OIL PALM SECTOR IN INDIA

The Scope of Influencing Business and Industry to Reduce India's Ecological Foot print in South East Asia

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1. Introduction

India is the fourth largest edible oil economy in the world and more than half of the nation's total edible oil requirements of around 10 million tones are met through imports. Palm oil and soy bean oil comprise of most of these imports. The domestic production of palm oil can meet just one percent of the requirements. India imports about 3.8 million tones of palm oil and 1.2 million tones of soy bean oil (Government of India, 2005). The nation has become the world's largest importer of palm oil, followed by China and the EU. More than 95 per cent of India's palm oil imports are from Indonesia and Malaysia. It is argued that the increased demand for palm oil by India as well as other countries such as the EU and China is closely linked with conversion of high conservation value forests (HCVF), a matter of serious concern for biodiversity conservation and sustainable development.

Palm oil shares 40 per cent of the world's trade in edible oils. The global demand for palm oil is projected to grow from the current level of 22 million tones per annum to 40 million tones per annum in 2020. In order to meet this growing demand, more areas are likely to be used for oil palm cultivation which in turn adds pressure on high conservation value forests (HCVF)[1] and biodiversity in South East Asian Region. The tropical forests are disappearing at 10-16 million hectares per annum during the last few decades and conversion of land for plantation agriculture such as oil palm is found to be a major factor for this. The introduction of "sustainable palm oil" has been proposed to help mitigating the emerging conflicts in oil palm sector.

Malaysia is the largest palm oil producer in the world accounting for 50 percent of global production of which 85 per cent is exported. The share of Indonesia in global production of palm oil is 30 per cent of which 40 per cent is exported.

Crude palm oil (CPO) is produced from fresh fruit bunches (FFB) of Oil Palm (*Elaeis guineensis Jacq.)*[2] and the palm kernel oil (PKO) is produced from fruit's nut. The area under oil palm fruit harvest in Indonesia and Malaysia grew from 0.1 million ha in 1961 to 6.7 million ha in 2004. As a result, the share of these two countries to global area under oil palm fruit harvest grew from 3 per cent to 56 per cent during the same period. This substantial increase is due to two major factors. First, the oil palm cultivation in South East Asia gives very high yield

[1] The concept of HCVF was developed by Forest Stewardship Council (FSC). It is defined as forests of outstanding and critical importance due to their high environmental, socio-economic, biodiversity or landscape values.

[2] Oil palm is native to West Africa and later it is planted in several countries. Indonesia and Malaysia have raised large scale plantations of oil palm during the last two decade

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compared to any other region in the world. Second, the cost of production is low due to the availability of large tracts of suitable land including forests for oil palm cultivation.

Palm oil is considered as a "miracle oil" due to its diversity of uses for both food and non-food products. Of 95 million tons of vegetable oil production, more than 28 million tons are produced by oil palm. While soy bean is responsible for conversion of forests in South America, oil palm cultivation has led to clearing of large tracts of high conservation value forests largely in South East Asia. The oil palm cultivation of several large companies has been found responsible for increased fire, pollution, use of chemical pesticides, clear cutting of tropical hardwoods, biodiversity loss, habitat destruction of several endangered species including the orangutan, tiger, and elephant [3]. The large scale plantations are typically monocultures and their adverse effects on biodiversity has are well established. Further, conflicts between local communities and oil palm companies have increased as a result of land acquisition and the resultant impact on local livelihoods (Pro Forest & ISS-AM,2003; WWF, 2003).

Forests provide several ecological functions which are essential for long term economic development and human well being. When forests are converted for oil palm plantations the ecological and economic values of forests are inadequately accounted for. The level and pace of oil palm cultivation in South East Asia has therefore raised several concerns among proponents of sustainable development. Of these, the growing "ecological foot print" in this region was a strong argument. The ecological foot print measures peoples demand on nature. The available indicators show that the humanity's ecological foot print has already exceeded the bio-capacity of the planet.

The need for "sustainable palm oil" was strongly felt by many stake holders during the late 90's due to the increased concerns towards the cost of long term supply of quality palm oil, environmental awareness, commitments on corporate social responsibility and publicly announced policies of companies based on the triple P approach (People, Profit and Planet). This was supported by changes in global economic relationships particularly on trade and investment and the emergence of several multilateral environmental agreements (MEAs) having trade provisions. As consumers in Europe generally do not like to be associated with environmentally damaging process and production methods (PPM), companies in Europe quickly realized the sensitivity of their environmentally conscious consumers on unsustainable oil palm production in East Asia or elsewhere.

As part of promoting sustainable palm oil, MIGROS, a Swiss retail company using palm oil, first developed a set of principles and criteria for palm oil for their business. In 2001, WWF conducted a study on the

[3] A series of reports and publications strengthened the campaign against conversion of HVCF and loss of biodiversity. (eg. *The Oil for Ape scandal, How Palm Oil is threatening the Orang-Utan* published by Friends of Earth Trust, the Orang-Utan Foundation, the Sumatran Organutan Soceity, Borneo Orang-Utan Survival Foundation ; Publications and brochures under Forest Conversion Initiative (FCI) of WWF on HCVF)

scope of a Round Table on Sustainable Palm Oil. Subsequently, some leading companies like Aarhus United UK Ltd, Golden Hope Plantations Berhad, Migros, Malasyian Palm Oil Association, Sandbury's and Unilever together with WWF held informal consultations in 2002. These initiatives paved the way for the establishment of a Round Table Approach by involving key stake holders in the supply chain. The first Round Table on Sustainable Palm Oil (RSPO) was held in Kuala Lumpur, Malaysia on 21-22 August 2003. RSPO was formally established on 8th April 2004 under Article 60 of the Swiss Civil Code with a governance structure that ensures fair representation of all stake holders in the supply chain[4].

The objective of RSPO is to promote the growth and use of sustainable palm oil through cooperation within the supply chain and open dialogue with its stake holders. The RSPO is a public private partnership (PPP) and considered as a voluntary agreement (Type 2 agreement) under the Earth Summit. Such agreements are considered a tool useful in tackling overexploitation of natural resources, particularly when legally binding agreements between governments (Type 1 agreements) are absent (Bos et.al, 2005).

The third Meeting of RSPO held in November 2005 at Singapore endorsed a set of 8 Principles and 39 Criteria for sustainable palm oil. About 14 plantation companies have agreed to test these Principles and Criteria (P&C) in their plantations[5]. As a result, sustainable palm oil is likely to be available in the market by the end of 2006. The stakeholders in the end of supply chain such as consumer good manufacturers, retailers and consumers should take a commitment to sustainable palm oil as and when it is available.

India, especially the Business and Industry sector, has a major role to play in ensuring sustainable palm oil and actively contributing to build and shape RSPO process. India, with a GDP of US$ 691 billion in 2004 has emerged as the tenth largest economy in the world. The "Vision 2020" of India prepared by the Planning Commission targets a growth of 8 to 9 per cent over the next two decades with a view to attaining the development of the nation at par with upper middle income countries and eliminating poverty. It aims to quadruplicate per capita income and raise India's rank to 4th position in terms of GDP by the year 2020. Consequently, India's ecological foot print in South East Asia is likely to grow rapidly unless suitable steps, including environmentally responsible purchasing decisions are taken.

Presently the participation of India in the RSPO process is inadequate. An attempt has been made in this paper to analyse the scope of and opportunities for India, particularly the Business and Industry, to promote sustainable palm oil and thereby reduce its ecological foot print associated with oil palm production in South East Asia. The paper has been prepared on the

[4] RSPO Members have signed Statement of Indent (SI) which is a non-legally binding expression of support for the round table process. For more details, visit www.rspo.org

[5] For details visit RSPO website www.rspo.org & Forest Conversion News , No.9 December 2005, WWF- Switzerland. (can be downloaded at www.panda.org/forests/conversion (click newsletters)

basis of information gathered through several consultations and field visits to some of the key palm oil business and industry operations in India as well as by analyzing the available information from several national and international sources.

