chapter 9
Palm Oil

Chapter 9: Deepening Malaysia's Palm Oil Advantage

"Malaysia has a competitive advantage in the palm oil industry, as it has over 100 years of experience and a strong market leadership in terms of productivity and R&D. The Malaysian palm oil industry is also the fourth largest contributor to the Malaysian Gross National Income (GNI). We have thus set an ambitious GNI contribution target of RM178.0 billion in 2020 against the present GNI contribution of RM52.7 billion for the palm oil industry. At the same time we will ensure that all our efforts to achieve this target are in line with the concept of "inclusiveness" and "sustainability". With the private sector's involvement in identifying the initiatives presented in this Chapter, I am confident that the target will be achieved. My Ministry and I are fully committed and accountable to ensure that all the initiatives are implemented with the support of all stakeholders in the palm oil industry."

YB Tan Sri Bernard Giluk Dompok

Malaysia's palm oil industry is the fourth largest contributor to the national economy and currently accounts for RM1,889 (8 percent) of the national GNI per capita. The industry spans the entire value chain from plantations to downstream activities. Its development is mainly private sector-driven and is still heavily skewed towards upstream activities, namely production of fresh fruit bunches (FFB) in plantations, processing of FFBs in mills and palm kernel crushing and palm oil refining activities. While Government support is primarily targetted at promoting downstream activities and supporting independent smallholders, the core focus of the Palm Oil National Key Economic Area (NKEA) is to reinforce the leading role of the private sector in steering the palm oil industry.

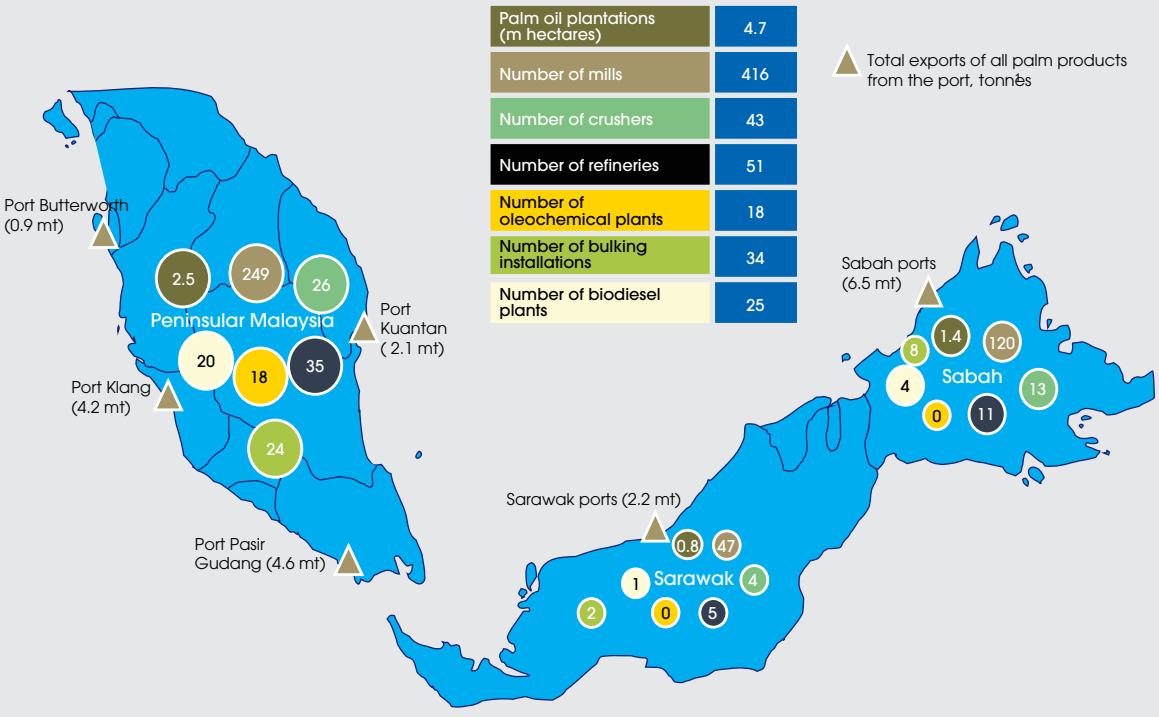
DEFINITION OF THE PALM OIL NKEA

The palm oil industry in Malaysia is organised around four segments. The plantations segment includes seed nursery, planting, harvesting, collecting and milling. The second segment includes refining, bulking and trading activities. The remaining two downstream segments are non-food downstream as well as food- and health-based downstream.

As of 2009, Malaysia has 4.7 million hectares of oil palm plantations, 416 mills, 43 crushers, 51 refineries, 18 oleochemical plants and 25 biodiesel plants, with the geographical spread illustrated in *Exhibit 9-1*. The industry is dominated by large plantation companies (private- and government-linked companies) which hold 60 percent of total plantation land, with a growing level of integration along the value chain. However, there is a significant share of palm oil plantation area under the ownership of organised smallholders and independent smallholders, which still account for 28 percent and 12 percent of the total area respectively.

Exhibit 9-1

Malaysia's palm oil industry spans the entire value chain from plantations to oleochemical and biodiesel plants



[1] Other Peninsular Malaysia ports: 1.9 tonnes

The palm oil industry is forecasted to grow by 7.1 percent over the next 10 years, driven by the following factors:

- Further gains in average productivity of FFB yield, which is currently at 21 tonnes per hectare per year, and of the oil extraction rate (OER), which is currently at 20.5 percent;

- New plantation expansion of Malaysian companies abroad due to land limitations in Malaysia. There is currently a total of 6.6 million hectares of land for agricultural use in Malaysia, of which 4.7 million hectares (71 percent of total) is used for oil palm plantations; and

- The venture of large plantation companies into high potential downstream activities such as processed food, biodiesel, second generation biofuel, and oleochemicals (chemicals derived from palm oil such as fatty acids, fatty alcohol, soap noodles, methyl ester and glycerine).

Productivity gains in the palm oil industry have a significant impact on GNI growth. The growth potential in both FFB yield and OER is significant due to the high level of variation in performance between large, medium, small plantations and smallholders as well as mills across Malaysia. Evidence collected from high performing plantation companies suggest that best practices are in place and can be shared to bridge the gaps resulting in higher yields and OER across the nation.

With 4.7 million hectares already in use for oil palm cultivation in Malaysia, the potential for further national expansion is limited. The expansion potential is estimated at a maximum of 1.3 million additional hectares of which 75 percent or 1 million hectares is located in Sarawak. Given this situation, large Malaysian companies are redirecting their efforts and resources towards international expansion. As of 2009, Malaysian companies own about 25 percent of total palm oil plantations in Indonesia. Although Indonesia remains the natural choice for the expansion of Malaysian plantations, some companies have recently shown interest in other parts of Asia as well as Africa and South America.

At the moment, Malaysia has yet to capture the full potential of existing downstream opportunities. As an illustration of this untapped downstream potential, for exports as of 2009, only 18.5 percent of Malaysia's palm oil output is exported as downstream products as opposed to 81.5 percent exported as upstream products either in crude form (e.g. palm oil, palm kernel oil and palm kernel cake) or processed form (e.g. crude palm olein, Refined Bleached Deodorised-RBD palm oil, RBD palm olein, RBD palm stearin and palm fatty acid distillate). The clear identification of high potential downstream applications and commitment of companies in the industry to further integrate and invest resources in downstream segments or in research and development (R&D) is important to ensure the sustainability of the industry going forward.

MARKET ASSESSMENT

Oil palm is one of the main drivers of Malaysia's agriculture sector, accounting for 71 percent of its national agricultural land bank. The industry's history spans across more than 100 years during which it has achieved tremendous success. Building on a series of core advantages, the industry will remain a major contributor to the Malaysian economy over the next 10 years.

Firstly, the palm oil industry holds two core advantages over other substitutes:

- **Rising relative demand versus substitutes**
  The global demand for oil and fats, such as palm oil, soyabean oil, sunflower oil and rapeseed oil rose sharply at an average growth rate of 7 percent over the past ten years, driven by increasing global population, rising per capita incomes and changing dietary habits. Comparatively, over the same period, palm oil demand alone has grown at a 10 percent rate with the highest growth coming from Russia (22 percent), the USA (21 percent), China (16 percent) and Europe (9 percent); and

- **High oil yield per hectare versus substitutes**
  Oil palm produces 4 to 5 tonnes of oil per hectare which is 8 to 10 times higher than other oil seeds such as rapeseed and soyabean.

Secondly, within the palm oil industry, Malaysian palm oil has three major strengths compared to competing global producers:

- **National FFB yield levels**
  Malaysia has amongst the highest average palm oil yields at about 21 tonnes per hectare per year. Its most direct competitor, Indonesia, holds a national average yield of 19 tonnes per hectare per year;

- **Excellent plant breeding activities**
  Malaysia is recognised worldwide for the quality of its planting material thanks to its 20 world-class seed producers and annual production capacity of 87 million seeds and its leading R&D activities such as research into the oil palm genome, tissue culture and biotechnology; and

- **Conducive regulatory environment:**
  Malaysia's palm oil industry is regulated by Malaysian Palm Oil Board (MPOB), which awards licences across the value chain from seed producers to export of palm oil as well as developing policies, guidelines and practices to help monitor and assist the industry.

Despite these developments, the industry is facing a series of hurdles, which threaten the country's standing as a competitive global palm oil producer. These hurdles include:

- **Limited land bank**
  Malaysia can only count on a maximum potential increase of 28 percent of its oil palm plantation area, and mostly on hilly or peat terrains. As a result, Malaysia has been gradually losing its global production market share to Indonesia. Indonesia overtook Malaysia in crude palm oil (CPO) production market share in 2009 and now holds 46 percent of the global production market share compared to Malaysia's 41 percent. Indonesia's high growth of new oil palm plantations coupled with its lower average cost of production has directly impacted Malaysia's market share in key export markets such as India, Pakistan and China;

- **Limited scope of mechanisation**
  With 369,000 foreign workers employed in plantations, the oil palm industry is still heavily dependent on foreign labour for harvesting, general upkeep and maintenance. Although mechanisation has been gradually introduced over the years, it has yet to replace the high labour requirements in the upstream sector. Wherever it is introduced, mechanisation must meet the stringent criteria reducing labour costs, increasing productivity and improving product quality. For this reason, one of the key challenges of the plantation segment is to scale up its level of mechanisation;

- **Threat to plant protection**
  Pests and diseases such as Ganoderma Basal Stem Rot, are increasingly becoming a threat to the industry. Although research relating to the biology, early detection and control of such disease has been undertaken, a long-term sustainable, cost-efficient and effective solution is still not available;

- **Reliance on upstream**
  The palm oil industry is still heavily skewed towards the upstream segment, which in 2009 generated 87 percent of the industry's GNI. Companies in the industry have been slow to move downstream, where high value-add is still to be captured, in any significant number;

- **Impediments to market access**
  Countries are using both tariff- and non-tariff barriers to restrict market access to protect their local oils and fats industry. The Renewable Energy Directive adopted by the European Union, which imposes strict regulations on carbon emissions distorting the palm oil commodity price, is an example of such a barrier; and

- **Environmental and sustainability concerns**
  A continued slew of anti-palm oil campaigns highlighting its carbon footprint or raising health concerns, launched by environmental and consumer advocacy groups in Europe and the USA, have generated an increasing unwarranted negative perception of palm oil. Such campaigns include that launched by the American soyabean lobby group claiming that palm oil saturated fat raises blood cholesterol levels, leading to heart disease.

