

Biodiversity and Agricultural Commodities Program
Market Transformation Strategy for Palm Oil

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1 ACRONYMS

BACP	Biodiversity and Agricultural Commodities Program
BMP	better management practice
BTC	Biodiversity Technical Committee
GEF	Global Environment Facility
HCV	high conservation value
IFC	International Finance Corporation
M&E	monitoring and evaluation
MTS	market transformation strategy
NGO	nongovernmental organization
P&C	principles and criteria
PMU	program management unit (of the BACP)
RSPO	Roundtable on Sustainable Palm Oil

2 INTRODUCTION

2.1 Report Structure

This report presents an updated version of the market transformation strategy discussed and agreed upon between the International Finance Corporation (IFC) and the Roundtable on Sustainable Palm Oil (RSPO) for reducing the impact of palm oil production on biodiversity of global importance. Palm oil is one of four commodities targeted by the Biodiversity and Agricultural Commodities Program (BACP). The report briefly presents the main strategic orientations for allocating funds in palm oil for each of the four BACP components as defined in the BACP logical framework and the implications of these activities over the short and long term. This report also identifies some of the remaining information gaps related to palm oil and emerging trends in biofuels.

2.2 BACP Goals

BACP is a program funded by the Global Environment Facility (GEF), the government of Japan, and the IFC, and executed by the IFC. The ultimate goal of the program is to contribute to the preservation of global genetic, species, and ecosystem diversity within agricultural production landscapes by using market forces to transform selected commodity markets. BACP will work in four commodities: palm oil, soybean, sugarcane, and cacao, while targeting the three major groups of market actors in each commodity: producers (supply), traders and purchasers (demand), and financial institutions. In addition, where policy-related barriers have been identified, the program will work with regulatory institutions and policy-makers in target countries to support a better enabling environment.

As a market-based program, BACP will support projects in four components:

- **Support activities for an enabling environment**, including dialogue between industry groups and governments, research and case studies to define and document the economic benefits of biodiversity, and capacity building of public institutions.
- **Support better production**, through industry-sponsored better management practices (BMPs) programs that include the testing of BMPs and training programs for farmers that emphasize biodiversity-friendly practices.
- **Support increased demand for products with positive biodiversity impacts** through, for example, support to certification or verification schemes.
- **Encourage the development of financial services to support biodiversity-friendly practices** by farmers and all actors along the supply chain. This would include projects to support financial institutions in adapting their policies and

procedures to encourage biodiversity-friendly supply chains and discourage others.

This market transformation strategy (MTS) defines the priorities along which BACP will allocate funds to project proponents in the palm oil category for projects in the first two years of implementation. The initial 5 year program budget for palm oil is approximately US\$2,000,000, which will be tentatively allocated to each of the four BACP components as listed below. A fifth funding category has been added to include cross-component activities, such as the development and implementation of M&E impact-to-verification system methodology.

PROGRAM COMPONENT	TENTATIVE ALLOCATION
Support activities for an enabling environment	\$300,000
Support better production	\$600,000
Support increased demand for products with positive biodiversity impacts	\$600,000
Encourage the development of financial services to support biodiversity-friendly practices	\$300,000
Cross-component activities	\$200,000
TOTAL	\$2,000,000

2.3 General Observations on the Market for Biodiversity-Friendly Palm Oil

The MTS for palm oil is shaped by the following general observations:

- The Roundtable on Sustainable Palm Oil is an international, multi-stakeholder organization whose objective is to “promote the growth and use of sustainable palm oil through co-operation within the supply chain and open dialogue with its stakeholders.” The RSPO has more than 200 members representing, together, nearly 40 percent of the world’s palm oil production.
- RSPO’s members are organizations (including palm oil producers, purchasers, banks, and NGOs) committed to producing sustainable palm oil, and therefore could be suitable partners for BACP.
- IFC is an ordinary (voting) member of RSPO.
- Since the November 2005 RSPO board meeting, the roundtable has expressed a willingness to cooperate and work with BACP through a letter of intent and continuous contact via e-mail and discussion forums.
- RSPO has approved a set of environmental and social principles that define sustainable palm oil and criteria to determine whether the principles are met. RSPO is currently conducting two-year field trials of the P&C. Several principles

and criteria are related to biodiversity, and the final P&C for sustainable palm oil production, including indicators and guidance, were issued in October 2007.

- In its 3rd general assembly, RSPO approved a code of conduct for its members by which they commit, among other things, to engage in step-by-step processes to implement the P&C.
- In addition, RSPO has established a verification working group, smallholder task force, and supply chain project to develop a mechanism for traceability from plantation to end user. All of these activities are fully aligned with BACP's objectives.
- In November 2006, the RSPO General Assembly accepted a proposal from IFC to create a biodiversity technical committee (BTC) as a full organ of RSPO, dedicated to addressing biodiversity challenges in the implementation of the P&C.
- The establishment of the BTC is ongoing and has the support of the Zoological Society of London. Once BTC staffing and activities are established, RSPO will submit a funding request to BACP.