2. Ecological Footprint and Conversion of HCVF

An ecological footprint measures people's demand on nature and compares human consumption of natural resources with the Earth's ecological capacity to regenerate them (WWF-2004). A country's footprint is the total area required to produce the food and fibre that it consumes, absorb its waste, and provide space for its infrastructure. People consume resources and ecological services all over the world, so their footprint is the sum of these areas, wherever they are on the planet. The footprint can be compared with nature's ability to renew these resources (biocapacity). It is measured in global hectares, with a global hectare being 1 hectare of biologically productive space with world average productivity. In 2001, humanity's ecological footprint was 2.2 global hectares per person which is 2.5 times larger than in 1961, and exceeded 20 per cent of the Earth's biological capacity of 1.8 global hectares per person. This global overshoot began in the 1980s and has been growing ever since. It is pointed out that humanity can maintain this overdraft only by liquidating the planet's natural resources. This is possible for a limited period of time. In the early seventies the report *Limits to Growth* suggested that the human economy would soon exceed the Earth's carrying capacity leading to a decrease in industrial output and a decline in human well being in 21st Century (Meadows et al, 1972). The analysis of ecological footprints shows that *Limits to Growth* is a reality rather than an hypothesis (WWF, 2005).

The footprint issue can only be addressed through sustainable development. The global ecological footprint decreases with a smaller population size, lower consumption per person, and higher resource efficiency. The earth's biocapacity increases with a larger biologically productive area and higher productivity per unit area. Ecological footprint accounts calculate each country's net consumption by adding its imports to its production and subtracting its exports. Four factors determine the gap between the footprint and biocapacity: (i) level of Biocapacity, (ii) resource efficiency in producing goods, (iii) consumption of goods and services per person, (iv) size of population.

As ecological deficits continue to increase in many countries, the predominant geopolitical line may shift from the current division between developed and developing countries. Instead, the line will fall between **ecological debtors** (countries that depend on net imports of ecological resources or on liquidating their ecological assets to maintain their economies) and **ecological creditors** (countries still endowed with ecological reserves). As ecological deficits increase world wide, both debtors and creditors will realize the economic advantage of curbing their footprints.

The direct linkage between ecological footprint and conversion of forest areas needs special attention. A "forest

footprint" is a sub component of overall ecological footprint estimates. It covers the area, in average global terms, needed to produce the wood products that an individual consumes. The area required to produce palm oil as well as other food is included in the subcomponent of "crop land". The increase in area under crop land (including area under oil palm cultivation) as a result of forest conversion is reflected in the "ecological footprint" estimates[6].

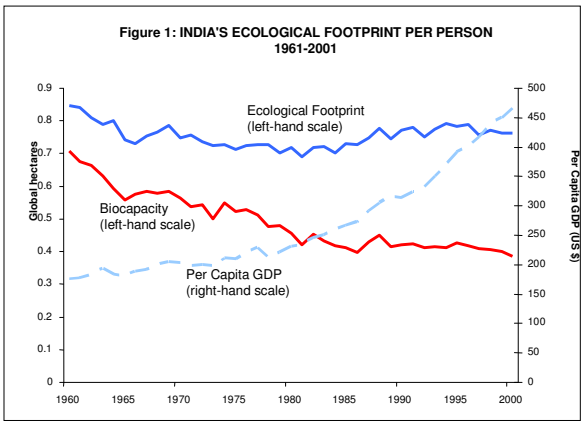
India's ecological footprint per person (0.8 global hectars) is considerably lower than the world average (2.2 global hectares) but it is well above its biocapacity making the nation "ecological deficit" (WWF, 2005). India has a huge total ecological foot print and its growth is a matter of concern. In other words, the changes in consumption patterns of India's more than one billion people has a critical role to play in sustaining or depleting the world's natural resources. The following figures adapted from WWF Report "Asia Pacific 2005 –The Ecological Foot Print and Natural Wealth" show the ecological foot print per person of humanity in India and China. Since humanity's ecological foot print has exceeded global limits, countries with large populations like India and China should also take suitable steps to minimize their ecological foot print along with the developed countries.

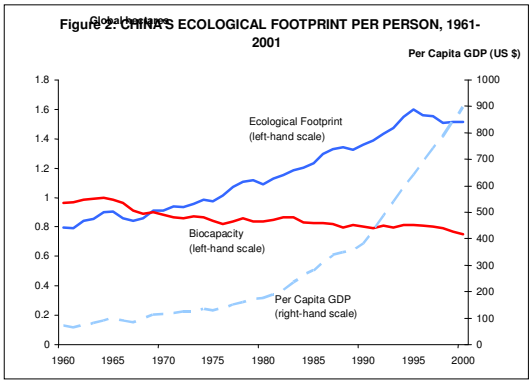
A oil palm nursery in India

Fresh fruit bunch

A new oil palm plantation in Borneo, Indonesia

[6] WWF Report on China's wood market, Trade and Environment focused on the sub component "forest foot print" (Chunguan et al, 2004)





Source:WWF(2005)

3. Oil Palm Production in Malaysia and Indonesia: Environmental Implications

Malaysia and Indonesia together comprise 80 per cent of world's palm oil production and 56 per cent of palm fruit harvest area. The environmental effects of oil palm production have been a major concern. The adverse environmental effects of oil palm production include loss of high conservation value forests, increased fire, pesticide use, decline in soil health and watershed benefits, pollution, biodiversity loss and habitat degradation of endangered species. The producers in Malaysia and Indonesia argue that palm oil cultivation is environmentally superior than alternate land use options for crops or vegetables or soy. Oil palm estates have greater biodiversity than other crops and a typical oil palm estate can contain up to 268 species of flora and fauna as well as contribute to initiatives towards reducing global temperature. Palm oil is used to produce oleochemicals which are more environmentally friendly than petrochemicals. It is increasingly used as "bio-fuel" which is contributing to reduction in vehicular pollution. Table 1 shows selected environmental effects of oil palm production in Indonesia and Malaysia.

Table 1: Selected environmental effects of Oil Palm Production

Positive Effects	Negative Effects
Oil palm plantation has greater biodiversity than cereals and vegetables. It is argued that a typical oil palm estate teems with 268 species of flora and fauna.	Loss of High Conservation Value Forests
Help to cool the air and providing shade (supporting microclimatic functions)	Increased Forest Fire
Support initiatives to tackle rising global temperature.	Pollution
Positive contribution towards carbon sequestration	Loss of Biodiversity
Nutrient cycling (dry leaves)	Habitat degradation
Palm oil is used to produce oleochemicals which is environmentally superior than petrochemicals and use of biofuel	Threat to endangered species such as Orang utan, tiger, elephant, the giant armadillo, the giant ant eater.

Forests cleared for oil palm cultivation in Indonesia.

