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Realising Sustainable Oil Palm Development in Indonesia – Challenges and Opportunities*

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Abstract

Palm oil is used in a vast range of everyday products, including soaps, chocolate bars, ice cream, ready-to-eat meals and margarine. Increasingly, it is being touted as a biofuel. Worldwide demand for palm oil has skyrocketed over the past 25 years, and oil palm plantations now cover an area of 11 million hectares. Global production of palm oil is expected to nearly double by 2020. In Indonesia, the area covered by oil palm plantations has reached almost 6 million hectares with the production is the second best to Malaysia.

While oil palm production is a major source of income for Indonesia, a main producer country, bad practices in parts of the industry have also brought about high ecological and social costs. Industry growth is fuelling the rapid clearing of the most biodiverse tropical forests in the world, putting pressure on species that need these forests. Forest fires to clear land for plantations are a regular source of haze in Southeast Asia, posing serious health problems. In addition, the disregard for the rights and interests of local communities by some players within the industry has created tensions and conflicts with local communities.

Many organisations around the world believe that sustainable palm oil production is the best way to meet the world's growing palm oil needs without further damaging forests and people. The establishment of global multi-stakeholders platform known as RSPO (Roundtable on Sustainable Palm Oil) and the ratification of the RSPO criteria (covering e.g. aspects of high conservation value forests protection, impacts mitigation and social conflicts resolution) are crucial steps in the right direction.

At the national level, various efforts incorporating various stakeholders have been initiated to balance conservation and social-economic needs through endorsing well-planned landscape and better management practices for sustainable plantation, which include forbidding high conservation value forest conversion, mitigating plantation-wildlife conflicts and resolving social conflicts. These efforts, nevertheless, need to be strengthened to result in significant positive impacts at wider scale in Indonesia. The agricultural research community that in the past has developed various tools to mitigate the negative impacts of conventional plantation practices, in collaboration with other key stakeholders, can contribute more to seek for appropriate solutions that strengthen these efforts.

The Growth of Palm Oil

Oil palm (*Elaeis guineensis*) originally comes from West Africa, where it is a traditional source of food, medicines and woven material. Nowadays, palm oil is used in a vast range of everyday products including crisps, cakes, biscuits, pastry, margarines, ice cream and soaps. Over 28 million tonnes of palm oil are produced worldwide annually and Indonesia and Malaysia occupy 80 percent of the world's CPO (crude palm oil) production.

Vegetable oil production world-wide totals 95 million tonnes per year and palm oil is the world's second largest crop after soy. With the growing demand and production (expected to nearly double by 2020 and may be more due to the bioenergy demand), palm oil sales are set to rise in Europe and dramatically so in the growing economies of China and India.

Around the world in tropical countries, oil palm plantations cover an area of more than 11 million hectares. In Indonesia, oil palm plantations have been progressively developed since 1980s. In 1991, the total area of oil palm plantations was only 1.1 million ha. The figure increased to 4.7 million ha in 2001 and 5.2 million ha in 2004 (Indonesian Palm Oil Commission/IPOC 2003), with many predicts that to date the total area of oil palm has reached almost 6 million ha.

This expansion is paralleled with the increase in CPO (crude palm oil) production from 2.6 million tons in 1991 to 13.5 million tonnes in 2005 (IPOC 2003; *Kompas* 2006). This year alone, Indonesia is expected to produce 15.2 million tonnes of CPO and to beat Malaysia (*Kompas* 2006b). According to the Central Bureau of Statistics (BPS), export of CPO in 1998 was 1.5 million tonnes and increased to 10.5 million tonnes in 2005 (IPOC 2003; *Kompas* 2006b).

The export value of CPO increased from US$1.4 billion in 1997 to US$4.4 billion in 2004 with US$ 42.3 million in government revenue (IPOC 2003; Wakker 2006). It is noted that palm oil is now considered as one of major incomes for Indonesia and for more than 3.5 million people working in this sub-sector.

While oil palm production is a major source of income for Indonesia and some oil plantations are well managed, others have imposed social and environmental costs. It is recognised that there are environmental pressures on oil palm expansion to areas having high conservation values, particularly as palm oil can only be cultivated in tropical countries such as Malaysia, Indonesia and Columbia.

Environmental and Social Impacts

The expansion of oil palm generates concern among public, NGOs (non government organisations) and consumers because of its environmental and social impacts. The growth of palm oil industry is contributing to deforestation by fuelling the rapid clearing of the most biodiverse tropical forests in the world, putting pressure on indigenous people and species that need these forests.

