STATUS PAPER ON OIL PALM

(OILSEEDS DIVISION)
DEPARTMENT OF AGRICULTURE, COOPERATION AND FARMERS WELFARE
MINISRTRY OF AGRICULTURE AND FARMERS WELFARE
GOVERNMENT OF INDIA

INDEX

Introduction

Oil palm (*Elaeis guineensis Jacq.*), is a native of West Africa and popularly known as African oil palm or red oil palm. It is grown extensively in South-East Asian countries, (Malaysia, Indonesia and Papua New Guinea), African countries, (Nigeria, Ivory Coast, Ghana, Liberia, Sierra Leone, Cameroon, Republic of Congo and Zarie) and South American countries (Costa Rica, Panama, Columbia, British Guyana, Peru, Ecuador, Venezuela and Brazil). Malaysia, Indonesia and Nigeria are the leading producers of oil palm.

It is known to be the highest edible oil yielding perennial crop. It produces two distinct oils, i.e., palm oil and palm kernel oil. Palm oil is derived from fleshy mesocarp of the fruit, which contains about 45-55% of oil. The palm kernel oil, obtained from the kernel of stony seed, is a potential source of lauric oil.

Oil palm is the crop of the present and future vegetable oil economy of world as well as India. Palm oil has good consumer acceptance as cooking medium because of its price advantage. It is a good raw material for manufacturing oleo chemicals used in making soaps, candles, plasticizers etc. It has also a variety of uses, ranging from edible oil, cosmetics, pharmaceuticals to bio-fuel and bio-lubricant.

Different uses of Palm Oil

Food Products	Non Food Products
Cooking Oil, Dough fat, Vanaspati	Bio fuel and Bio lubricants
Vegetable Ghee	Cosmetic products/Aromatherapy
Margarine	Pharmaceuticals products
Salad Oil	Toiletries, Detergents including soaps & soap Blends
Chocolate/Ice-cream/ Frying fats, Speciality fats for coatings	Esters
Coca Butter substitutes	Oleo chemicals, Fatty acids & Fatty Alcohols

Overall demand and supply of edible oils

Domestic consumption of edible oils has increased substantially over the years and has touched the level of more than 24.50 million ton in 2015-16 (Prov.). The per capita consumption which was 15.8 kg / person / annum in 2012-13 has increased to 19.57 kg / person / annum in 2015-16 (Prov.) and it is likely to increase further with enhancement in income. The production of domestic edible oils (8.77 million ton in 2015-16 Prov.) has not been able to keep pace with the growth in consumption and the gap between production and consumption is being met through imports which amounted to Rs. 68,000 crores (2015-16 Prov.). Palm oil contributes 70% of total vegetable oil import and is one of the cheapest oil due to high productivity per hectare.

Year-wise details of demand and supply of vegetable oils during last three years in the country are given below:

(million ton)

Years	Demand	Supply	
		Domestic source	Import
2012-13	19.81	9.21	9.61
2013-14	21.16	10.19	7.94
2014-15	23.05	9.20	12.70
2015-16 (Prov.)	24.50	8.77	15.64

Global Oil Palm Cultivation

Palm oil is one of nine major oils traded in the global edible oil and fat market. At present, it is the largest source of vegetable oil in the world. Five countries mainly Indonesia, Malaysia, Nigeria, Thailand and Columbia account for over 90% of the world's total production of FFBs.

The details of area, production and yield of FFBs in major oil palm producing countries is given below:

(Area- Million ha, Production- Million Tonne, Yield- Metric Tonne/ha)

S. N.	Countries	2012			2013			2014			Share in World Production (%)
		Area	Prod.	Yield	Area	Prod.	Yield	Area	Prod.	Yield	
1.	Indonesia	6.65	113.00	16.99	7.08	120.00	16.95	7.43	126.68	17.05	46.02
2.	Malaysia	4.35	93.26	21.43	4.53	95.73	21.15	4.69	96.07	20.48	34.90
3.	Nigeria	3.25	8.10	2.50	3.00	8.00	2.67	3.03	7.96	2.62	2.89
4.	Thailand	0.60	11.36	19.11	0.60	12.37	20.50	0.68	12.43	18.17	4.52
5.	Colombia	0.23	4.67	20.03	0.25	5.05	20.19	0.27	5.53	20.75	2.01
6.	Ecuador	0.20	2.65	13.34	0.22	2.32	10.59	0.27	3.47	12.75	1.26
7.	Papua New Guinea	0.15	2.05	14.04	0.15	2.10	14.00	0.16	2.16	13.87	0.78
8.	Brazil	0.11	1.24	10.96	0.10	1.25	11.48	0.13	1.39	11.01	0.50
9.	**World**	**17.56**	**255.36**	**14.54**	**17.97**	**266.37**	**14.82**	**18.75**	**275.30**	**14.68**	**100.00**

Sources: FAO Statics

The details of palm oil production in the major countries are given below:

(million MT)

Country	2012	2013	2014	Share in World (%)
Indonesia	26.01	26.90	29.28	50.87
Malaysia	18.78	19.22	19.67	34.17
Nigeria	0.94	0.88	0.91	1.58
Thailand	1.78	1.97	1.85	3.21
Colombia	0.97	1.04	1.11	1.93
Ecuador	0.32	0.32	0.33	0.57
Papua New Guinea	0.48	0.49	0.50	0.87
Brazil	0.31	0.34	0.37	0.64
World	**52.87**	**54.65**	**57.56**	**100.00**

Sources: FAO Statics

Oil Palm Cultivation in India

Oil palm was introduced to India at National Royal Botanical Gardens, Kolkata during the year 1886. The Maharashtra Association for Cultivation of Sciences (MACS), Pune later introduced African dura palms along canal bunds, home gardens and, to some extent, in forest lands near Pune during 1947 to 1959. Large scale planting of oil palm was launched from 1971 to 1984 in Kerala by Plantation Corporation of Kerala Ltd. (subsequently taken over by Oil Pal India Ltd.) and Andaman Forest and Plantation Development Corporation Ltd., in Little Andaman Islands of Andaman and Nicobar Islands during 1976 to 1985. Oil palm has been established as a successful crop in a number of states in the country and achieved an area of 3.00 lakh ha under oil palm cultivation up to the year 2015-16.

Oil palm, as a small holders' crop under irrigated conditions grown under varied agro-climatic conditions, is totally new to India.