Table-2 : Oil Palm Fruit Area Harvest, Production and Yield, Indonesia, Malaysia and World: 1961-2004

	Indonesia			Malaysia			World				
Year	Oil Palm Fruit Area Harv (Ha.)	Oil Palm fruit Yeild (Kg/Ha.)	Oil Palm Fruit Production (MT)	Oil Palm Fruit Area Harv (Ha.)	Oil Palm fruit Yeild (Kg/Ha.)	Oil Palm Fruit Production (Metricton)	Oil Palm Fruit Area Harv (Ha.)	Oil Palm Fruit Yeild (Kg./Ha)	Oil Palm Fruit Production (MT)	Oil PalmArea (Indonesia+Malaysia) (Ha.)	Oil Palm Area - Rest of world (Ha.)
1961-70	82500	120558	993900	77075	134196	1058000	3409948	40876	13891925	159575	3250373
1971-80	140100	165559	2305000	443914	152955	6877500	3629699	59063	21636809	584014	3045686
1981-90	396373	188194	7428468	1270388	174520	22140000	4998283	89116	45032299	1666762	3331522
1991-00	1351028	173442	23503278	2336076	184742	43254000	8123053	110349	90378739	3687104	4435949
2001-04	2837500	176214	49968750	3351000	190355	63788000	11376688	126346	144010461	6188500	5188188
	AVERAGE ANNUAL GROWTH RATE (PER CENT)										
1961-70	4.12	-0.05	3.98	15.03	2.63	17.91	-1.02	2.37	1.20	9.28	-1.54
1971-80	8.03	3.21	10.43	17.97	1.66	19.88	2.81	4.24	7.09	14.71	1.00
1981-90	12.84	0.36	13.09	8.51	1.51	9.91	3.65	3.79	7.60	9.50	1.19
1991-00	11.68	1.20	12.70	5.84	0.72	6.60	5.04	2.11	7.24	7.73	2.86
2001-04	13.56	0.31	13.54	3.13	2.60	5.49	5.08	2.54	7.69	7.52	2.37

Source: FAOSTAT

The average area under oil palm fruit harvest in the world has increased from 3.4 million hectares per annum during 1961-70 to 11.37 million hectares per annum during 2001-04. Of these, the combined share of Indonesia and Malaysia has increased from 4.68 per cent to 54.40 per cent during the period. In Malaysia the State of Sabah has the largest land area planted with oil palm at around 1.2 million ha. which is one third of total reserve forests.

The average annual growth rate of oil palm fruit harvest area in the world during 1961-70 was negative (-1.2 per cent) whereas the same for Indonesia was 4.12 per cent and Malaysia was 15.03 per cent during the period. In subsequent periods, both Indonesia and Malaysia extended the area substantially. While Malaysia has slowed down the growth after reaching 17.97 per cent in 1970's to 5.84 per cent in 1990's and further lowered to 3.13 per cent per annum during 2001-04, Indonesia has continued to grow at two digit levels since the 1970s (Table-2).

The oil palm yield in the world during 1960's was 40,876 MT per annum. In Indonesia and Malaysia this was 120,558 MT and 134,196 MT respectively which is about four times higher than the world average. In the 1990s the world average became 11,0349 MT primarily due to the increased share of Malaysia and Indonesia in world production. The yield of these two countries during 90s was 173,442 MT per annum and 184,742 MT per annum respectively.

The world production of palm oil during 1960s was 13.8 million MT per annum of which the share of Indonesia was 0.99 million MT and that of Malaysia was

1.05 million MT. The world production during 1990s has become 90.37 million MT per annum of which the share of Indonesia was 23.50 million MT and that of Malaysia was 43.25 million MT.

During 2001-04, the average annual production has reached 114 million tones. Malaysia continues to be the world's largest producer of oil palm in the last four decades.

Figure 3: Area Under Oil Palm Harvest (In Hectars)

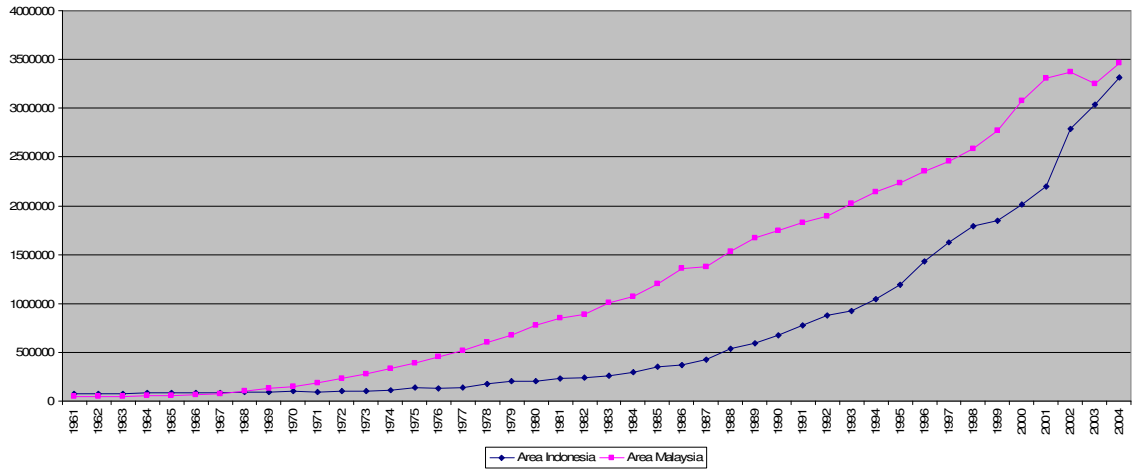


Figure.4: Oil Palm Area: Malaysia &Indonesia and Rest of world

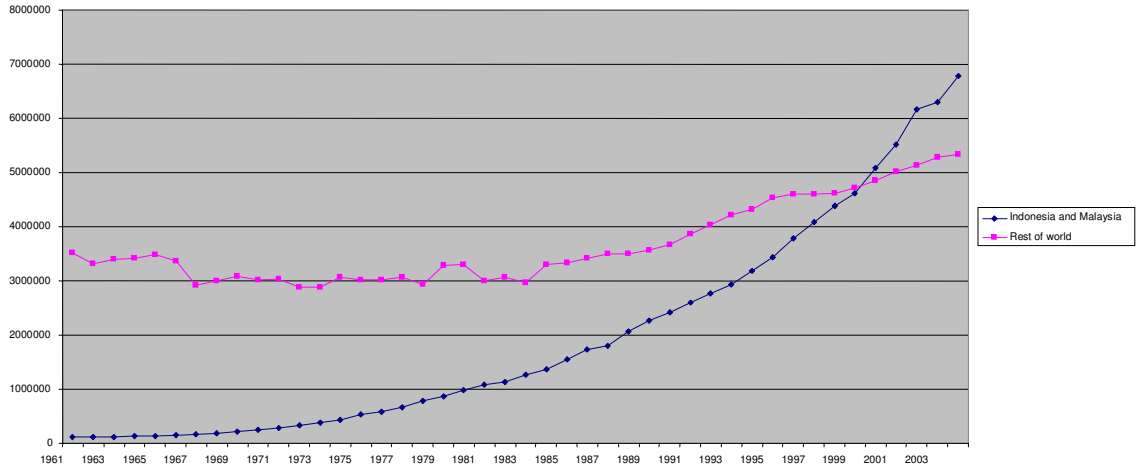


Figure 5: Oil Palm Yield in Indonesia & Malasia (Kg/Ha)