TARGETS AND ASPIRATIONS

We aim to raise the industry's GNI contribution from a current RM52.7 billion to RM178.0 billion by 2020. We plan to bridge this GNI gap through the implementation of eight core entry point projects (EPP) spanning across the palm oil value chain (see *Exhibit 9-2*) to capture the fast-growing global demand for palm oil, which registered a growth rate of 10 percent between 2000 and 2009. The EPPs will generate RM47.1 billion in GNI impact in 2020, and the business opportunities will add another RM74.6 billion (inclusive of baseline growth of RM17.0 billion). The incremental GNI also includes RM3.6 billion from the multiplier effect created by EPPs from other sectors. The largest source of the multiplier effect on the Palm Oil NKEA is from the Wholesale and Retail as well as the Electrical and Electronics NKEAs. This includes benefits such as increased retail activity reflecting increased demand for palm oil and palm oil-based products.

With the implementation of the EPPs, the average salary of 161,000 low-income independent smallholders will significantly improve by 47 percent in 2020. In addition, we will reduce our dependence on foreign labour by 15 to 20 percent as a result of major gains in worker productivity in plantations. These EPPs will also create 41,600 new local jobs upstream and 81,800 additional jobs downstream, of which 40 percent will be high-skilled jobs earning an average monthly income of RM6,000. Additionally, we will reduce 110,000 upstream foreign workers.

8 EPPs Identified to Grow Incremental GNI of RM47.1 billion

In order to achieve this vision, we have identified two strategic thrusts for the palm oil industry. Aligned against each strategic thrust, we have identified a portfolio of EPPs to grow the industry's GNI contribution.

Upstream productivity and sustainability

Five EPPs will focus on improving upstream productivity generating an incremental GNI of RM33.1 billion in 2020. The implementation of these EPPs will transform Malaysia's oil palm industry, resulting in significant productivity improvement (from 21 to 26.2 tonnes per hectare per year). These EPPs are:

- **EPP 1**: Accelerating the replanting of oil palm;
- **EPP 2**: Improving fresh fruit bunch yield;
- **EPP 3**: Improving worker productivity;
- **EPP 4**: Increasing the oil extraction rate; and
- **EPP 5**: Developing biogas at palm oil mills.

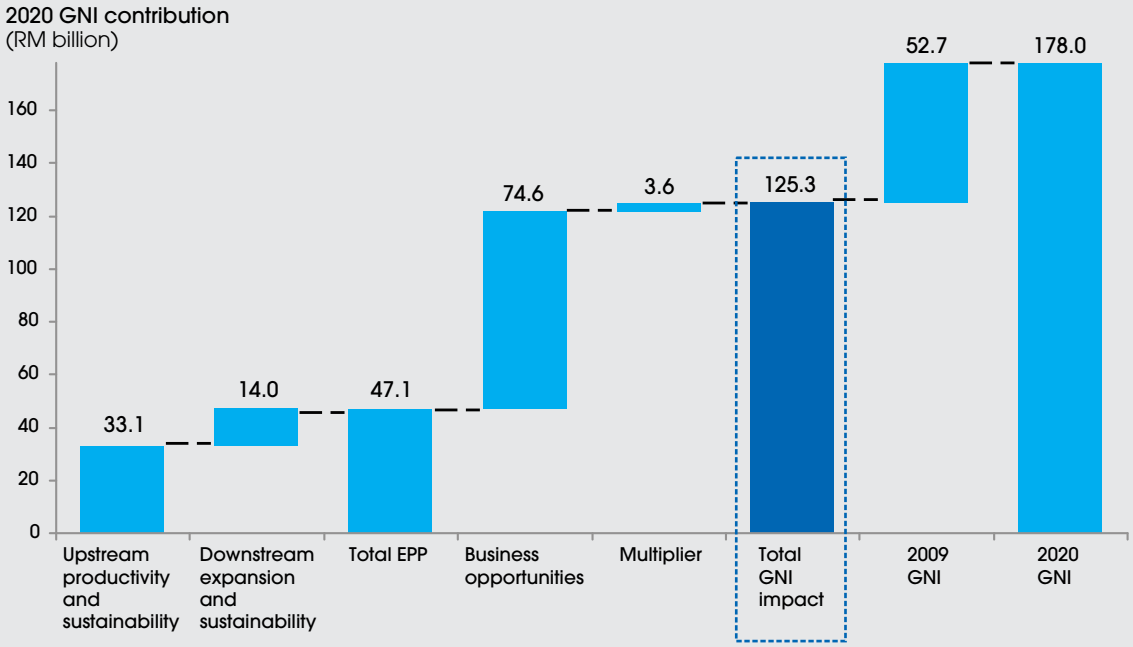
Downstream expansion and sustainability

The three EPPs focusing on downstream expansion are targetted to generate an incremental GNI of RM14.0 billion by 2020. These initiatives will involve coordinating public-private R&D efforts with a strong commercialisation focus. As a result we are expecting a rising income from downstream products, which will constitute at least 25 percent of total palm oil income. These EPPs are:

- **EPP 6**: Developing oleo derivatives;
- **EPP 7**: Commercialising second generation biofuels; and
- **EPP 8**: Expediting growth in food- and health-based downstream segments.

Exhibit 9-2

Eight EPPs, three business opportunities, baseline growth and multiplier effect will deliver RM125.3 billion incremental GNI impact by 2020



UPSTREAM PRODUCTIVITY AND SUSTAINABILITY

Upstream, the industry will undertake five key EPPs with high GNI and sustainability potential to secure the availability of high quality FFB for the growing downstream segments and ensure that both smallholders and plantations reap the fruits of the segment's future growth.

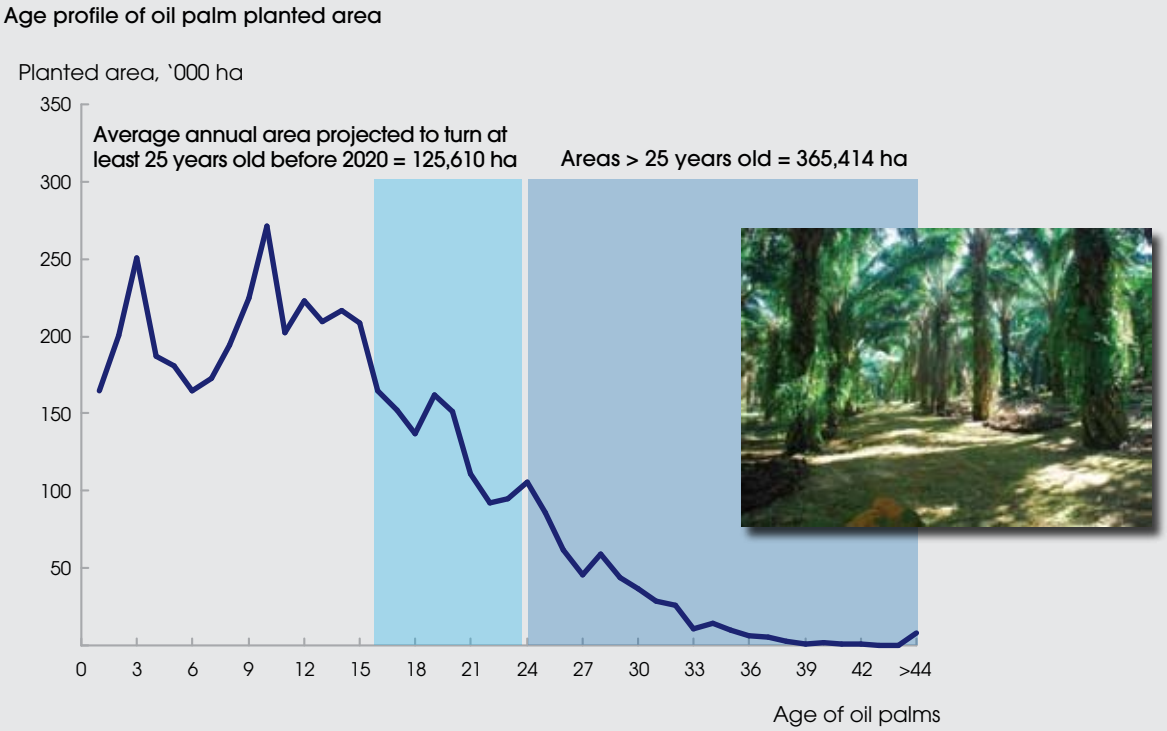
EPP 1: Accelerating the Replanting of Oil Palm

Rationale

Smallholders are reluctant to replant after the 25-year maturity period to avoid short-term losses of income, as it takes three years for palms to mature before the first harvest. The situation worsens when CPO prices are high as even plantation companies are then inclined to delay replanting to take advantage of the short-term revenue potential. As a result, Malaysia holds a backlog of 365,414 hectares of palm oil trees aged above 25 years (*Exhibit 9-3*), which normally have a lower yield. If replanting is not accelerated, it will take 14 years to clear the backlog. It is critical to clear the backlog now as each year an average of 125,610 hectares of trees become due for replanting.

Exhibit 9-3

Over 365,000 hectares of oil palm plantations have trees over 25 years old, which have lower yield will bring down the national average



Actions

The main objective of this initiative is to replant 100 percent of the 365,414-hectare backlog of low-yielding palm oil trees older than 25 years within three years to help increase the average yield to 26 tonnes per hectare per year by 2020.

To clear the backlog, MPOB will carry out the following actions: It will implement a binding replanting policy for smallholders and plantations. Secondly, it will provide financial support targetted at independent smallholders. Thirdly, it will make available quality planting materials (seeds, clonal material, seedlings, ramets) for replanting activity, and finally MPOB will set up an implementation task force to manage all replanting activities.