Significance of Oil Palm

Oil palm cultivation assumes significance for augmenting the indigenous availability of edible oil as it is the highest oil yielding perennial crop. With good planting material, irrigation and proper management, there is a potential of 20-25 MT fresh fruit bunches (FFB) per hectare after attaining the age of 5 years. This in turn is capable of yielding 4-5 MT of palm oil and 0.4-0.5 MT palm kernel oil (PKO). In comparative terms yield of palm oil is 5 times the yield of edible oil obtainable from traditional oilseeds. This perennial crop has an economic life spam of plant 30 years, comprising three distinct phase viz. juvenile period (1-3 years), stabilizing period (4-8 years) and stabilized period (9-30 years).

Oil Palm potential area

The Committees constituted by Department of Agriculture, Cooperation and Farmers Welfare (DAC&FW) have identified 19.33 lakh ha area suitable for oil palm cultivation in 19 states of the country including 2.18 lakh ha area in North Eastern States. This assessment was made by Dr. Rethinam Committee during the year 2012. Out of 19.33 lakh ha area more potential States are Andhra Pradesh (4.69 lakh ha), Gujarat & Karnataka with 2.60 lakh ha and Tamil Nadu & Bihar with 2.00 lakh ha area. A statement indicating total potential area for oil palm cultivation in India may be seen in **Annexure-I**.

Major Constraints in Oil Palm cultivation

- Oil palm has a long gestation period and restricts income flow to farmers for at least 4-5 years.
- Small holdings of farmers with limited resources.
- Fluctuation in prices of CPO in the international market and price of FFBs.
- Erratic monsoon leading to shortage of water.
- Competition with other economically viable crops such as rubber, arecanut, sugarcane, banana, coconut etc.
- Variation in import duty on edible oils.
- Non-availability is shortage of power and limited availability of new electric connections.

Initiatives by Government of India

In view of the importance and significance of oil palm cultivation, DAC&FW had taken up Technology Mission on Oilseeds & Pulses (TMOP) in 1991-92 in the potential states. A comprehensive Centrally Sponsored Scheme Oil Palm Development Programme (OPDP) was taken up during Eighth & Ninth Plan. During the Tenth and Eleventh Plan, Government of India had provided support for oil palm cultivation under Centrally Sponsored Integrated Scheme of Oilseeds, Pulses, Oil Palm and Maize (ISOPOM). To boost oil palm cultivation, Government of India had implemented a Special Programme on Oil Palm Area Expansion (OPAE) under RKVY with an objective to bring 60,000 ha area under Oil Palm cultivation during the year 2011-12. It was continued till March, 2014.

During the XIIth Five Year Plan, a new National Mission on Oilseeds and Oil Palm (NMOOP) has been launched under which Mini Mission-II (MM-II) is dedicated to oil palm area expansion and productivity increases. MM-II of NMOOP is being implemented in 12 States viz; Andhra Pradesh, Telangana, Chhattisgarh, Tamil Nadu, Kerala, Gujarat, Karnataka, Odisha, Mizoram, Nagaland, Assam and Arunachal Pradesh w.e.f. 01.04.2014.

Under the Mission, financial assistance are being provided to the farmers @ 85% cost of the planting material and @ 50% cost of the other components like maintenance cost of new plantations for four years, installation of drip-irrigation systems, diesel/electric pump-sets, bore-well/water harvesting structures/ponds, inputs for inter-cropping in oil palm (during gestation period), construction of vermi-compost units and purchasing of machinery & tools etc. However, the component-wise pattern of assistance of MM-II of NMOOP is being given at **annexure-II**.

Interventions of MM-II are being shared in the ratio of 60:40 between the Central and the State Governments in case of general states and 90:10 in case of NE States from the year 2015-16. 100% support is being provided to Indian Institute of Oil Palm Research (IIOPR), Pedavegi, Andhra Pradesh for Research & Development on oil palm.

State-wise District covered under Oil Palm

SL. No	State	Nos. of Districts	Name. of District
1.	Andhra Pradesh	8	East Godavari, Krishna, Nellore, Srikakulam, Vishakapatnam, Vizianagaram, West Godavari and Ananatapur
2.	Telangana	4	Nalgonda, Bhadradri, Suryapet and Khammam
3	Chattisgarh	11	Kanker, Mahasammund, Dantewada, Jagadalpur, Sukma, Durg, Balod, Raigarh, Janjgir Champa, Bilaspur and Korba
4.	Goa	2	North Goa, South Goa
5.	Gujarat	11	Anand, Tapi, Narmada, Bharuch, Panchmahel, Kheda, Navasari, Surat, Vadodara, Valsad and Chotha Udepur
6.	Karnataka	23	Belagaum, Uttar Kannada, Davangere, Haveri, Bellary , Gadag, Koppal, Raichur, chamarajnagar, Hassan, Kodagu, Mandya, Mysore, Chikmagalur, Shimoga, Bagalkote, Bijapur, Gulbarga
7.	Kerala	9	Trivandrum, Kollam, Alappuzha, Pathanamihitta, Kottaym, Ernakulam, Kozhikode, Malappuram and Wyanadu
8.	Mizoram	7	Aizwal, Kolasib, Lawngtlai, Lunglei, Mamit, Saiha and Serchhip
9.	Odisha	15	Dhenkanal, Gajapati, Ganjam, Jajpur, Mayurbhanja, Balasore, Boudh, Cuttack, Nawrangpur, Koraput, Nayagarh, Rayagada, Sonepur, Bargarh and Bhadrak,
10.	Tamil Nadu	26	Trichy, Karur, Cuddalore, Peramabalur, Thanjavur, Theni, Thiruvarur, Nagapattinam, Tirunelveli, Vellore, Villupuram, Pudukottai, Aryalur, Dindugal, Virudhnagar, Sivagangai, Kancheepuram, Triuvallur, Tiruvannamalai, Salem, Namakkal, Dharampuri, Krishnagiri, Coimbatore, Tiruppur and Erode
11.	Nagaland	6	Dimapur, Peren, Mokokchung, Wokha, Mon and Longleng
12.	Assam	3	Kamrup, Goalpara and Bongaigaon
13.	Arunachal Pradesh	8	Lohit, Changlang, Tirap, Lower Dibang Valley, East Siang, West Siang, L/Subansri and Papum Pare & East Kameng
	Total	**133**	

Oil Palm Area Expansion and production of FFBs & CPO:

The oil palm plants start bearing from 4th year onwards and the production progressively increases up to 10 years. The pattern of bearing as per international standard is given below:

Age (Years)	Bearing Potential (MT/Ha)
4	5.0
5	8.0
6	11.0
7	15.0
8	18.0
9	18.0
10	18.0

The year-wise oil palm area expansion target & achievement, production of FFBs and CPO during the four years of XIIth Five Year Plan from 2012-13 to 2015-16 are given below:

Year	Area (in ha)		Production (in Metric Tonne)	
	Target	Achievement	FFBs	CPO
2012-13	49,932	26,300	892660	138567
2013-14	41,347	23,183	1047881	180727
2014-15	28,146	17,143	1133850	191510
2015-16	27,337	14,425	1282823	217258

Impact of Centrally Sponsored Oil Palm Development Schemes:

All these developmental efforts have resulted in area expansion under oil palm from 8585 ha in 1991-92 to 3,00,510 ha by the end of 2015-16. Similarly, the fresh fruit bunches (FFBs) production and crude palm oil (CPO) have increased from 21,233 MT and 1,134 MT respectively (1992-93) to 12,82,823 and 2,17,258 MT respectively during the year 2015-16. At present, Andhra Pradesh, Karnataka, Tamil Nadu, Odisha and Mizoram are major oil palm growing States.