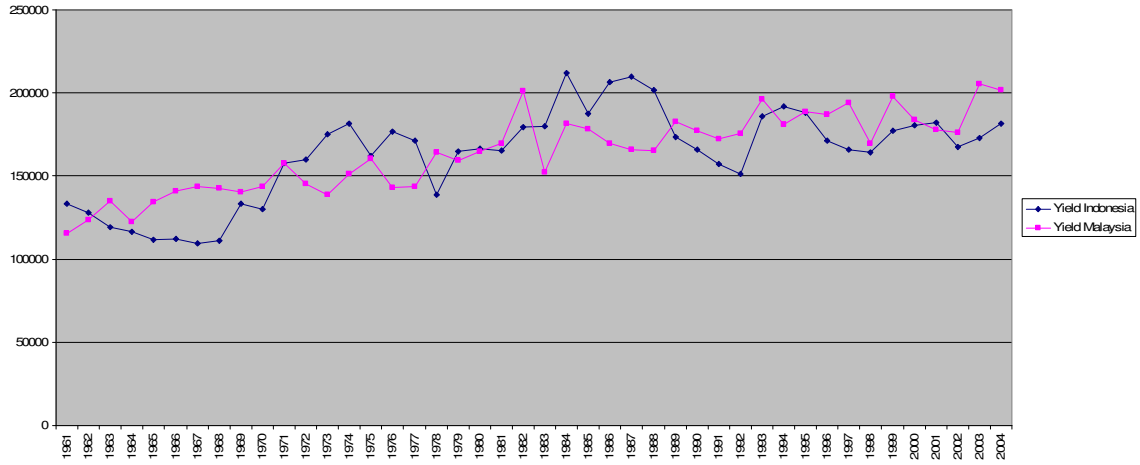
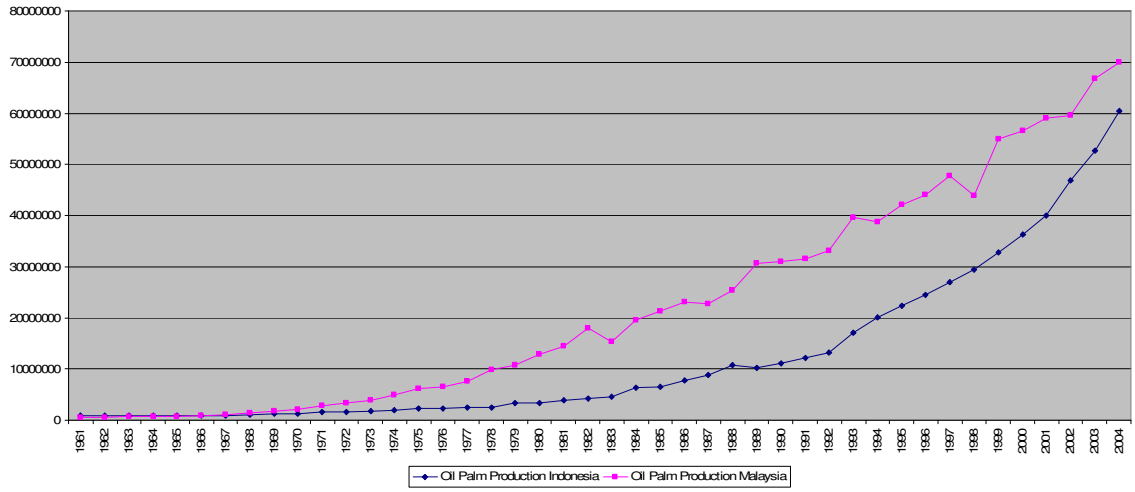


Figure 6: Oil Palm Production in Indonesia & Malaysia



Malaysia argued that the areas planted with oil palm are well within the 6.02 million ha designated for agriculture under the Third Malaysian Agricultural Plan 1998-2010 and a significant portion of areas under oil palm plantations were earlier used for rubber, coca and coconut. The remaining areas had been logged-over forests. Around half of all oil palm plantations in Indonesia are owned by private groups. One third are small holder plantations and the remainder are state owned plantations. The largest private plantation groups are all Indonesian owned. Both Malaysia and Indonesia have placed several policy and legal measures to address environmental issues and they are party to several multilateral environmental agreements (MEA). Initially the stake holders in oil

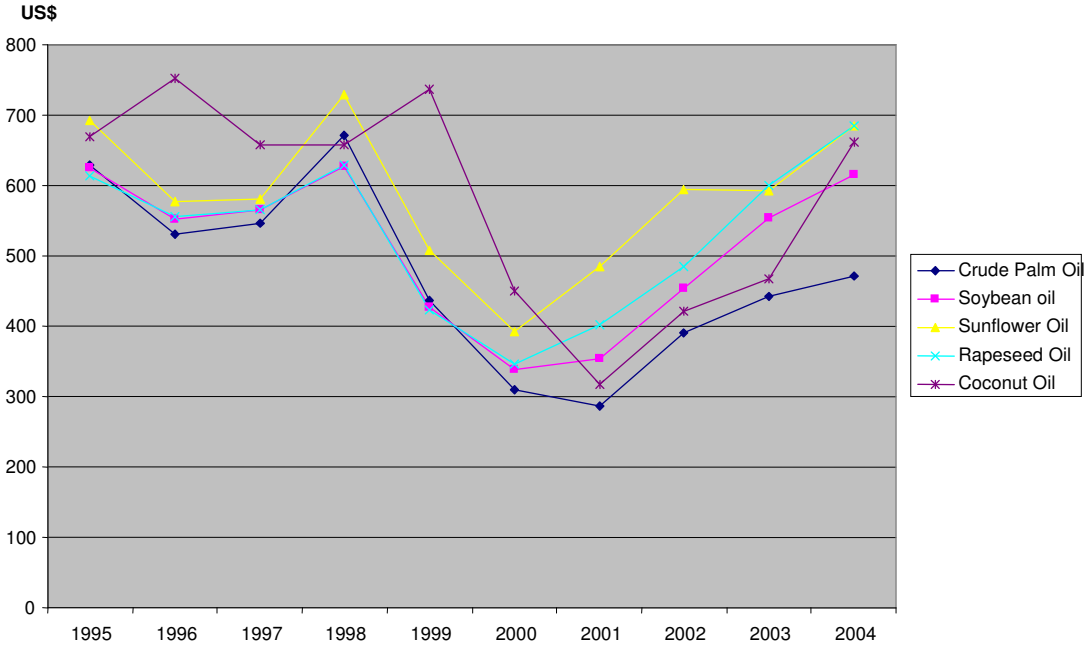
palm sector in Malaysia and Indonesia were not aware of environmental effects and associated risk in their business. Of late, the situation has changed particularly after the establishment of the RSPO.

Table 3: Different uses of palm oil

Food Products	Non Food Products
Cooking Oil, Dough fat	Aromatherapy skincare products
Capsules, Chips,	Candles
Chocolate fats	Carotino-olein and super olein for cosmetic products
Coating fats	Cosmetics
Coca Butter substitutes	Detergents
Frying fat	Esters
Ice-cream fat	Fatty acids
Margarine	Fatty Alcohols
Natural Phytocartenoids complex	Glycerine
Palm mixed carotech complex	Oleochemicals
Pharmaceutical products	Palm fatty acid distillate
Phytosterol complex	Palm Kernel expeller cake
Red palm oil/Red cooking oil	Palm Kernel Fatty Acid distillate
salad oil	Palm Acid Oil
Shoterning	Soap
Speciality fats for coatings	Soap Blends
Vanaspati/Vegetable Ghee	Soap Noodles
Vitamin E	Toiletries

Source: MPOA

Fig.7 average annual prices of selected edible oils 1995-2004



Edible oil prices experienced a declining trend during the second half of the nineties and thereafter the prices have steadily increased. Palm oil prices continued to be the lower than many of the substitutes throughout the period. Table 4 shows the average annual prices of selected edible oils during 1995-04. Crude palm oil prices in 1995 were US$ 628 per tonne but steadily increased to US$ 671 in 1998. Thereafter, the prices have continued to decline and reached US$ 286 in 2001. Subsequently, the prices have increased and reached US$ 471 in 2004. The changes in palm oil prices are also similar to the changes in international edible oil prices. In the absence of increased productivity, the lower palm oil prices may force the oil palm growers to expand the area under cultivation in order to maintain the economic returns. This in turn can contribute to the conversion of forests into oil palm plantations.