Many factors contribute to the increase in the rate of deforestation. This includes illegal and destructive logging, forest conversion, and forest and land fires. Forest conversion can be defined as a continuous process of forest degradation, leading from natural forests over one or several steps to the replacement of forests by other forms of land use, such as plantations (including pulp woods and oil palm), agriculture, pasture, mining, infrastructure and settlements.

One significant factor of forest conversion that has been constantly under scrutinised is the conversion of forests to oil palm plantations. A main concern about forest conversion to oil palm is that the process has led to man-made monocultures characterized by fragmentation of high conservation value forests (HCVF[ii]) and the almost complete loss of forest ecological functions and socioeconomic benefits for local people.

For instance, although areas under oil palm may only occupy 6 million ha, actual areas (mostly forests) released to be developed for oil palm - already logged over and land cleared – are believed to be larger. According to the Head of Planning Agency of the Ministry of Forestry, in Kalimantan alone, 4 million ha of forests has been released for oil palm but only 2 million ha has been developed and planted since 1990 (*Kompas* 2006a).

In Sumatra, as of 2000, 70% of forest areas converted to oil palm plantations in Indonesia lay within the six Sumatran provinces of Riau (658,139 ha), Jambi (259,115 ha), Aceh (219,382), West Sumatra (134,885 ha), Central Kalimantan (120,413ha) and South Kalimantan (103,557 ha) (Badan Planologi 1999). While most of this forest land had been designated for conversion, more than 18% had not. This forest land had been targeted for timber production or protection. Spatial data and other evidence strongly suggests that oil palm plantations have been developed within a number of national park buffer zones (including Tanjung Puting National Park, Bukit Tiga Puluh National Park, Gunung Leuser National Park and Danau Sentarum National Park) and other forest areas of high conservation values (Casson 2003; Susanto 2005).

Forest conversion process has also primarily affected ecosystems within and along riparian areas, replaced and fragmented habitat of endangered and threatened species and increased the level of conflicts between human and wildlife. The continuation of the life of orangutans, elephants, tigers and rhinos has often been reported as critically threatened due to this expansion and conflicts.

In 2003 in Riau province, individual farmers and companies have suffered from conflicts between human/plantations and elephant at the costs of Rp598,670/ha. The overall loss suffered by the province was at Rp1.3 trillion or around 80 percent of the provincial annual development budget (Ardiansyah & Ahmad 2003). These conflicts continue to occur leading to the death of 17 elephants (and as many as 51, according to some media reports) in Riau in the first semester of 2006. This case appears to be a direct effect of land clearing in Riau's forests, one of the most important of the few remaining retreats of the Sumatran elephant in Central Sumatra. Riau's forests are rapidly being converted into plantations (both for pulp and palm oil), fields and settlements, often without the necessary licenses.

Another significant environmental impact of forest conversion to oil palm plantations is forest and land fires. Forest fires to clear land for plantations are a regular source of haze in Southeast Asia,

posing serious health problems, traffic disturbance and substantial economic costs. In the period of 18 July to 16 August 2005 in Riau, WWF-Indonesia recorded that 609 hotspots were located in the concessions of companies charged by the Riau Province's Government in setting fires to clear land back in 2003.

From a total of 5420 hotspots recorded by Modis Satellite data for the same period, about half of them (2692 hotspots) were located in company concessions. 1114 hotspots were distributed in industrial timber plantations (HTI), 656 hotspots in forest timber concessions (HPH), 922 hotspots in oil palm plantations and 2728 hotspots in community plantations (incl. smallholders). Over a 30 day period, the number of hotspots was equal to 7.5 hotspots per hour. In this period, 55% of the hotspots were identified – again – in land with peat soil. Peat soil is easily burned, produces more haze, smoke, and carbon emission compared to other soil types.

With regard to social impacts, bad practices – in form of the disregard for the rights and interests of local communities – by some players within the industry have created tensions and conflicts with local communities. A number of communities in the border of Kalimantan, for instance, having heard the plan of the mega oil palm project, strongly rejected the plan by accusing that oil palm plantations have deceived the community of Dayak indigenous people in many districts in West and East Kalimantan and resulted in the loss of their land, and stating that the plantations did not suit their way of life and culture (Wakker 2006).

Although significantly contributing to the income of the country, negative environmental and social impacts of the palm oil industry will burden the progress of the industry especially if the industry does not start to improve both their practices and images. To deal with this challenge at the global level, various palm oil actors from the whole chain of custody opened dialogues with representatives from NGOs and other key stakeholders to seek for solutions that answer economic, social and environmental challenges of the industry. These series of meetings and the following platform established are known as the Roundtable on Sustainable Palm Oil (RSPO).