The State-wise details of area achieved under oil palm cultivation and production of FFBs and CPO up-to the year 2015-16 are given below:

Sl. No.	State	Total Area Coverage (in ha.) up-to March, 2016	Production (in MT)	
			FFBs	CPO
1.	Andhra Pradesh	1,50,530	1144092	193562
2.	Telangana	16,239	63508	11289
3.	Karnataka	41,431	14740	2538
4.	Tamil Nadu	29,510	7810	1222
5.	Gujarat	5,054	523	0
6.	Goa*	953	3217	581
7.	Odisha	18,484	4569	618
8.	Tripura*	530	0	0
9.	Assam	570	0	0
10.	Kerala	5,769	40611	7016
11.	Maharashtra*	1,474	0	0
12.	Mizoram	25,741	3753	432
13.	Chhattisgarh	2,162	0	0
14.	Andaman & Nicobar*	1,593	0	0
15.	Arunachal Pradesh	330	0	0
16.	Nagaland	140	0	0
	Total	**3,00,510**	**12,82,823**	**2,17,258**

*NMOOP is not being implemented

Role of Entrepreneurs

States Governments have involved about 15 nos. of private entrepreneurs in which majors are M/s Godrej Agrovet Pvt. Ltd., M/s Ruchi Soya Industries, M/s Food Fats & Fertilizers and M/s Shivasais Oil Palm Ltd. for developing of oil palm seedlings nurseries and processing mills in their respective States. These entrepreneurs are involved by the State Government in their respective States by inviting the Expression of Interest (EOI). These companies have signed Memorandum of Understanding (MoU) with the State Governments for development of oil palm in the country. After signing of MoU, the State Governments have allotted area/ Mandals/Districts to the companies for new plantations. Accordingly, the companies have established nurseries in their allotted zone for developing seedling of oil palm, which takes about 10-12 months. These companies have purchased seed sprouts from indigenous seed gardens and also imported sprouts from major oil palm growing countries for development of seedling nurseries in their respective States. These companies are also extending technical expertise to the farmers for development of oil palm plantation.

After development of plantation, oil palm mills are also established by these companies. Government of India has also provided financial support for establishment of oil palm processing mill especially in NE/LW areas/hilly states/regions. In the country, 24 nos. Oil Palm Processing Mills have been established in different states having capacity of 312 MT/hrs for crushing of FFBs of oil palm. The State-wise list of the processing mills established so far in the country may be seen at **Annexure-III**.

Financial outlay for MM-II of NMOOP during last three years

The details of State-wise and year-wise funds allocation, releases & expenditure in respect of Oil Palm under NMOOP from the year 2014-15 to 2016-17 are given in **Annexure-IV** and year-wise summary is given below:

(Rs. in lakh)

Year	Allocation	Release	Expenditure
2014-15	7172.05	3993.93	4550.35
2015-16	6581.10	3794.79	3250.54
2016-17	8028.67	4226.63	1414.99

Formula for fixation prices of FFBs

The price of oil palm fresh fruit bunches (FFBs) paid to farmers by the private Oil Palm Developers Companies is based on the CACP recommended formula i.e. 13.54 percent of net crude palm oil (CPO) weighted average price, based upon 18% oil extraction ratio (OER), plus 75.25 percent on 9% recovery of palm kernel weighed average price. This is based on estimated cost of cultivation at 75.25 percent in the total cost of production of CPO from farm level to factory level. The formula has a direct co-relation to the landed price of CPO. The CACP also suggested that when the price of CPO falls below US$800 per ton, the import duty on CPO should be triggered.

Providing support for farmers under Market Intervention Scheme (MIS)

The State Governments implementing Oil Palm Programme have Project Management Committee (PMC) under the Chairmanship of Secretary, (Horticulture/ Agriculture). Oil Palm Commissioner designated by the State to look after the Oil Palm development in the State. Oil Palm Commissioner also chairs Price Fixation Committee constituted for fixation of Oil Palm (FFBs) prices in the State from time to time. Since, the prices of FFBs are influenced by the domestic situation of edible oil availability; therefore, the States seek implementation of MIS in the States.

In order to provide support & safeguard the interest of oil palm growers, Government of India is implementing the Market Intervention Scheme (MIS) for procurement of perishable agricultural & horticultural commodities in the event of fall in market prices. Since, oil palm is a perishable commodity, which is covered under MIS.

During the current year, Government of India has considered the proposal of Government of Andhra Pradesh for procurement of FFBs 1,14,963 MT of oil palm. Market Intervention Price (MIP) of oil palm FFBs during 2015-16 will be Rs. 7,888 per MT of FAQ of oil palm, FFBs with the overhead expenses of Rs. 100 per MT for actual whichever is less.

Price trend of FFBs in India

The month-wise price trend of FFBs prices in the States of Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, Telangana and Odisha during the last 3 years and for current year are as under:

FFB price (Rs. per MT)