Table-4: Average annual prices of selected edible oils : 1995-2004 (In US$/Tonne)

Year	Crude Palm Oil	Soybean oil	Sunflower Oil	Rapeseed Oil	Coconut Oil
1995	628	625	693	614	670
1996	531	552	576	555	752
1997	546	565	581	565	657
1998	671	626	728	628	658
1999	436	427	507	423	737
2000	310	338	392	347	450
2001	286	354	484	402	318
2002	390	454	594	485	421
2003	443	554	593	600	467
2004	471	616	684	685	661

Based on North West Europen Market

Source: Oil World & MPOA

4. Oil Palm Sector in India

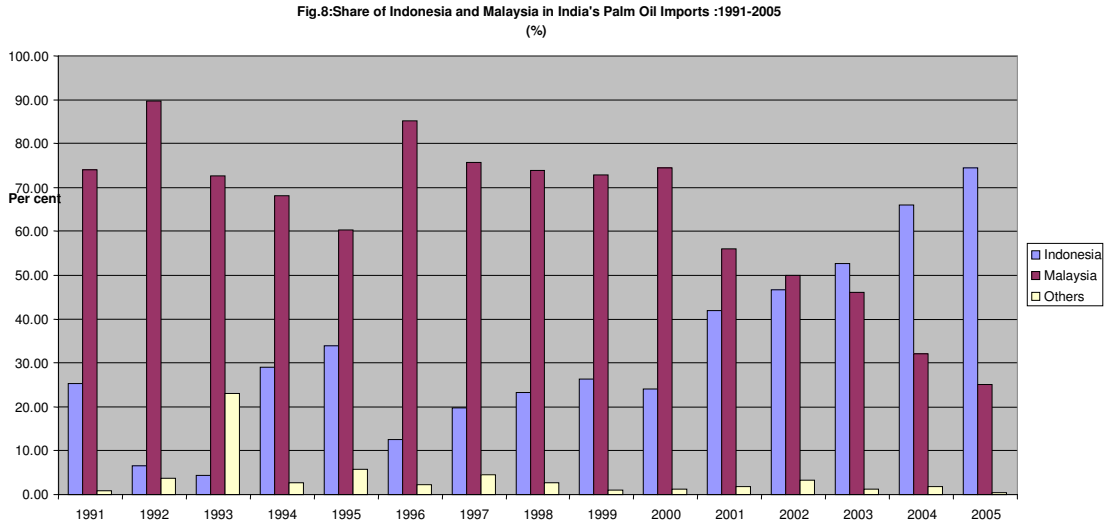
4.1 Import of Palm Oil

Indian imports of palm oil have grown substantially since the mid 1990s. In 1991, India imported 0.12 million tones of palm oil from Indonesia worth US$ 38.69 million, comprising of 25.24 per cent of India's palm oil imports. In 2005, palm oil imports from Indoneisa reached 2.57 million tones worth US$ 1268.54 million comprising of 74.51 per cent of India's palm oil imports. Palm oil imports from Malaysia in 1991 were 0.36 million tones worth US$153.26 million and this comprises of 74 per cent of India's palm oil imports (Table 5).

Table-5 : India's Import of palm oil from Indonesia and Malaysia : 1991-2005

	Indonesia		Malaysia		World		Indonesia	Malaysia	Others	World
	Value	Quantity	Value	Quantity	Value	Quantity	Value	Value	Value	Value
Year	$Million	Kg	$Million	Kg	$Million	Kg	%	%	%	%
1991	38.69	122351052	113.45	362059216	153.26	487410774	25.24	74.02	0.73	100
1992	4.74	16283690	64.69	166309791	72.08	191717381	6.58	89.75	3.68	100
1993	0.61	1690000	10.08	25262280	13.89	35154980	4.39	72.57	23.04	100
1994	7.84	22022000	18.37	49399481	26.94	73268231	29.10	68.19	2.71	100
1995	52.49	106112440	93.48	167133987	155.05	287497597	33.85	60.29	5.86	100
1996	66.57	110323453	455.4	722081656	534	850396859	12.47	85.28	2.25	100
1997	128.37	225144764	494.93	836523337	653.2	1113850391	19.65	75.77	4.58	100
1998	142.65	253619070	451.67	762151720	611.25	1044406593	23.34	73.89	2.77	100
1999	289.62	417862298	802.57	1173195098	1103.24	1608056230	26.25	72.75	1.00	100
2000	295.59	710182097	911.32	2121888291	1222.65	2868429258	24.18	74.54	1.29	100
2001	375.32	1282599240	500.16	1720560449	892.68	3054923163	42.04	56.03	1.93	100
2002	368.9	1298347623	395.11	1352880353	790.07	2733118697	46.69	50.01	3.30	100
2003	641.87	1623870059	563.65	1380980150	1220.75	3052624998	52.58	46.17	1.25	100
2004	1212.86	2667247347	588.28	1257372558	1836.88	4026435567	66.03	32.03	1.95	100
2005	1268.54	2578816346	427.29	880673912	1702.45	3472517472	74.51	25.10	0.39	100

Source: DGCIS, Government of India.



A close look at the long term trend of India's palm oil imports during the last decade shows four distinct stages. Till 1974 the import of palm oil was negligible and thereafter it increased marginally up to 1988. From 1988 to 1994, there was steady decline in the level of imports due to the policy change in favour of domestic oilseed production. After 1994, the palm oil imports witnessed a very high growth. India and China continued the similar trend of importing palm oil except the period 1987-94 (Figure-9).

Fig.9: Palm oil Imports of China and India
1964-2004
(1000MT)

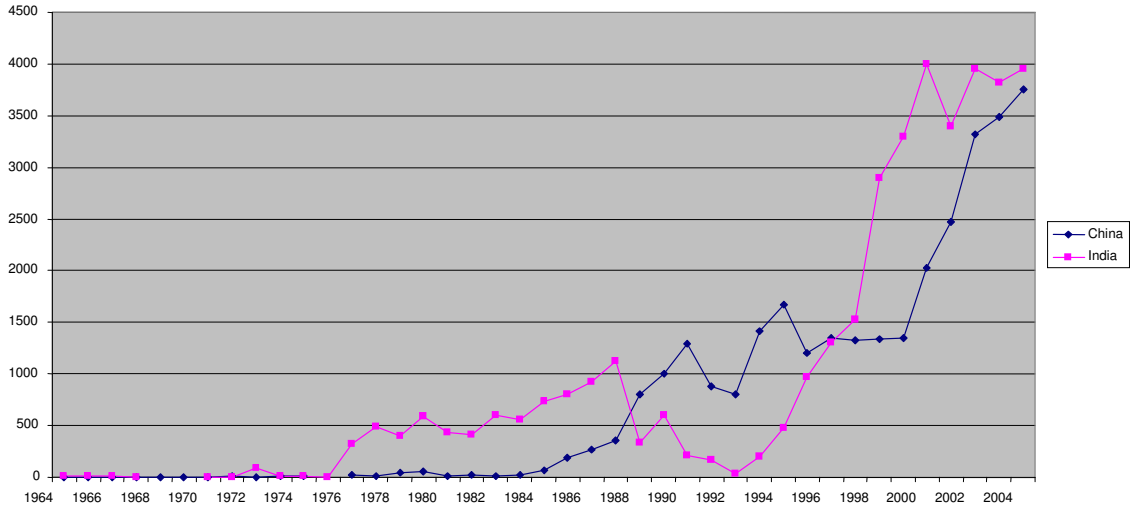


Table-6: Annual Average Imports of Palm Oil by India and China:1966-2004
(Quantity – 1000MT)

Year	Annual Average Quantity (1000MT)	
	India	China
1966-70	3	0.2
1971-75	24.6	7.25
1976-80	445.6	30.4
1981-85	618.4	61.6
1986-90	636	743.2
1991-95	369	1193.6
1996-2000	2606	1478.2
2001-04	3781.25	3258.75

Source: USDA

4.2. Effect of changes in Trade Policy

Import of palm oil is based on the Foreign Trade Policy of the Government of India, administered through the Department of Commerce, Ministry of Commerce and Industry[7] (Government of India, 2004). Till 1994, the import of edible oils in India was

[7] Formerly the Export-Import Policy of India.

allowed through the State Trading Corporation (STC), a government agency and this is based on state imposed import quotas. As part of India's commitment to WTO, import quotas on edible oils were removed and placed under Open General License (OGL) category with a bound tariff rate of 300 per cent. In the case of soy bean oil, the bound tariff is fixed at 45 per cent. This fundamental change facilitated the private sector to import any amount of edible oil subject to the applied tariff which was below one third of bound tariff. The removal of state monopoly and quota on edible oil imports have made significant effect on the edible oil sector and this enables market forces to play a major role (Dohlman,2003).

