# Developmental Action Plan for Promoting Oil Palm in the North Eastern Region of India


# DRAFT REPORT

**Submitted to**

**North Eastern Council Secretariat**
**Ministry of Development of the North Eastern Region**
**Government of India**

**Prepared by**

**North Eastern Development Finance Corporation Ltd.**

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# EXECUTIVE SUMMARY

## TITLE OF THE STUDY

DEVELOPMENTAL ACTION PLAN FOR PROMOTING OIL PALM IN THE NORTH EASTERN REGION OF INDIA

### Introduction

India is heavily dependent upon imports to meet over two-thirds of its requirements of edible oils. Now, the country imports about 15 million tonnes of edible oils, of which around 60% consists of crude palm oil (CPO) and RBD palmolein. In line with the spirit of Atmanirbhar Bharat, it has become necessary to consider expanding the area under oil palm in India. In July 2020, the Hon'ble Prime Minister of India had appealed to farmers in the North Eastern (NE) Region to grow oil palm, in order to make India self-sufficient in edible oils. While considerable progress has been made, especially in Mizoram, the existing efforts need to be broadened elsewhere in the region. Such endeavours will boost the region's economy, especially by providing a sustainable livelihood for small growers in the interior areas. Accordingly; the Government of India, which is promoting the above crop in the NE states, has identified oil palm as a thrust area of economic activity for the region.

In October 2020, North Eastern Development Finance Corporation Ltd. (NEDFi) was entrusted by the North Eastern Council Secretariat, Ministry of Development of North Eastern Region (MDoNER), Government of India with the task of preparing a Developmental Action Plan for Oil Palm in the North Eastern Region. The Terms of Reference of the assignment are given below:

- To assess the current status of oil-palm sector in the NE Region through stakeholders' consultation on 'challenges, prospects and recommendations for development and promotion of the oil-palm sector in NER';
- To assess the gaps and prospects in the existing policies and schemes, and to identify priority areas for intervention with implementation strategy and agency; and
- To prepare a five-year developmental action plan including state specific sub-plans, resource requirement and role of stakeholders**.**

The Scope of Work has been detailed at Chapter-1 of the Report and may be referred to therein. This document, which has been prepared in December 2020, furnishes the Action Plan in accordance with the requirements of the present assignment. The chapters and sections of the plan have been organized to cover the Scope of Work. The assignment has been carried out by studying information from secondary sources, understanding the data gaps, carrying out discussions with stakeholders, and undertaking field visits to meet growers and others in order to meet the information requirements. The inputs received from all these interactions have been duly incorporated herein, while finalizing the present plan for developing oil palm in the North Eastern Region.

### Current Status of Oil Palm at the Global & National Levels

Palm oil is considered as a 'miracle oil' due to its diversity of uses for both food and non-food products. While the global output of edible oil had grown from nearly 81 million MT in 1990 to 185 million MT in 2016-17, the share of palm oil in the global mix of edible oils had surged from 13.6% to 33% in the same period. The production of palm oil had reached 73.02 million MT in 2019-20. Indonesia and Malaysia dominate the global output of palm oil, accounting for 84%-85% of the world production in recent years. The top consuming nations include Indonesia, India, European Union, China, Malaysia, Pakistan and Thailand. They account for over three-fifths of palm oil consumption across the globe. Additional information about the global status of palm oil is available at Chapter-2.

India is the second largest consumer of palm oil. It consumes about 12% of the global output of palm oil. In 2018-19, India had imported nearly 15 million MT of edible oils to meet its consumption of about 23 million MT. In other words, the nation depends upon imports to supply over 65% of its requirements of edible oils. Palm oil forms the most important component of nation's edible oil

consumption, as it forms 40% of such intake. As the country produces little (below 0.30 million MT) in comparison to its needs, it has to import almost 97% of its requirements of palm oil. In India, the major part of available palm oil and its fractions are used for food-uses (in cooking, frying, bakery and confectionary units etc.), while a smaller part of palm oil (about 15%) is used for non-food uses, especially for the production of toilet soaps, fatty alcohols and fatty acids. The latter have a wide range of uses for making items like cosmetics, rubber and polymer processing, pharmaceuticals etc.