Because of these findings, and in particular the multi-stakeholder membership base of the RSPO as well as the institutional commitment of the RSPO to sustainable oil palm production, the success of the BACP market transformation strategy for palm oil depends on close cooperation between the BACP and the RSPO.

3 STRATEGIC DIRECTIONS BY COMPONENT

3.1 Support Activities for an Enabling Environment

3.1.1 Landscape-level High Conservation Value Assessment

The biodiversity impact of palm oil production, as agreed by all members of RSPO, falls into two categories: impacts related to production on existing plantations (effluents, erosion, replanting, etc.) and impacts related to expansion into native habitat. The latter can best be addressed on a regional or national scale, as opposed to individual plantations. If, as expected, the biofuels market creates a significant demand for palm oil, it will be particularly urgent to protect areas of globally significant biodiversity from palm oil expansion, and this should be a top priority for BACP. Therefore, the program would support multi-stakeholder activities leading to landscape-level assessment using the HCV concept. These activities would result in a national or regional consensus on delineation of HCV areas into which no expansion of palm oil would occur.

BACP has already had detailed discussions with the Great Ape Survival Project (GRASP, under the auspices of the United Nations Environment Programme) about a proposed HCV assessment project in Sumatra and Kalimantan. As suggested by RSPO's president, if this project goes ahead with BACP support, BACP would ensure that RSPO industry

members were part of it. It will be a straightforward process to determine what concessions have been given out and which concessionaires are RSPO members, and then to solicit the participation of those members.

BACP will support HCV landscape-level assessment to prevent future expansion of palm oil into areas containing biodiversity of global significance. Through its M&E component, BACP will also document the links between adoption of P&C and related BMPs and landscape-level impacts.

3.1.2 Participate in Policy Dialogue on Palm Oil

The policy environment in Malaysia and Indonesia plays an important role in palm oil expansion. BACP will collaborate with the World Bank in land-use policy debates, such as on the Indonesian forestry sector, which complements production of palm oil, cacao, and other commodities.

IFC has conducted preliminary research into Indonesian policy barriers to the production of better palm oil, an area where BACP might have the biggest impact. Several potential policy reform interventions were identified:

- Re-classify degraded forests to allow planting of sustainably produced palm oil. This will not be an easy task and will require the combined efforts of many government and nongovernmental stakeholders, but the end result could be significantly reduced pressure on remaining natural forests and biodiversity of global value.
- Strengthen government extension services to educate smallholders on the use of integrated pest management methods.
- Create an enabling policy environment to establish certification programs for palm oil.
- To the extent that market-related payments for ecosystem services emerge, BACP can explore the feasibility of using such payments to promote the adoption of palm oil BMPs.

BACP will further explore how it can most effectively engage in the policy dialogue in Malaysia and Indonesia to support the production of biodiversity-friendly palm oil. BACP will also stay informed of World Bank activities and dialogues in palm oil and forestry in Malaysia and Indonesia, and will offer its position and resources on relevant policy-related activities. BACP will also identify related activities in other palm oil producing countries.

3.2 Support Better Production

As agreed by the RSPO, the main biodiversity impacts of palm oil production are those relating to production practices and those due to expansion into natural habitat. BACP will address both, with an emphasis on expansion into natural habitat.

3.2.1 Expansion into Natural Habitat

RSPO Criterion 7.3 states: “New plantings since November 2005 (which is the date of adoption of all principles and criteria by the RSPO membership), have not replaced primary forest or any area containing one or more High Conservation Values.”

Preventing expansion of palm oil production into natural habitat, as defined above, is a priority for BACP. BACP will work with RSPO to determine the most effective ways to support wide implementation of this criterion.

3.2.2 HCV Assessment on Existing Plantations

The ProForest HCV Toolkit approach to assessing HCV areas on existing plantations depends on annual species counts, which require a high level of effort by plantation owners. The president of RSPO suggested the need for something more practical and developed in partnership with RSPO members. Such a tool could be based on identifying biome types, then defining indicator species for each. Special attention could be given to biomes that provide certain ecosystem services (e.g., annual flooding that fertilizes land). The toolkit could include an assessment of the profitability of marginal areas (riparian zones and hillsides), which would build the business case for creating biodiversity set-asides. This assessment could also investigate and develop metrics to value the ecosystem services (e.g., flood control from riparian zones) that biodiversity set-asides provide to farms or to other stakeholders.

BACP will investigate the value and feasibility of developing a simple and practical biodiversity assessment toolkit, and, if appropriate, support the development of such a toolkit. BACP will also support an analysis of the profitability of farming in marginal areas, such as riparian zones and hillsides. Finally, via its M&E unit, BACP will compare the use of HCV assessments and other means of impact evaluation and their links to the market.

3.2.3 Smallholder Support

Oil palm mills have a symbiotic relationship with surrounding smallholders: mills depend on smallholder production for economic viability, and smallholders, for reasons of geography and perishability, are captive sellers to the mill. The mills can therefore work with smallholders to improve their farming practices. Smallholders in Indonesia are generally only about 70 percent as productive as plantations; therefore, there is ample room for efficiency improvements. As many of improvements reduce the use of inputs, there is a clear benefit to biodiversity in addition to economic gains.