During 1988 to1994, the import of edible oils was reduced by the government as part of promoting domestic oilseed production under Technology Mission on Oilseeds and Pulses (TMOP) set up by the Ministry of Agriculture. The import restrictions have increased edible oil prices in the domestic market and this has resulted in an increase in oilseed production in India. The oilseed production has increased from 14 million tones in 1988 to 24 million tones in 2004 (70%). Subsequently, the production has declined.

The applied tariffs in edible oils were set a uniform rate of 65 per cent advolurum in 1994 and this has progressively reduced till 1998 (16.5 per cent). Thereafter, its structure has changed considerably when the government made upward adjustments to many oils. In the case of palm oil, the applied tariffs are 90 per cent for refined palm oil and 80 per cent for crude palm oil. Different tariffs were fixed for crude and refined oil with a higher tariff to the latter with a view to promote domestic production and processing sector. The government introduced a tariff rate value system for palm oil in 2001 and for soy bean oil in 2002. This system is meant to prevent reporting of low import prices to evade customs duty (tariff). The applied tariff for soy bean oil is 45 per cent which is same as the bound tariff rate (Table-7).

Table-7: Present Tariff Structure of Edible Oils in India (2004-05)

(in Per cent)

Item	WTO Bound tariff	Current rates (Applied Tariff)	
		Crude Edible oils	Refined Edible oils
Soybean oil	45	45	45
Palmolein	300	80	90
Palm oil	300	80	90
Groundnut oil	300	75	85
Sunflower/Safflower oil	300	75	85
Coconut oil	300	75	85
Rapeseed/Mustard Oil	75	75	75
Other Oils	120/300	75	85

Source: Government of India (2005)

The Indian ports of Kandla, Mumbai, Kolkata , Chennai and Kakinada comprise 84 per cent of imports of palm oil. While bulk of refined oils imported through Mumbai and Chennai ports, the crude palm oils are imported through Kandla and Kakinada (Table.8). This is primarily due to the concentration of palm oil refineries in Kakinada and Kandla

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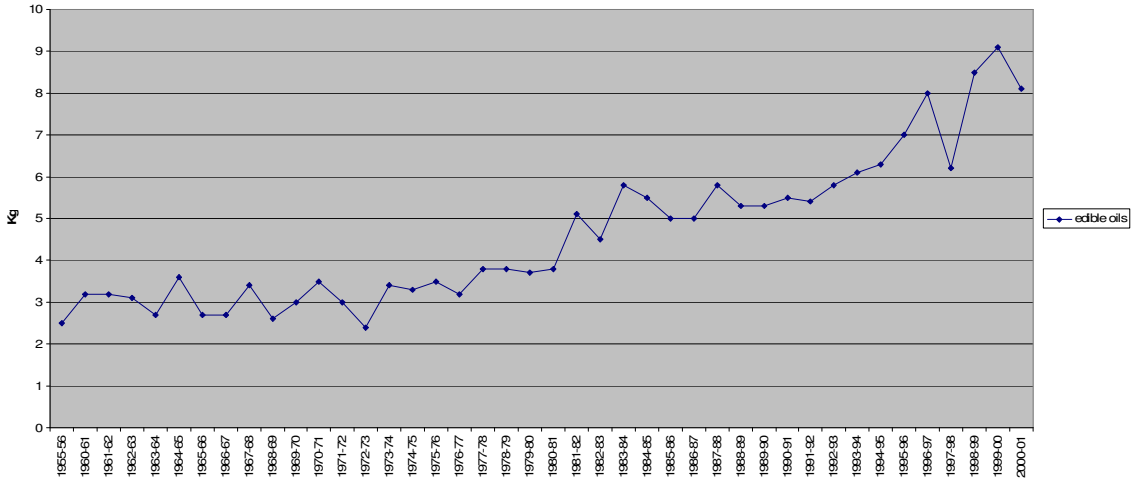
Table-8: Portwise import of Palm Oil : Oct 2003-Nov 2004 (Quantity MT)

Port	Refined (RBD Palmolin)	Crude Palm Oil	Crude Palm Ker. Oil	Total	Refined (RBD Palmolin)	Crude Palm Oil	Crude Palm Ker. Oil	Total
	Quantity (In MT)				Share to total imports (%)			
Chennai	241821	108531	6275	356627	30.35	5.27	9.75	12.21
Cochin	42452	6975	3000	52427	5.33	0.34	4.66	1.79
Bedi	999	75118	(-)	76117	0.13	3.65	0.00	2.61
JNPT	17980	23284	(-)	41264	2.26	1.13	0.00	1.41
Kakinada	76012	204896	3832	284740	9.54	9.95	5.96	9.75
Kandla	28358	767116	3943	799417	3.56	37.25	6.13	27.37
Kolkata	21828	378441	1498	401767	2.74	18.37	2.33	13.76
Mangalore	17477	92240	1175	110892	2.19	4.48	1.83	3.80
Mumbai	311686	251623	36064	599373	39.11	12.22	56.04	20.52
Mundra	9680	117994	5574	133248	1.21	5.73	8.66	4.56
Nagapattinam	1630	1350	490	3470	0.20	0.07	0.76	0.12
Tuticorin	26923	32011	2498	61432	3.38	1.55	3.88	2.10
Total	**796846**	**2059579**	**64349**	**2920774**	**100.00**	**100.00**	**100.00**	**100.00**

Source: The Solvent Extractors Association of India.

Figure 10: Per capita consumption of edible oils in India (In Kg)



Per capita availability of edible oils in India has increased from 2.5 Kg per annum in 1955-56 to 9 Kg per annum in 2001-02. Figure-10 shows the per capita availability of edible oils and *vanaspati* in India. The per capita availability has considerably increased as a result of import of edible oils, mainly palm oil but it is still very low when compared to developed countries of 30 Kg/annum and lower than many developing countries. This has contributed to ensuring nutritional requirements of the growing population.

4.3 Oil Palm Cultivation in India: Constrains and Opportunities

The palm oil cultivation is promoted under Technology Mission on Oilseeds and Pulses (TMOP) set up in 1986 by the Ministry of Agriculture, Government of India. The government of India included oilseeds under Minimum Support Price (MSP) to provide price support to the farmers. The prices for Oil Palm fresh fruit bunches (FFB) to the growers are determined by the government by taking into account several factors including international Crude Palm Oil Prices.

