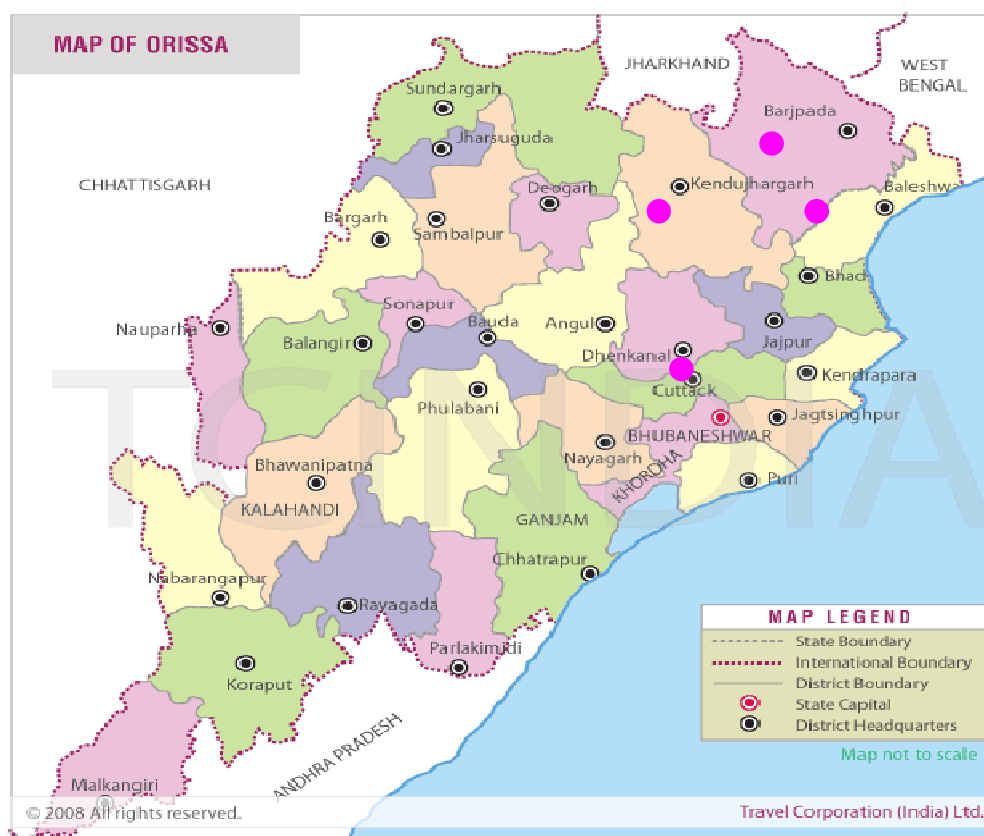


**Report of the Joint Inspection Team which visited Orissa  
State During 25<sup>th</sup> to 31<sup>st</sup> August, 2010 to review  
National Horticulture Mission Programmes**



**Districts visited by JIT of National Horticulture Mission**

1. Cuttack
2. Kendujhargarh (Keonjhar)
3. Mayurbhanj (Barjpada)
4. Baleshwar (Balasore)



**National Horticulture Mission  
Ministry of Agriculture  
Department of Agriculture & Cooperation  
Krishi Bhawan, New Delhi-110001**

## TABLE OF CONTENTS

<b>Item</b>	<b>Page No.</b>
Table of Contents	2
Observation made by JIT	3
Actionable Issues	5
Horticulture in Orissa	6
Status of Horticulture in Orissa	8
Visit to Cuttack district	14
Visit to Kendujhargarh (Keonjhar)	22
Visit to Mayurbhanj	29
Visit to Balashwar (Balasore)	39
Discussion with Director, SMD, Horticulture	44