While BMPs for large-scale plantations are reasonably well-known, smallholders need practices that require more labor than capital and can be effective on one to five hectares. Such practices have not yet been documented. Smallholders therefore lack the knowledge to implement such measures.

BACP will participate in RSPO's smallholder task force and will support projects that support the adoption of the P&C by smallholders.

3.2.4 Biodiversity Training

Because palm oil producers don't generally have biodiversity specialists on staff, biodiversity training could help producers implement the P&C. Training could address several topics: zoning for existing plantations (e.g., how to select and manage biodiversity set-asides), managing off-site biodiversity impacts (downstream impacts, impacts from worker housing, etc.), biodiversity impacts of expansion and HCV forest assessments, preparation of biodiversity action plans (required to comply with the P&C), and biodiversity-related M&E techniques.

Training would cover managers of RSPO-member plantations, and trainers could include NGOs, local ecologists, and companies implementing biodiversity protection. The Malaysian Palm Oil Association and Indonesian Palm Oil Producers Association are potential partners.

BACP will work with RSPO through the newly established BTC to establish a training program on biodiversity, aimed at providing plantation managers with practical tools to implement biodiversity-related provisions of the P&C.

3.2.5 Testing BMPs

The assessment, development, and promulgation of BMPs is key to improving supply-side production practices for palm oil. To date, several initiatives have documented and implemented plantation and smallholder BMPs. BACP will work with RSPO and stakeholders to highlight relevant BMP initiatives and those developed through BACP-supported activities, and to identify appropriate venues to validate and facilitate large-scale dissemination practices. Throughout BMP testing, BACP will promote activities that can scale BMP implementation and facilitate conformance to the RSPO standard.

BACP will work with large and small producers to test and disseminate the results of BMPs that address impacts related to production on existing plantations (effluents, erosion, etc.) and those that reduce impacts related to expansion into native habitat.

3.3 Support Increased Demand for Products with More Positive Biodiversity Impacts

3.3.1 Define Cooperation with RSPO

BACP's support to increase demand for sustainably produced palm oil is embodied through its support to RSPO and the RSPO membership which includes many of the significant global purchasers of palm oil. In order to clearly articulate this relationship a formal agreement between BACP and RSPO will be prepared by the BACP PMU. This agreement will be based on this market transformation strategy for palm oil and will require approval by the RSPO executive board and the IFC. This agreement will be subject to revision when the MTS for palm oil is updated so that support to individual RSPO members such as retailers in other developing countries (e.g. China) can be adequately addressed.

The content of the cooperation discussed when the BACP program appraisal document was submitted for GEF endorsement and IFC approval involved the following points:

- As proposed by RSPO, BACP would participate in the group responsible for the two-year trial implementation of the P&C. This arrangement would allow BACP to obtain a first-hand understanding of priority areas and projects and to provide input.
- As proposed by the RSPO, the roundtable would share with BACP an RSPO P&C project matrix (currently under development) that lays out the relevant criteria against proposed projects involving RSPO members. From this, BACP could evaluate which projects meet its funding criteria and where support could be offered, and could discuss potential partners with RSPO.
- At the third RSPO general assembly in November 2006, IFC proposed establishing a biodiversity technical committee. RSPO members approved the proposal and proposed BACP co-financing and participation in the committee.
- BACP, or IFC via a complementary project or activity, would also be part of the smallholder task force and verification working group, as these are also relevant to BACP. IFC participated in physical meetings of these two working groups at the fourth RSPO meeting in November 2006.

The form of cooperation would be:

- BACP views RSPO as an essential ally for its work, providing guidance on the sort of biodiversity-related activities BACP should support and a forum for contacts and dialogue within the palm oil community about biodiversity issues.
- BACP would support planned or potential RSPO activities on biodiversity, such as those listed above and others, like the design and implementation of financial tools to help level the playing field for expansion into degraded lands.
- RSPO can coordinate projects but does not have the resources to implement them. Projects would be implemented by a mix of industry, NGO, local

academic/research institute, and financial-sector members of RSPO. These actors would be the direct recipients of BACP support.

- BACP would support the RSPO secretariat's work on biodiversity matters.
- Through its IFC contacts, BACP could bring new members to RSPO, as requested.
- RSPO board or BTC members will review and make recommendations on palm oil proposals received by BACP.
- BACP would help RSPO globalize its mission across all palm oil production landscapes.

BACP's first palm oil implementation activity will be to formalize an agreement specifying how it will cooperate with RSPO. The agreement will be structured as a formal project to be submitted to the BACP for funding. Immediately thereafter, the agreement will be implemented, with a focus on defining simple indicators and verifiers for the biodiversity related P&C and replicating them by training the RSPO members. Another area of focus will be to support the B to B branding of RSPO.