Path to Sustainability

The first comprehensive meeting – to discuss sustainability under the umbrella of RSPO – took place in Kuala Lumpur in August 2003. An important outcome from the first roundtable meeting (RT1) was the adoption of the Statement of Intent (SoI) which was a non-legally binding expression of support for RSPO establishment and production of sustainable palm oil. It was recorded that more than 40 companies/ organisations signed this SoI. At RT1, stakeholders also agreed to the efforts to promote production and use of sustainable palm oil, by first developing a globally acceptable definition of sustainable palm oil production as well as implementing better management practices that comply with this definition.

In the following year, RSPO was formally established as a new global multi-stakeholder initiative on sustainable palm oil under Article 60 of the Swiss Civil Code on 8 April 2004 (RSPO 2004). This not-for-profit association has a secretariat in Kuala Lumpur with members representing major players along the palm oil supply chain, namely the oil palm growers, palm oil processors and

traders, consumer goods manufacturers, retailers, banks and investors, environmental/ nature conservation NGOs and social/ development NGOs.

Until now, RSPO members have reached a figure of more than 90 companies/ organisations, representing roughly one third of the global palm oil production. Around 14 RSPO members are from or having operations in Indonesia. These include Indonesian Palm Oil Producers Association (GAPKI), PT Agro Indomas, PT PP London Sumatra Tbk., PT SMART Tbk., Pacific Rim Palm Oil Pty Ltd., SIPEF Group, Socfin Group, Wilmar Trading Pty Ltd., PT Musim Mas, PT Sumi Asih Olechemical, and PT Asian Agri representing industry (producers and processors), and WWF-Indonesia, Sawit Watch and Borneo Orangutan Survival (BOS) Foundation representing NGOs. The figure of membership is believed to be growing with many applications submitted monthly to the RSPO secretariat.

During the 2nd (RT2) and 3rd roundtable meeting (RT3) held in Jakarta in October 2004 and in Singapore in November 2005, remarkable progresses were achieved. These include the creation of Criteria Working Group (CWG) that successfully completed its mission to develop and finalise the Principles and Criteria on Sustainable Palm Oil Production (P&C). The 8 Principles and 39 Criteria encompass all facets of sustainability ensuring that production is economically viable, environmentally appropriate (incl. HCVF protection), and socially beneficial (incl. social conflicts resolution). At RT3, members of RSPO adopted the P&C with an overwhelming majority.

At RT3 and in RSPO subsequent process, more than 10 plantation companies from all over the world committed themselves to conduct pilot testing of these P&C over the next 2 years. In addition, RSPO kicked-off a Task Force on Smallholders (STF), verification working group (VWG) and national interpretation process on P&C. Through the STF, VWG and national interpretation, it is hoped that interpretation and adoption of the P&C can be concluded for smallholders and at the country level, and schemes and procedures for verifying the claims on sustainable products can be developed and agreed.

In Indonesia, a representative of the palm oil industry and non-structural institution under the Ministry of Agriculture, *Komisi Minyak Sawit Indonesia* (the Indonesian Palm Oil Commission or IPOC) saw the needs to deal with these sustainability issues directly and was willing to find appropriate solutions for the problems. The first step taken was to agree to work together with an environmental NGO – in this case, WWF-Indonesia – particularly in identifying, understanding and obtaining clear knowledge on the interaction and impacts of oil palm plantations on the environment (Darussamin, Ardiansyah & Suhandri 2004). In April 2004, an MoU (memorandum of understanding) basing the collaboration between these two organisations was signed.

The next step was to find and formulate ‘appropriate solutions’ that combine both interests of business and the environment and disseminate the solutions. This kind of solutions hopefully will positively change the practices and image of the Indonesian palm oil industry. Results from this collaboration (involving Indonesian oil palm companies, GAPKI and/or GPPI/Indonesian Plantation Companies Association) include:

- a brief impact assessment (incl. HCVF assessment) on 13 oil palm plantations in Riau and West Kalimantan,

- a document developed as guidelines and training modules (Suharto *et al.* 2005), covering experience of IPOC/WWF-Indonesia assessment on oil palm plantations combined with RSPO's Principles and Criteria (the document was used particularly to explain 'the interaction between oil palm plantations and HCVF' and 'sustainable' and 'unsustainable' practices)
- series of training on sustainable palm oil/ HCVF in 10 cities attracting almost 500 participants ranging from mostly plantations' executives and managers to local government officials, smallholders, local NGOs and universities' representatives.

Recent works between IPOC and WWF-Indonesia were dissemination on HCVF concept and P&C to smallholders in Riau (involving GAPKI Riau and Provincial Office of Plantations) and training to smallholders on zero burning (involving GAPKI, Indonesian companies and APIMI/Association of Plantation Investors of Malaysia in Indonesia).