### **General observations of JIT**

1. Planting material supplied by the department as well as private nurseries are sometime of bad quality, it should be ensured by the department that only good quality materials are supplied to the farmers. Department should assist the farmers in selection of planting material where ever possible. Inferior quality material already supplied may be replaced by good ones.
2. Cluster approach is not maintained in some districts like Keonjhar. As there is potential in tribal area of the district, more area to be brought under area expansion programme following cluster approach in Keonjhar and Mayurbhanj districts.
3. Rejuvenation programme in mango/ cashew need to be given importance in Keonjhar and Mayurbhanj districts.
4. A case, availing assistance from multiple sources of a farmer for the same piece of plot has been observed in Keonjhar district, department should enquire into the matter and take necessary steps to rectify.
5. Non availability of sufficient amount of water for irrigating the crops is yet another impediment for development of Horticulture. Therefore, water resources development like community ponds, rain water harvest need to be supported. . Construction of community ponds could be carried out through NREGA and RKVY Scheme with cost of lining material met from NHM. New Programmes need to be linked with micro irrigation
6. As there is a good potential for K.Lime in Mayurbhanj district, area expansion programme for K.Lime may be strengthened.
7. Awareness programmes /activities has to be generated among the people through more intensive training programmes, and also print & electronic media, technical guidance to the beneficiaries for the better maintenance of the plants that have already been planted must be given either by organizing trainings at cluster/village level or by making spot visits. For organizing trainings for aforesaid purpose the help of Krishi Vigyan Kendras located in the districts could also be taken.
8. The initial plantations taken up under SHM in different districts would come to bearing during the coming year and there after. Hence, taking the expected surplus production into account, suitable steps may be taken to provide necessary market security to the growers. Also post harvest management of such huge produce needs attention which may include storage, packaging and development of processing units.
9. Coconut Seedlings of high yielding varieties to be supplied under C.D.B. programmes in all districts and more demonstration plots to be established in clusters.
10. Revised norms of NHM programme to be printed and distributed to the farmers.
11. Training to be imparted to the nursery workers on propagation.
12. Local variety of Banana in Cuttack district was found to be infected with Sigotaka disease which required effective control measures.
13. Ripening of Banana to be done in ripening chambers without using carbide.
14. In papaya widespread infection by Papaya Ring Spot Virus (PRV) was observed. Virus resistance varieties need to be selected region wise for area expansion programme.

15. In Cuttack and Balasore districts, more and more farmers need to be encouraged for taking of coconut (high yielding varieties), banana and betel vine following cluster approach.
16. There is a complete lack of market intelligence facilities within the State and amongst various local mandis. The information on the current market prices as well as other trading aspect is presently not available to the horticulture produces. Quick availability of current price either through mobile services or market information of village/ panchayat level needs to be developed.
17. Mulching at the plant base required to be done in order to retain soil moisture.
18. At some place the field officials are not serious about management of orchards / nursery and its maintenance.
19. To make NHM more visible, display board along with the NHM logo need to be fixed in all fields of the beneficiaries

### **Actionable issues**

1. Cluster approach has to be maintained while taking up area expansion programme particularly in the districts of Keonjhar and Mayurbhanj which are considered to be potential areas.
2. Planting material supplied to the beneficiaries under the area expansion programme at many points have been found to be of inferior quality, which need to be replaced. Steps need to be initiated to accredit the nurseries for ensuring supply of good quality planting material to the farmers.
3. Rejuvenation of old mango / cashew orchards needs to be given priority particularly in the districts of Keonjhar and Mayurbhanj to improve the production potential.
4. Technical guidance to farmers needs to be given frequently by the Department and KVK's which are funded for various activities need to fully utilize for HRD purpose of the farmers.
5. A local genotype of Karzi lime cv. Culiana (local land race) which has been found to be quite promising in the district of Mayurbhanj needs popularization under the area expansion programme.
6. Practically not much has been achieved in IPM and PHM infrastructures like bio control, disease forecasting units, plant health clinic and ripening chambers for banana without using calcium carbide need to be developed.
7. Use of drip irrigation and plastic mulching for economic use of water, better management of weeds and performance of the crops has to be intensified. Water harvesting structures may be constructed with the support of NHM and linked to Micro Irrigation System.
8. Under new plantation of Mango, Cashew and Coconut, suitable inter crops such as Papaya, Banana, Pineapple, vegetables and other leguminous crops need to be planted.
9. Awareness programme need to be organised more vigorously at village and block level to bring awareness about NHM programme among farmers in all districts. Rural youth and SHGs may be trained on the subjects of quality planting material production involving suitable methods of grafting budding and nursery management practices.
10. A case of taking avenue of multiple sources for the same purpose has been identified in Keonjhar district which may be looked into.
11. Display boards with NHM logo need to be erected in all the fields of the beneficiaries to make NHM more visible.

## **Report of the Joint Inspection Team which visited Orissa during 25<sup>th</sup> to 31<sup>st</sup> August, 2010 to review National Horticulture Mission Programmes**

Joint Inspection Team has been constituted vide Letter No. F. No. 33-7/2006.Hort., Govt. of India, Ministry of Agriculture, Department of Agriculture & Co-operation (Horticulture Division), dated 30.07.2010. The following are the members.