3.3.2 Develop Traceability Mechanisms for Sustainable Palm Oil

In a viable market, actors throughout the supply chain will need to be able to document that their product is indeed sustainable palm oil. To this end, RSPO's Supply Chain Project has examined three means of trading traceable sustainable palm oil: segregation, mass balance, and book and claim. Each approach has merits, and RSPO has not endorsed one over another.

RSPO-verified palm oil is not yet on the market and for the moment it appears that demand is greater than supply, as it will likely take some time for all RSPO supplier members to comply with the P&C.

BACP will monitor issues related to demand for sustainable palm oil and support projects to select optimal traceability methods for biodiversity protection.

3.4 Encourage the Development of Financial Services to Support Biodiversity Friendly Practices

3.4.1 Need for Further Research

BACP has gathered information on the role that finance can play in reducing the impact of the palm oil industry on biodiversity. IFC, as well as other RSPO-member financial institutions, are now applying the RSPO Code of Conduct which requires them to promote the P&C and develop appropriate standards that cannot be lower than RSPO's. Beyond compliance with these standards, and to support the step-by-step engagement of

clients until full compliance, reward systems are being considered by the IFC via BACP (as also in the IFC/GEF Environmental Business Finance Programme). However, further research is needed for BACP to set its priorities in this area. BACP's findings to date include:

- Palm oil investors are now considering how they can use the RSPO P&C to develop screens to ensure that their investments encourage more sustainable production. By focusing on key biodiversity impacts and ensuring that associated practices break even or bring financial benefits, investors can be assured that they will not threaten producers' financial viability. In addition, investors can reduce the risk of being associated with companies that might be accused of unsustainable production.
- Most oil palm producers still sell timber and pulp wood to finance new plantations. Reducing upfront costs or delaying the repayment of loans could create incentives for producers to rehabilitate degraded lands for production. For example, the increased value in land (developed vs. degraded) might provide an opportunity to cover investment costs, but this would require making a credible financial case to lending institutions. In Indonesia alone, an estimated minimum six to seven million hectares of degraded land would be suitable for oil palm plantations, although a recent report by the World Bank on forestry options in Indonesia mentions that 24 million hectares of totally degraded forests should be de-classified.
- The overwhelming majority of demand-side actors have not been presented with the business case for insisting that growers and primary processors adopt BMPs. Yet if financiers insisted on the adoption of financially viable BMPs, the producers' bottom line would benefit. For a financial institution or purchaser to understand the financial impact of biodiversity-friendly BMPs and press for their adoption, additional research needs to be undertaken. This research would initially be used to make the case to financial institutions for considering BMPs. Subsequently, it could feed into an investment screening system.
- Most international financial institutions active in palm oil have some level of environmental screening; at a minimum, they do not invest in projects that explicitly involve expansion into natural habitat. Such corporate social responsibility policies on palm oil are usually the result of pressure from environmental NGOs. In contrast, local financial institutions generally have no environmental screening for palm oil.
- Existing plantations with undeveloped concessions that they received before 2005 may seek to make the most of this land while adhering to the P&C. One possibility is land swaps, which financial institutions could play a role in structuring.

- BACP should examine the progress and findings of a WWF project, “Design and Test Investment Screens to Reduce Biodiversity Impacts and Brand Risks of Bank Investments.”
- The IFC has invested around US\$107 million in the palm oil sector, including in Indonesian companies, and this figure is growing. There are opportunities for synergies between BACP and IFC’s investment.
- RSPO is interested in having more local banks become members. BACP could map local IFC investee banks with investments in palm oil and approach them about joining with help from an accompanying technical assistance program.

BACP will initially finance projects that are research/feasibility based activities to define screening and reward practices adapted to the palm oil sector and derivatives. The program will later roll out the results to local financial intermediaries.

4 EXPECTED OUTCOME OF THE SHORT-TERM STRATEGY

Within 3-5 years, BACP’s Phase 1 support should put RSPO-certified plantation owners in a position to better understand and manage biodiversity impacts thanks to clearer indicators and verifiers and better-defined and documented BMPs. Such an understanding and application of biodiversity related P&C will be of strategic importance for producers as demand for sustainable palm oil will continue to exceed available supply.

Consistent with BACP goals and the approved BACP logical framework, the expected outcomes of this strategy are:

- Policy-related barriers to the adoption of biodiversity-friendly management practices in the targeted commodity sectors and countries are removed or in an obvious process of being removed.
- Alternative production methods with a proven positive impact on biodiversity and significant potential for development and replication, at both the farm and landscape levels, are implemented.
- Buyers of palm oil and other value-chain participants integrate biodiversity criteria into the value chain.
- Adequate financial services supporting biodiversity practices are available to actors in the targeted commodities and countries.

Additionally, it is expected that BACP will play a leveraging role linking other emerging revenue streams to the commodities markets, such as carbon transactions, other payment for environmental services and other offsets payments, agro-ecotourism operations, and others.