Table-9 State wise area under oil palm cultivation (2004)

State	Existing area under oil palm cultivation (in ha)	Name of implementing agencies of Oil Palm Development Program (OPDP)
Andaman & Nicobar Islands	1600	Forest Corporation
Andhra Pradesh	40000 (20000)	Palmtech, Godrej Agrovet Limited, FFF, AP Oilfield, SICAL, Navabharat, Simhapuri, Srinivasa Ent., Radhika Veg, Laxmi Mittal, Lakmi Bajaj
Kerala	4580	Oil Palm India Limited; Plantation Corporation of Kerala Limited
Karnataka	3500 (10000)	Simhapuri, Palmtech, FFF, Godrej Agrovet Limited
Goa	841	Godrej Agrovet Limited
Tamil Nadu	17000 (3000)	Cauvery Palmoil Limited
Gujarat	140	Gujarat Cooperative Society
Maharashtra	700	DCKL released plantation to the land owners
Orissa	100 (12000)	Department of Horticulture, Government of Orissa
TOTAL	**53161**	

Figures in paranthesis shows approximate extent of palm trees uprooted by the farmers themselves.
Source: TMOP, Govt. of India & Ali, Nasim (2005)

* Mizoram and Tripura also have raised oil palm plantations.

The total area under oil palm plantation in 2004 was about 53,161 hectares of which oil fruits production area was about 40,650 hectares. The domestic production of crude palm oil (CPO) was about 36,000 metric tones. The Government of India had identified 796,000 ha of land suitable for oil palm cultivation as per the recommendations of the Chadha Committee and the TMOP supported oil palm cultivation in these areas. However, large tracts of palm oil have been uprooted by farmers themselves and this was a set back to the TMOP. Most of the uprooting happened during 2001-03. There are several reasons for this. Oil palm prices were very low till 1999-2000 and farmers quickly responded to the decline in income as a result of oil palm cultivation. They uprooted the plants and switched back to cultivation of seasonal crops, fruits and vegetables. The changes in government policies to freely allow import of palm oil to India affected the domestic oil palm sector which was benefiting from the increased domestic oil palm prices, partially as a result of government protection in the late 80's. Presently oil palm cultivation is focused in five Indian States namely Andhra Pradesh, Karnataka, Tamil Nadu, Kerala and Maharashtra. The other states having oil palm cultivation include Orissa, Gujarat, Tripura, Mizoram and Andaman & Nicobar Islands. The state wise break of important oil palm areas is given in Table-9.

Nevertheless, Palm Oil cultivation in some areas has shown very impressive results. This is due to effective public private partnerships supported by appropriate policies. For example, the State Government of Andhra Pradesh initiated several innovative steps to address the constraints in palm oil cultivation. The State Government as part of implementing the Oil Palm Project (OPP) of TMOP, has identified suitable implementing agencies such as Godrej Agrovet, Palmtech India, etc., having experience and expertise in the oil palm sector. Each agency has been allotted specific villages. The agency has to establish a mill in the locality at the beginning. This is to encourage farmers to grow oil palm since a major constraint is the lack of mills in the locality. The fruit has normally to be processed within 24 hrs to get the best results. The agencies provide best quality seedlings at a nominal cost and facilitate getting all necessary support to oil palm growers. The support from the government also includes free electricity and irrigation facilities, providing loans through financial institutions at low rates, and insurance coverage. The agency collects FFB from the growers at the determined price and transfers the amount to their bank account. This is to ensure transparency and accountability in OPP implementation. The agency also conducts awareness and capacity building programmes to the growers in the respective villages.

Photo 1: Oil Palm nursery managed by Godrej Agrovet in Eluru, Andhra Pradesh

Photo2: A truck of Fresh Fruit Bunch(FFB) is being taken to the Mill

The State Government was more concerned about social issues associated with oil palm cultivation than economic issues. The Department of Biotechnology (DBT) initiated several studies to understand different aspects of oil palm cultivation in India. It was pointed out that the size of land holding is an important factor in determining the economic viability of the cultivation. There are several positive effects associated with oil palm cultivation in addition to the immediate economic returns.

Oil palm is a humid tropical crop and its cultivation requires evenly distributed rainfall of 150 mm/month or 2500-4000mm/annum. Therefore, it can be cultivated only with assured irrigation source. It is not suitable for highly alkaline, highly saline, waterlogged and coastal sandy soils (NRCOP,1997). Apart from these, the results of the interviews held with oil palm farmers and company representatives show several factors. The oil palm cultivation should not be a threat to the availability of staple food crops such as rice, wheat, plantain, fruits, vegetables etc. (to ensure food security). Similarly, there should not be blindfolded promotion of oil palm at the cost of other commercial crops such as rubber and arecanut. Many farmers still feel that oil palm is a drought crop with the belief that palm oil requires only one third of the water required for sugar cane. A palm oil entrepreneur in Andhra Pradesh stated that "oil palm cultivation, is a long term marriage with a crop rather than short term honeymoon."

The results of the interviews also revealed that there should not be fall in income for the farmers from oil palm cultivation because this may force them to uproot the existing oil palm for raising other crops. This crop should not be promoted where irrigation systems have been constructed (integrated power and irrigation projects) for food crops. No forests should be cut for oil palm. There are huge areas of land available in the country where the crop can be cultivated. For this, there has to be a proper documentation and one has to look at beyond the areas identified by the Chaddha Committee Report. Private sector participation in government land including waste lands should be encouraged with proper documentation and legal backup to safeguard against any misuse of the land. However, this has to be carried out with adequate safe guars such as the effect of plantaion on property rights, livelihoods and biodiversity. "Proven Technology" for

growing oil palm should be brought to the grass root level with proper mechanism. Distribution of plant material to the growing nation should be ensured.

Photo-3 Oil palm growers in a village in Andhra Pradesh during an interview

The entire activity of the government on oil palm is based on Chaddha Committee Report which needs immediate updating. The cultivation of oil palm provides economic benefits in addition to promoting several ecosystem services in India. There is no threat to high conservation value forests (HCVF) due to oil palm cultivation in India. This is due to the introduction of Forest Conservation Act, 1980 and several other legislative and policy measures. Earlier, forests had been cleared to raise oil palm plantation in Andaman & Nicobar Islands and Kerala.

The cultivation of oil palm provides several benefits. The production of palm oil from fresh fruit bunches (FFBs) is the major use. In addition to this, the oil palm plantations provide organic manure. A matured tree will produce a leaf in every two weeks and every two week one leaf will either cut or fall in the soil. The other uses include firewood and pulp (Figure-11).

Figure-11
Major economic uses of Oil Palm cultivation

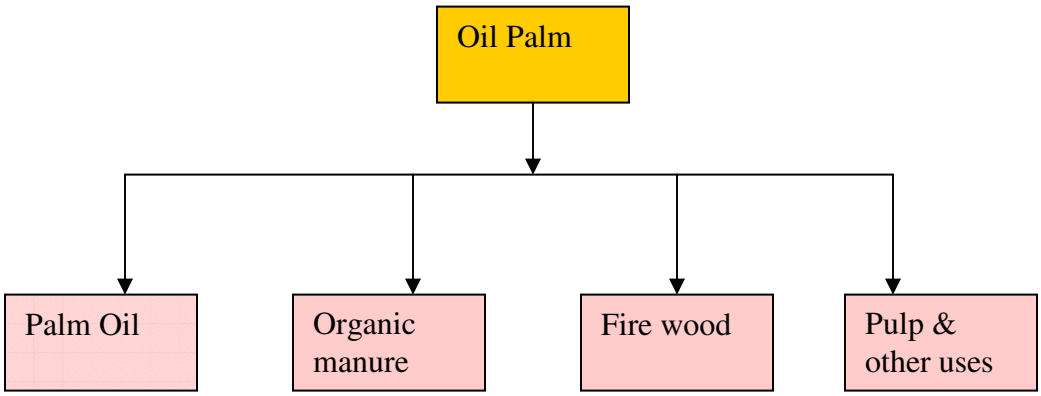


Photo 4- (a) Oil palm plantation in Andhra Pradesh (b) New plantation (c) Oil palm fruit.