The major items that account for around 95% of India's imports of palm oil by volumes are crude palm oil and refined palm oil. The current basic customs duty on these items has been 54% and 44% respectively since 1st March 2018. The total duties are higher after the addition of surcharges and taxes. There is a usual differential of 10% in the basic customs duty between crude palm oil and refined oil, with a higher tariff for the latter. This has been practised in order to promote the domestic processing sector. Till 2018, the customs duty on refined palm oil was lower than the preferential tariff under Indo-ASEAN FTA or India Malaysia CECA. After 1st January 2019, the preferential tariffs were lower, especially for refined palm oil from Indonesia. However, imports of refined palm oil (such as RBD palm oil and RBD palmolein) into India have been placed on the 'restricted list' with effect from 8th January 2020. On 27th November 2020, the duty on crude palm oil was reduced significantly to 27.5%.

Sizeable areas in India are suitable for growing oil palm. As per the assessment carried out in 2012, an area of 19.33 lakh hectares had been identified as 'potential areas' for oil palm plantation. Nearly half of the above area is located in the five states of South India. In view of the importance of growing oil palm, the Government of India has been supporting the area expansion and output increase under different initiatives. These are briefly described at Chapter-2. The outcomes of such initiatives of the Government have been also briefly discussed therein. It has been reported that 3.50 lakh hectares were under oil palm in India, as on 31st March 2019. This is about 18% of the 'potential area' identified in 2012 as being suitable for growing oil palm in the country. About four-fifths of the planted area in the country is located in the South Indian states, especially Andhra Pradesh which accounts for almost half the area under oil palm in India. While the strides appear to be impressive, much ground remains to be covered since India continues to rely almost fully upon imports for its needs of palm oil.

**Current Status of Oil Palm in the NE Region**

The NE Region offers large scope for the cultivation of oil palm, as the plantation of the crop will facilitate soil conservation as well as the repair of degraded land and provide ecological balance. The hill areas of the region have been affected by shifting cultivation, also known as jhum cultivation, which has resulted in deforestation and land degradation owing to the shortened jhum cycle. Besides, the crop can provide a steady source of income for the small landholders.

All states of the NE Region, excluding Sikkim, have been identified as having potential area for growing oil palm. It has been widely felt that the region offers large scope for the cultivation of oil palm, as the plantation of the crop will facilitate soil conservation as well as the repair of degraded land and provide ecological balance. The hill areas of the region have been affected by shifting cultivation, also known as jhum cultivation, which has resulted in deforestation and land degradation owing to the shortened jhum cycle. Besides, the crop can provide a steady source of income for the small landholders.

As per an assessment made in 2012; 218,000 hectares had been identified in the NE Region as being 'potential area' for oil palm cultivation. About 17.60% of the Potential Area (as per the 2012 assessment) has been covered under oil palm as per the latest reports. Further, the area covered by oil palms in the NE states is less than 4% of the area reassessed in 2020.

Till 2018-19, only Mizoram has reported the production of Fresh Fruit Bunches (FFBs) and Crude Palm Oil (CPO). The plantations of some of the other states (Arunachal Pradesh, Assam and Nagaland) have started yielding FFBs since the past year. However, there has been no lifting of the

crop by any of the processors. Hence, there are no official estimates of the crop in these states. A sizeable number of stakeholders were contacted for their views on the subject of oil palm development in the North Eastern states. Their major viewpoints have been summarized at Chapter-3 of the Report. In addition, this chapter gives a brief SWOT Analysis of Oil Palm in region. Several measures have been suggested in order to address such weaknesses and threats (The SWOT analysis of individual states has been furnished in Chapter-7 as a part of the State Specific Planning.).