State	Year	April	May	June	July	Aug	Sep	Oct.	Nov	Dec	Jan	Feb	March
Andhra Pr.	2013-14	5932	5808	6210	6464	6624	6971	6907	7900	7951	7824	7926	8441
	2014-15	8267	7938	7510	7472	7071	6424	6589	6598	6370	6803	6557	6595
	2015-16	6421	6473	6601	6240	5722	5352	5731	5733	5647	5837	6129	7207
	2016-17	7586	7839	7494	7250	7792	8434	8142	-	-	-	-	-
Karnataka	2013-14	5660	5714	6057	6095	6428	6564	6519	6938	6756	6528	6897	7321
	2014-15	7707	7389	6971	6935	6547	5916	6079	6040	5821	6238	6001	6037
	2015-16	5988	5920	6090	5743	5239	4895	5226	5224	5291	5318	5593	6433
	2016-17	7204	7375	6993	6755	7284	7967	7475	-	-	-	-	-
Kerala	2013-14	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7350
	2014-15	7350	7350	7350	7000	7000	7000	7000	7000	7000	6500	6500	6500
	2015-16	6500	6500	6500	6500	6500	6500	6500	6500	6500	6100	6100	6100
	2016-17	6200	6200	6200	6300	6300	6300	-	-	-	-	-	-
Tamil Nadu	2013-14	5716	5834	5710	6112	6364	6519	6855	6769	7213	6952	6853	6950
	2014-15	7395	7250	6966	6573	6339	6016	5610	5778	5778	5778	5719	5719
	2015-16	5751	5665	5745	5871	5466	5016	4684	5034	5116	5045	5224	5469
	2016-17	-	-	-	-	-	-	-	-	-	-	-	-
Telangana	2013-14	5932	5808	6210	6464	6624	6971	6907	7276	7951	7824	7926	8441
	2014-15	8267	7938	7510	7472	7071	6424	6589	6586	6368	6811	6442	6717
	2015-16	6542	6598	6637	6352	5770	5505	5757	5815	5962	5814	6186	7000
	2016-17	7900	8073	7625	7625	7375	7925	8679	8093	-	-	-	-
Odisha	2013-14	5827	5710	6008	6313	6376	6778	6770	6569	6650	6667	6625	6780
	2014-15	6689	7266	6612	6743	6550	6068	6163	6087	5996	6104	6071	6076
	2015-16	5953	5952	6079	6009	5727	5489	5537	5563	5546	5578	5528	5528
	2016-17	-	-	-	-	-	-	-	-	-	-	-	-

Import duties on CPO and refined palm oil:

The import duty on edible oil was 12.5% on crude edible oil and 20% on refined edible oil from 17.09.2015 to 22.09.2016. Recently, as per Notification dated 23.09.2016, Department of Revenue, Ministry of Finance reduced import duty on palm oil from 12.5% to 7.5% for crude palm oil of edible grade and from 20% to 15% for refined palm oil of edible grade with effect from 23.09.2016.

Import of Edible Oil

Palm oil contributes 70% of total vegetable oil import and is one of the cheapest oil due to high productivity per hectare. There are no quantitative restrictions on import of vegetable edible oils. However, import is subject to custom tariff.

Import of edible oil has sharply increased in last few years due to stagnant oilseed production and rising demand in the country. India's dependence on imported oil has increased to 70% of its requirements.

(Qty. in '000 Tons)

Oil	2011-12 (Nov.-Oct.)	2012-13 (Nov.-Oct.)	2013-14 (Nov.-Oct.)	2014-15 (Nov.-Oct.)	2015-16 (Nov.-Oct.)
RBD Palmolein	1,577	2,223	1,576	1,659	2,623
Crude Palm Oil	5,993	5,889	6,253	7,724	5,749
Crude Palmolein	1	1	--	--	--
C.P.K.O.	98	180	129	154	71
Total	**7,669**	**8,293**	**7,958**	**9,537**	**8,443**
Soybean Oil	1,079	1,091	1,951	2,986	4,235
Sunseed Oil	1,135	973	1,509	1,542	1516
Rapessed Oil	91	13	200	356	377
Coconut Oil	2	4	--	--	--
Safflower Oil	5	11	--	--	--
Total	**2,312**	**2,092**	**3,660**	**4,884**	**6,128**
Gran Total	**9,981**	**10,385**	**11,618**	**14,421**	**14,571**

- RBD Palmolein import jumped from 16.6 lakh tons in 2014-15 to 26.2 lakh tons in 2015-16,up by 58%, thanks to unfavorable duty difference between crude and refined oils.
- CPO import drastically reduced from 77.2 lakh tons in 2014-15 to 57.5 lakh tons in 2015-16, due to higher import of RBD Palmolein at the cost of CPO.
- Soybean oil import is increasing from year to year. In 2011-12, import was just 10.8 lakh tons which increased to 42.4 lakh tons in 2015-16, due to stagnant domestic soybean crop coupled with attractive price in international market due to heavy supply.
- On an average 15.0 lakh tons of sunflower seed oil being imported by India, while rapeseed oil import also increased to nearly 3.75 lakh tons from 2.00 lakh tons two years back.

Landed price of CPO and RBD Palmolein

The month-wise prices of CPO and RBD Palmolein are given below:

(Price in US$/CIF Indian Port/Ton)

Oils	Oct. 2016	Sept. 2016	Aug. 2016	July 2016	June 2016	May 2016	Apr. 2016	Mar. 2016	Feb. 2016	Jan. 2016	Dec. 2015	Nov. 2015	Oct. 2015
RBD Palmolein	709	759	735	643	669	708	739	672	631	572	567	556	599
Crude Palm Oil	704	753	730	642	669	706	738	666	618	547	538	526	562
FE: 1US$ = (Average)	66.74	66.71	66.90	67.15	67.27	66.89	66.42	66.89	68.24	67.33	66.50	66.10	65.02

Since April '16 and onwards landed prices of RBD Palmolein and CPO have remained more or less the same encouraging larger import of RBD Palmolein at the cost of CPO.

Oil Palm Research in India

Oil palm research in India started with the establishment of a Research Station at Thodupuzha by Department of Agriculture, Kerala during 1960. Indian Council of Agricultural Research (ICAR) stated oil palm research at Central Plantation Crops Research Institute Research Centre at Palode in 1975. Oil palm was included as one of the crops in the All India. Coordinated Research Project on Palms during VII Five Year Plan period with the establishment of four Coordinating Research Centres at Vijayarai (Andhra Pradesh), Mulde (Maharashtra), Aduthurai (Tamil Nadu) and Gangavathi (Karnataka). ICAR established the National Research Centre for Oil Palm at Pedavegi in Andhra Pradesh in 1995, which was later renamed as Directorate of Oil Palm Research in 2009 and subsequently upgraded as Indian Institute of Oil Palm Research (IIOPR) during the year 2014. Two more Coordinating Centres for oil palm research were established in 2009 at Pasighat (Arunachal Pradesh) and Madhopur (Bihar) representing North East and Eastern Regions. Thus, a well established research system with the required infrastructural facilities is available in the country for oil palm research.

Need based support is being provided to IIOPR, Pedavegi, Andhra Pradesh for maintenance of existing seed gardens, research & development projects and to strengthen the training infrastructure for oil palm growers/officials etc. under NMOOP.

Oil palm seed garden and planting material

Indian Institute of Oil Palm Research (IIOPR), Pedavegi has nominated a nodal agency entrusted to coordinate the demand and supply of hybrid seeds from indigenous seed sources at National level. The IIOPR organizes "Seed Meet" every year to assess the demand from States/entrepreneurs and fixes the time and schedule of the supply.

