations are state-owned (ITTO, 2006). Administration and management of forest resources, regulation of forest exploitation and forest revenue collection is the responsibility of the State Forestry Departments and the states of



Sabah and Sarawak have their own forest acts (FAO, 2010). There is a National Forestry Council (NFC), where federal and state governments coordinate their approach to forest issues. Forest laws and policies adopted in individual states must also follow the rules established in the National Forest Policy from 1977. However, the states of Sabah and Sarawak are only observers of the NFC and are not legally bound by the National Forest Policy (Jomo et al., 2004). In the 1980s and 1990s several federal acts were adopted in order to strengthen forest management and law enforcement and meet the growing demands for taking issues of biodiversity, sustainable resource management and local communities into account. A reorganisation of a number of ministries, implemented in 2004, aimed at adopting a more holistic, cross-sectoral approach to forest issues (FAO, 2008). However, according to Jomo et al. (2004) the states' strong authority over forest and land issues has caused an over exploitation of forests that is hard to check.

The government has argued that rents from logging and land development, e.g. agricultural expansion can be used for poverty reduction and this may have become a rationale for deforestation (Jomo et al., 2004). Beginning in the 1950s, until the 1970s a large share of Malaysia's natural forests was converted into agricultural land such as oil palm and rubber plantations (Abdullah and Nakagoshi, 2007). As the country's economy shifted its emphasis from agriculture to manufacturing in the 1980s forests were instead threatened by other land uses, such as industrial estates and urban housing (Abdullah and Nakagoshi, 2007). By the late 1980s, half of Peninsular Malaysia and a fifth of Borneo had been cleared of forests (Brookfield and Byron, 1990). According to Brookfield and Byron (1990) the three main causes of this were shifting cultivation, expansion of permanent cash crop cultivation and logging. Which cause is most prominent differs between states, since control over land resources lies at state level, not the federal level (McMorrow and Talip, 2001). The drivers of deforestation are also intimately connected. One example is how the extension of shifting cultivation into previously inaccessible areas has been facilitated by the construction of roads for timber (Brookfield and Byron, 1990). However, Jomo et al. (2004) argue that shifting cultivation has often been falsely identified by state governments as a driver of deforestation. Shifting cultivation in Sarawak, which is widely practiced by indigenous peoples, takes place on the same land being cycled over and has only expanded marginally into primary forest areas (Jomo et al., 2004).

The country's National Communication to the UNFCCC estimated that forests covered 58% of the total surface in 1994 and as much as 72% if tree crops are included (Ministry of Science, 2000). The FAO also estimated the forest cover to around 58% in 2005 (FAO, 2010). However, primary forests only covered 12% of the country's surface. The rest were semi-natural forests. Plantations for timber (included in the FAO estimation of forest cover) were reported to cover 263 000 hectares in 2003 (ITTO, 2006). The total area of productive tree plantations (not including agricultural tree crops) covered 1.6 million hectares, or 4.8% of the country's surface in 2005 according to the FAO (FAO, 2010). 28% of total forested area, or 17% of Malaysia's land area are protected forests of various kinds. They include Permanent Reserved Forests (PRFs) or Permanent Forest Reserves under sustainable management, conservation areas such as national parks and wildlife reserves and a network of Virgin Jungle Reserves, covering about 116 000 hectares that are meant to remain undisturbed (FAO, 2008).

Malaysia has been criticised for its generous definition of forests (Yong, 2006). As opposed to the FAO definition of forests that excludes agricultural crops, oil palm, rubber and tree crops are often regarded as forests in Malaysia. The definition may vary between states. In its official statistics, the Forestry Department of Peninsular Malaysia (2008) includes plantation forests in the forested area.

According to the Forestry Department, Peninsular Malaysia has a forest cover of 45%. Almost half of these forests are production forests. In addition, the official statistics often use what can be regarded as a narrow definition of deforestation that equates deforestation with land-use conversion (Jomo et al., 2004).

### Timber industry

The Malaysian timber industry contributes an important share of GDP. In 2003, Malaysia was the world's third leading exporter of logs, after Russia and the US (Wells et al., 2008). These exports consist to an increasing extent of timber sourced from neighbouring countries such as Indonesia, Papua New Guinea and Myanmar. The export of timber and timber products grew with an average of 12% per year between 2001 and 2004 (MPIC, 2005). In 2004 Malaysia was the world's largest producer of veneer, with 25% of global production. The country was also the second largest producer of plywood (after Indonesia), with 31% of global production. Malaysia's share of world exports of forestry products (excluding intra-EU trade) was 2.4% in 2008 (WTO, 2010). The timber industry accounts for 3.6% of the country's workforce (Wells et al., 2008). Especially Sabah and Sarawak are heavily dependent on exports of logs and sawn wood. States receive revenues from forestry and timber royalties while taxes for downstream activities accrue to the federal government. This has led to state governments giving priority to logging, instead of promotion of downstream activities (Jomo et al., 2004).