**Analysing the Government Policies**

The prevailing model for the development of oil palm plantation in India relies upon smallholders who cultivate the crop on small parcels of land, usually below 5 hectares. They are supported by processors in matters like supply of seedlings and technical inputs. The growers are being subsidised by the Government for the initial planting and maintenance, as well as for the cultivation of intercrops. Processors are companies that enter into an MOU with the State Government for the processing of oil palm crop in certain districts of the state on an exclusive basis, with such districts forming its 'factory zone'. Hence, the policies and statutes of the Government at the Central and State levels have a vital role in the action plan for the oil palm expansion in the NE Region. These are briefly discussed in Chapter-4.

While oil palm has been considered as a secondary source for the indigenous supply of vegetable oils, a substantial portion of the national requirement of edible oil is now being met through import of palm oil from Indonesia and Malaysia. Hence, the Government's strategy is to support growers to undertake the plantation of oil palm on a larger scale, by providing them with subsidies for planting materials, inter-cropping cost and maintenance cost during its gestation period. From 2018-19 onwards, the pre-existing National Mission for Oilseeds and Oil Palm (NMOOP) has been subsumed within the National Food Security Mission (NFSM) as NFSM-Oilseeds & Oil Palm. This is being done with the primary objective of augmenting the availability of vegetable oils and to reduce the import of edible oils by increasing the production and productivity of vegetable oils sourced from oilseeds, oil palm and tree borne oils.

The development of oil palm in the North Eastern Region will also depend upon the existing policies and statutes of its constituent states pertaining to subjects like agriculture, industry, and land laws which are under the purview of the State Governments as per the Constitution of India. These have been briefly discussed in Chapter-4.

The main gaps in the existing Government initiatives for expanding oil palm cultivation in the North Eastern states are listed below:

- Partial coverage of the investments needed for establishing oil palm;
- Non-inclusion of some items in extending subsidies for establishment of oil palm;
- Low amount of support for the maintenance of the planted area during the initial period;
- Lack of checks in use of non-certified seedlings;
- Delays in the receipt of funds by some of the Implementing Agencies;
- Delays in the disbursement of subsidies to the growers;
- Apprehension of growers about the non-remunerative prices offered to them; and
- Delay in the establishment of processing unit by the processors.

The above aspects have been briefly discussed in Chapter-4, including their possible impacts on the development of oil palm in the N E Region. Such impacts may be summarized as follows.

(a) Due to the above gaps in the on-going initiatives of the Government, many intending persons (almost all being from ST communities) are not able to grow oil palm on their lands due to their poor economic conditions.

(b) Almost all the existing oil palm plantations suffer from lack of irrigation facilities. In addition, the recommended package of practices is not usually observed, including the application of fertilizers. On account of these deficiencies, yields from the existing areas will become much lower. Further, the use of non-certified seedlings can reduce yields over the lifetime of the palm.

(c) Often, the existing growers have to face problems in receiving their subsidies in time. This may be a reason for the above low utilization of fertilizer and irrigation for oil palm in the region.

(d) The delay in establishing processing units in the states can discourage many of the existing growers, whose fruits are getting wasted on account on the non-lifting of the output. In case, the prices of FFBs are not increased, the expansion plans for oil palm in the NE Region may remain unimplemented.

(e) The high cost of transportation of CPO from the FFB Processing Units in NE Region to the nearest CPO Refinery can depress the FFB prices fixed for growers in the NE states.

Accordingly, the priorities for policy support and interventions from the Government have been worked out. These have been given in Chapter-4, and may be seen therein. These include:

- Ensuring that the Processors set up an adequate number of processing units in the oil palm growing belts by extending Support for the Establishment of FFB Processing Factory in NE Region;
- Introducing a Scheme for Price Support of Oil Palm Growers in North Eastern states akin to the Price Deficiency Payment System (PDPS), so that growers receive the difference between the normative cost of cultivation (including adequate return) and the FFB prices paid by the processors;
- Introducing a 100% Govt. of India funded scheme for Supporting the Establishment of Oil Palm in the NE Region and the Initial Maintenance of newly planted areas
- Subsidy for the transportation of Crude Palm Oil from FFB Processing Unit in NE Region to the nearest CPO Refinery;
- Devising a system for reducing the delays of receipt of funds by the Implementing Agencies, including regular reporting and compliance to scheme guidelines;
- Ensuring that subsidies reach the growers in time for the maintenance of plantations during the initial gestation period and for intercropping;
- Revising the quantum of subsidies payable to the growers for the establishment and initial maintenance of oil palm;
- Encouraging intending growers to plant oil palm in their lands, including jhum wastelands and idle fallows after considering the suitability of such lands for such plantation; and
- Establishing a number of nurseries in the region for the adequate supply of quality seedlings.