The details of oil palm seed gardens in India are given below:

Location of the seed garden	Year of planting	Sprout production (in Lakh)		
		Potential	Present level (2013-14)	Scope for enhancement
A. Seed Garden				
1. Indian Institute of Oil Palm Research, Pedavegi (A.P.)	2000	6.0	3.1	2.9
2. Indian Institute of Oil Palm Research-Research Centre, Palode, (Kerala)	1982	8.0	3.1	4.9
3. M/s. Navabharath Private Ltd., Lakshmipuram (A.P.)	1990	6.0	3.8	2.2
4. Department of Horticulture, Rajahmundry (A.P.)	1992	10.0	4.7	5.3
5. Oil Palm India Limited, Thodupuzha (Kerala)	1994	11.0	6.0	5.0
6. Department of Horticulture, Taraka, (Karnataka)	1994	8.0	3.7	4.3
Total		**49.0**	**24.4**	**24.6**
B. New Seed Garden				
1. Morumpudi, Department of Horticulture, Rajahmundry (A.P.)	**2012**	**5.0***	**New**	-
2. Gopannapalem, Department of Horticulture, Rajahmundry (A.P.)	**2014**	**5.0****	**New**	-
3. Taraka (Taraka-II), Department of Horticulture, Taraka, Karnataka	**2012**	**5.0***	**New**	-
4. Kabini, Department of Horticulture, Taraka, Karnataka	**2012**	**8.0***	**New**	-
Total		**23.0**		

* Expected year of initiation of seed production-2020

** Expected year of initiation of seed production-2020

Availability of quality planting material is a key input in area expansion under oil palm. Normally, 143 seedlings are required for plantation of 1 ha area under oil palm. Six oil palm seed gardens having potential of 50 lakh seedlings per year are available for supply of indigenous planting material of oil palm which are maintained by IIOPR. In addition, four new seed gardens have also been established by IIOPR with a production capacity of 25 lakh sprouts annually. As reported by IIOPR, there was 29.40 lakh production of seed sprouts of oil palm in these 6 indigenous seed gardens during 2014-15 whereas the demand by the companies were only for 9.18 lakh.

It has been observed that imported sprouts/seedlings are preferred both by the farmers and oil palm processors due to high yield and OER in comparison to indigenous planting material. At present more than 70% of total planting material requirement are being met through import. The oil palm seed sprouts has been importing by the developers/processors from various countries viz; Indonesia, Costa Rica and Malaysia, Thailand and Ivory coast since the inception of oil palm development programme in the country. These imported seed sprouts are being maintained by the oil palm developers/processors in their nurseries which took about 8-12 months in development of seedlings. The year-wise details of availability of imported/domestic sprouts and area coverage during last 04 years are given below:

Type of sprouts	Number of sprouts (lakh) and area coverage (ha)				
	2010-11	2011-12	2012-13	2013-14	Total
Imported	26.00	34.00	70.50	40.20	170.70
Domestic	8.46	16.22	20.32	24.40	57.24
Area covered	17,925	28,388	26,300	22,948	95,561

Best oil palm cultivation practices

Climatic requirements: Oil palm is a humid crop. Requires evenly distributed rainfall of 150mm/ month or 2500-4000mm/annum. Rainfall distribution in India is not even and adequate. Hence grow oil palm under assured irrigation conditions by adopting recommended practices. Crop comes up well between 29-33oC max. and 22-24oC min. temperatures and with bright sunlight for at least 5 hrs. per day. Humidity of more than 80% is required to come up well.

Soils: Best-suited soils are moist, well-drained, deep, loamy alluvial soils, rich in organic matter with good water permeability. At least one-meter depth of soil is required. Avoid highly alkaline, highly saline, waterlogged and coastal sandy soils.

Cultivated variety: Tenera is the ruling hybrid and it is a cross between thick-shelled Dura and shell less Pisifera. Tenera has a thin shell, medium to high mesocarp content and high oil content.

Planting: Best season for planting is June-December i.e., during monsoon. In case of planting during summer, adequate irrigation, mulching and growing cover crops like sun hemp in the basin would help in avoiding hot winds during summer. 12 -14 months old healthy seedlings with 1-1.3m height and 13 functional leaves are recommended for planting. While planting, 143 plants per hectare should be maintained with a spacing of 9m x 9m x 9m (triangular planting). Planting should be done in pit size of 60 cm x 60 cm x 60 cm (length, breadth and depth).

Apply 250g Di Ammonium Phosphate or 400g Single Super Phosphate, 50g Phorate and mix with the soil at the base of the pit. Immediately after planting, form basin and give copious irrigation.

Irrigation management: Oil palm requires sufficient irrigation, as it is a fast growing crop with high productivity and biomass production. Do not grow oil palm if assured and adequate irrigation facility is not available. For grown up yielding palms of 3 years age and above, a minimum of 150 to 200 liters of water per day is required. However, in older plantations during hot summer this quantity may be increased up to 300 lit.

Basin method of irrigation is to be taken up when irrigation water is not a constraint. Required quantity of water is to be given at 4-5 days interval. Prepare irrigation channels in such a way that the individual palms are connected separately by sub-channel. For light soils, frequent irrigation with less water to be given. In heavy soils, irrigation interval can be longer.

Drip or Microjet irrigation method is practiced. If land is of undulated terrain, drip or micro sprinkler irrigation can be advantageous. If drip irrigation is installed, four drippers are to be placed for each palm. If each dripper discharges 8 liters of water per hour, 5 hr. of irrigation per day is sufficient to discharge 160 lit/day. In case of micro sprinklers (180o or 360o) one each on either side of the palm can be installed. Drippers/jets should be periodically checked for proper discharge. Basins should be adequately mulched and covered with soil, which will help to conserve moisture

Fertilizer management: Oil palm is a gross feeder and demands a balanced and adequate supply of macro, secondary and micronutrients for growth and yield. It is advised to apply fertilizers at every three months interval.

Fertilizer requirement of oil palm: Four equal split doses of fertilizers are to be applied starting from June/July at three month interval. For the newly planted crop, the first dose of fertilizer needs to be applied three months after planting. Add 50-100 kg FYM or 100kg green manure per palm along with the second dose of fertilizer application. Five kg neem cake/palm can also be applied. Broadcast the fertilizers around the clean-weeded basin, about 50 cm away from the palm base and incorporate into the soil with the help of fork. Irrigate the palms immediately after fertilizer application.

