

Exploring Opportunities for Sustainability in the Malaysian Palm Oil Industry

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Abstract—The global thirst for vegetable oil can be regarded as one of the greatest environmental challenges of the 21st Century and interest has intensified with the prospect of biofuels. Palm oil has risen to become the dominant player on the vegetable oil market – and the main recipient of environmental scrutiny. Focusing specifically on the Malaysian context, this paper analyses the major environmental, social and economic impacts associated with palm oil production. Drawing on recently published research, publicly available data and a comparison made with a recent sustainability initiative undertaken by the hydropower industry – an equally controversial and highly scrutinised sector – it is argued that the full extent of the impacts of palm oil should be acknowledged by those on both sides of the debate. Moreover, it is argued that by moving towards a less polarised version of the palm oil narrative and one based on scientific evidence is more likely to lead to greater opportunities for sustainable palm oil.

Keywords—palm oil, sustainability, Malaysia, hydropower

I. INTRODUCTION

The environmental impact of palm oil is a subject that has stirred considerable interest and opinion in recent years. A number of high profile media and non-governmental organisation (NGO) campaigns have led to close scrutiny of the activities associated with palm oil production. In particular, reports of unscrupulous deforestation and the associated increase in greenhouse gas emissions, and a marked decline in rare wildlife species, such as the orangutan, have fuelled an anti-palm oil campaign in some parts of the world. In response, the palm oil industry in South East Asia has gone on the defensive to protect the future development of the industry.

Focusing specifically on palm oil production in Malaysia, this paper analyses a range of data sources in order to

understand the extent of the environmental, social and economic impacts. It is hoped that by examining the impacts from these different perspectives it will lead to a balanced and fair analysis. Furthermore, the paper also draws on the experience of the hydropower industry; an industry under similar levels of scrutiny from environmental campaigners across the globe. It is argued that the approach taken by the hydropower sector may offer some lessons for the palm oil industry.

The paper is divided into four main sections; the first examines palm oil production in South East Asia; the second considers the negative environmental impacts; the third considers the positive social and economic aspects; and the fourth considers options for a sustainable future followed by a brief conclusion.

II. PALM OIL PRODUCTION IN SOUTH EAST ASIA

In 2008, world consumption of vegetable oils was estimated at 136 million tonnes, the largest contributor being palm oil (43 million tonnes) followed by soyabean oil (37 million tonnes) [1]. In part due to the tropical climate and the suitable soil conditions, Malaysia and Indonesia are the worlds leading exporters of palm oil accounting for 86% of global palm oil production [1]. In 2008, the countries produced 17.7 million tonnes and 19.3 tonnes respectively, the combined production from other countries amounted to just 6 million tonnes [1]. Extrapolating the development in palm oil production from 2005-2009, the production can be expected to increase by 0.7 million tonnes per year [1] and significantly more with the prospects of biodiesel.

The global demand for biofuels is expected to drive increases in the consumption and production of palm oil. The production of palm oil derived biodiesel is expected to rise in the future with Malaysia and Indonesia aiming to take advantage of this emerging market; indeed, production

capacity of biodiesel could reach 6 million tonnes per year in Malaysia in the future [2].

As the production of palm oil has grown exponentially in recent years, especially in South East Asia, there has been increasing scrutiny from a range of different stakeholders, both local to the region and international. The following section examines some of the negative environmental impacts of palm oil that have come to light following various studies and research.

III. ENVIRONMENTAL DAMAGE AND DESTRUCTION

Although palm oil has been grown on a large scale for well over fifty years, it appears negative perceptions have gathered pace in recent years. Predominantly driven by a number of high profile NGO campaigns and increased media coverage, palm oil seems to be perceived alongside the likes of GM crops and nuclear technology as one of the latest in a line of environmental scare stories.

So how well founded are the negative perceptions of palm oil? Let's start with the claims of deforestation and biodiversity losses. There is no doubt that both have occurred in Malaysia partially due to the growth of palm oil plantations. Latest reports suggest orangutan numbers have declined by 50 per cent since the mid 1980's [3], the number of remaining Sumatran rhinos in Malaysia and Indonesia are as low as 250 [4] and during the period 2000 to 2007, Malaysia lost an average of 71,000 hectares of forest—0.36 percent of its forest area—per year [5]. These impacts are also partially attributable to other development activities such as logging and urbanisation. However, the FRA2010 forest resource country report for Malaysia prepared by various Malaysian governmental bodies states that urbanization only increased by 3 hectares per year from 2000 to 2007. Rubber and other crops declined by 32,000 and 23,000 ha/year respectively with oil palm plantations increasing by 123,000 ha/year [5]. Based on the report it can thus be concluded that the deforestation taking place in Malaysia is mainly due to oil palm expansion. However, the deforested areas are mainly secondary forest that has previously been logged for timber. From 2000 to 2007 a total of more than 800,000 hectares of primary and secondary forest was earmarked for national parks and wildlife sanctuaries [5].