**Vision, Goals & Strategies of the Action Plan**

**Vision Statement: '<u>To encourage growers in the North Eastern states of India to take up the oil palm crop, in order to achieve a significant reduction in the imports of palm oil into the country</u>'**

The Action Plan seeks to realise the vision of the Hon'ble Prime Minister of India who has appealed to growers in the North Eastern Region to take up oil palm cultivation, in order to make India self-sufficient in edible oils. The above vision statement can guide the actions of the State Governments, growers, processors and other stakeholders in North Eastern states during the next five years.

**Regional Goals:** The Regional Goals of this Action Plan, which are to be covered within five years of its adoption, are given as follows:

(a) **Growing of Oil Palm**: To expand the area covered under oil palm by at least 75,000 hectares within five years by growing this crop on culturable waste lands and fallow lands available in the North Eastern states of India.

(b) **Processing of Oil Palm**: To establish adequate oil palm processing capacity, preferably within 12-18 hours of travel time from the growing areas, with each such units being able to handle the output of fresh fruit bunches (FFBs) from matured oil palms standing on about 2,000-3,000 hectares of the crop.

(c) **Planting Materials**: To establish adequate numbers of nurseries in the North Eastern states in order to grow germinated seeds for supply of seedlings to facilitate the achievement of the above area coverage target, with the requirement being nearly 147 lakh healthy seedlings over eight years. This includes seedlings needed for vacancy in-filling for three years after planting.

(d) **Other Goals**: To support the growers adequately in matters of subsidies, training and technical assistance along with the establishment of a scheme to support oil palm growers in order to achieve the plantation goals; to support processers with subsidies and loans to establish processing units in the growing belts, and to support other stakeholders (Government Departments and Agricultural Institutions) to enable them to play a suitably facilitating role.

**Strategies for the Regional Goals:** On a regional basis, specific strategies may be taken up in order to reach the above-mentioned goals of this plan for promoting the growing and processing of oil palm in the North Eastern Region. These have been detailed at Chapter-5 and may be referred to therein.

These proposed regional strategies include the same for growing and processing oil palm, for making available planting materials, and for ensuring price support and credit to the growers, etc. The state-specific strategies for oil palm have been derived based on the regional strategies presented in this chapter.

**Regional Summary of State-specific Plans**

This chapter summarizes on a regional basis, all the State-specific Plans for the Development of Oil Palm in the various states of the North Eastern Region of India. It has been prepared by taking into account (a) the Vision, Goals and Regional Strategies as described previously, and (b) the interest of the states, as well as their suitability for growing the crop.

**Planned Area:** This plan proposes to establish 75,000 hectares under oil palm in a period of five years in five states of the NE Region of India. The state-wise break-up of the above total area is given below.

**Table-ES.1: Planned Area for Oil Palm in NE Region**

| State | Area of Coverage (in Hectares) | Remarks |
|---|---|---|
| Arunachal Pradesh | 25,000 | State implementing oil palm programme |
| Assam | 20,000 | -Do- |
| Manipur | 5,000 | State taking up the crop for first time |
| Mizoram | 10,000 | First NE state to implement commercial plantation of oil palm |
| Nagaland | 15,000 | State implementing oil palm programme |
| **Total** | **75,000** | |

**Note**: While Sikkim is not suited for the growing of oil palm on account of its mountainous nature, Meghalaya and Tripura have not expressed interest to grow oil palm in their states.

Chapter-6 gives the annual planting targets that have been proposed for the different states of the NE Region that have shown their interest for the crop. This has been given below.