Smallholders account for 230,211 hectares or 63 percent of the total backlog in Malaysia, while plantations hold the remaining 135,203 hectares. To ensure replanting is accelerated, MPOB will impose the following criteria for the binding replanting policy:

- Independent smallholders will not be allowed to keep palms older than 25 years that yielded less than 10 tonnes per hectare per year for the past three years;

- Organised smallholders will not be allowed to keep palms older than 25 years old that yielded less than 13 tonnes per hectare per year for the past three years; and

- Plantation owners will not be allowed to exceed 5 percent of their total Malaysian oil palm land area for palms older than 25 years old that yielded less than 16 tonnes per hectare per year for the past three years.

To further support independent smallholders in replanting activities, we will continue the one-off replanting payment of RM6,000 per hectare and monthly payments of RM500 per household for two years to independent smallholders holding 2.5 hectares or less. The replanting activities of organised smallholders will be managed by their respective government agencies (FELDA, FELCRA, RISDA, SALCRA, etc.) under existing schemes.

The current capacity of 87 million seeds per year exceeds the national requirement of 52 million seeds yearly. MPOB's focus will be to monitor the quality of planting materials, particularly for smallholders through the licensing of all nursery operators (about 20 percent are currently unlicensed).

MPOB will establish a replanting implementation task force focusing on independent smallholders, organised smallholders and plantation companies. The members of the taskforce will comprise MPOB, the National Association of Smallholders (NASH), all relevant government agencies (FELDA, FELCRA, RISDA, SALCRA, etc.), Malaysian Palm Oil Association (MPOA), Malaysian Estate Owners Association (MEOA), East Malaysia Planters Association (EMPA), Sarawak Oil Palm Plantation Owners Association (SOPPOA) and other associations representing plantation companies. This taskforce will meet on a quarterly basis to review the progress of replanting activities and formulate measures to solve issues encountered.

Upon clearing this backlog, MPOB will continue to monitor closely the national oil palm age profile.

Funding

This initiative requires RM1.0 billion in public funding in the form of direct incentives to independent smallholders to compensate for the loss of revenue and extra expenses incurred due to the mandated replanting activities.

In addition, this replanting initiative will require RM3.4 billion in private and GLC investment from plantation companies and their contractors in the form of felling and chipping equipment, terracing and drainage equipment, field-planting equipment, roads and bridges maintenance equipment. Both public and private funding will take place during the backlog clearing period from the first quarter of 2011 to the last quarter of 2013.

Impact

This EPP will generate an additional GNI contribution of RM4.6 billion in 2020.

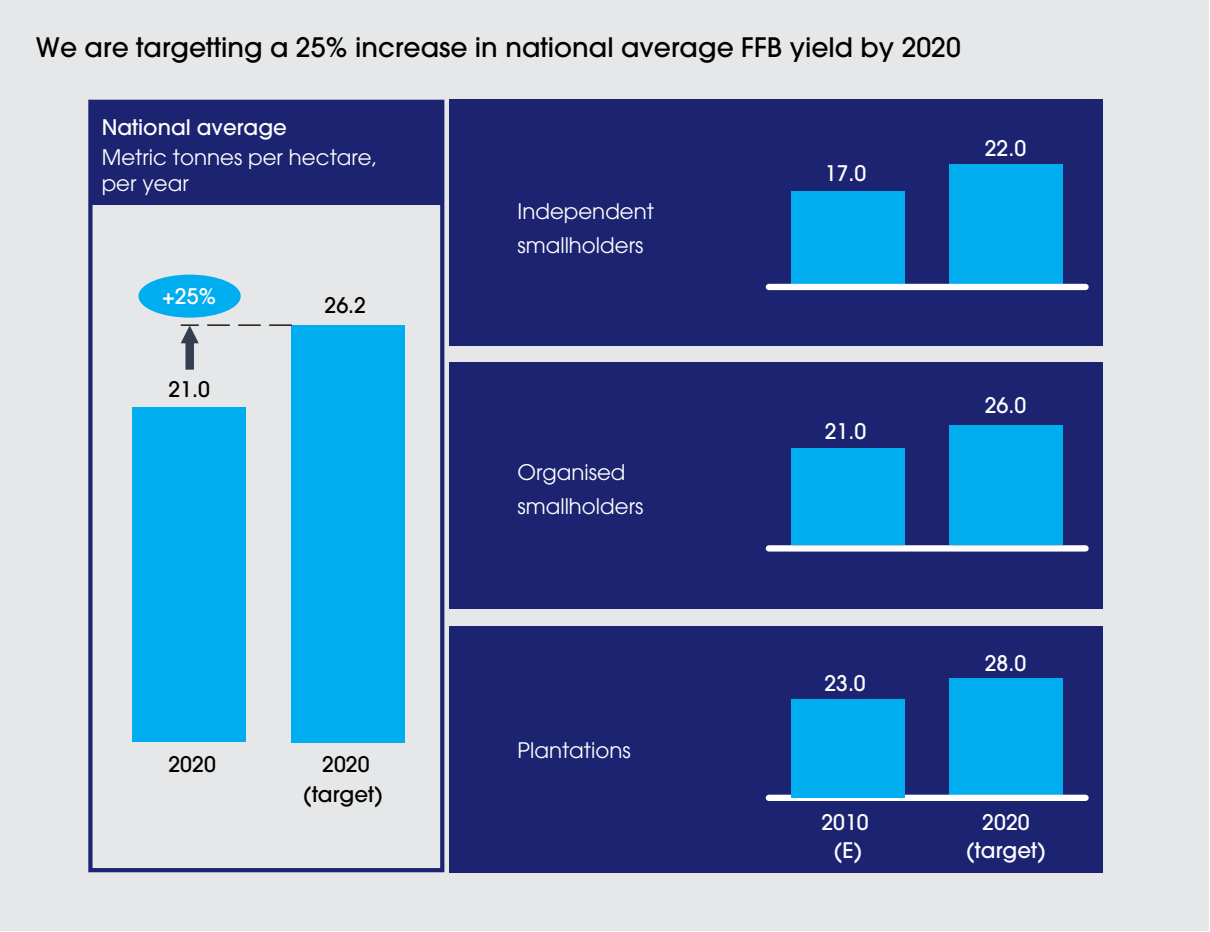
EPP 2: Improving Fresh Fruit Bunch Yield

Rationale

There are 161,000 independent smallholders in Malaysia. With 600,000 hectares, they account for 12.8 percent of the Malaysian palm oil plantation area and generate lower FFB yield (17 tonnes per hectare per year). Their limited average plot size (3.9 hectares per family) and lack of exposure to best practices are the major factors directly impacting yields.

Best practices, such as the Codes of Practice (COP) developed by MPOB and other industry guidelines and references, are not fully implemented by all plantations. This has further caused the average national FFB yield to stagnate.

Exhibit 9-4



Actions

This EPP will entail the implementation of four key activities:

- Recruiting 493 TUNAS (extension service) officers to improve the ratio from the current 1 officer to 950 smallholders (or 1:3,800 hectares) to a 1:250 smallholders (or 1:1,000 hectares) ratio. This will ensure better extension services to the smallholders by TUNAS officers;

- Clustering all 161,000 independent smallholders around their nearest mill into organised cooperatives across Malaysia;

- Mandating one of the reference industry best practices for all plantations, organised smallholders and cooperatives of independent smallholders; and

- Implementing a yearly ranking of cooperatives and smallholders to identify and replicate best practices.

Independent smallholders are scattered geographically, disorganised and highly dependent on middlemen to channel their FFBs to mills. TUNAS officers will cluster smallholders around their nearest mills into 134 cooperatives (1,200 smallholders per cooperative). The cooperatives will extend support services, act as purchasing agents of key inputs, assist in negotiating long-term contracts with the mill, monitor yields as well as FFB quality and facilitate administrative services. By 2013, all smallholders will be required by law to join a cooperative managed by at least one TUNAS officer. The cooperative system is expected to increase independent smallholder yields to 22 tonnes per hectare per year by 2020.

Most large Malaysian oil palm plantations are applying at least one of the reference good agricultural practices consistently (e.g MPOB Codes of Practices, Malaysian Standard of Good Agricultural Practices developed by SIRIM, Roundtable for Sustainable Palm Oil Practices). This has resulted in very good yields of an average 25 tonnes per hectare per year for the top 15 plantations. However, some smaller plantations reported yields below 21 tonnes per hectare per year. As such we will make it mandatory for all plantations, organised smallholders and cooperatives of independent smallholders to implement at least one of the three reference best practices or company best practices on par or better than MPOB's COP.

Finally, MPOB will carry out and publish annually a ranking of smallholders by average FFB yield within each cooperative and a national ranking of all cooperatives by average FFB yield. This will help MPOB to identify best practices and extend its services to the lowest performers. MPOB will also reward and recognise the top 10 performers among smallholders in each cooperative as well as the top 10 performing cooperatives nationally.

Funding

The FFB yield improvements will be applied to the new oil palm plantation area in Malaysia of about 1.3 million hectares. This implies development costs for the new areas in the form of capital investment in new land to convert the land to oil palm. This investment will be made entirely by private plantation companies and GLCs. The estimated land conversion cost is RM8,500 per hectare (excluding general and administration costs). In nominal terms, this translates into a total investment of RM10.0 billion over 10 years.

Impact

We estimate that in 2020 this initiative will generate RM10.2 billion of incremental GNI, create an additional 1,600 jobs and improve the annual income of 161,000 independent smallholders by 47 percent.

EPP 3: Improving Worker Productivity

Rationale

Malaysia is currently experiencing a shortage of skilled and unskilled labour in plantations estimated at 20 percent of the total industry workforce. This is due in part to the demanding nature of the work in estates and the growing number of attractive alternative job opportunities in other industries.

The lack of mechanisation options in plantations creates an over reliance on manual labour for all key activities: land preparation, nurseries, planting, fertilising, field upkeep and maintenance, harvesting, collection and transportation. As a result, Malaysian oil palm plantations are heavily dependent on foreign workers (currently estimated at 80 percent of total industry workforce). These foreign workers remit an average of 60 percent of their incomes back to their home countries. This has a direct negative impact on the GNI of the industry.