The major players in the field of oil palm production in India include:

- Godrej Agrovat Limited
- ITC
- Food Facts and Fertilisers (FFF), Chennai (Tamil Nadu)
- SICAL
- Cauvery Palm Oil Limited, Chennai
- Simhapuri Agrotech, Andhra Pradesh
- Palmtech India (Andhra Pradesh & Karnataka)
- Oil Palm India (Kerala)
- Bhadravati Balaji (Formerly Karnataka Oil Palm Limited)

Photo: (a) Fresh Fruit Bunches are being taken to the factory (b) Crude Palm Oil and Palm Kernal Oil (c) crude Palm oil storage

5. Influencing Business and Industry

Business and Industry in India view South East Asia as a great potential for trade and investment. Traditionally, the economic relationship of India with the countries in South East Asia region was ?. The people, culture and agro-climatic conditions of India and South East Asia have several similarities. India is very keen to learn from the economic growth and development of East Asia. India's "Look East Policy" and strengthening of India –ASEAN relationship provided an enabling environment to this process.

An Indian business group, the Aditya Birla Group established the world's largest palm oil refinery, Pan Century Edible Oil Sdn. Bhd, in Malaysia in 1978. Several Indian companies have invested in both Indonesia and Malaysia in the Oil Palm sector. Similarly, companies in Malaysia joined hands with Indian companies in doing business in this sector. The technology used in India for palm oil extraction and refining in India are mostly developed with the support of Malaysia. Godrej, Goenka, Tata and Birla are the leading Indian business groups in the palm oil business. By recognizing the significant size of edible oil economy of India, several leading companies in the world, including MNCs such as Cargill, Bunge, Unilever have established their business and influenced the oil palm sector.

The palm oil imported from Indonesia and Malaysia is mainly used for household consumption for cooking. However, a significant share of the imported palm oil is used by the companies to produce manufacturing products which are exported to European and other developed country markets. These markets are sensitive to the environmental issues related to palm oil and are increasingly demanding sustainable palm oil. Presently, most of the Indian companies have not taken this issue seriously. This is largely due to (i) the availability of substitute oils such as soy bean (ii) the presence of large domestic market which is mainly price sensitive (iii) the non availability of sustainable palm oil and (iv) lack of any incentives to shift or commit to sustainable palm oil. The environmental issues associated with the business have already taken into account by several leading Business and Industry Groups in India and suitably incorporated in to their policies on Corporate Social Responsibility. The multiplicity of environmental measures

and standards and labeling is a matter of concern. In this context, it is important to understand how the standards for sustainable palm oil (i.e. Principles and Criteria) is different from that of other similar products.

India has over 300 crude edible oil units of which 70 per cent are small and its capacity utilization is very low (less than 40 %) due to their inability to import large quantities of edible oil. Small refineries are increasingly selling out their units to bigger ones or shutting down their operations. Several companies from Malaysia and USA are interested to invest in plantation and refining activities in India. There is growing demand for investing in business in India for bio-fuel production from palm oil. The Malaysian companies have already recognized the scope of offshore joint ventures with Indian oil importers. The Malaysian government is planning to set up 4 bio-fuel plants in India by 2007. The main obstacles, according to Malaysian Palm Oil Association, are the local policies and land availability. It is pointed out that the present ceiling of 5000 ha for plantation in India is a limiting factor to Indian companies to raise oil palm plantations on a big scale with other foreign companies from Malaysia or elsewhere. In order to reach the economies of scale, private players need more than 5000 ha of land for oil palm cultivation [8] . India's growing downstream activities on palm oil are mainly on food, oleochemical and pharmaceuticals. India's policies are presently in favour of soy bean oil primarily due to low tariff rates and this has influenced the B&I preferences in edible oils.

The Oil palm cultivation is adversely affected due to several factors including low yield, lack of suitable seedlings, lack of mills in the vicinity of oil palm growers, particularly those of small and medium scale, lack of awareness, changes and fluctuation in edible oil prices, particularly palm oil, the changes in trade policies and lack of suitable incentives. Except few areas, the palm oil cultivation is severely affected in India and farmers are increasingly uprooting the plants in several areas. The B&I can help addressing this issue. This would also help promoting employment and income generation in rural areas which is currently a top priority of Indian Government. The success stories of Godrej Agrovet and Palmtech projects in Andhra Pradesh underscore this argument. It is important to try and test the feasibility of the Principles and Criteria developed by RSPO The implications of large scale oil palm plantations on the rights and interests of local communities should also to be taken into account.

In the case of consumer goods manufacturing and retailing sector, to generate the demand for the use of sustainable palm oil from the Indian consumers would take a longer time period. A beginning point is to address the emerging middle income groups, particularly in India's urban centres. Companies like Unilever (Hindustan Lever, in India) which are already committed sustainable palm oil by joining RSPO can launch awareness

[8] Article by Mr M R Chandran dt.17 Oct.2005 (www.biz.thestar.com.my)

programmes with the support of conservation NGOs and the concerned government agencies (eg. Ministry of Environment and Forests). In the case of export markets, the companies which are not willing to commit use of sustainable palm oil should be kept in the notice of environmentally conscious consumers. A "step wise approach" is most suitable for Indian Business and Industry to make commitment to use sustainable palm oil.

5. Conclusion

In India, the domestic production of oil palm is constrained with low productivity and changes in trade policies pertaining to edible oils. Barring few pockets in Andhra Pradesh and Kerala, the TMOP could not come up with any positive results in promoting oil palm cultivation in India. On the other hand, farmers uprooted oil palm in many areas due to the fall in income as a result of decline in oil palm prices and changes in import policies . Several companies including some of the leading multinational companies are very keen to do business in oil palm production in India and thereby providing investment and improved technology. There is strong argument to raise large scale oil palm plantations with suitable land use policies and by introducing progressive reforms in plantation sector. However, this has to be viewed carefully by taking into account the environmental and social costs, including rights and interests of local communities. In this context, Principles and Criteria developed by RSPO is a guiding factor and therefore the same have to be tried and tested in the India. .

India would continue to import edible oils to meet more than half of its requirements. Although palm oil shares more than 70 per cent of current imports, the applied tariff is higher than soy bean oil. Further, the bound tariff of palm oil is fixed at 300 per cent where as the same for soy bean oil is 45 per cent. Traditionally people of India have preferences on edible oil in different regions. However, the technological advancement in edible oil refining makes it possible to produce colourless, odourless oils enabling consumers to interchange edible oils at a given price. The per capita consumption of edible oils in India has increased considerably is still but far below that of developed countries and also lower than many developing countries. The demand for industrial use is also likely to grow in the coming years. Palm oil from Indonesia and Malaysia is dominating India's import basket of edible oils due to its competitive prices when compared to alternate oils. Indian products using palm oil are increasingly exported to environmentally conscious markets in EU and several OECD member countries. It would be useful to make use of the consumer preferences in these markets and institutions including NGOs to promote the use of sustainable palm oil by the B & I in India.

The efforts to supply palm oil at cheap prices to India as well as other export markets would add tremendous pressure on high conservation value forests (HCVF) in Indonesia, Malaysia and elsewhere. India can play an important role in supporting the South East Asian countries to their efforts to conserve HCVF and biodiversity. India can make use of Indo-ASEAN partnership to

promote "sustainable palm oil" by constructively engaging the key stake holders in both regions. There is considerable scope to engage Business and Industry (B&I) to adopt environmentally credible business practices, actively participating the initiatives such as RSPO and make a commitments to "sustainable palm oil" as and when it is available. To achieve this, a "step wise" approach is suitable for B&I in India.

A oil palm mill in Indonesia.

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