5 DISCUSSION OF THE LONG-TERM STRATEGY

BACP's longer-term strategy will depend on the outcome of its current strategy and on market developments. Issues to be addressed in the medium to long term include:

- *Demand from China and India.* China and India represent about half the demand for globally traded palm oil, and this demand is expected to grow as a result of economic development. For the moment, these markets are interested only in minimizing costs and do not consider social or environmental factors when sourcing palm oil. Little has been done to engage them, though COFCO (a Chinese importer) is a member of RSPO. However, there are opportunities to engage Indian and Chinese purchasers, starting with local subsidiaries of RSPO members (e.g., Unilever or Carrefour). In addition, the Malaysian Palm Oil Association and other RSPO members have contacts with Indian buyers. In the mid term, BACP might support RSPO in its activities to increase demand for sustainable palm oil.
- *Coordination with other commodities.* Timber and rubber also play a role in deforestation in Malaysia and Indonesia. RSPO outreach could help these commodities address their own biodiversity impacts. This would fit in with BACP's long-term goal of replication in other commodities. This systemic approach — looking at all threats to a given ecosystem — is something BACP could consider for the long term.
- The success of the strategy is linked with the success of RSPO. Therefore, BACP will support RSPO to ensure its viability.
- BACP will carefully track any specific issues related to biofuels.

6 INFORMATION GAPS

As identified above there are two primary information gaps that need further exploration. For the first, financial institutions, BACP should find out more about the potential to use these instruments to support its goals. In particular, financial tools that can help level the playing field for establishing plantations on degraded land should receive high priority.

For the second, BACP will also conduct research into the policy environment for palm oil, including tax structures, at the national, regional, and local levels in Indonesia and Malaysia in order to better define directions for Component 1 – Support activities for an enabling environment

7 Background Information Used for the MTS

This section is based on the BACP preparatory work and is also presented in the BACP Program Appraisal Document.

Oil palm is the most cultivated fruit crop in the world and a key raw material for both food and non-food industries. As a testament to its contribution to the economic growth of producers in developing countries exports of palm were valued at close to \$US20 billion in 2007. Although palm oil production started decades ago in West Africa, over 85 percent of global production is concentrated in Malaysia and Indonesia with next largest exporters being Papua New Guinea, Colombia, Thailand, and Costa Rica.

The sector is expanding at a rapid pace, especially with the increased demand for bio-fuel production and demand from China and India. This demand originates in the desire to reduce greenhouse gas emissions and climate change, making sustainable production of bio-fuel all the more important and the rapid economic expansion of developing countries. Demand from China and India is for increased fat in the diet of populations that are experiencing higher standards of living. This rapid expansion raises significant challenges for stakeholders across the palm oil supply chain. Even though oil palm is free of genetic modification and has the highest yield per hectare of any oil seed crop, both cultivation and processing have the potential for significant social and environmental impacts. Across oil palm production zones new production is often linked to the clearing of vast tracks of natural forest. These conversions lead to reduced biodiversity vulnerability to fire and displacement of local communities. Additionally, oil palm cultivation involves a significant amount of fertilizer and herbicide inputs that can often lead to water pollution and damage to soils. Further details regarding the environmental impacts of production and the market trends for palm oil are discussed below.

7.1 Environmental Impacts of Production

Forest conversion. Forest conversion is one of the greatest issues faced by the oil palm industry, especially in Indonesia with a strong effect of biodiversity reduction in terms of flora and fauna. The biodiversity of lowland rainforests in countries such as Indonesia and Malaysia is among the richest in the world, for which species such as the orangutan, tiger, elephant and rhinoceros are merely the publicly recognized emblems of an extremely complex biodiversity. Those forest zones are also of considerable ecological, socio-economic and cultural importance for local populations, even when their density per km² is very small: their degradation or disappearance fundamentally disrupts their way of life.

Burning after clearing. Since 1997, burning for land preparation has been banned in Malaysia and Indonesia, with good results in Malaysia, but clearly less so in Indonesia. In June 2002 Indonesia even signed an anti-haze treaty with the ASEAN countries, but that does not prevent fires and haze from regularly occurring every year in the dry season.

Extensive cultivation using non-selected planting material. Non-selected planting material is offered at a modest price by unscrupulous growers/ traders who sell seedlings sprouting naturally in commercial plantations. Those seedlings clearly do not have the production potential of the hybrid from which they came, merely 30 to 50% of that potential. They are swindling honest farmers (especially smallholders), who are not well informed on the laws of genetic improvement, leading to mediocre oil palm plantations

that occupy land for years and which are sometimes responsible for the disappearance of forest. Thousands of hectares of that type have been planted and are still being planted today worldwide.

Erosion. Erosion mostly occurs on steep slopes, especially when contour planting is not used. Establishment of a legume cover crop under palms is quite effective for limiting erosion. However, erosion is greatest in the few months corresponding to the rainy season, between land clearing and total soil cover by the legume cover crop.