Actions

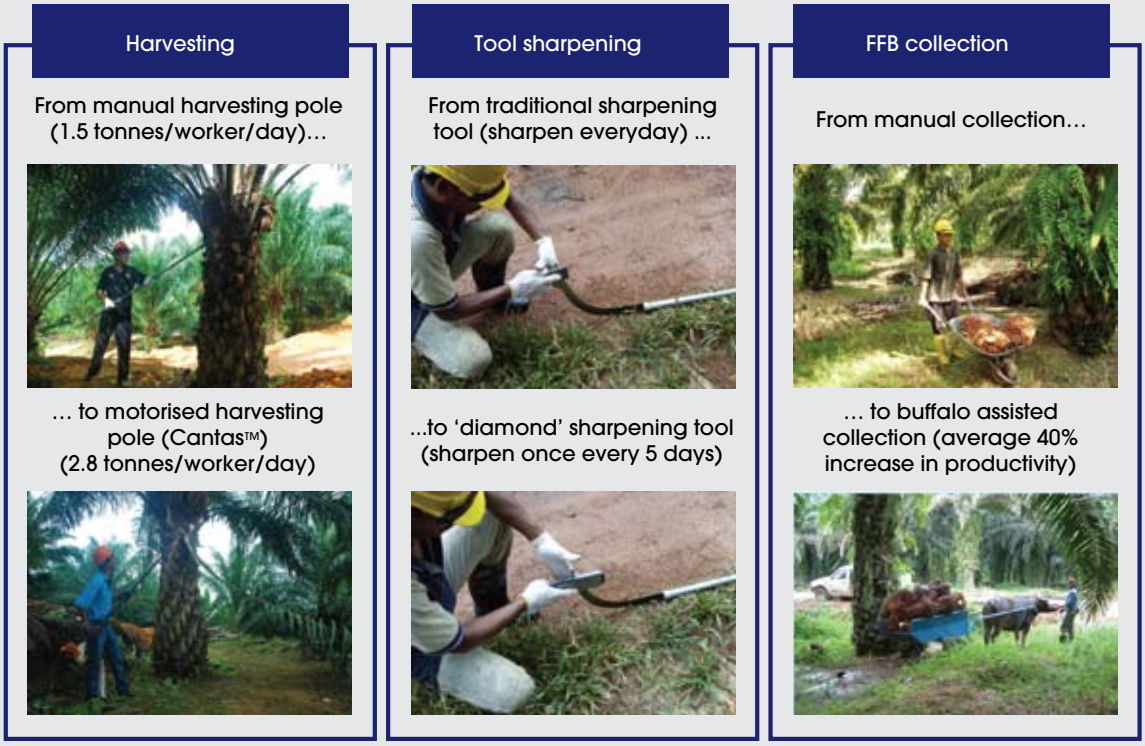
This EPP requires implementation of innovative techniques to increase the average productivity of harvesting and collecting process. As a result of this initiative we will also address the issue of remittance outflows by directly reducing the potential number of foreign workers required by 110,000 by year 2020.

To address the shortage of labour, we have identified three core activities (*Exhibit 9-5*) focusing on improving worker productivity:

- Scaling up the production and promoting the use of Cantas™, a motorised harvesting pole to improve harvesting productivity;
- Promoting usage of the 'diamond' sharpening tool to improve harvesting productivity; and
- Switching from manual collection to buffalo-assisted collection to improve FFB collection productivity, where mechanisation is not feasible.

Exhibit 9-5

Three techniques will improve the productivity of harvesting and collecting



Pictures courtesy of the Malaysian Palm Oil Board and Genting Plantation Berhad

Cantas™ is a motorised harvesting pole that can reduce the cutting time of FFB and can prune trees below 15 feet (5 metres), which account for 30 percent of oil palm trees (1.4 million hectares out of 4.7 million hectares). This will increase worker productivity by an estimated 85 percent. MPOB will ensure the production of Cantas™ is scaled up from the current 5,000 units per year to 20,000 units per year by 2020, and the unit price is reduced from the current RM5,000 per unit to a maximum of RM2,500 in order to encourage widespread usage. MPOB will also need to ensure that the durability of the pole and after-sales services of the suppliers meet the requirements of the industry.

The 'diamond' sharpening tool enables harvesters to increase their productivity by an estimated 40 percent due to faster and less frequent sharpening of sickles and chisels. MPOB will promote the usage of the sharpening tool and advise plantation owners and smallholders to provide sufficient lead time to the supplier. This will ensure the availability of the required 30,000 units by 2012.

Malaysia is still relying on manual labour for an estimated 75 percent of its FFB collection, which requires one worker for every 15 hectares. The remaining collection is done mostly through a mini tractor grabber, which costs RM60,000 per unit. This grabber has a five-year lifetime and requires only one worker for every 25 hectares. The usage of buffalo-assisted collection also gives the same ratio as the grabber, but costs only about RM5,000 per buffalo. This method is suitable for an estimated area of 700,000 hectares. MPOB will promote the usage of buffalo-assisted collection where suitable. The Veterinary Department (DVS) will ensure sufficient supply to meet the demand of about 32,000 buffaloes by 2015 either through importing buffaloes or launching local breeding programmes.

Funding

This EPP will not require any public funding, as it will rely on RM765 million of funding from private and GLC plantation companies as well as smallholders of more than 10-year tenure. This private funding will be targetted at three major activities: (1) the progressive acquisition of Cantas™ equipment by plantations and smallholders to replace manual harvesting poles, (estimated at RM525 million); (2) the purchase by plantations and smallholders of 'diamond' sharpening tools to improve harvesting productivity (estimated at RM74 million); and (3) the import or breeding of 32,000 buffaloes over 10 years to implement buffalo-assisted collection across Malaysia (estimated at RM166 million).

Impact

In 2020, this EPP will generate an estimated RM1.7 billion in GNI and create 28,000 local jobs (in addition to reducing 110,000 foreign workers).

EPP 4: Increasing the Oil Extraction Rate

Rationale

The national OER has not made significant improvements over the past years, and averaged 20.5 percent in 2009. This is because the performance of smallholders and independent millers has not been as high as that of plantations, due to inconsistent quality of FFBs delivered to the mills as well as the inefficiency of some old mills that have not upgraded their machinery.

Actions

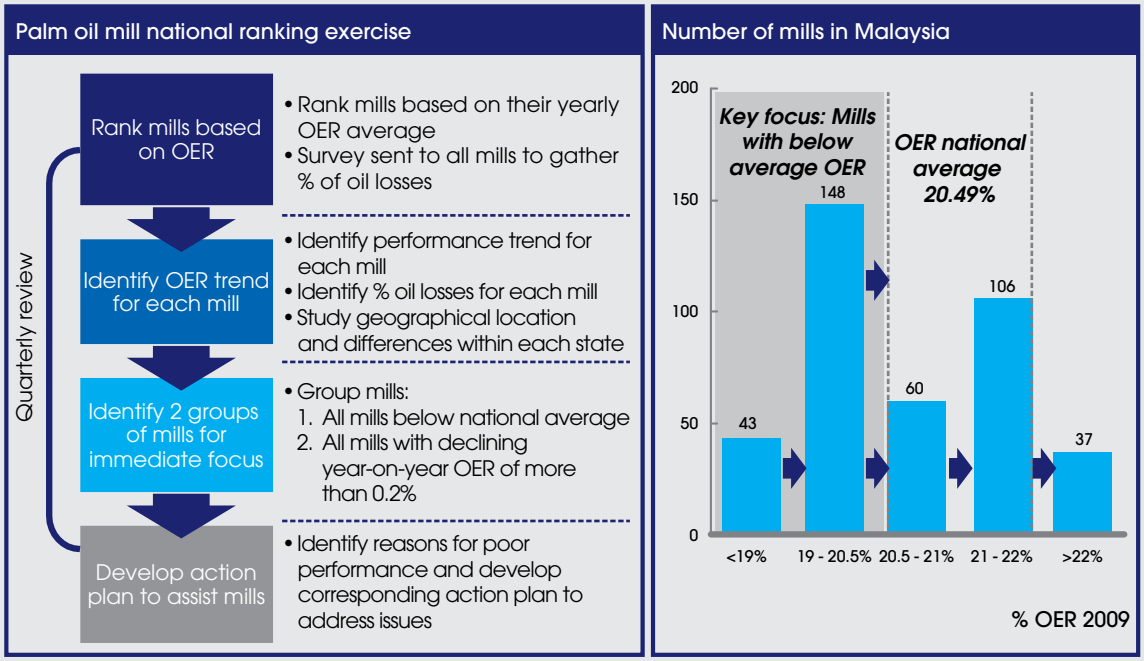
The objective of the EPP is to increase OER from the current 20.5 percent in 2009 to 23 percent by 2020 by implementing strict quality-control parameters at the mills and improve overall mill efficiency.

Through a ranking exercise, we have identified the performance of each palm oil mill across Malaysia. We will focus on improving the OER of mills that have an OER below the national average and those that recorded an OER drop of more than 0.2 percent from 2008 to 2009.

Based on the results of the ranking exercise, MPOB will redeploy enforcement officers to mills that have recorded an OER lower than the national average, as shown in *Exhibit 9-6*. These officers will monitor the FFB acceptance process by the mills so that bunches rejected by any mill do not get accepted by another. MPOB will recruit additional enforcement officers to be deployed at other mills which are above the national average but have recorded a decline of 0.2 percent in OER year-on-year, if required. At the same time, FFB dealers will be required to recruit at least one MPOB certified grader to ensure the quality of FFB delivered. Payment of bunches will be paid strictly according to the quality received to ensure a better supply of FFB.

Exhibit 9-6

We ranked the mills on OER to identify and resolve the key issues facing lower performing mills and increase the national OER



In addition, older mills will be expected to improve efficiency by upgrading their machinery to reduce FFB oil loss by an additional 0.5 percent. The mills will need to improve the consistency of steam supply and maintain stable temperature throughout the processing activities. This will be done through automation and the installation of larger capacity boilers. The installation of new pressing and cracking equipment such as the empty fruit bunch (EFB) screw press, Rolek nut crackers and the four-stage winnowing system will improve both the quality and recovery of oil and kernel losses.

As a result of the upgrading and installation of new machinery at the mills, better quality palm kernel will be delivered to the kernel crushing plant. The palm kernel OER will be improved by reducing the dirt and shell content in palm kernel by an additional 2 percent, and reducing the moisture content in palm kernel from the current average of 7 percent to 5 percent. Moreover, the quality of the palm kernel expeller (PKE) will also improve by reducing the dirt and shell content to a maximum of 12 percent. This will allow the PKE to be also sold as feedstock to poultry farms.

Funding

The OER improvement EPP does not require any public funding. The RM3.0 billion private investment provided by independent millers and large integrated plantation companies will be targetted at upgrading equipment in palm oil mills across Malaysia. These equipment include sterilisation process equipment, screw presses, bunch crushers, Rolek nut crackers, clarifier systems, boilers and turbines.

Impact

This EPP will generate an additional RM13.7 billion in GNI and create 10,000 local jobs mostly due to the opening of 84 new mills to meet increased supply of FFB in 2020.