Age of Oil Palm	Nitrogen	Phosphorous	Potassium	Magnesium	Boron
	Urea (gms/palm/ yr)	SSP (gms/palm/yr)	MOP (gms/palm/yr)	Magnesium Sulphate (gms/palm/yr)	Borax (gms/palm/ yr)
Ist yr	870	1250	670	125	25
2nd yr	1740	2500	1340	250	50
3rd onwards	2610	3750	2000	500	100

Basin management: During first year, basins of 1-m radius, second year 2- m radius, and the third year 3- m radius are to be taken around the palm by removing the soil from inside so that the soil will not accumulate at the collar region. Basin area of oil palm represents its active root zone. Hence it must be kept clean and weed free to avoid competition for nutrients and water.

Weeding: Take up regular weeding manually or with the use of only recommended herbicides. Use preferably contact herbicides. Glyphosate (750ml/ha/ year or 17.5 ml/basin) is recommended for effective weed control. Herbicide mixtures of Paraquat with Atrazine, Monuron and Diuron sprayed on ground, twice a year can control the weeds, effectively.

Inter-cropping: Oil palm is a wide spaced perennial crop with a long juvenile period of 3 years. Inter and intra row space can be used to generate income during the juvenile phase of the crop. Inter crop selected should be compatible with the main crop and should not compete with oil palm for light, water and nutrients. Any remunerative crop can be grown, but the most suitable crops are vegetables, banana, flowers, tobacco, chillies, turmeric, ginger, pineapple etc. While growing inter crops in mature oil palm gardens of 8- 12 years age or palms attained a height of 3 meters, intercrops should be able to grow under partially shaded conditions and should not compete with oil palm for water, sunlight and nutrients (eg. cocoa, pepper, heliconia and ginger lilly).

Do not cut the oil palm fronds. Do not tie oil palm fronds close to the stem for inter-cropping, which will reduce photosynthetic activity. Do not plough close to the palm base, which will cut the absorbing roots and thereby reduce intake of water and nutrients. Maximum number of green leaves should be retained on the palm.

Flowering: Oil palm comes to flowering 14-18 months after planting. It produces both male and female flowers separately on the same palm. Male and female phases do occur naturally in consequent cycles in a palm.

Ablation: Ablation is the removal of male and female flowers produced in the early stages of plantation. This enables the plant to gain adequate stem girth, vigour and develop adequate root system. Flowering starts from 14th to 18th month after planting. Start ablation immediately after the appearance of inflorescences on the palms. They can be removed easily by hand pulling or using the tool developed at DOPR. Ablation can be extended up to 2-1/2 to 3 years depending upon the plant growth and vigour.

Pollination: Oil palm is a highly cross-pollinated crop. Wind and insects assist pollination, but wind pollination is not adequate. Effective pollinating insects like Elaeidobius kamerunicus helps in good pollination and fruit set. Release of this weevil after 2-1/2 year of planting is advisable. If the plants are not having good girth and vigour, release the weevils after 3 years.

Mulching: Mulching of oil palm basins is essential to conserve moisture as well as to control weeds. Mulching can be done with dried leaves, male flowers, coconut husk, empty bunches etc.

Harvesting: While harvesting a stalk length of 5 cm alone should be left. Harvesting should be done at 10-12 days interval. During rainy season, harvesting should be done at closer interval of 6-7 days as ripening is hastened after hot summer. In young plantations, we get more bunches with less bunch weight and in adult plantations the bunch weight is more but the bunch number is less.

Yield:

At yield stabilizing period (4-8 years) : 12t/ha
At yield stabilized period (>8 years) : 20t/ha

Policy Measures

There are needs following policy measures which will foster growth in the sector:

- Declaration of oil palm as a plantation crop.
- Provide low cost credit to the farmers.
- Strengthening distribution of critical inputs specially quality planting material.
- Research & Technology Development and Dissemination.
- To enhance subsidy on critical inputs like; planting material, maintenance cost of new plantation during gestation period, inter-cropping, bore-well & processing mill etc.
- Location specific technologies for better production need to be developed urgently.
- Infrastructure development like; FFBs collection centre, road from plantation field to FFBs collection centre & processing industries and electricity etc.
- Set up of farm implement custom hiring centre.
- Timely procurement and support price for FFBs of oil palm.
- Post harvest management, value addition and cost effectiveness.
- Minimization of corruption among the service providers.

Annexure-I

Statement indicating total potential area for oil palm cultivation in India

S. No.	State	Area Identified (ha)			
		DAC Committee	Reassessed by DAC Committee	Additional potential area	Reassessed potential area (ha)
		(1988)	(2006)	(2012)	(2012)
1.	Andaman & Nicobar Islands	-	-	3000	3000
2.	Andhra Pradesh	250000	400000	69500	469500
3.	Arunachal Pradesh	-	-	25000	25000
4.	Assam	10000	-	15000	25000
5.	Bihar	-	-	200000	200000
6.	Chhattisgarh	-	40000	8000	48000
7.	Goa	-	2000	-	2000
8.	Gujarat	-	90000	170250	260250
9.	Karnataka	250000	250000	10000	260000
10.	Kerala	5000	6500	-	6500
11.	Maharashtra	10000	-	170000	180000
12.	Meghalaya	-	-	50000	50000
13.	Mizoram	-	61000	-	61000
14.	Nagaland	-	-	50000	50000
15.	Odisha	10000	25000	31000	56000
16.	Tamil Nadu	25000	162000	43000	205000
17.	Tripura	5000	-	2000	7000
18.	West Bengal	10000	-	15000	25000
Total		**575000**	**1036500**	**861750**	**1933250**

Annexure-II

Component-wise pattern of assistance of MM-II (Oil Palm) under NMOOP

SL. No.	Components	Rate of Assistance
1.	Planting Material	85% of the cost of planting material limited to Rs.8, 000/- per ha for entire land holding of the farmer.
2.	Maintenance Cost	50% of the cost during gestation period for 4 years with a ceiling of Rs. 16, 000/- per ha. Illustrative Assistance: 1st year - Rs.4000/ha 2nd year -Rs. 4000/ha 3rd Year -Rs. 4000/ha 4th year -Rs. 4000/ha
3.	Drip Irrigation	As per National Mission for Sustainable Agriculture (NMSA) Guidelines.
4.	Distribution of Diesel/ petrol/electric Pump Sets (up-to 10HP)	@50% of the cost limited to Rs 15, 000/- per pump set as per the norms of SMAM.
5.	Bore well/tube-well / water harvesting structure/ponds	(i) @ 50% limited to Rs 25,000/- per bore-well/tube-well (ii) water Harvesting structures/ponds/tanks for individual farmer, 50% of cost (construction cost – Rs 125 for plain/ Rs. 150 per cubic meter for hilly areas) limited to Rs. 75,000/- for plain areas and Rs 90,000/- for hilly areas including lining. For smaller size of the ponds/dug wells, cost admissible on pro rata basis. Cost for non-lined ponds/tanks will be 30% less and assistance will be given @ 50% of the cost limited to Rs. 50,000/dug-well/ ponds/ water harvesting tanks/ structures per farmer only for Oil Palm garden/ field of the farmer.
6.	Establishment of Seed Gardens	Support through the states' Department of Agriculture/ Horticulture as under: (i) Need based assistance for maintenance/ strengthening of existing seed gardens. (ii) Setting up of new seed gardens in Andhra Pradesh, Gujarat, Karnataka, Mizoram, Odisha & Tamil Nadu (Recommended by Chaddha Committee) or other suitable state. The State Governments may also setup/ start joint venture/ lease out seed gardens to farmers' Self Help Groups /FIGs /Women Group/Cooperative Societies/FPOs.