Inadequate pesticide spraying. Despite efforts to establish IPM techniques, when they exist and are known, inefficient pesticide spraying is regularly reported. Pollution from insecticides and herbicides can be locally significant and their effects might reduce insect diversity, biodiversity in general, and affect food-chain, not to mention the risks to staff in direct and repeated contact with these products, when protective methods are either nonexistent or poorly used.

Mill effluent and empty fruit bunches (EFB). Special attention has to be paid to effluents, which amount 3 to 3.5 times the crude palm oil (CPO) production volume. With almost 700 large-scale oil mills in Malaysia (368) and Indonesia (more than 300), waste and by-product issues are of tremendous importance in terms of biodiversity and environmental impacts: river pollution is very common despite standard methods to avoid such environmental disasters, which are responsible for a substantial reduction in biodiversity (fish, etc.).

7.2 Supply and Demand Considerations

Planted Area. As shown below, the total area planted with palm oil is over 10 million hectares in 2004, of which 8.5 million hectares in production, which represent a 27% increase during the last 5 years. Malaysia and Indonesia concentrate most of the planted areas as each of them shares almost 40% of the total area. But the growth in Indonesia is almost 10% a year, when it is only around 5% in Malaysia. Developments are also observed in other Asian countries, in Africa and Latin America, but to a much lower extent, as expansion only represent a few thousands hectares a year in these countries. Future growth will come from Indonesia with a potential of about 10 million hectares suitable for oil palm of the 13.6 million hectares that the Indonesian government has allowed for conversion.

Table 1: Global mature planted area for palm oil

2004 (000 ha)	Malaysia	Indonesia	Nigeria	Thailand	Colombia
Mature area	3 703	4 912	367	400	181
Share	42%	56%	4%	3%	2%

Structure of Production. Oil palm is essentially grown on estates as smallholders represent less than 1/3 of the planted area. In Malaysia, private estates represent 60% of the total, government schemes 30% and smallholders 10%. In Indonesia, percentages are respectively 51% for private estates, 33% for smallholders and 16% for public estates.

Smallholders are often associated with estates as they must sell their fruit bunches to a plantation mill. They are known as “plasma” in Indonesia. Foreign companies own one third of private estates in Indonesia, especially from Malaysia. Although over 85% of the palm oil production comes from Malaysia and Indonesia, as shown below, other significant palm oil producers are Nigeria, Thailand, and Colombia, all above 0.5 million MT. Between 2001 and 2005 (estimates), the production increase is significant in all these countries except Nigeria (annex 2.1). It reaches an average 12% a year for Indonesia, with a world production increase of 8% a year, but only 6% for Malaysia.

Table 2: Global palm oil production

2004 (000 t)	Malaysia	Indonesia	Nigeria	Thailand	Colombia
Prod. Palm oil	15 581	15 900	815	780	713
<i>Share</i>	<i>43%</i>	<i>43%</i>	<i>2%</i>	<i>2%</i>	<i>2%</i>
Prod. P. kernel oil	1 956	1 680	205	63	57
<i>Share</i>	<i>45%</i>	<i>39%</i>	<i>5%</i>	<i>1%</i>	<i>2%</i>

Yields. The average yield is 3.6 tons of oil per hectare. Malaysia, PNG and Colombia produce nearly 4 tons per hectare, when other countries are around 2 tons per hectare. The proportion of smallholders, the quality of planting material, the average age of the plantings, climatic conditions and the management performances are the main factors influencing yield. But yield potential is high and productivity improvements are possible in many plantations in several countries.

Value of Production. An overall and rough estimated value for 2004 (production x price) comes to 15 billion US\$, with respectively 6.6 and 5.7 billion US\$ for Malaysia and Indonesia. For most producing countries, this value almost doubled since 2000, even more for Indonesia. But this value, estimated for crude palm oil, is largely underestimated as several producing countries now produce (and export) refined and processed products with added value. In Malaysia, there are 48 refineries in operation, with a capacity of 16.7 million tons, and a potential of almost more 4 million tons with 5 refineries not in operation and 10 others under planning.

International supply trends. Given the present distribution of production, Malaysia and especially Indonesia will continue to play the most important role in palm oil developments. Malaysia is currently the dominant palm oil exporter; but it has a limited land base, higher costs of production and is also plagued by frequent shortage of plantation labor. Malaysia’s future relies upon a strong focus on improving yields. Indonesia has a large potential area for oil palm. According to IOPRI, 9.7 million hectares are suitable for oil palm planting, of the 13.6 million hectares of forest land that the Indonesian government has allowed for conversion. Labor is available and cheap in the country, and technical innovations leading to yield increases could easily be adopted by many well managed companies and spread to others. The main problem faced by the country is land conversion, with strong and recurring attacks from NGOs pressing to keep HCVF untouched. Many other countries plan to expand their oil palm areas, in Asia, Africa and Latin America, but, given the huge gap in production between Malaysia and

Indonesia and the rest of the world, it is unlikely that expansion in all these countries lead to new dominant players.