EPP 5: Developing Biogas at Palm Oil Mills

Rationale

When FFB is processed, palm oil mill effluent waste (POME) is generated. In order to reduce the impact to the environment, the POME is treated before being discharged. It consists of several steps including cooling, oil removal, anaerobic and aerobic treatment (to reduce Biochemical Oxygen Demand (BOD) and Chemical Oxygen Demand (COD) to a level acceptable for irrigation or land application). The anaerobic decay of organic matter inside the ponds is accompanied by the production of biogas containing methane (which is a principal component of natural gas) that is released into the atmosphere.

This methane gas released during the milling process has given the palm oil industry a negative image due to its high potential for global warming where it is over 20 times more effective in trapping heat in the atmosphere than carbon dioxide over a 100-year period. As methane gas could be captured to generate electricity, mills can benefit from this new revenue source as well as from the carbon credit programme offered under the United Nations Framework for Climate Change Convention (UNFCCC). As of today, only 12 mills in Malaysia have embarked on the development of biogas plants.

Actions

The objective of this initiative is to ensure that mills capture methane gas to generate electricity for supply to the national grid or for their own use. Mills should start developing biogas plants immediately to capture additional income from the incentives offered by the Clean Development Mechanism (CDM) programme before it expires in 2012.

Biogas plants will be developed at the 500 mills over the next 10 years. Of these, 250 mills will target to supply electricity to the national grid by 2020. Another 233 mills will capture biogas to be used as fuel for their own boilers. The balance of 17 mills will use the methane gas for both options. The development of biogas plants will also enable mills to gain another revenue source from the sale of palm kernel shells, previously burnt as fuel.

To accelerate the development of biogas plants, the electricity tariff for Renewable Energy Power Purchasing Agreement (REPPA) must be increased from the current RM0.21 per kilowatt hour to RM0.35 per kilowatt hour. To assist independent millers in funding the development of their biogas plants, an existing Green Technology Fund set up by the Ministry of Energy, Green Technology and Water is available.

Funding

This EPP will be wholly funded by independent millers and plantation companies with a total estimated cost of RM2.8 billion. The investment will be targetted at three major areas for the construction and operation of biogas plants: building gas flaring facilities (worth RM1.7 billion), investing in connection of mills to the grid (worth RM845 million) and investing in gas burners (worth RM259 million).

Impact

This EPP will generate an estimated RM2.9 billion in GNI in 2020 while creating 2,000 jobs and not requiring any incremental Government funding.

DOWNSTREAM EXPANSION AND SUSTAINABILITY

The industry will accelerate the shift of its activities from upstream to downstream, investing both in food- based and non food-based segments. The growth of downstream activities will be driven by a strong focus on finished segments that generate high value, including oleo derivatives and selected food- and health-based products, and sustainable activities such as bio oil.

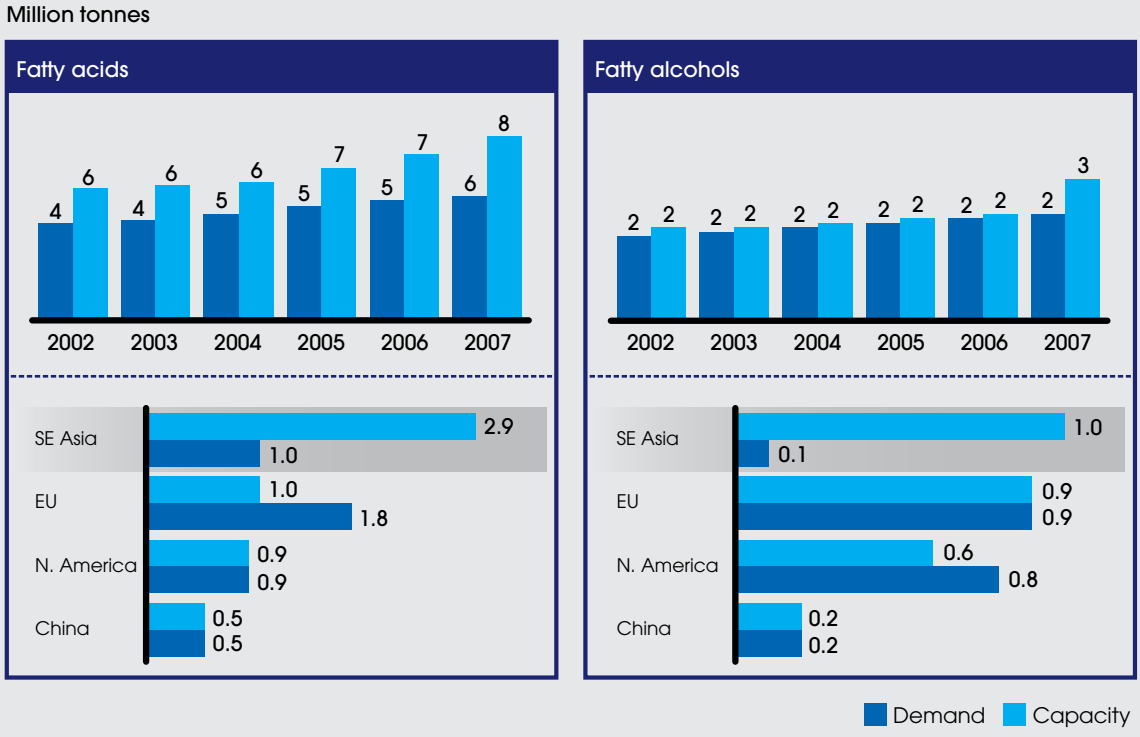
EPP 6: Developing Oleo Derivatives

Rationale

Malaysia's palm oil non-food downstream segment is focused on basic oleochemical products: fatty acids, fatty alcohols, methyl esters and glycerine. These chemicals are consumed in a wide range of industries. Basic oleochemicals constitute 99 percent of the palm oil non-food downstream production, while the remaining 1 percent is contributed by oleo derivatives that are developed from basic oleochemicals and used in consumer products like soaps, detergents and cosmetics. However, the capacity for two basic oleochemicals, i.e. fatty acids and fatty alcohols, is much higher than global demand, and this gap is not expected to reduce significantly in the near future, as shown in *Exhibit 9-7*. The issue is further compounded by the fact that these have lower profit margins (7 percent on average) compared to high-value oleo derivatives (20 percent on average).

Exhibit 9-7

The capacity of two basic oleochemicals is higher than global demand



Actions

The main objective of this initiative is to shift national production from basic oleochemicals to higher value oleo derivatives from the current 1 percent share to a forecasted 40 percent by 2020. This will be achieved by focusing on five key products: agrochemicals, surfactants, bio lubricants, bio polyols and glycerol derivatives.

By 2020, Malaysia is expected to capture 14 percent of the global demand for these products, at a value of RM25 billion.

This EPP will be implemented with five key activities:

- Supporting local oleo derivative companies to expand domestic production;
- Incentivising local companies to set up plants through joint ventures abroad;
- Helping major oleochemical companies to lead investments in recommended product segments;
- Exploiting synergies with petrochemical companies; and
- Encouraging foreign investors to set up factories or enter into joint ventures in Malaysia.

Moving ahead, public and private R&D must be focused on high value oleo derivatives. MPOB and Malaysian Palm Oil Council (MPOC) will support local oleo derivative development through the setup of pre-commercialisation investment and technology acquisition funds and through the provision of global market knowledge and research support. To support local companies to set up joint ventures abroad, we will provide tax incentives for foreign acquisitions. Moreover, MPOC and Malaysian Industrial Development Authority (MIDA) will provide key market knowledge and enhance collaboration with investors, technology providers and key research centres in universities abroad. The key oleochemical companies in Malaysia will expand their investments in the recommended oleo derivative products, and increase their revenue share from derivatives over the next 10 years. The Malaysian oleochemical industry will also exploit synergies with petrochemical companies by sharing key raw materials for oleo derivatives and hence spreading the necessary investments across the two industries. To attract foreign investors to set up their plants in Malaysia, MIDA and local government authorities will aggressively promote five proposed oleo hubs, which will each have a centralised utility facility to support the plants.

Funding

This EPP requires public funding of RM508 million and tax incentives of RM84 million to create the following:

- A pre-commercialisation investment fund to finance pre-commercialisation plants for the target product segments, estimated at RM226 million over 10 years;
- A technology acquisition fund of RM282 million, dedicated to assist Malaysian oleochemical companies to acquire new technologies from abroad; and
- A foreign acquisition tax incentive to encourage existing companies to expand overseas, which is expected to cost RM84 million over 10 years.

Additionally, this initiative will rely on RM10.2 billion of private investment dedicated to the construction of 84 oleo derivative plants for the five products over the next 10 years.

Impact

In 2020, this EPP will generate an additional RM5.8 billion in GNI and create 5,900 local jobs.