Forestry practices are largely unsustainable since both official revenue and personal gain constitute temptations for over exploitation by state government leaders and have undermined forest conservation (Jomo et al., 2004). In addition, state authority is undermined by the influence of vested interests in the logging industry (Jomo et al., 2004). However, the growing demand for certified timber products from sustainably managed forests has incentivised the work with various certification schemes in the country. The Malaysian Timber Certification Council (MTCC) issues two types of documents; the Certificate for Forest Management, which is to assure a legal and sustainable source of logs, and the certificate for Chain-of-Custody which assures the same thing for timber products (MPIC, 2005). Another set of standards used is that of the Forest Stewardship Council (FSC) (Wells et al., 2008). In 2008, 4.4 million hectares had been certified by the MTCC (MTCC, 2008). The work with certification has also led to sustainable forest management standards being incorporated into government audits of forest management units in Peninsular Malaysia and Sabah (Wells et al., 2008). Certified timber is mainly exported to the EU, but also to South Africa, the US and Japan. The MTCC is working to get its certification standards internationally recognised and/or endorsed as equivalent to other certification standards (MTCC, 2008).

The importance of logging in the Malaysian economy is one reason behind the rapid decline of forest areas in the country. Several reports have predicted the exhaustion of forest resources for logging in a near future (Jomo et al., 2004). This is the result of legal logging as well as of inability to stem illegal practices and corruption in the forestry sector. An analysis by the Chatham House found that about 25% of Malaysian timber consumption and exports could not be accounted for by legal production or imports (Lawson and MacFaul, 2010). Although efforts have been made to restrain illegal practices in the logging industry, firms that export logs are still believed to stash away large earnings abroad (Jomo et al., 2004). Reports of illegal practices and breaches of licence requirements continue. The NGO Environmental Investigation Agency reported in 2004 that large amounts of wood from endangered species, illegally logged in Indonesia, were smuggled into Malaysia and processed or

exported as Malaysian wood without intervention from the authorities (EIA and Telapak, 2004). In August of 2010 the Norwegian Council of Ethics published a report on illegal activities of a Malaysian timber company causing the Government Pension Fund to sell its shares in the company (Ministry of Finance, 2010).

Several efforts have been made to improve land-use monitoring and planning and to prevent illegal logging. Among other things a ten-yearly National Forest Inventory is performed and forms part of the background information for state forest management plans mandated by the National Forestry Act (Wells et al., 2008). The aim of the inventory is to evaluate the forest status quantitatively and qualitatively (Lee, 2004). The Malaysian Remote Sensing Agency is developing tools for integrating remote sensing and GIS tools in order to provide the Department of Forestry, among others, with maps and tools for monitoring illegal logging. The Malaysian satellite RazakSAT, launched in 2009, will among other things monitor agriculture, forest biomass and forestry and assist in landscape mapping, urban planning and disaster mitigation (New Strait Times, 2009).

### **Oil palm industry**

The palm oil industry is Malaysia's largest export revenue earner among primary commodities (MPIC, 2005). Exports go primarily to China, the EU and Bangladesh. Malaysia is, together with Indonesia, the main exporter of palm oil to the European Union and to the world (UNDP, 2007). In 2002 the government adopted incentives, e.g. tax exemptions, to encourage the private sector to establish plantations (FAO, 2010). Large sums have also been invested in R&D and marketing and promotion of palm oil worldwide, in order to spread and increase consumption (MPIC, 2005).

According to the Malaysian Department of Statistics the total area planted with oil palm more than doubled between 1990 and 2008 (Department of Statistics, 2009). In 2008, oil palm plantations covered almost 4.5 million hectares. Oil palm producers often argue that expansion of plantations has not taken place at the expense of forests (Koh and Wilcove, 2008). However, Koh and Wilcove (2008) estimate that more than half of the expansion of oil palm between 1990 and 2005 can be attributed to the conversion of forests. Although these forests were not always primary forests they were to a large extent old-growth or secondary forests and the estimated costs in biodiversity were large. Danielsen et al. (2008) estimate that it would take 75 to 93 years for emissions saved from use of palm oil biofuels to compensate for the carbon lost from the initial clearing of forest lands for oil palm plantations. For plantations established on peatlands it would take over 600 years. They conclude that replacing high-carbon forests with oil palm plantations in an effort to reduce the use of fossil fuels will accelerate climate change instead of mitigating it. Persson and Azar (2010) however find that the carbon balance of oil palm bioenergy systems in Southeast Asia turns positive within 27 to 45 years. This means that it may not be worth preserving forests based exclusively on their carbon content, compared to high-yielding bioenergy crops. Additional measures such as payments for additional ecosystem services or regulatory instruments will be needed to protect forests.