1. Dr. Om Prakash, Chief Consultant (N.H.M)., DAC, New Delhi
2. Dr. Tamil Selvan, Director, DASD, Calicut-673005
3. Dr. D.K. Dora, Head, Department of PHM and P.I., PFDC, OUAT, Bhubaneswar
4. Dr. J.N. Das, Professor, (Horticulture), Department of Horticulture, OUAT, Bhubaneswar
5. Representative of SHM. – Sri S.K. Mohanta, Fruit Technologist

The Joint Inspection Team (JIT) visited Cuttack, Keonjhar, Mayurbhanj and Balasore districts from 25<sup>th</sup> -31<sup>st</sup> August, 2010, as per the itinerary given at Annexure I. A set of proformas developed by the Department of Agriculture & Cooperation (DAC) for use by the JIT were utilized for recording the observations during the visit to different sites. A meeting was held with the SMD on 31<sup>st</sup> along with other officers of State Horticulture Mission.

### **Horticulture in Orissa**

Orissa is the 10<sup>th</sup> largest State in area and 11<sup>th</sup> in population in the country, accounting for 5% of the geographical area and 4% of the population of the country. State has a geographical area of 1.56 lakh sq. km and population of 3.68 crore as per 2001 census. Administratively the State is divided into 30 districts, 58 subdivisions, 314 CD blocks, 171 tehasils, 35 municipalities and corporations, 6234 gram panchayat and 11349 villages. Out of the total population, Scheduled Caste and Scheduled Tribe constitute 17% and 22% of the total population respectively. 85% of the population lives in rural area. Cultivators and agricultural labourers constitute 65% of the total workforce. The total literacy percentage is 63.08. The State is located in the eastern region of the country and spreads 450 kms along the Bay of Bengal.

**Climate:** The climate of the State is tropical, characterized by high temperature, high humidity, medium to high rainfall and a mild winter. The normal rainfall is 1482.2 mm distributed over 72 rainy days. South West monsoon contributes about 81-83% of the annual rainfall in 53-57 days during June-September. The mean annual temperature of the State is 26.89<sup>0</sup> C with mean annual maximum of 32.56<sup>0</sup> C and mean annual minimum of 21.30<sup>0</sup> C.

**Soil:** From the physio-graphic point of view, the State consists of four Zones, viz. (i) Northern Plateau (ii) Eastern Ghat Zone (iii) Central Table lands, and (iv) Coastal plain zone. However, on the basis of climate, soil, rainfall, topography and crops suitability, the State has been divided into ten Agro-Climatic zones. The soil types differ widely from highly acidic to slightly alkaline and from light sandy to stiff clays. The soils are mainly acidic with the degree of acidity varying widely. Further, about 4 lakhs ha, are exposed to saline inundation, 3.54 lakh ha. to flooding and 0.75 lakh ha to water logging particularly in the deltaic areas.

**Land Availability:** The State has a total cultivable area of 61.65 lakh hectares. Out of this, 15.57 lakh hectares are low lands, 19.14 lakh hectares are medium lands and 26.94 lakh hectares are high lands. In Orissa generally agricultural crops particularly Paddy are grown in the Low & Medium land area in a consolidated manner. So there is vast scope to convert the Up lands and waste lands of the State for Horticultural crops. It was envisaged during the preparatory phase of NHM to cover at least 7.0 lakh ha. Lands, out of which, they have achieved only 2.5 lakh ha. under NHM other schemes during last 5 year. Hence, there is immense scope for crop diversion particularly to horticultural crops. Thus 4.5 lakh hectares area can be safely covered under horticultural crops in coming years.

**Irrigation:** Out of total cultivable area, about 41% is under irrigated condition (Kharif 18.5 lakh ha + Rabi 8.5 lakh ha). and 59% is non –irrigated. The total irrigation potential created so far from all sources is about 39.31 lakh ha. (Kharif 25.65 lakh ha. & Rabi 12.66 lakh ha.). The gross irrigated cropped area is 27 lakh ha. which is about 68% of the potential created.

**Farming structure:** According to the agricultural census, there were 40.66 lakh operational farm holdings occupying 50.81 lakh ha with an average land holding of 1.25 ha the marginal and small farmers constitute 85% of the farmers who have access about 50% of the operational area. Thus the remaining 50% is occupied by only 15% of landholders.

#### **Strength, Weakness, Opportunities & Threats (SWOT) Analysis:**

##### **Strength:**

- i. Ten agro-climatic zones of the State are most suitable for growing of fruits, vegetable, flowers and spices.
- ii. Suitable high land and medium land are plenty available which can be utilized for horticultural crops.
- iii. State has numbers of Govt. farm and nurseries to produce quality planting materials.
- iv. State has Agriculture Universities and Krishi Vigyan Kendras to provide new and need based technologies.
- v. Enactment of Fruit Nursery Act-1999 ensures control over producing QPM in the Private Sector.
- vi. Access to metropolises like Kolkata, Chennai, Mumbai and Delhi and other big cities shall be established to enhance the possibilities for export to other State.
- vii. The varieties of mango particularly Dasherri which is harvested early in Orissa particularly in the districts of Mayurbhanj, Keonjhar, Dhenkannal etc. fetches a good market in North India.