EPP 7: Commercialising Second Generation Biofuels

Rationale

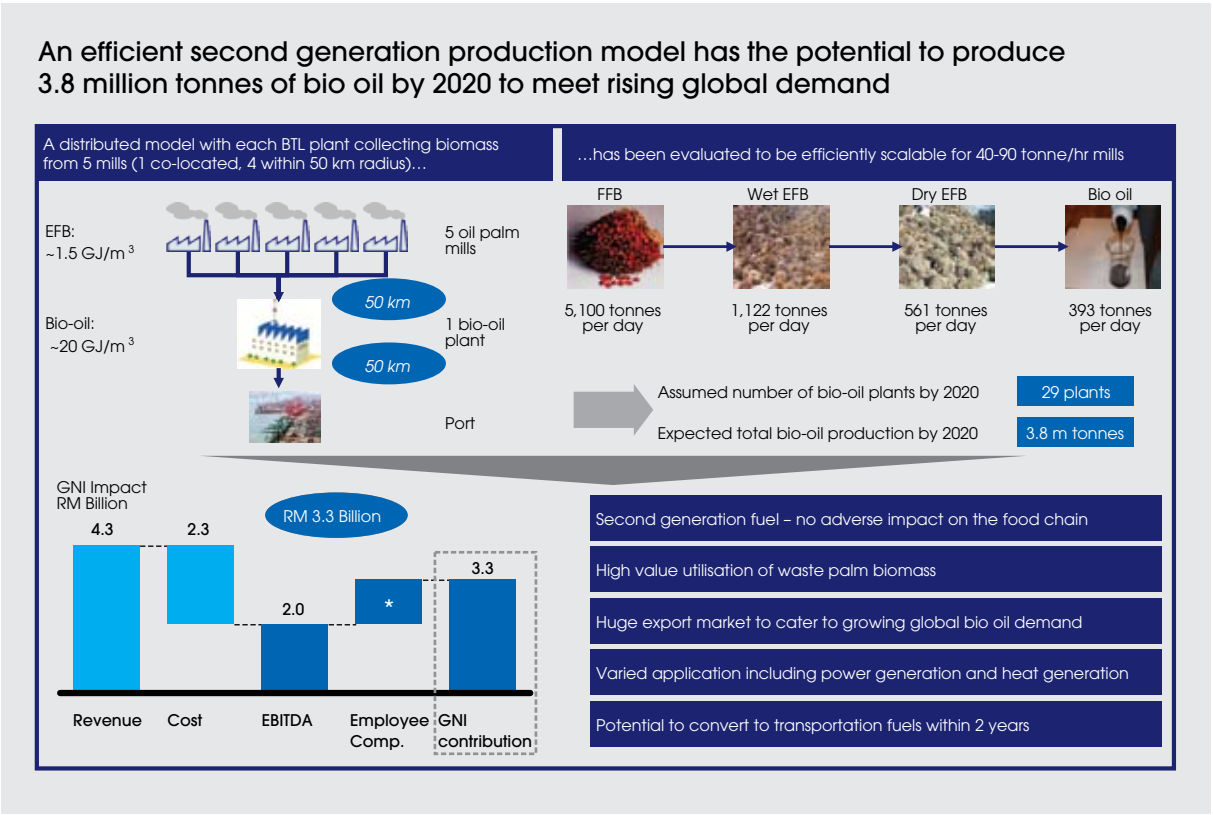
In 2009 alone, the industry generated over 60 million tonnes of oil palm biomass in the form of empty fruit bunches, tree fronds and trunks. The biomass potential especially for EFB is significantly underutilised and the industry norm of burning (to produce bunch ash fertiliser), composting and mulching is not the best use of these resources from either an economic or an environmental perspective.

Actions

The objective of this EPP is to fast track the commercialisation of second generation bio-fuels to leverage the biomass generated in the industry. Based on current technological progress, the production of bio oil using biomass-to-liquid technology is one of the best possible high-value utilisations of biomass generated at mills and is ready for immediate commercialisation. Bio oil can be used for generating electricity by co-firing with coal in power plants, for firing boilers and for combustion in diesel engines. Bio oil also offers the potential of becoming the new crude oil. As the technology becomes available in the next few years, bio oil can be converted into green transportation fuels like green diesel, green gasoline or green jet fuel in existing petroleum refineries or through standalone conversion systems linked to the bio oil plants.

There are two private sector companies in Malaysia that are close to commercialising an efficient second generation bio oil production technology, as shown in *Exhibit 9-8*. In their business model, the companies will set up 29 bio oil plants across Malaysia by 2020, which will have the potential of producing 3.8 million tonnes of bio oil. These private companies will enter into joint ventures with plantation companies and establish bio oil plants co-located with selected palm oil mills to start production by 2012. The bio oil will then be supplied for power generation as well as for export to countries showing rising demand. These companies will have to negotiate with plantation companies in order to ensure a sufficient and continuous supply of EFB for use as the basic raw material.

Exhibit 9-8



The companies will further commercialise the technology for conversion of bio oil to transportation fuels by 2014. They will then use the technology for existing petroleum refineries or with stand-alone systems linked to the bio oil plants and supply bio oil for conversion into green transportation fuels namely green diesel, green gasoline and green jet fuel.

Funding

This EPP will not require any public funding and will entirely rely on RM3.2 billion worth of private investment over the next 10 years. These investments will be targetted at building 29 bio oil plants and sourcing EFB as raw material.

Impact

In 2020, this EPP will generate RM3.3 billion in additional GNI and create 1,000 local jobs.

EPP 8: Expediting Growth in Food and Health-based Downstream Segment

Rationale

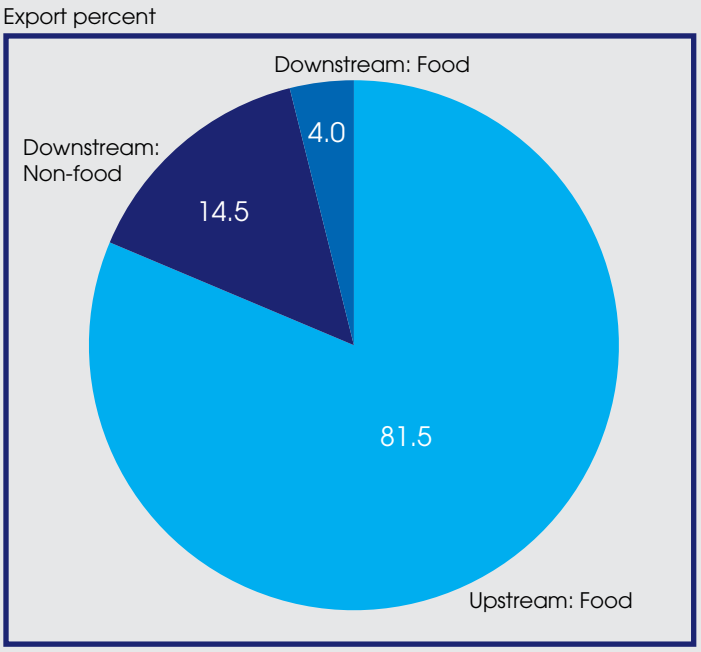
Plantation companies have traditionally viewed upstream activities as their core business. Their established expertise in upstream activities and lack of marketing expertise and technical know-how in the food and health-based segment have rendered their decision to venture into this segment more challenging. The export value of upstream products represents 81.5 percent of total palm oil exports while non-food downstream products account for 14.5 percent and food- and health-based downstream products constitute only 4.0 percent (*Exhibit 9-9*).

The few large plantation companies that have ventured downstream often play the role of silent partner, with minimal involvement in the day-to-day running of the operations, which prevents significant knowledge transfer. Furthermore, some SMEs that have ventured downstream have competitive products but often lack expertise in product-packaging and marketing or scale to compete globally.

The palm oil industry must move towards downstream activities (e.g. halal products, biscuits, ice cream, tocotrienols, carotenoids and phenolics) to balance the current reliance on upstream and overcome the land constraints on future growth in upstream.

Exhibit 9-9

Upstream versus downstream exports



Actions

To accelerate the growth in the food- and health-based downstream segment, we will provide tax incentives for Malaysian companies to acquire foreign food companies with proven product and market success. The Malaysian companies must manage the acquired companies in a hands-on manner to ensure transfer of knowledge in R&D, product development, branding and marketing expertise.

Major plantation companies are strongly encouraged to venture into or expand their downstream finished product activities through an anchor company model where they will contract out or outsource the manufacturing of their production to selected local small- and medium-sized enterprises (SMEs). As anchor companies, these major plantations companies will undertake product research, brand development and market penetration while the selected SMEs will focus primarily on product manufacturing. For a start, Sime Darby and Felda will take the lead in this initiative.

Companies in the industry and SMEs seeking to expand globally can apply for a grant offered by MPOC, namely Programme for Rebuilding and Improving Malaysian Export (PRIME), to help them in their export promotion activities. To support this shift to downstream activities, MPOB will have to improve its engagement with the plantations industry and better align its R&D activities with market demand and the demands of the plantation industry. The performance of its commercialisation activities will be measured based on the number of products actually commercialised i.e. where a newly developed product is finally purchased by the intended end user.

Funding

This EPP will require public funding (RM1.4 billion over 10 years) in the form of an interest-rate-incentive scheme, where up to 2 percent of the interest rate of commercial loans taken from local banks will be borne by the Government upon meeting strict criteria for food- and health-based downstream expansion. A foreign acquisition tax incentive will also be provided (RM2.3 billion over 10 years) and an advertising and promotion tax deduction given, targetted at downstream products promotion (RM240 million over 10 years). The private sector will invest RM23.4 billion to finance foreign acquisitions and to build 291 new plants, upgrade the existing facilities of SMEs and develop themselves into anchor companies for SMEs.

Impact

In 2020, this EPP will generate RM4.9 billion in additional GNI and create 74,900 local high skilled jobs.

BUSINESS OPPORTUNITIES

Over the next 10 years, Malaysia will also be driven by the natural growth of the palm oil industry, captured in three business opportunities worth RM57.6 billion by 2020. In addition, a yearly 2.8 percent inflation rate over 10 years, estimated at RM17.0 billion is captured based on the GNI generated by palm oil in 2009. This will translate into a total of RM74.6 billion worth of business opportunities in 2020.

Business Opportunity 1: Expansion of Existing Upstream Activities

The first focus area is the expansion of existing upstream activities, which is expected to generate RM44.8 billion of GNI by 2020. This growth will be driven by two major factors: expansion of Malaysian plantations abroad and organic growth in yield levels.

Malaysian companies currently hold an estimated 1.3 million hectares of palm oil plantations abroad, including over 1 million hectares in Indonesia. As acreage expansion in Malaysia is slowing down (3.3 percent yearly from 2000 to 2009 versus 2.5 percent expected from 2010 to 2020) due to the scarcity of arable land, Malaysian companies are expected to invest more aggressively in plantations abroad. By 2020, Malaysian plantations will have an additional 2 million hectares in Indonesia, other parts of Southeast Asia and Western Africa. This will translate into an additional GNI contribution of RM17.6 billion by 2020 and will require a total private investment of RM17.6 billion over the next 10 years.

Organic growth in yield levels will be the key to drive upstream developments. Planting material will improve due to wider utilisation of quality clonal material, hybrid seeds, bi-clonal and semi-clonal seeds and better crop recovery through marginal improvement in collecting practices. As a result, plantations and organised smallholders will gradually increase their productivity. This will generate an additional GNI contribution of RM27.2 billion by 2020. Hence, the total GNI expected contribution from this business opportunity in 2020 is RM44.8 billion.

Business Opportunity 2: Development of Existing Downstream Activities

Malaysia is a major global basic oleochemical player, producing 2.8 million tonnes of the total annual global production of 12.2 million tonnes. Growth in the non-food segment will be driven by the expansion of basic oleochemicals. Palm feedstock availability, lower operating costs and increasing regional demand are expected to further shift production to Southeast Asia in the future. The food segment, though much smaller, will expand due to rising consumer demand for packaged foods. The funding requirement for this business opportunity is RM46.9 billion, which will come entirely from the private sector. The downstream investment plans of leading companies will generate an incremental GNI contribution of RM11.2 billion by 2020 while creating an additional 26,500 jobs.