Supply of sustainable palm oil. Current supply of sustainable palm oil is insignificant and includes about 100,000 tons produced according to the Migros Criteria, and purchased by the Swiss retailer Migros. The Migros Criteria preceded the RSPO Principles and Criteria (P&C). RSPO’s members among palm oil producers represent at least one-third of globally traded supply, or 10M tons of palm oil. Therefore, once the P&C are operational and members have had a chance to fully implement them one might expect the supply of sustainable palm oil to be at least 10M tons.

Palm oil products and their uses. Palm oil is used in the manufacturing of many foodstuffs, but also in a great number of technical applications, as can be seen below. Palm oil is seen largely as a general-purpose oil, which means that, for many uses, it is interchangeable with other oils, particularly soybean and rapeseed (canola). Except in Africa, palm oil is not often retailed as a product in its own right. As one element amongst many in such end-products, it is concealed, which limits public awareness and ability to identify products using palm oil.

Table 3: Food and non-food uses of palm oil

Food uses	Non-food uses
Cooking oil	Cosmetics and personal care
Deep frying oils	Soaps
Margarines and spreads	Candles
Bakery fats (shortenings)	Pharmaceuticals
Cocoa butter alternative fats	Lubricants and Grease
Confectionary fats	Surfactants
Ice cream fats	Industrial Chemicals
Infant nutrition fats	Agrochemicals
Other food applications	Coatings
	Paints and lacquers
	Electronics
	Leather
	Biodiesel

7.3 Market Trends

General. The market potential for oils and fats looks good in the future, considering the rapid increases in consumption. But palm oil is but one among several other major oils and fats produced and traded in the world; main substitutes are soybean, canola, and sunflower oils. As most of the oils are inter-substitutable, they are engaged in a tough competition, though palm oil is among the leaders. Palm oil represents 59% of the world exports for vegetable oils and 56% for the total oils and fats while the production is respectively 33% and 27%. The growth of the oil palm sector was spectacular during the last decades, in terms of planted areas and palm oil production, especially in Malaysia and Indonesia. This is largely due to the palm oil’s comparative advantages but these are constantly challenged by prices fluctuations, technical innovations in other oils and fats, tariffs and taxes and consumers concerns on health, environment and food security.

Forecasts. Experts foresee a significant increase in oils and fats demand in the future. In the past 30 years, the average world growth rate was around 3%, with a per capita consumption which almost doubled from 11 kg in 1976 to 20.5 kg presently. With a population increase estimate close to 10 billion people in 2050, the demand will reach more than 200 million tons if the per capita consumption remains stable. Oil World expects the per capita consumption to grow also and by 2020 reach 25kg, due to better standard of living in many developing countries, which lead to 250 million tons at the time when the population reaches 10 billion people. Therefore, as demand for palm oil will double in the next decades, the supply sector is faced with an extraordinary challenge, at a time of high pressure from many NGOs on land preservation and the use of biotechnologies.

Exports. In 2004, palm oil exports represented almost 79% of the total produced, in constant increase during the last years from 69% in 2000. Malaysia (52%) and Indonesia (37%) share almost 90% of the palm oil exports. The volumes exported showed a 60% increase at the world level from 2000 to 2004, with only 37% in Malaysia but more than 110% in Indonesia. The total value of oil palm products exported by Malaysia in 2004 is estimated close to 8 billion US\$. In Indonesia, processed palm oil exports represent 60% of the total. Both Malaysia and Indonesia have export duties on palm oil exports, especially on crude palm oil, to protect the domestic market of cooking oil in Indonesia, and to boost added value products exports in Malaysia.

Imports. More than 150 countries import significant amounts of palm oil, but Europe (17%), China (19%) and India (10%) are the major players. Imports were relatively steady in India during the last five years, but showed significant increases in Europe (+ 60%), China (+ 118%) and especially Malaysia (+949%), which became also a substantial importer. In 2006, most palm oil was imported as processed palm oil, but some manufacturers reprocess palm oil at arrival.

Prices. Palm oil prices recovered from a low in 2001. Production costs vary greatly from country to country: Indonesia has the lowest, Africa the highest. Labor costs are much higher for palm oil than for soybean, for example. With production costs estimates around 200 US\$/MT (much less for the best managed companies) the palm oil sector still remain a very profitable business today. Palm oil futures have been traded on the Kuala Lumpur Commodity Exchange (KLCE) since 1980.

Table 4: Palm oil prices, 2000-2004

	2000	2001	2002	2003	2004	2005	2006
Price of Crude Palm oil US\$/MT World Bank	310.3	285.7	390.3	443.3	475.6	422	478

Demand for biodiversity-friendly palm oil. The current demand for biodiversity-friendly palm oil is small but poised to grow very fast. As of early 2006, RSPO members represented about 20% of demand for globally traded palm oil, but this figure is now an underestimate: about 50 organizations have since joined RSPO, some of whom will have

a big impact on demand. Members of RSPO now include large retail chains (e.g., Carrefour, Ikea), food manufacturers (e.g., Unilever, H J Heinz), soap, cosmetic and wax manufacturers (e.g., Johnson and Johnson, L'Oreal), and energy companies (e.g., BP), who are interested in palm-oil based biofuels. At the Nov 2006 meeting of the RSPO, it was clear that new demand-side members are impatient for sustainable palm oil to reach the market. Industry insiders do not expect sustainable palm oil to cost significantly more (if even, much more at all) than "ordinary" palm oil, and therefore, they expect demand to meet supply. Nevertheless, if the RSPO P&C are to have a wide impact on the industry, demand should be at such a level as to stimulate new supply, beyond the volumes produced by RSPO members.