Certification of biofuels to ensure that they were not produced on newly deforested lands has been proposed as one solution to the pressure on natural forests. However, as Persson and Azar (2010) point out, this would not reduce the indirect pressure on forests caused by increased demand for cultivable land.

## Malaysia and REDD

Malaysia supports the idea of REDD. So far, the country is not part of the UN-REDD or the World Bank Forest Carbon Partnership Facility (FCPF), but it has expressed interest in participating in REDD programmes. In a submission to the Subsidiary Body for Scientific and Technological Advice (SBSTA) of the UNFCCC the country expresses its views on REDD (Malaysia, 2007). The submission emphasises that the system must be designed in a way that is favourable also for countries with currently low deforestation rates. It also promotes the inclusion of selective harvesting and sustainable forest management. Malaysia has set an ambitious goal of preserving 50% of the country's surface forested (Ministry of Science, 2000). This is to be attained through natural regeneration.

In August 2010 the Australian company Shift2Neutral announced that they had signed an agreement with indigenous leaders in Sarawak to certify carbon offsets from preserving more than 100 000 hectares of forest (Fogarty, 2010). Shift2Neutral called the agreement a 50-50 deal and stated that funds will be used for investments in food aid, medicines, clothing and schooling. However, the Indigenous Peoples Network of Malaysia (JOAS) claimed no knowledge of the deal or what villages it concerned (JOAS, 2010).

Malaysia is negotiating a Voluntary Partnership Agreement (VPA) with the EU under the FLEGT (Forest Law Enforcement, Governance and Trade) initiative (EFI, 2010). Currently a process of internal consultation is underway. A central part of the VPA will be a Timber Legality Assurance System (TLAS) which comprises a set of principles and criteria for laws and regulations, control procedures for verification of timber legality and independent monitoring (Lounasvuori et al., 2009). NGOs have criticised the limited engagement of stakeholders in the VPA negotiations (Lawson and MacFaul, 2010).

## Conclusions

In Malaysia a number of issues central to climate change take a concrete form. The country makes for an interesting case study of several questions essential to the discussions on mitigation of climate change. Issues of land-use competition, carbon offsetting and emissions accounting can be tangibly illustrated with the Malaysian example.

Firstly, competition and possible trade-offs between forest conservation and biofuel production is highly relevant in the Malaysian context. Malaysia still has a significant although declining area of tropical forests, rich in biodiversity, with high carbon content and standing on carbon rich soils such as peatland. This creates a potential for REDD action, Clean Development Mechanism (afforestation and reforestation) projects as well as private forest offset initiatives. The Malaysian goal of maintaining a 50% forest cover further emphasises this potential. At the same time, Malaysian revenues from the production of palm oil are rapidly increasing and the palm oil industry is believed to hold a large economic potential, especially in the light of climate change and the growing demand for biofuels. However, there is a discussion about the encroachment of palm oil production on natural forests and a fear that oil palm plantations may directly and indirectly crowd out forests. Oil palm plantations and natural forests compete to a large extent for the same lands. They are also both pieces in the climate puzzle. Great political consciousness of the possible trade-offs between different land-uses is required to manage these delicate issues, particularly since they are not merely a question of carbon, but also of economic interests, biodiversity and indigenous rights (to mention a few).

This political consciousness or will does not necessarily exist in Malaysia. Rather, the official forest definition, including also agricultural tree crops can be seen as an example of this ambiguity towards the trade-offs. Further, although the country does not participate in any of the REDD+ pilot initiatives, the government has expressed a positive attitude towards REDD and is committed to maintaining a significant share of the country's surface forested. At the same time timber and wood products, as well as palm oil are important exports and the government has created incentives for increased production. This indicates a lack of coherence in policies and intentions that may come to have devastating consequences for the country's forests.

A second issue related to climate change that Malaysia is a concrete example of is that of carbon accounting. Malaysia is a great exporter of goods whose production is carbon intensive. With the current system for accounting, these emissions are attributed to the producer, i.e. Malaysia, although the goods are consumed in Europe and elsewhere. No doubt, this raises intriguing questions of who is responsible for emissions; the producer or the consumer? It would not be unreasonable to claim that Malaysia takes responsibility for emissions caused by European consumption. In a next step, it could be argued that Malaysia, by producing biofuels or crops for biofuels to be used in Europe, takes on additional responsibility for European emissions. The same could be argued for a future REDD system where investors can use offsets from forest conservation as emissions reductions on their account.

All in all, the Malaysian case highlights a situation that is profitable for Annex I countries from the point of view of meeting emission reduction targets and for Malaysia and other non-Annex I countries from an economic point of view, but possibly less profitable for the climate as such. There is no easy answer to how this could be resolved. However, the kind of comprehensive perspective on climate change issues that is made possible by studying the Malaysian case raises important questions both for further research and for discussion within the framework of forest issues in the global climate change negotiations.

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## The Forest Initiative Partnership