**Table-ES.2: Planned Annual Planting Targets for Oil Palm in NE Region**

| State | Annual Planting Target (in Hectares) | | | | | Total (in Ha) |
|---|---|---|---|---|---|---|
| | Year-1 | Year-2 | Year-3 | Year-4 | Year-5 | |
| Arunachal Pradesh | 3,000 | 5,000 | 6,000 | 6,000 | 5,000 | 25,000 |
| Assam | 3,000 | 4,000 | 5,000 | 4,000 | 4,000 | 20,000 |
| Manipur | 200 | 800 | 1,600 | 1,400 | 1,000 | 5,000 |
| Mizoram | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 10,000 |
| Nagaland | 2,000 | 3,000 | 4,000 | 3,000 | 3,000 | 15,000 |
| **Total** | **10,200** | **14,800** | **18,600** | **16,400** | **15,000** | **75,000** |

Taking all the above states together, the maximum planting is planned to be done in the 3rd Year, while the 4th Year has the next highest target. The first year and the fifth year have almost equal planting targets on a regional basis.

**Planned Investment:** On a regional basis, the plan to grow oil palm on 75,000 hectares in the interested states will require an amount of Rs. 2287.50 crore. The item-wise break-up is given as follows.

**Table-ES.3: Investment needed to cover the Planned Area under Oil Palm in NE Region**

| Head of Expenditure | Rs in Crore | Remarks |
|---|---|---|
| Establishment of Plantation | 337.50 | --- |
| Micro-Irrigation (including Pump-set & Intake) | 990.00 | From surface sources |
| Maintenance of Planted Area in the Gestation Period (3 years) | 960.00 | Three Years after Planting |
| Total | 2287.50 | --- |

**Note:** Additional costs may be needed based on ground conditions for items like:

- Terracing of lands with steep terrain (above 20 degree slope);
- Drainage for clayey soils; and
- Investment on extra or alternate items like fencing, rodent protection etc.; transport of seedlings to interior areas (beyond 50 km); and cost of submersible pump and tube-well for ground water sources in case of lack of adequate surface water, and cost of water-harvesting structures (if constructed).

The state-wise and year-wise break-ups of the above investments have been furnished at Chapter-6.

**Sources as Proposed:** The sources of investment for incurring the above expenditure are planned as follows**.**

**Table-ES.4: Proposed Sources of Investment to cover Planned Area under Oil Palm in NE Region**

| Source of Investment | Rs in Crore | Remark |
|---|---|---|
| Under NSFM (OS&OP) | | Existing scheme of the Govt. of India, which funds Rs. 12,000 for planting materials; Rs 30,486 for micro-irrigation (NE states) and 50% of cost of pump-sets. In NE Region, the Government of India contributes 90% of the approved annual plan. |
| (a) Government of India | 475.87 | |
| (b) State Government | 52.88 | |
| Sub-total: NFSM – OS&OP | 528.75 | |
| Proposed Scheme for Govt. of India funding | 1436.62 | Scheme for Establishment of Oil Palm in NE Region & the Maintenance of Newly Planted Oil Palm Areas |
| Growers' Contributions | 322.13 | Balance amount |
| Total | 2287.50 | --- |

The state-wise break-up for the proposed sources of investment is available in Chapter-6.

**Additional Items of Expenditure**: Apart from the direct investment for supporting the growers for establishing oil palm plantation, setting up micro-irrigation systems and maintenance of the new areas during the gestation period, Government has to incur expenses on the following aspects:

- Training of Extension Officers and Workers;
- Training of the Growers;
- Programme Expenses of Implementation Agency (workshops and conferences, inspection visits, stationery and repair of computers etc.); and
- Monitoring & Evaluation (3rd Party).

Chapter-6 may be seen for the details of the above proposed expenses.

**Summing up the Proposed Government Support**: The Government support has been proposed as follows for the Development Action Plan for Promotion of Oil Palm in the NE region.