##### **Weakness**

- i. Non availability adequate planting material in Litchi, Aonla, Orange, Gladioli etc.
- ii. Lack of budgetary indication at least one year before for advance action plan.
- iii. Poor economic condition of small and marginal farmers.
- iv. Inadequate management and maintenance of the plantation.
- v. Lesser irrigation facilities.
- vi. Shortage of human resources in horticulture in Govt. sector.
- vii. Absence of Air connection to major cities other than the metros.

- viii. Slow pace in adoption of improved technology.
- ix. Lack of infrastructure facilities for post harvest management and marketing.
- x. Inadequacy of trained manpower and infrastructure.

### **Opportunities**

- i. There is tremendous demand for fruits, vegetables and flowers in the State which otherwise is being met by import from other States.
- ii. There is scope for introduction and expansion of new crops and varieties.
- iii. Tremendous scope for establishment of processing units.
- iv. Availability of abundant suitable land for growing horticultural crops.
- v. Scope for protected cultivation of flowers, vegetables and also planting materials.
- vi. Scope for enhancing the availability of fruits and vegetables to the people for consumption as per national recommendations.
- vii. Scope to generate marketable surplus and also surplus for export.
- viii. Scope of marketing for horticulture produce as it is expected to establish 2 Modern Terminal Markets with major hubs and 802 spoke markets to come up in Sambalpur and Khurda area. Apart from these 50 rural markets in co-operative sector for up gradation is in progress.

### **Threats**

- i. Uncertainty in weather conditions and frequent occurrence of natural calamities like flood, cyclone and drought.
- ii. Uncertainty about market stability and farmers do not get remunerative price.
- iii. Exploitation by middlemen in the market chain.
- iv. Poor economic condition of small and marginal farmers.
- v. High incidence of pest and diseases.

### **Status of National Horticulture Mission**

The Centrally Sponsored Scheme of National Horticulture Mission (NHM) is being implemented in a Mission mode approach to address all the issues related to holistic development of Horticulture in the State since 2005-06.

The scheme is being implemented in 24 identified potential districts with cluster approach. District covered under NHM include Mayurbhanj, Keonjhar, Balasore, Cuttack, Khurda, Puri, Nayagarh, Naupara, Bolangir, Kalahandi, Sonepur, Gajapati, Rayagada, Koraput, Malkangiri, Navrangpur, Dhenkanal, Ganjam, Phulbani, Angul, Bargarh, Deogarh, Sambhalpur and Sundargarh.

The focus crops identified under the programme include Mango, Citrus, Litchi, Banana, Cashew, Betelvine, Ginger, Turmeric, Flowers and Medicinal Plants & Aromatic Plants.

Major activities being undertaken in the project are production and distribution of planting material, vegetable seed production, area expansion, rejuvenation of old and senile orchards, creation of community water resources, protected cultivation, promotion of IPM/INM, organic farming, development of post harvest management & marketing infrastructure and human resource development.



### Physical Achievement

Under the Mission, during 2005-06 to 2009-10, an additional area of 119528 ha of identified horticulture crops has been covered besides establishment of 110 nurseries for production of quality planting materials, 1420 ha. covered under vegetable seed production, 2109 ha. covered under rejuvenation of old and senile orchards, besides establishment of 4426 numbers of vermi-compost units, creation of 24 community water structures, distribution of 813 colonies with hives. Under the component of Post Harvest Management, 5 units (4 pack houses, and 1 refrigerated van) 15967 farmers have been given training under various horticultural activities.

### Financial Achievement

During 2005-06 to 2009-10, an amount of Rs.177.15 crore was released to the State. The State has reported an expenditure of Rs. 163.29 crore upto 2009-10.

The Annual Action Plan of SHM, Orissa for 2010-11 has been approved for Rs. 65.00 crore including GOI share of Rs. 55.25 crore. Funds to the tune of Rs. 15.51 crore have been reported so far. A sum of Rs. 8.92 crore as unspent balance is available with the State Horticulture Mission (upto 9<sup>th</sup> August, 2010)

### Year-wise details of Outlay, Funds Released and Expenditure under NHM

(Rs. In lakh)

Year	Outlay	Release	Expenditure	Balance
2005-06	7499.00	3611.91	599.21	3012.70
2006-07	9620.02	4450.00	1711.61	5751.09
2007-08	8967.50	3812.16	3016.75	6546.50
2008-09	8111.55	2341.00	5444.34	3443.16
2009-10	6520.25	3500.00	5556.68	1386.48
<b>Total</b>	<b>5525.00</b>	<b>1056.00</b>	<b>1550.73</b>	<b>891.75</b>