		(iii) One time assistance for a maximum amount Rs 10.00 lakh as subsidy for setting up a new seed garden in 15 ha area by Oil Palm Farmers Association/co-operative etc. through State Government could be provided within the State AAP. (iv) The seed garden may be developed over an area of 15 ha each as a Revolving fund Scheme with the assistance of Rs 30.00 lakh, with a breakup of Rs 10 lakh in the first year and Rs 2 lakh each for 2nd ,3rd,4th,5th and 6th year. In 7th year, a block grant of Rs 10 lakh is provided. From 8th year onwards the scheme is likely to become self Supportive.
7.	Inputs for Intercropping in oil palm	@ 50% of the cost limited to Rs 3000/ha for purchase of seeds/fertilizers/INM/IPM/fertigation/tree guards and PP chemicals etc (75% funds for procurement of fertilizers/seeds and 25% for production/protection inputs for inter crop fields) within the AAP of the State during first to fourth year of plantation.
8.	Construction of vermi-compost units at Oil Palm fields	@ 50% of the cost limited to Rs 15,000 unit of 15 meter length, 0.9 meter width and 0.24 meter depth at Oil Palm field/garden of the farmers.
9.	Machinery & tools	Assistance up to 50% of the cost and up to the amount for equipments/tools as provided under to state Department of Agriculture/Horticulture: (i) Manually handled/high reach Oil Palm cutter-Rs 1500/- per unit, (ii) Motorized Chisel-Rs 10,000/- per unit (iii) Oil Palm protective wire mesh-15,000/- per unit, (iv) Aluminium portable ladder- Rs 3,000/-per unit (v) Chaff cutter for chaffing of Oil Palm leaves (Oil Palm farmers only) - Rs 7,000/- per unit. (vi) Small tractor up to 20 HP along with trolley: 25% of the cost of procurement subject to a ceiling of Rs 0.75 lakh. Additional 10% assistance to SC/ST/Small/Marginal Farmers/Women, Groups >5 members FPOs and NE States to a ceiling of Rs 1.00lakh per unit. (vii) Any other Machinery recommended by ICAR/SAUs which is useful for Oil Palm growers could be included under local initiatives/contingency under AAP. (viii) Import of machinery viz; mechanical sprayer for young Oil Palm fields, mechanical Oil Palm harvesting machine, compact FFBs transporter/ sprayers etc with specific approval of standing committee of NMOOP.

10.	Special component for NE/Hilly States/LW Areas/regions including support for Oil Palm processing units	In order to provide a complete package for Oil Palm development, support to States' Department of Agriculture/Horticulture as under: (i) 50% of the actual cost estimated by PWD/CPWD limited to 20% of total outlay of the state under AAP for MM-II o Oil Palm for roads from oil field to nearest FFB collection/ processing centre. (ii) 50% of the cost limited to Rs 250.00 lakh for a unit of 5.00 MT/Hr for newly planted Oil Palm areas to the State Government agencies / Cooperative sector/Government Recognized Farmers Associations through State Governments on the proposals approved by the State Government to protect Oil Palm plantation and back-ended subsidy through banks for plant and equipments only as per approval of State Government for setting up of a mill where sufficient area to run a mill of 5.00 MT/hr capacity is under production of FFBs at the sole discretion of the Government of India depending on the resources availability in the Mission and the policy adopted time to time. (iii) Subsidy will also be given for addition of capacity of crushing of FFBs at least by 1 MT/Hr @25% of the cost limited to Rs 25.00 lakh to existing units of State Government/Government agencies based on the discretion as elaborated in para above.
11.	Farmer's Training	Rs 24,000/- per training for a batch of 30 farmers for 2 days (@ 400/- per participant per day)
12.	Training of Extension Workers/Officers/input dealers	Input dealers included. Rs 36,000/- per training for a batch of 20 officers for 2 days. (@900/- per participant per day).
13.	Demonstrations	Support to the State Department of Agriculture/Horticulture as under: (i) 5 demonstration of 1 ha each in a block of new plantation of 500 ha or above being taken up on farmer's field. (ii) Assistance for demonstration in a new Oil Palm Block/district will be provided through State Department of Agriculture / Horticulture @ 85% of the cost of planting material limited to Rs 10,000/- per ha for planting material and maximum @ 50% of the maintenance cost during gestation period of demonstration field for 3 years with a ceiling of Rs. 14,000/- per ha. The illustrative break up of gestation period assistance for 3 years of new plantations under demonstration starting from the 2nd year of new plantation is given @ Rs. 3500/ha Rs. 4500/ha Rs. 6000/ha in 2nd,3rd,& 4th years respectively. Balance cost, if any, on planting material, cultivation and other expenditures may be met either by the farmer or State Government.

14.	Research & Development (R & D) Schemes	Need based support will be given for ongoing schemes by ICAR for maintenance of existing seed gardens & ongoing schemes viz; leaf analysis lab, training of staff/officers and testing of genotype etc as approved in X and XI plan period on project basis by the Department of Agriculture & Cooperation.
15.	Training infra-structure support to ICAR	Need based support to the ICAR Institutes on projects basis to strengthen training infrastructure for Oil Palm growers/farmers.
16.	Local Initiatives, Contingency including monitoring & evaluation and Operational costs including consultant services. Exposure visits of farmers/Seminar/ Conference etc	The respective implementing States will be allowed to utilize 1.0 % of the total allocation under MM-II on Oil Palm for contingency including monitoring & evaluation and Operational Costs including consultant services in the Annual Action Plans of Mini Mission –II on Oil Palm. The following activities will be covered under this intervention – 1. Publicity under Mini Mission-II on Oil Palm and exposure visits (inter and intra state) of farmers and/or officers/Seminar/Conference /Workshop/ Mela etc. 2. Contingency: States will be allowed to engage state level consultants/supporting staff as Technical Support Group (TSG) on contractual basis. Hiring of vehicles/ Monitoring of scheme/attending workshop/ meetings. Purchase of vehicles will not be allowed. No permanent post will be created under the Mission. 3. Organizing workshop/Seminar/Conference etc by States on Oil Palm & its technologies. Support for use of ICT. 4. Concurrent/Mid Term and end of the plan period evaluation of Mini-Mission Components by an independent agency. 5. Any other component on increasing production / productivity of palm oil in state as state specific local initiative which may be crucial for effective implementation & adoption of best practices in increasing production and productivity of palm oil under the Programme and not covered as an intervention of the MM-II with the approval of GOI in their AAPs. The State may include such interventions with subsidy not more than 50% of the cost of the item/ services.