The related impacts on climate change, by damage and loss of 'carbon sinks' such as forests and peat lands with subsequent release of CO₂ from deforestation is a fact the palm oil industry cannot – or should not – deny. Encouragingly, the Malaysian government has banned the conversion of primary forest and peatland into palm oil plantations and is in collaboration with various NGOs striving to provide wildlife corridors between patches of forest isolated by palm oil plantations.

Another significant source of greenhouse gas emissions related to palm oil production is from the anaerobic digestion of palm oil mill effluent in lagoons. Approximately 40 kg methane is released for every ton of palm oil produced [6] amounting to more than 700,000 tons methane per year from Malaysian palm oil mills. This corresponds to 16 million tons carbon dioxide (CO₂) equivalents with methane having

a greenhouse gas potential 23 times higher than CO₂. Some biogas capture is currently taking place, but more action is needed. This will be discussed further in the following section.

IV. THE BENEFITS OF PALM OIL

Examining why palm oil has grown so rapidly over such a short period of time points towards some of the lesser known benefits. Most importantly, palm oil yields by far exceed those of other vegetable oils making it the most efficient oil crop on the market. Figures from 2009 show that the average oil palm yield is 3.9 (+ 1.0 ton palm kernel oil) [1] tonnes/hectare/year which compares extremely favourably against rapeseed (1.3), sunflower (0.46) and soyabean (0.4) [7]. Furthermore palm oil plantations often double as grazing areas for cattle.

A point often overlooked is the 'opportunity cost' or 'indirect land use' impacts of replacing palm oil; in other words, assuming the global demand for oil and fats remains the same, what would be the cost – environmental or other – of replacing palm oil with another oil crop? Meeting global demand for oils and fats by replacing palm oil with an alternative oil crop would lead to a much greater area of land than is currently required. Such expansions are likely to lead to deforestation elsewhere in the world.

Recent research suggests that palm oil is environmentally preferable to other oils assuming that new oil palm plantations are not replacing primary forest or peat land [8]. The conclusions can, however, go both ways depending on assumptions and data sources. A call must therefore be made for scientifically and internationally recognised databases for environmental palm oil data.

The 'economic development versus resource use' dilemma also casts a different light on the debate. The Malaysian government has made a commitment to maintain 50 per cent of its primary rainforests [9]; this lies in stark contrast to many developed countries where significantly less natural woodlands remain [10]. Moreover, the industry employs close to one million people making it the second largest employer after the government [1]. Unsurprisingly, the Malaysian palm oil industry is less than happy with the apparent double standards held by many European views in this argument: why should emerging economies compromise their growth by not making use of their natural resources when developed countries did not? When urban and rural poverty is still an everyday reality for many [11], it is hard not to feel sympathy with the Malaysian position for continued economic growth and prosperity.

In the terms of the documented deforestation and biodiversity losses, the Malaysian authorities and palm oil sector have shown a willingness to engage in the broader sustainability agenda. Alongside stand alone efforts such as the creation of the Malaysian Palm Oil Wildlife Fund, an initiative to pay for the protection of wildlife habitats and biodiversity, Malaysia is heavily involved in the Roundtable for Sustainable Palm Oil (RSPO). The RSPO is made up of a range of palm oil stakeholders, including NGOs such as WWF, with a goal to develop and implement global standards for sustainable palm oil. Malaysia has actively

supported this process as demonstrated by the growing number of palm oil growers and processors achieving certification. Currently, there are eight certified sustainable palm oil growers in Malaysia which includes forty-one palm oil mills [12].

Unfortunately, there is a general unwillingness amongst palm oil importers to pay the slight increase in cost that inevitably applies when production is being made sustainable and so unsustainable palm oil is still preferred by most European importers. This is currently a major barrier to the adoption of sustainable palm oil practices in the industry and until there is evidence of greater interest in sustainable sources from buyers outside of Asia, especially EU and North America, certification rates are likely to remain low.