**Table-ES.5: Summary of the Proposed Government Support for Oil Palm in NE Region**

| Item of Expenditure | Rs in Crore | Remarks |
|---|---|---|
| Under NSFM (OS&OP) | | **Existing scheme of the Govt. of India**, which funds Rs. 12,000 for planting materials; Rs 30,486 for micro-irrigation (NE states) and 50% of cost of pump-sets. In NE Region, the Government of India contributes 90% of the approved annual plan. |
| (a) Government of India | 475.87 | 90% contribution |
| (b) State Government | 52.88 | 10% contribution |
| Sub-total: NFSM – OS&OP | 528.75 | |
| Proposed Scheme for Govt. of India funding | 1436.62 | Scheme for Establishment of Oil Palm in NE Region & the Maintenance of Newly Planted Oil Palm Areas |
| **Additional Items** | | |
| Training of Extension Officers and Workers (including Input Dealers) | 0.09 | 1 batch per annum per participating state |
| Training of Growers | 0.30 | 5 batches per annum per state |
| Establishment Expenses | 3.75 | For workshops & conferences, inspection visits, stationery and repair of computers etc. |
| Monitoring & Evaluation Expenses | 9.83 | Third Party Monitoring @ ½ % of NFSM (OP) & Special Scheme (Proposed) |
| Support for FFB Processing Units | 30.00 | Under PM KSY @ Rs. 5.00 crore x 6 units |
| **Total** | **2009.34** | |

**Note**: The above table excludes amounts that may be payable per annum on account of the following:

- Proposed **Subsidy for Transport of CPO from FFB Processing Unit to Nearest CPO Refinery,** which has been estimated at **Rs 74.59 crore per annum** for CPO obtained from FFBs on the entire 75,000 hectares on maturity, assuming a yield of 3 MT of CPO per hectare and 50% transport subsidy on average freight of Rs 6.50 per kg from FFB Processing Unit to nearest CPO Refinery; and
- Proposed **Price Support for Oil Palm FFB** (at difference between Normative Cost and FFB Prices), which can be about Rs. 112.50 crore per annum for price support of Rs. 1/- per kg of FFB.

The year-wise break-up of the above support has been given at Chapter-6, which may be seen for the details.

**Major Outcomes of the Proposal from the Government Point of View**

The major outcomes of the present proposal from the Government view-point have been summarized below.

**Table-ES.6: Major Outcomes from Proposal (Government View-point)**

| Major Outcome | Monetary Value (Rs. in Crore) | Remarks |
|---|---|---|
| Returns from GST on Crude Palm Oil | 301.69 - 753.97 | Present Value of GST streams over 28 years (lifetime of palm) based on different yields (12 MT, 15 MT and 18 MT) per hectare and different discounting rates (11%, 12% and 13%), hence the variation of the estimated monetary value<br>Based on assumptions furnished under |

| | | |
|---|---|---|
| | | Table-9.4 of Chapter-9 |
| Potential Reduction of Outflow from MG-NREGA due to Increased Rural Employment | 205.11 | Labour for establishment and initial maintenance of the oil palm |
| | 739.37 | Present value of labour for intercultural operations and harvesting over lifetime of palm (wages for annual labour requirement is estimated to be Rs.82.68 crore) |
| Reduction of Foreign Exchange Outflow for Imports of CPO | 1165.70 per year | Assuming average yield of 18 MT, OER of 16.5% and CIF Prices of Imports as $ 712 per MT |

**Source**: Consultant's Calculations

The details in the above regard have been briefly furnished at Chapter-9 and may be referred to therein for the details.

**State Specific Plans**

The State-specific Plans have been presented at Chapter-7 for each of the states of the NE Region which have expressed interest for oil palm. Such state-wise plans include the suggested strategies for each of the states to meet the planting targets, apart from the responsibilities, resource requirements and other pertinent details. The state-specific plans of these states have been covered in separate sections of Chapter-7: Arunachal Pradesh, Assam, Manipur, Mizoram and Nagaland. The other states have either not shown their interest despite the past efforts of the Government of India (like Meghalaya & Tripura) or are unsuitable for oil palm cultivation (Sikkim). Chapter-7 may be referred to for the details of the state-specific plans of the above mentioned states.