Business Opportunity 3: Development of National Biodiesel Activities

There are 25 biodiesel plants in the country with a total capacity of 2.6 million tonnes. However, current production is a mere 228,000 tonnes, almost all of which is exported. There is negligible local consumption, as the production cost of biodiesel is much higher than the retail diesel pump price; a Government subsidy of 19.6 sen per litre is needed to compensate the producers in order for them to break even. Globally, countries are taking active steps to implement mandatory biodiesel usage, driven by Government incentives ranging from RM1.20 to RM2.50 per litre. The incremental GNI for this opportunity is expected to come from the introduction of mandatory 5 percent biodiesel blend with petroleum diesel (B5) usage in Malaysia from 2011, an expected further increase to 10 percent biodiesel blend with petroleum diesel (B10) and export growth.

This business opportunity will translate into an additional GNI of RM1.6 billion by 2020 and create an additional 2,100 jobs. Apart from the economic benefits, this opportunity will further bolster Malaysia's commitment to reduce greenhouse gas emissions in the coming decade.

COMMON ENABLERS

The upstream activities of palm oil are very labour intensive and are thus largely dependent on the availability and productivity of workers. To improve the average annual plantation yield to 26.2 tonnes per hectare will require the harvesting of over 5 million hectares of mature trees by 2020; assuming harvester productivity of 1.5 tonnes per hectare, the industry will require 289,000 workers. There are currently 187,000 harvesters in the country and hence, the industry would have required a net addition of 102,000 harvesters to meet the targets if there was no replacement in mechanisation or increase in worker productivity.

In February 2010, both public and private sector participants were convened in a palm industry labour workshop conducted by MPOB to address the issues, performance and sustainability of labour in the industry. The workshop focused on: (1) reducing the dependency on foreign labour by attracting local workers to the industry; and (2) identifying methods to increase the adoption of mechanisation in the oil palm sector. The workshop recommended that companies improve amenities and working conditions to attract local labour and also intensify development and adoption of mechanisation. The recommendations included incentives from the Government for companies to hire local workers. Several actions were identified for immediate implementation by various stakeholders and a monitoring mechanism put in place to track progress.

At present the palm oil industry is heavily skewed towards upstream and there is a large gap of knowledge and expertise in the food and non-food downstream segments. With the proposed eight EPPs, 80,000 new skilled jobs will be created in the downstream sector by 2020. Specific enablers required to prepare for the forthcoming requirements are:

- Increase the number of university courses and graduates in the areas of chemical engineering, bio-engineering, food science, food technology, nutrition and health, agricultural science, agricultural engineering and agricultural business management as well as economics, finance and marketing, product R&D and product design. The estimated number of graduates needed by the industry over the next 10 years is: 18,000 diploma holders, 55,000 undergraduates, 6,000 Master degree holders and 1,000 PhDs;

- Extend the existing Brain Gain Malaysia incentive programme to Malaysian food scientists and technologists, fast-moving consumer goods marketing specialists, industrial chemical engineers and bio-engineers from leading global food and non-food downstream companies living abroad; and

- Companies in the industry and Government departments and agencies such as MPOB and MPOC must play a key role in collecting information such as business intelligence, product intelligence, competitive intelligence and development of product sciences and technology to stay ahead of the industry.

FUNDING

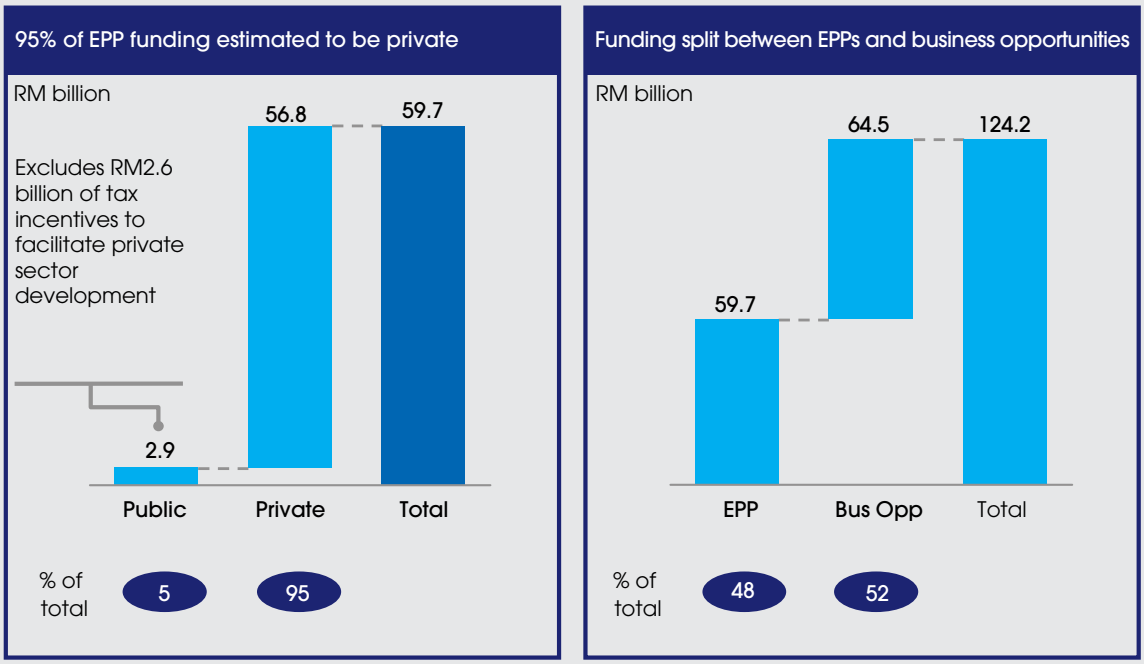
The palm oil industry's future developments will be led mainly by the private sector, banking on the financial and operational strength of large plantation companies. The eight EPP initiatives identified will require an estimated cumulative funding of RM59.7 billion over the next 10 years, of which RM56.8 billion (or 95 percent) will be financed by the private sector, as shown in *Exhibit 9-10*. Total public funding in the form of Government capital expenditure for all EPPs amounts to RM2.9 billion over 10 years. An additional RM2.6 billion is required in the form of tax incentives to promote private sector development.

The funding requirement for business opportunities amounts to RM64.5 billion, which will come entirely from the private sector. The funding will be for the expansion of the upstream activities, including investment in plantations abroad as well as developing further downstream activities such as oleochemicals and food segment.

The total funding requirement for the Palm Oil NKEA amounts to RM124.2 billion by 2020.

Exhibit 9-10

For the eight EPPs, RM59.7 billion investment is required, of which 5% will come from public sector



GOVERNANCE AND DELIVERY

Successful implementation of the EPPs and business opportunities hinges on ownership and accountability. To ensure proper ownership and accountability, a dedicated owner has been identified for each initiative. In addition, a detailed delivery plan consisting of implementation details, timelines, key performance indicators and targets as well as a risk and mitigation plan has been developed for each of the EPPs. An overview of the agencies in charge of the various initiatives is shown in *Table 9-1*.

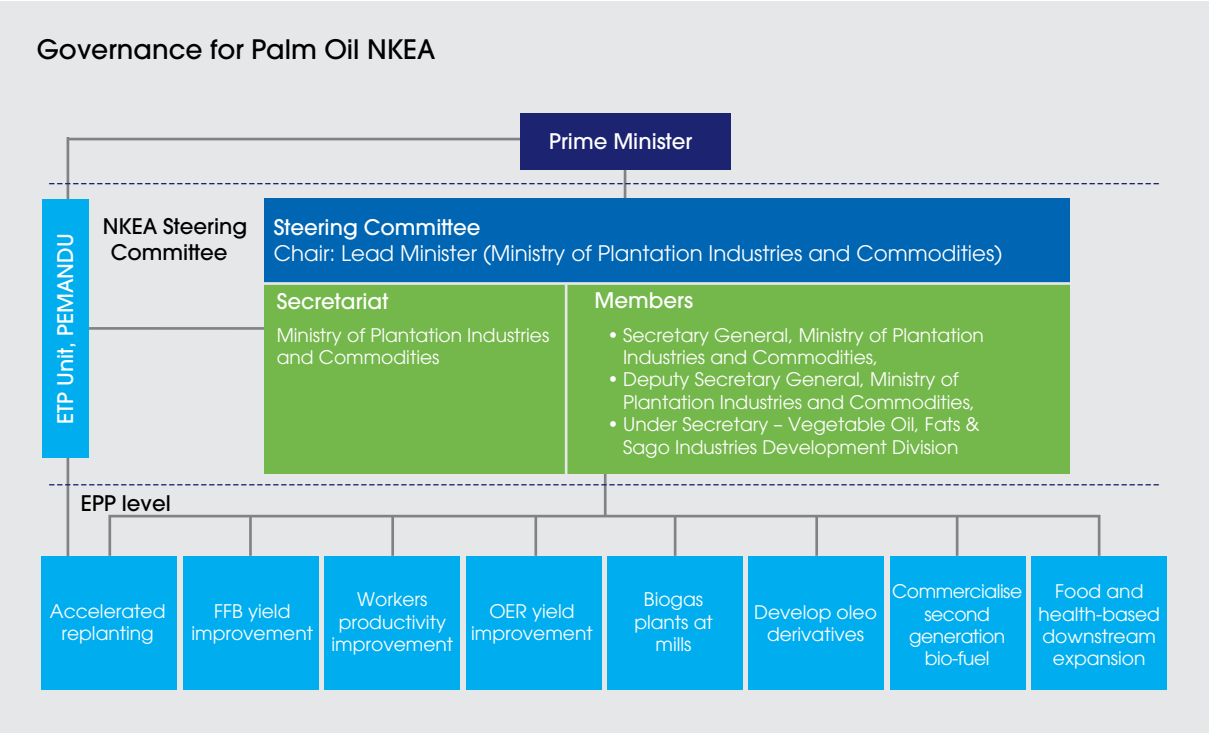
Table 9-1

EPP	Lead initiative owner	Other stakeholders
Accelerating the replanting of oil palm	Director General of MPOB	Plantation companies, Smallholders
Improving fresh fruit bunch yield	Director General of MPOB	Plantation companies, Smallholders
Improving worker productivity	Director General of MPOB	Department of Veterinary Services, Cantas manufacturers, Diamond sharpener, manufacturers/importers, Buffalo importers, Plantation companies
Increasing the oil extraction rate	Director General of MPOB	Plantation companies, Independent millers and crushers
Developing biogas at palm oil mills	Director General of MPOB	Plantation companies, Independent millers
Developing oleo derivatives	Heads of Downstream activities of Sime Darby, IOI, KLK and Felda	Malaysian Palm Oil Board, Ministry of International Trade and Industry (MITI), MIDA, MPOC
Commercialising second generation biofuels;	Premium Renewable Energy Sdn. Bhd. Genting Berhad	Plantation companies
Expediting growth in food and health-based downstream segments	Director General of MPOB	MITI, MIDA, Plantation companies

Effective Governance Model

To ensure effective implementation of the EPPs and a seamless transition between planning and execution, a governance model has been established. A Palm Oil NKEA Secretariat will be set up and based at the Ministry of Plantation Industries and Commodities. It will work together with the ETP Unit in close collaboration with EPP owners to undertake delivery including implementation issues guided by the key-performance indicators and delivery schedule. The Palm Oil NKEA Secretariat will be staffed by dedicated personnel that will monitor each EPP closely on a weekly basis and report back to the Palm Oil NKEA steering committee. The Steering Committee will be chaired by the Minister of Plantation Industries and Commodities.