Despite the initiatives taken, there are still measures the industry can take to improve the environmental profile of palm oil. Methane capture from the anaerobic digestion of palm oil mill effluent with subsequent energy recovery and state-of-the-art recycling of solid wastes is presently scarcely practiced although it is gaining momentum. Adopting methane capture and recycling with greater vigour will significantly improve the global warming impacts from the palm oil production and is likely to lead to greater acceptance into the European biofuels market and crucially, help achieve the increasingly stringent GHG performance indicators in the European Renewable Energy Directive.

Unless there is an unprecedented turnaround in the global oil and fats market, rising demand for palm oil will continue into the future. Placing an embargo or an outright ban in Europe is unlikely to stem global production given that non-EU countries make up nearly 80 per cent of export destinations for Malaysian palm oil [1]. And sourcing and producing an alternative to palm oil may have just as many undesirable environmental impacts.

V. MOVING TOWARDS A MORE SUSTAINABLE FUTURE

One way forward is to help support the palm oil industry achieve high levels of sustainability through more sensible debate in the middle ground. Currently, there is a tendency for polarised discussions, moving from one extreme view to the other. This is not helpful in breeding trust and confidence between those with opposing and supporting views. With respect to certain associated environmental impacts, the palm oil sector has taken to a path of denial rather than engaging in scientific and academic dialogue. Greater transparency of palm oil impacts through academic studies is likely to win the industry more goodwill and long term market benefits.

On the other hand, instead of focusing solely on campaigning against palm oil, opposing NGOs could focus on the implementation of internationally recognized sustainability criteria and ensuring the growth in sustainable palm oil following these criteria whilst pressurising importers to choose the certified sustainable palm oil. It is also important to remember that the Malaysian palm oil sector is carefully poised and needs to be wary not to drive planters to countries where there is far less scrutiny over operations. Open and honest discussions between stakeholders may support this improved approach.

Similar to the objectives of the RSPO, collaboration between stakeholders could help achieve common research agendas and methodologies, identify which areas of sustainability need to be addressed, and what can be done to achieve this.

The hydropower sector is an example where collaboration between stakeholders is having a positive outcome. A recent multi-stakeholder initiative, called the Hydropower Sustainability Assessment Forum (HSAF), has brought together hundreds of hydropower stakeholders with radically opposing views to contribute constructively towards the establishment of guidelines for sustainable hydropower [13]. These range from government agencies, private sector interests such as hydropower firms and investment banks, to non-governmental agencies and civil society stakeholders. Following a similar process to the World Commission on Dams in 2000, the proposed guidelines cover a host of environmental, social and economic issues that hydropower developers can examine before undertaking a new development. The guidelines will help to minimise the development of unsustainable hydropower and improve the sustainability of existing plants.

Whilst the guidelines have still to be fully agreed by all stakeholders, the initiative has led to open and frank discussions between various stakeholders and a platform for improved sustainability of the sector as a whole. The development of hydropower is unquestionably as controversial a topic as palm oil, especially when considering the environmental impacts, and yet this initiative is opening up opportunities for a more sustainable industry.

The time has come for a similar initiative in the palm oil sector, one that drives forward an agreed agenda for sustainable palm oil. This could be achieved by convening stakeholder workshops to discuss and agree a guideline for sustainable palm oil. Potential stakeholders include the palm oil industry, academia, the Roundtable for Sustainable Palm Oil, governmental agencies, international bodies such as the World Trade Organisation, NGOs as well as local community group and representation from consumer groups. Whilst disagreement between stakeholders is expected, opening up the discussions to all parties and ensuring a common ground for the debate through scientific and transparent data would allow an opportunity for methodologies and a process to be defined which ultimately, would lead to a more sustainable future for the palm oil industry in Malaysia.

VI. CONCLUSION

This paper has undertaken a critical analysis of the some of the major environmental, social and economic impacts of palm oil production in Malaysia. The analysis finds a range of impacts, both positive and negative, many of which are frequently overlooked by critical commentators and even the palm oil industry itself. Overall, it is argued that all impacts and benefits should be recognised and acknowledged by both sides of the palm oil debate and discussed openly and transparently. As shown by the hydropower sector, moving towards a less polarised version of the palm oil narrative and

one more based on scientific evidence is more likely to lead to a sustainable outcome.

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