Similar progress took place at concession level. A number of companies were seen to have implemented some parts of good environmental management such as IPM (integrated pest management), land application and waste management (Darussamin, Ardiansyah & Suhandri 2004). In plantations that belong to big groups, these types of environmental management have been incorporated in their policy papers and put into practices. On another hand, other companies are now at the stage of piloting the RSPO's P&C. Results of this can contribute to refinement of P&C and acceleration of P&C adoption and implementation in Indonesia.

Several other companies are also testing HCVF at concession level. These companies signed an MoU with WWF-Indonesia to undertake a joint pilot work on HCVF assessment, protection and management in oil palm concessions. The companies agreed to apply the results and the lessons-learned of this HCVF application in its other concessions throughout Indonesia. Both WWF-Indonesia and the companies agreed to strengthen the capacity of plantation staff in HCVF assessment, protection and management and the application of other relevant better practices. This overall work intends to contribute to sustainable palm oil development.

In the field of better management practices (BMP) inside oil palm concessions, particularly in mitigating human-wildlife conflicts, companies and NGOs have also worked together. A document on BMP in mitigating human-elephant conflicts mitigation is available (Chong & Norwana 2005) and several companies are underway to sign an MoU with WWF-Indonesia to jointly apply this BMP in Riau. Practices prescripted in this BMP include a flying squad (a crop protection unit) and buffer zone management. The initial implementation of a flying squad[iii] in and around Tesso Nilo National Park has reduced the losses of a local community from elephant raids from approximately 16 million Rupiah ($1,740) to around 1 million Rupiah ($109) per month on average.

Another BMP document on orangutan is being developed in collaboraition with other NGOs and orangutan experts using the case in Sumatra and Kalimantan. In addition, a BMP is promoted and developed in the field of financing sustainable palm oil, in collaboration with banks, other financial institutions, oil palm companies and the Ministry of the Environment. The initial stage is the development of a manual/ handbook on investment screening using RSPO's P&C and important themes such as HCVF. Results from this will contribute to RSPO development.

On the side of the government, the concept of sustainable palm oil (incl. protection of HCVF, environmental impacts mitigation and social conflicts resolution) is gradually endorsed and promoted. This was shown through the support of the Ministry of Agriculture for RSPO process and development and IPOC's work in achieving sustainable palm oil. At local level, several districts in Kalimantan and Papua have embraced HCVF concept and plan to implement and incorporate this in the spatial planning process.

Having observed the progress achieved in the efforts to develop, promote and implement sustainable palm oil, the overall picture may not entirely be bleak. These efforts, nevertheless, are far from perfect and need to be strengthened to result in significant positive impacts at wider scale in Indonesia. Considerable challenges as well as opportunities to realise sustainable palm oil still lie ahead.

Future Challenges and Opportunities

A concrete example of challenges faced by the palm oil industry and community is about their ability to share understanding on sustainable palm oil and practices in realising the concept with their fellow medium to relatively small-scale plantation companies and smallholders. The fact is that until now mostly major and/ or big companies that take the lead in embracing RSPO, the concept and better management practices.

With the structure of ownerships of 50 percent of the total plantation areas in Indonesia is owned by big companies while 33 percent is owned by oil palm farmers spreading out throughout Indonesia and 17 percent is owned by state owned companies (IPOC, 2003), this challenge is real. The formation of RSPO's smallholders taskforce (STF), in which Indonesian companies and a social NGO like Sawit Watch, is therefore crucial to find solutions for smallholders to adopt and implement sustainable palm oil concept.

Activities already carried out by IPOC, GAPKI and other companies to disseminate the sustainable concept through trainings, national roundtable, road shows or seminars at national, provincial and district level, will help spread out the understanding of the concept if continued. Recent joint work on training on zero burning and fighting forest and land fires targeting smallholders in Riau, for instance, may trigger multiplier effects at the ground level.

Another challenge faced by the industry is restoring the negative image of Indonesian palm oil in the world market. If IPOC, GAPKI and some companies succeeded in rebuilding the palm oil industry's image abroad, it was shattered again when an initial government plan to develop the mega project of oil palm in the border in Kalimantan was released to the public. Fortunately, subsequent engagement, influence and advocacy by many stakeholders (incl. IPOC, GAPKI, companies and studies done by IOPRI on land suitability) changed the stance of the Indonesian government to revise its position on the mega project, to not develop oil palm in high conservation value forests/areas within the Heart of Borneo and prioritise the development in abandoned areas.