8 BIOFUELS DISCUSSION

8.1 *Expected Demand*

The demand for palm-oil-based biofuels could have a huge impact on the palm oil industry and on the environment. For example, if the European Union requires just 5 percent of its fossil fuel to be replaced with edible-oil-based biofuel that would require nearly triple its edible oil imports. If this demand were to be met through expanded palm oil production, land requirements would be greater than all remaining lowland habitat in Borneo. That said, it is possible to meet increased demand through productivity increases and expansion into degraded lands, and RSPO has seen an increasing number of membership applications from energy companies. It remains to be seen exactly how RSPO will address issues related to biofuels. For now, this situation only reinforces the need to apply the sustainability P&C and indicators as soon as possible.

In general, biofuel from palm oil is not yet fully competitive with petroleum-based fuel oil. Crude palm oil will have the same price per barrel as heavy fuel oil when oil reaches and maintains a price of US\$100/barrel. But concerns about supply diversity and the reduction of greenhouse gas emissions will significantly increase demand for palm-oil-based biofuels in the coming years. To keep things in perspective, the total 2004 world palm oil production could provide fewer than 3 days of global energy demand, and all vegetable oils combined would provide fewer than 10 days of energy.

Nevertheless, demand for palm-oil-based biofuels can have a significant impact on production. The European Union's annual edible oil consumption is about 2.3 million barrels (equivalent to about 25 percent of globally traded palm oil); its annual fossil fuel consumption is equivalent to 87 million barrels of vegetable oil. So if the European Union replaces just 5 percent of its fossil fuel with edible-oil-based biofuel, that would require nearly triple the edible oil imports. The land requirements to meet this demand through palm oil would be greater than all remaining lowland habitat in Borneo.

8.2 *Current Supply*

Current production of palm oil is about 30 million tons. Projected food-related demand by 2050 (the date at which the world population would be stabilized) is 50-100 million

tons. This demand can be met by productivity increases. Current average productivity is 3 tons per hectare, best field productivity is 6-7 tons/hectare, and best yields in experimental conditions are 9-10 tons/hectare. Oil extraction rates can also be improved, e.g. by 20 percent in Malaysia. Therefore, it is theoretically possible to meet future demand without expanding into natural habitat.

However, productivity increases come mainly from the use of improved planting material. Because trees take three to five years to start producing, increases cannot come online quickly. Furthermore, less scrupulous producers are not interested in investing in better planting material. These producers include companies with 30-year land leases, which have already made a profit from timber sales and have planted oil palm haphazardly so as to occupy the land for the remainder of the lease.

On the other hand, a minimum six to seven million hectares of degraded lands in Indonesia, if turned into oil palm plantations, could produce roughly 20-40 million additional tons of palm oil, depending on productivity.

8.3 Position of Stakeholders

Reaction to this demand among palm oil stakeholders varies. The industry is already gearing up to respond to biofuel demand. In Malaysia, 15 companies have begun building biofuel plants and 34 more are on a waiting list for authorization.

Food companies that purchase palm oil are advocating that policy-makers favor non-food-based biofuels. BP, Shell, and other energy companies are joining RSPO in suggesting that at least part of the biofuel demand might be for sustainable palm oil.

8.4 Position of the RSPO

The emergence of the renewable energy market to meet climate change and supply security objectives has created additional worldwide demand for all vegetable oils including palm oil as well as an increased focus on sustainability. This has created needed economic opportunities for developing countries. However, it also increases demand for land, which can cause conflict with other land uses such as ecosystems and communities. Concern has been raised over the ability of palm and other vegetable oil sources to fulfill the demands of both the traditional and renewable fuel sectors in a sustainable manner and to provide definitive greenhouse gas benefits versus fossil fuels currently in use.

RSPO welcomes the increased global focus on responsible environmental and social development resulting from the use of palm oil and other vegetable oils in both traditional, which include non-food uses, and new applications. The palm oil market is an open market and it is therefore not within the scope of RSPO to decide upon allocation based on end use. It is our mission to provide certified sustainable palm to the world market in a clear and transparent manner. RSPO believes that the use of any first generation feed stocks should provide clear greenhouse gas benefits after considering the

entire life cycle of the raw material. RSPO acknowledges that this may lead to the need to develop additional criteria, compatible with the current RSPO principles and criteria. Whatever the end use, the RSPO is committed to deliver responsibly and sustainably produced palm to the world market following a rigorous set of principles, criteria and measurement indices which will themselves be periodically reviewed in inclusive multi-stakeholder fora.