The agro-climatic diversity in the State with its high rain fall distributed over a four-month monsoon and a reasonably moderate winter allows for growing a variety of horticultural crops. The agro-climatic conditions are immensely suitable for perennial fruit crops like mango, litchi, guava, oranges and limes; annual fruit crops like banana, pineapple and papaya; spices like ginger, turmeric and chilly, a variety of root and tubers and a whole range of vegetables. The low-temperature hilly areas at higher attitude offer ideal conditions for growing off season vegetables. Of late floriculture is also showing excellent prospects. The State thus enjoys a natural comparative advantage for horticulture with possibilities for growing a diversified basket of fruits, vegetables, spices, tubers and flowers; whose potential has not been fully exploited.

Orissa produces about 10.51 m. MT of horticultural produce from an area of 1.30 m ha and accounts for 4.89% of total horticultural production in the country. The vegetables (80.59%) and fruits (14.59%) form the major horticultural produce in the State.

### **1. Mango**

- Orissa produces about 0.45 m MT of mango from an area of 0.16 m. ha. with productivity of 2.7 t/ha and accounts for 3.53% of total production of mango in the country.
- The major mango producing belts in the State are Dhankanal, Ganjam, Koraput and Puri.

### **2. Citrus**

- The State is the third major lemon producing State in the country.
- Orissa accounts for 9% of total production of lemon in the country. The State produces 0.22 m. MT of citrus from 0.03 m. ha. with productivity of 8.2 t/ha.

### **3. Banana**

- State produces about 0.33 m. MT of banana from an area of 0.02 m. ha. with the productivity of 13.57 t/ha and forms 23.30% of total production of fruit crops in the State.

### **4. Sweet Potato**

- Orissa is ranked first in production of sweet potato accounting for 37.2% of total production of sweet potato in the country.
- State is producing about 0.4 m Mt of sweet potato from an area of 0.05 m ha. having productivity of 8.5 MT/ha.
- The recommended varieties of sweet potato in the State are Buban sankar and Gouri.

### **5. Okra**

- Orissa is the third major Okra producing State in the country and accounts for 14.1% of total production of okra. The State produces about 0.64 m. MT of okra from an area of 0.07 m. ha. with the productivity of 8.7 t/ha.

### **6. Cabbage**

- Orissa is the second major cabbage producing State in the country and accounts for 14.1% of total production of cabbage.
- The State produces about 0.97 m MT of cabbage from an area of 0.03 m ha with productivity of 27.8 t/ha.
- The major cabbage producing belts in the State are Balasore, Bolangir, Cuttack, Dhankananl, Ganjam, Keonjhar and Koraput.

### **7. Cauliflower**

- Orissa is the third most cauliflower producing State in the country and accounts for 10.2% of total production of cauliflower. The State produces about 0.66 m MT of cauliflower from an area of 0.05 m ha, with the productivity of 14.4 t/ha.

### **8. Tomato**

- Orissa is the third largest producer of tomato in the country. The State produces about 1.36 m. MT of tomato from an area of 0.10 m ha. with the productivity of 13.5 t/ha.

## 9. Brinjal

- Orissa is the second largest producer of brinjal accounting for 18.9% of total production of brinjal in the country.
- The State produces 1.97 m. MT of brinjal from an area of 0.13 m ha. with productivity of 15 t/ha.

**Table-2: Component wise details of progress under NHM (2009-10)**

Sl. No.	Component	Phy (Ha/No.)	Fin (Rs. in lakh)	Percentage
1	Nursery / Planting Material	110	728.57	4.32
2.	Area Coverage	119528.43	13607.63	80.67
3.	Rejuvenation	2109.43	316.41	1.88
4.	Development of Water Resources	24	23.16	0.14
5.	Protected Cultivations	470.60	221.18	1.30
6.	Vemi Compost Units	4426.00	516.50	3.06
7.	PHM	5	8.50	0.05
8.	HRD	15988	521.03	3.09
9.	Extension, Quality awareness etc.		20.04	0.12
10.	Mission Management/ Other Innovative		905.50	5.37
	<b>Total</b>		<b>16868.50</b>	<b>100.00</b>

## Area Expansion

The year wise detail of physical and financial progress under establishment of new gardens is given in the Table.

## Coverage under New Gardens

Year	Target		Achievement	
	Physical	Financial	Physical	Financial
2005-06	17200	1923.40	4396.54	379.55
2006-07	19500	2264.05	17757.83	1432.22
2007-08	22255	2378.94	24575.15	1872.55
2008-09	19928	1722.28	40979.84	3921.72
2009-10	17202	2934.31	31819.07	4313.52
<b>Total</b>	<b>96085</b>	<b>11222.98</b>	<b>119528.43</b>	<b>11919.56</b>

The programme for establishment of new gardens is being taken up in identified clusters, for which assistance is being provided to the farmers. As per NHM norms, the assistance for area expansion is @ 75% of cost subject to a maximum of Rs. 22,500/- per ha for perennial crops and Rs. 15,000/- per ha in the case of non perennial crops, which is disbursed in three instalments in the ratio or 5:2:3 in the first second and third year respectively.