Other immediate challenges, faced by the industry and the government, are as follows:

- There is a need to ensure that spatial/ land-use planning developed and permits given for plantations by local government adopt sustainable palm oil concept, which include forbidding high conservation value forest conversion for plantations and involving communities at local level.
- There is a need for progressive associations and companies to distinct themselves from companies or individuals that only use plantation permits as a cover-up to log the forests, and clear the land, run with their valuable trees, and abandon the land without having to plant oil palm.
- There is a need to investigate why oil palm concessions are abandoned and prosecute the permit holders in case of evident misuse of permit rights. Before re-allocating any abandoned lands to oil palm companies, any remaining conservation values and community claims on the land identified and respected.
- There is a need to increase productivity in existing plantations. Instead of pushing for more oil palm expansion, the government and palm oil industry should focus on its target to double the palm oil yield in existing plantations through improved seeds (esp. for smallholders), improved plantation management and oil extraction rates. If this target is realized, no further expansion of plantations would be necessary.
- There is a need to assist smallholders and small-scale plantation companies to replant a close to half a million hectares of over-aged plantations in a sustainable and responsible manner.

If these challenges can be dealt with by the industry, the government and relevant actors in Indonesia, the picture of Indonesian palm oil will be much brighter. If these challenges resolved, a huge opportunity for recognition by the world market exists, especially from RSPO, due to the fact that Indonesia has been very active in supporting RSPO and its process. The increase request for sustainable products provide ample opportunity to the palm oil industry to quicken the implementation of sustainable practices.

In addition, the agricultural research community, led by IOPRI (Indonesian Oil Palm Research Institute) that in the past has developed various tools to promote better practices and mitigate negative impacts of conventional plantation practices, in collaboration with key palm oil actors, can contribute more to seek for appropriate solutions that strengthen efforts to deal with these challenges.

Endnotes

[i] **Fitrian Ardiansyah** obtained a Master degree in Environmental Management and Development from the Australian National University, Canberra, focusing on Ecological and Environmental Economics. Previously, he obtained his bachelor degree at the Environmental Engineering Department, the Institute of Technology, Bandung, focusing on Environmental Quality Management. He has more than 10 years working experience in the field of ecological and environmental economics, natural resource management, integrated spatial and land use planning with ecosystem integrity and sustainable commodities. His geographical coverage of works includes areas inside Indonesia and in overseas. He is now serving WWF-Indonesia as Program Coordinator for Forest Restoration and Threats Mitigation. In the field of palm oil, he has been active as a member of Criteria Working Group in the Roundtable on Sustainable Palm Oil (producing Principles and Criteria on Sustainable Palm Oil), an alternate member of the Executive Board of RSPO, as well as a member of the Global Youth Forum on Agriculture Research and Development.

[ii] **HCVF (High Conservation Value Forests)** or HCV areas are defined based on the Forest Stewardship Council definition (Jennings *et al.* 2003a), which are forests/ areas of outstanding and critical importance due to their high environmental, socio-economic, biodiversity or landscape values. HCVFs are those that possesses one or more of the following attributes:

1. Forests/ areas containing globally, regionally or nationally significant concentrations of biodiversity values (e.g. endemism, endangered species, refugia)
2. Forests/ areas containing globally, regionally or nationally significant large landscape level forests, contained within, or containing the management unit, where viable populations of most, if not all naturally occurring species exist in natural patterns of distribution and abundance.
3. Forests/ areas that are in or contain rare, threatened or endangered ecosystems.
4. Forests/ areas that provide basic services of nature in critical situations (e.g. watershed protection, erosion control).
5. Forests/ areas fundamental to meeting basic needs of local communities (e.g. subsistence, health).
6. Forests/ areas critical to local communities 'traditional cultural' identity (areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities).

[iii] **A Flying Squad** is a first, immediate action, jointly assembled by PHKA (Nature Conservation and Forest Protection of the Ministry of Forestry) and WWF-Indonesia. A squad is a highly mobile quick response team that will support the affected communities in case of elephant raids and patrol the conflict areas. The flying squad approach has been implemented in the buffer zone of Tesso Nilo National Park in Riau.

A squad consists of four rangers with noise and light-making devices, a pick-up truck and trained elephants who drive wild elephants back into the forest whenever they threaten to enter villages. It has proven to be very effective to reduce losses suffered by local communities near Tesso Nilo. "Since the flying squad began operating, I have started to sleep well again," said Salim, owner of a rice field and a small oil palm grove in Lubuk Kembang Bunga village, staging area for Tesso Nilo's first flying squad. Before, he had to stay up all night to guard field and plantation.

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