**Recommended Action Points to Support the Action Plan**

The implementation of the Developmental Action Plan for growing oil palm in the states of the NE Region will need the following support:

- Introduction of a Government of India funded Scheme for Establishment of Oil Palm in NE Region and the Maintenance of Newly Planted Areas;
- Support for Establishment of FFB Processing Unit in NE Region (under existing PMKSY);
- Support for the Transportation of CPO from FFB Processing Unit in NE Region to nearest CPO Refinery (New Scheme as Proposed);
- Price Support Scheme for Oil Palm Growers in NE Region (New Scheme as Proposed);
- Direct Payment of Government of India Funds to Implementing Agency; and
- Price Revision for Oil Palm Seedlings;
- Augmenting the Availability of Oil palm Seedlings; and
- Evolving an Appropriate Model for Implementation.

The above action points have been briefly described at Chapter-8, including the rationale of the proposed action point and the quantum of support required for the different action points.

**Outcomes of the Action Plan**

**Economic Value of the Oil Palm Crop**: The present value of FFB sales from one hectare of oil palm over its lifetime of 28 years is estimated to widely range from Rs. 4.93 lakh (@ 12 MT yield, 13% discount rate and Rs 5.50 per kg as initial rate of FFB) to Rs. 15.60 lakh (@ 18 MT yield, 11% discount rate and Rs 9.50 per kg as initial rate of FFB). This illustrates the impact of major factors on the economic returns, such as the yields achieved and the price of FFB received by the grower.

In this report, the initial investment has been taken as Rs. 3.05 lakh per hectare. Hence, the crop will yield substantial economic returns. The quantum of such returns will vary, based on the above major factors, i.e. the FFB prices obtained by the growers and their achieved yields. These factors are inter-

linked since the observance of the recommended package of practices by the growers will depend upon the level of their returns from the crop. The economic impact of growing oil palm on 75,000 hectares in the NE Region can range from **Rs. 3,700 crore to Rs 11,700 crore**, based on the premises of the above table. This excludes the spin-off benefits which are discussed below.

The extended value chain of oil palm (including derivatives of oil palm) will include the entire spectrum of activities from nurseries, field plantation (establishment, gestation and yielding phases followed by re-plantation of old plantations), harvesting and processing of FFBs, CPO aggregation and refining, secondary processes on refined items like RBD Palm Oil and Palm Stearin. As the proposed plan calls for the expansion of area under oil palm plantation in the NE Region by 75,000 hectares, it can yield from 2,00,000 MT to 2,90,000 MT of CPO per annum. This may sustain a CPO refinery in the NE Region to produce value added items like Palm Fatty Acid Distillates, Palm Stearin etc. that can be used as oleo-chemical feedstock, apart from RBD Palm olein and other items for the domestic sector and food units.

**Employment Generation**: Apart from the economic output as discussed previously, another important outcome of oil palm plantation is the generation of farm based employment in rural areas. Based on the average man-days of labour required on one hectare of oil palm plantation for different stages, this proposal **will create about 96.75 lakh man-days of direct employment in the first eight years**. In addition, the **maintenance (inter-cultural operations) and harvesting of the expanded areas** will create additional employment during the lifetime of the palms. This requirement is estimated at about **39.00 lakh man-days per annum.** There are additional employment opportunities in related areas like nurseries, transportation, FFB processing factories etc. This is excluding the opportunities in sales and various services needed by the oil palm based economy

**Other Outcomes**: Apart from the output and employment generation aspects, the promotion of oil palm in the NE Region will have the other significant impacts. These include:

- **Import substitution**, leading to saving of valuable foreign exchange;
- **Rural development** of the growing areas due to the inflow of cash from the plantations;
- Positive **social impacts** due to rural incomes like health, education, law and order etc.; and
- Reduction of **shifting cultivation,** which will reduce pollution due to the widespread burning of hill-sides before the rainy season.

Further, as the oil palm plantations are being proposed to be raised on wastelands and fallow lands, there will be no destruction of any forests as apprehended. Rather, open and degraded wastelands areas will be brought under oil palms.