### Planting Material

As per record given by the SHM, there are 137 nurseries in Orissa producing plant material required for establishment of new gardens. The Nursery Act is under implementation in the State. The farmers can procure the planting material from Department of Horticulture, which in turn supply the certified planting material. The total production (2009-10) and utilization (2010-11) is given below:-

#### Fruit wise list of planting material mainly produced during 2009-10

Year	Mango	Cashew	Litchi	K.Lime	Orange	Banana	Others
Production 2009-10	4077504	2002961	109047	578823	41290	-	-
Utilisation 2010-11	3359629	1197735	46518	569655	24464	-	-
Shortfall	Nil	Nil	Nil	Nil	Nil	-	-

The planting materials which had been produced during 2009-10 have already been exhausted during 2010-11 plantation programme. Till date no grafts are available in departmental farms. The availability position for 2010-11 will be assessed later on as the grafting process is going on in the farms / nurseries. .

#### Rejuvenation programme under taken in the State (area in ha. Rs. in lakh)

Year	Target		Achievement	
	Physical	Financial	Physical	Financial
2005-06	4500	675.00		
2006-07	1000	150.00		
2007-08	800	102.00	520.95	78.14
2008-09			388.48	58.27
2009-10			1200	180.00

Under rejuvenation during 2009-10, the physical achievement was 1200 ha with an expenditure of 180 lakhs.

#### Area covered under CSS (Micro Irrigation) from 2005-06 to 2009-10

S.No.	Year	Drip		Sprinkler		Total	
		Tar.	Ach.	Tar.	Ach.	Tar.	Ach.
1.	2005-06						
2.	2006-07	1504	46	1164	210	2668	256
3.	2007-08	3410	1213	3958	84	7368	1297
4.	2008-09	1000	520	3000	3692	4000	4212
5.	2009-10	2840	4578	10720	6683	13560	11261
	<b>Total</b>	<b>8754</b>	<b>6357</b>	<b>18842</b>	<b>10669</b>	<b>27596</b>	<b>17026</b>

As reported during the year 2009-10, area covered under Micro –Irrigation Scheme was 11261 ha against the target of 13560 ha.

**Physical & Financial Target and achievements under NHM (2009-10)**

(Fin. in Lakh Rs.)					
Component	Unit	Physical	Physical	Total financial	Financial
		Target	Achievement	Outlay	Achievement
<b>A. Plantation Development including supporting Infrastructure</b>					
<b>1. Production of Planting Material</b>					
i. Public Sector					
a. Model Nursery (4ha.)	Nos.	10 *	11	90.00	198.00
b. Small Nursery (1 ha.)	Nos.	20 *	10	30.00	30.00
ii. Private Sector					
a. Model Nursery (4ha.)	Nos.	5	15	45.00	135.00
b. Small Nursery (1 ha.)	Nos.	10	19	15.00	28.50
c. Vegetable Seed Prodn.					
Public Sector, ICAR, SAU, State Deptt.	ha.	200	200	100.00	100.00
<b>2. Establishment of New Gardens</b>					
Mango	ha.	22000	22050	2475.00	2480.63
Litchi	ha.	150	145	16.88	16.31
Orange	ha.	100	83	11.25	9.34
Lime	ha.	500	424.67	56.25	47.78
2nd year maint. of 07-08 Mango plantation	ha.	14305	8718.05	965.59	588.47
1st year maint. of 08-09 Mango plantation	ha.	16635.52	12833.45	748.60	577.51
2nd year maint. of 07-08 Aonla plantation	ha.	678	183.67	45.77	12.40
1st year maint. of 08-09 Aonla plantation	ha.	78	60.5	3.51	2.72
2nd year maint. of 07-08 Litchi plantation	ha.	123	36.765	8.30	2.48
1st year maint. of 08-09 Litchi plantation	ha.	260.1	220.1	11.70	9.90
2nd year maint. of 07-08 Citrus plantation	ha.	348	257.065	23.49	17.35
1st year maint. of 08-09 Citrus plantation	ha.	429.2	324.96	19.31	14.62
Banana Sucker	ha.	800	611	84.00	64.16
Banana Tissue Culture	ha.	800	220	120.00	33.00
2nd year maint. of 07-08 Banana plantation	ha.	1561		70.25	
1st year maint. of 08-09 Banana plantation	ha.	134		6.03	
<b>3. Flowers</b>					
<b>a. Cut Flowers</b>					
Small & Marginal Farmers					