Exhibit 9-11



Summary of Palm Oil NKEA	
• **Incremental GNI impact in 2020**	RM125.3 billion
• **Additional jobs in 2020**[1]	41,600

- **Critical targets and milestones within 6 to 12 months**
  - Policy to ensure mandatory replanting for plantations and smallholders and enforcement of Codes of Practice (COP, MSGAP, RSPO, company best practice) is implemented
  - Ensure that Cantas™ can be produced at unit price of a maximum of RM2,500 and reach a production capacity of 20,000 units per year by 2015
  - Ensure that the selection of local importers and suppliers of buffaloes to plantations and smallholders in Malaysia is completed
  - All MPOB grading officers are deployed in poor performing mills
  - Best biogas plant technology providers are identified and 30 biogas plant projects at mills across Malaysia are initiated
  - Oleo derivative technology acquisition fund, pre commercialisation investment fund and foreign acquisition tax incentive will be set up
  - First commercial bio oil plant to begin construction

1 This includes the reduction of 110,000 foreign workers in the NKEA, hence effectively 151,600 local jobs are expected to be created

Special Focus: The Rubber Industry

Malaysia's rubber industry contributed RM18.5 billion to National GNI in 2009 (excluding contribution from rubberwood at RM7.11 billion). The industry spans the entire value chain from upstream plantations to downstream manufacturing activities. Rubber can be said to be Malaysia's second main commodity crop after oil palm, as Malaysia is the world's third largest natural rubber producing country behind Indonesia and Thailand and has a solid presence downstream as it produces much of the global production of rubber gloves. In moving towards the year 2020, there are however many inherent challenges that our rubber industry is facing and needs to therefore overcome. To this end, we recognise that the rubber industry will primarily need to adopt effective strategies to meet global challenges and take advantage of opportunities to remain competitive. As such, the rubber industry is given special focus under the ETP with a target growth rate of at least 6 percent per annum towards 2020.

DEFINITION OF THE RUBBER INDUSTRY

In 2009, the total agricultural land use in Malaysia was 6.6 million hectares. Rubber accounts for 1.02 million hectares of agriculture land use in Malaysia (about 78 percent of all rubber-planted area is in Peninsular Malaysia) with an annual natural rubber production of 857,000 tonnes. The vast majority, or 94 percent (0.96 million hectares) of this area is held by 414,430 independent and organised smallholders with an average planted area of just 2.3 hectares. The productivity gap between such smallholders and plantation companies operating at scale is significant at 1.44 tonnes per hectare per year versus 1.61 tonnes per hectare per year respectively. For comparison, Malaysia's overall average productivity was 1.45 tonnes per hectare per year in 2009.

Downstream, there are 348 rubber-product manufacturing companies in Malaysia (year 2009). These include 125 latex product manufacturers, 154 general rubber goods manufacturers, 31 industrial rubber goods manufacturers, 17 footwear and component manufacturers, 11 tyre manufacturers and 10 inner tube manufacturers. We are the world's largest producer of rubber gloves accounting for 63 percent of the 150 billion rubber gloves produced worldwide (year 2009 statistics). We are also present in the global tyre market, albeit with a relatively small role, accounting for only 1 percent of the global market for tyres today.

MARKET ASSESSMENT

The global demand for rubber has increased at a compound annual growth rate of 1.8 percent in the past 10 years, fuelled by growth in the demand for natural rubber. Today, China is Malaysia's largest export market for natural rubber and accounts for more than a quarter of all Malaysia's natural rubber exports. Overall, Malaysia's rubber exports have increased by a compound annual growth rate of 12 percent over this past decade, with the highest growth rate recorded by the industrial rubber goods segment growing at a compound growth rate of 39.7 percent annually.

Even though the market outlook for the global rubber industry is particularly good, the Malaysian rubber industry is facing challenges that will constrain the growth of the industry in a significant manner:

- **Declining area for rubber**: Although demand globally has grown, Malaysia's rubber plantation area has been gradually declining at a compound annual growth rate of negative 2.9 percent over the last 10 years. This is largely due to the conversion of rubber land to other crops and for other economic activities.

- **Low productivity**: Productivity remains low due to existence of old and low-yielding clones, planting of non-recommended clones and low adoption of latest latex harvesting technologies and mechanisation;

- **Excess processing capacity**: A raw material shortage by processing factories has resulted in increases in excess production capacity and a drop in productivity;

- **Shortage of labour**: High turnover of labour as well as difficulties in attracting local labour has resulted in a labour shortage; and

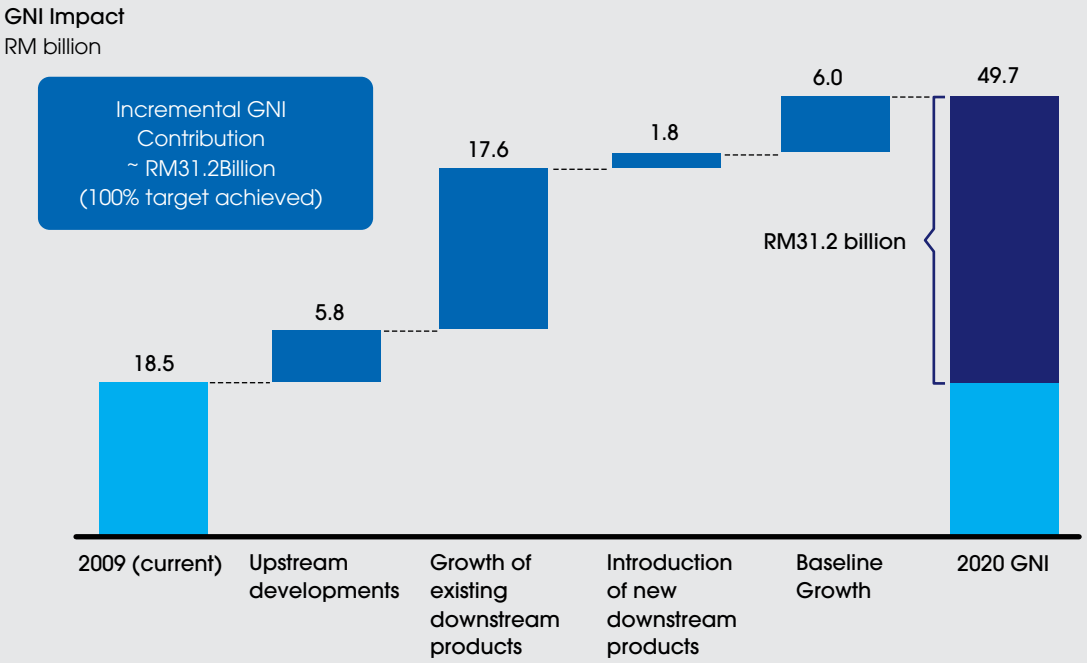
- **Inadequate supply of natural gas for rubber products industry**: Currently, there is an inadequate supply of natural gas for the expansion of the rubber glove and rubber latex industry.

TARGETS AND ASPIRATIONS

We aim to increase the current RM18.5 billion GNI contribution of the rubber industry to RM49.7 billion by 2020 (*Exhibit 9-12*) to help drive Malaysia towards a high-income economy. We plan to bridge this GNI gap through the implementation of three projects. The bulk of the GNI value generation (56 percent) will come from the growth of existing downstream products worth RM17.6 billion in 2020 with an expected baseline growth of RM6.0 billion over the next 10 years.

Exhibit 9-12

The Malaysian Rubber Board identified three projects which we estimate will bring an incremental GNI of RM31.2 billion by 2020



3 projects Identified to Grow Incremental GNI of RM31.2 billion

We have identified three projects to overcome the challenges to growth by stabilising the rubber area and improving yield, accelerating growth of yield and introducing new rubber products.

Project 1: Stabilising the Rubber Area and Improving Yield

Maintain rubber plantation area in Malaysia at around 1 million hectares by:

- Identifying zone of 1 million hectares for rubber in Peninsular Malaysia (700,000 hectares), Sarawak (200,000 hectares) and Sabah (100,000 hectares);
- Increasing area replanted annually from 20,000 hectares to 40,000 hectares;
- Exploiting land suitable for cultivation in Sabah and Sarawak at a rate of 10,000 hectares per year;
- Expanding rubber plantations in Sabah and Sarawak by 20,000 hectares per year; and
- Converting 80 percent of marginal and idle land to rubber plantations by 2020.

Increase average yield through:

- Exploiting high yielding and suitable clones to reach yield of 1.8 tonnes per hectare per year; exploit seasons to tap on 85 percent of possible tapping days; and plant more densely to reach 550 stands (trees) per hectare;
- Ensuring that the output of high-yielding clones is suitable for the downstream segment and use them 100 percent in replanting and new planting by 2015; and
- Reducing foreign labour dependence by 5 percent per year.

Project 2: Accelerating Growth of Downstream Products

Grow Standard Malaysian Rubber (SMR) and latex product revenues by 7 percent over the next 10 years by increasing latex concentrate production to reach 300,000 tonnes per year by 2020.

Grow tyre revenues by 10 percent over the next 10 years by:

- Recycling used tyres so that there is a reduction of disposable types by 10 percent per year; and
- Increasing tyre production by 10 percent per year.

Grow other product revenues by 6 percent over the next 10 years through:

- Increasing production of specialty rubber and value-added products to 300,000 tonnes;
- Reducing processing cost by 30 percent;
- Increasing global market share of all types of rubber gloves by 10 percent annually; and
- Increasing local worker participation by 5 percent per year.

Project 3: Introducing New Rubber Products

Generate new revenues at a growth rate of 7 percent per year through the introduction of new products, i.e. diversify and expand dry rubber products to increase export revenue to RM5 billion by 2020.

The implementation of these projects will transform the Malaysian rubber industry landscape by ensuring rubber remains a key crop contributing to Malaysia's aspiration for a high-income economy by 2020.