Annexure-III

State-wise list of the processing mills established so far in the country

Sl. No.	Name of the Unit	Sector	Processing capacity (in tonnes per hr)
A. Andhra Pradesh			
1	APOILFED, Pedavegi-West Godavari	A.P. Govt. Subsidiary Unit	15
2	M/s. Radhika Veg. Oil Pvt. Ltd., Garividi-Vijaya Nagaram	Pvt.	10
3	M/s. RSIL, Ampapuram-Krishna Distt.	Pvt.	40
4	Simhapuri Agro Products Ltd., Manubrola-Nellore	Pvt.	Under Construction
5	M/s. Godrej Oil Palm ltd., Pothepalli-West Godavari Distt.	Pvt.	40
6	M/s. Godrej Agrovet, Oil Palm ltd., Chintampalli	Pvt.	30
7	M/s. RSIL, Peddapuram-East Godavari Distt.	Pvt.	30
8	M/s. Nav Bharat Agro Products, Jangareddygudem-West Godavari Distt.	Pvt.	30
9	3F Oil Palm Agrotech Pvt. Ltd. Yernagudem Village Devarapalli Mandal West Godawari Distt.	Pvt.	30
10	M/s. Agro Co-operative Corporation, Butchiyyapeta (M), Vishakhapattnam Dist.	Pvt.	5
11	M/s Sri Srinivasa Palm Oil Mill, Srikakulam dist.	Pvt.	5
12	M/s Subrahmanyeswara Agro Products, Siripalli Ainavilli Mandal, East Godavari	Pvt.	5
13	M/s Lakshmi Balaji Oils, Tekarandi (V), Vizianagram dist.	Pvt.	Under Construction
	Total		**240**
B. Telangana			
14	A.P. Oilfed (Khammam District)	A.P. Govt. Subsidiary Unit	10
	Total		**10**

Cont..

Annexure-III

(Contd. from previous page)

C.	**Karnataka**		
15	M/s. Bhadravathi Balaji Oil Palm Ltd. (BBOP Ltd.), Shimoga	Joint Venture of State & M/s. B.B.O.P.Ltd.	10
16	Govt. Oil Palm Processing mill, Kabini, Mysore. Leased to M/s Ruchi Soya industries Ltd.	State Government (leased to M/s. Ruchi Soya industries Ltd.)	1
17	M/s. Simhapuri Agri Tech Company Pvt. Ltd., Davangere	Pvt.	5
18	M/s. 3F Oil Palm Agrotech., Koppal	Pvt.	5
	Total		**21**
D.	**Tamil Nadu**		
19	M/s. Godrej Agro Ltd., Varanasi, Ariyalur dist.	Pvt.	2.5
	Total		**2.5**
E.	**Kerala**		
20	OPIL, Yerror Estate, Kallam	Public Sector	20
	Total		**20**
F.	**Andaman & Nicobar**		
21	Andaman & Nicobar Islands	State Government	4
	Total		**4**
G.	**Gujarat**		
22	Shri Kalyan Agri. Crops Sales & Processing Coop. Society Ltd., Navasari	Cooperative Sector	2.5*
	Total		**2.5**
H.	**Goa**		
23	M/s. Godrej Agrovet Ltd., Ponda, Goa	Pvt.	2.5*
	Total		**2.5**
I.	**Odisha**		
24	M/s Lakshmi Balaji Oil Mills (P) Ltd. Attada, Rayagada	Pvt.	5
	Total		**5**
J.	**Mizoram**		
25	M/s Godrej Agrovet Ltd. Kolasib Dist.	Pvt.	5
26	M/s Ruchi Soya Industry Ltd.,	Pvt.	To be established
27	M/s 3F Oil palm Agrotech.	Pvt.	To be established
	Total		**5**
	Grand Total		**312.50**

* expending up to 5 tones

Note: Out of above 27 mills, 2 mills are under construction, 2 are yet to be established

Annexure-IV

State-wise allocation, release and expenditure (GOI share) incurred under MM-II (Oil Palm) of NMOOP during last 3 years

(Rs. In lakh)

Name of State	2014-15			2015-16			2016-17*		
	Allo.	Rel.	Exp.	Allo.	Rel.	Exp.	Allo.	Rel.	Exp.
States									
Andhra Pradesh	3360.04	1176.00	2156.86	3461.85	2198.03	1837.00	3492.19	2049.98	553.24
Chhattisgarh	72.16	21.41	21.41	262.72	131.36	157.64	577.84	232.00	0.00
Gujarat	96.82	96.82	28.53	55.92	22.45	95.69	88.21	51.81	0.00
Karnataka	513.49	386.00	319.39	183.69	91.84	134.64	213.40	149.79	73.06
Kerala	69.01	41.41	6.53	21.13	2.00	3.18	13.86	0.00	1.58
Odisha	713.98	713.98	713.98	437.35	218.68	218.68	279.18	63.08	0.00
Tamil Nadu	297.67	222.47	121.38	219.83	161.92	105.32	241.25	120.63	33.83
Telangana	558.92	317.69	205.49	260.60	257.30	71.35	519.81	0.00	57.15
W.B.	39.09	35.12	8.12	0.00	0.00	0.00	0.00	0.00	0.00
Total (A)	5721.18	3010.90	3581.69	4903.08	3083.58	2623.50	5425.74	2667.29	718.86
NE States									
Assam	270.08	135.85	130.23	211.87	105.94	21.76	453.04	0.00	0.00
Arunachal P.	183.33	91.67	91.67	172.52	86.26	86.26	460.36	230.18	0.00
Meghalaya	38.38	19.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mizoram	891.14	668.36	668.36	1165.20	454.80	454.80	1363.36	1043.99	547.83
Nagaland	67.94	67.96	78.40	128.44	64.22	64.22	326.17	285.17	148.30
Total (B)	1450.87	983.03	968.66	1678.03	711.21	627.04	2602.93	1559.34	696.13
Total (A+B)	**7172.05**	**3993.93**	**4550.35**	**6581.10**	**3794.79**	**3250.54**	**8028.67**	**4226.63**	**1414.99**

*up dated on 24/11/2016