Rose	ha.	500	144.9	175.00	50.72
Other farmer					
Rose	ha.	500	151.5	115.50	35.00
<b>b. Bulbous Flower</b>					
Small & Marginal Farmers					
Tuberose	ha.	150		67.50	
Gladioli	ha.	600	599	270.00	269.55
Other farmer					
Tuberose	ha.	100		29.70	
Gladioli	ha.	500	478	148.50	141.97
<b>c. Loose Flower</b>					
Chrysanthamum / Aster / Golden rod / Gypsy / Heliconia / Gomphrena / Asparagus etc. - SF & MF	ha.	200	120	24.00	14.4
Marigold - Other farmer	ha.	500	462	39.60	36.59
<b>4. Spices</b>					
Ginger	ha.	800	700	90.00	78.75
Turmeric	ha.	2800	900	315.00	101.25
Component	Unit	Physical	Physical	Total financial	Financial
		Programme	Achievement	Outlay	Achievement
<b>5. Rejuvenation</b>					
Cashew	ha.		1200		180.00
<b>6. Plantation crops including coastal horticulture</b>					
Cashew	ha.	5000	4730	281.25	266.06
2nd year maint. of 07-08 Cashew plantation	ha.	5700	3182.66	192.38	107.41
1st year maint. of 08-09 Cashew plantation	ha.	5672.25	4217.11	127.63	94.88
<b>7. Protected Cultivation</b>					
i. Green House - 52 Sq.m.					
Other farmer	ha.	1	6.5	21.50	50.95
Small & Marginal Farmers	ha.		9		112.50
ii. Shadenet House - 500 Sq.m.	ha.	10	6	7.00	4.20
iii. Mulching	ha.	100	375	7.00	26.25
iv. Plastic Tunnel	ha.		30		15.00
<b>8. Promotion of INM / IPM</b>					
i. Promotion of IPM in Mango / Cashew / Banana	ha.	100		1.00	
ii. Promotion of INM on Mango / Cashew / Banana	ha.	100		1.00	
<b>9. Organic Farming</b>					
i. Adoption of Organic Farming					
Ginger / Turmeric	ha.	50		5.00	
ii. Vermi Compost Units (Big)	Nos.	100	248	30.00	74.40
iii. Vermi Compost Units (Small)	Nos.	1000	2836	75.00	212.70

iv. Certification	ha.	50		5.00	
<b>10. HRD including Hort. Institute</b>					
Trg of farmers inside State on IPM/INM/Plantation/PHM	Nos.	2500	2500	37.50	37.50
Trg of farmers outside the State	Nos.	600	2200	15.00	55.00
Trainers Training	LS			10.00	
Gardeners Training	Grp.	4	2	54.10	35.00
Enterpreneuers Training	Grp.	4	5	18.12	22.65
<b>Sub-Total</b>				<b>7109.20</b>	<b>6390.89</b>
<b>B. Post Harvest Infrastructure and Management</b>					
1. Pack House - Gen Area	Nos.	5	4	3.13	2.50
2. Cold Storage Units - General Area	Nos.	2 *		10.00	
3. Refrigerated Van./Containers - Gen Area	Nos.	1	1	6.00	6.00
Hilly & Tribal Area	Nos.	1		8.00	
<b>4. Estt. of marketing infrastructure for horticultural produce in govt. / Private / Co-operative Sector</b>					
i. Estt of Wholesale / Terminal market	Nos.	1 *		1.00	
ii. Estt. of Cashew Processing Unit	LS	1 *	2	5.00	8.61
iii. Upgradation of Rural Market - Gen Area	Nos.	6		22.50	
<b>Sub-Total</b>				<b>55.62</b>	<b>17.11</b>
<b>C. Mission Management</b>					
1. State & District Mission Structure including additional manpower & project preparation cost	LS			359.06	15.50
2. Institutional strengthening, hire/purchase of vehicles, hardware / software	LS			50.00	25.00
3. Technical support group (TSG)	LS			97.00	
<b>Sub-Total</b>				<b>506.06</b>	<b>40.50</b>
<b>Grand Total</b>				<b>7670.88</b>	<b>6448.50</b>

#### Linkages with other organization

- A meeting need to be convened at an early date with the university authorities and Central Plant Protection & Quarantine stations located in the State to chalk out the strategies to implement IPM more vigorously in the State where maximum vegetables are being produced. SHM should have close linkages over the implementation and success of the programmes.
- The State is having sufficient good quality planting material during 2009-10. Such material is also available in the private and Government sector nurseries.

## CUTTACK DISTRICT

Cuttack district being a coastal district is primarily a paddy growing district but some part of the district like Athagarh sub-division and Tangi Choudwar block of sadar sub-division are important fruit growing area. For Horticulture, farmers give priority on good quality grafts/ seedlings, Vegetable seeds etc. Realizing it and under the influence of National Horticulture Mission Programme, some farmers have come forward to establish private nurseries in last years.

Under the privilege of NHM programme in the district since 2005-06, farmers have established 11686 ha fruit, vegetable, spices, flower, tuber crops and floriculture. In one potential block, Nischintakoili, floriculture cluster has been created. In Banki Sub-division, river side area is highly flood prone but farmers are growing vegetable in patches without fear of flood. This sub-division has created vegetable local markets and also exporting to near by cities. In spices, farmers were not much aware of getting benefits from spices like ginger, turmeric, onion, garlic except chilli. But after updating technical know how farmers are now being tempted for Ginger & Turmeric cultivation and watersheds are promoting cultivation of Ginger.

As regards, cultivation of tuber crops farmers were traditionally cultivating sweet potato, Yam, colocasia etc, at river bank side and cultivable highlands. However the farmers are being prompted to cultivate promising varieties of yam in the district.

Cultivation of medicinal plants is a secondary cash earning avenue. Some selective farmers are coming forward for medicinal plant cultivation.

**Climate:** District Experiences moderate warm humid climate Average annual rainfall is 1424.3 mm , Highest temperature 37°C and minimum occasionally comes below 10°C. In recent years, under the influence of Loo, (from North India), temperature in the mid of day goes up to 41 to 42°C during May. The average rainfall is normal (1424.3 mm).

### Soil

Soil is loamy silting occurs due to flood inundation and river bank soil is alluvial. Some part of Tangi Choudwar block and Athagarh soil is yellow, laterite-red.

### Nurseries and their Capacities

Sector	No of Nurseries	Seedlings/Grafts available
Departmental Nurseries	3 nos	Seedling -10,000 nos Graft-5000 nos.
Private Nurseries	12 nos	Seedling -10 lakh nos. Graft-8 lakh nos.



## SWOT ANALYSIS

<b>Strength</b>	
Agro climatic condition is suitable for crops like Mango, Cashew, Banana, Coconut etc.	Helps to grow these crops in specified location
Farming Community is Progressive	Adopts new technology
Good transport facility	Road facilities connect towns and distant markets.
Technical institution	CRRI, Cuttack, KVK
<b>Weakness</b>	
More Paddy growing areas	Much area is covered under paddy even highland
Low productivity in Mango due to lack of subsoil drainage facility	Scope for increasing production
No systematic contract farming for major fruit crops	Leads to distress sale
Lacking post harvest activities	Grading & packing is not generally followed
<b>OPPORTUNITY</b>	
Export potentiality	Fruits, Vegetables
Scope for Processing	Pulp, Pickle, Sauce, Puree, Juice etc
Scope for establishing whole sale market	Vegetable, flower
Banking network	There is opportunity for finance
Research	Good opportunity to take up research through CHESS, CTCRI
<b>THREAT</b>	
Flood, heavy rain and even Cyclone	Coastal area is affected
Rainfall erratic	Crop suffers in dry areas
Perishability of fruit, Vegetable Crops	Needs quick disposal, cold Chain, Storage
Sporadic pest problem	Coconut suffers from to attack of Eriophide mite
Fluctuating market rate for vegetable crops	Planned cropping pattern essential

### Strategies for Achieving NHM Target

- ❖ Conducting field visits and group discussion through field Technicians and block level junior field staff.
- ❖ Creating awareness in the public by making Publicity through print /electronic media through Directorate.
- ❖ Creating awareness through plantation trainings/ exposure visits of farmers and at different training programmes conducted by ATMA / NGOs/ Exhibitions / Radio/ Television talks etc., by displaying boards/charts/photos regarding NHM programme in different Melas / Exhibitions and distributing leaflet/chart etc.

### Hindrances of NHM

- ❖ Entrepreneurial development in horticulture is a bit cumbersome Banks are thinking many times before sanctioning a loan.

## Progress

This district is quite conducive to bring an average Horticultural growth before NHM there was, traditional fruit, vegetable and spices potential pockets in the district. Now-a-days, location specific area development has been done through NHM programme. Although, there has been no significant overall growth in respect to area and productivity in Horticulture, floriculture clusters, area cluster approach in Cashew nut development has been created.

### (a) Year wise Financial and physical progress

S. No.	Year	Physical(ha)		Financial(Rs)	
		Target(ha)	Achievet(ha)	Target(Rs)	Achievement
1	2005-06	2398.5 ha	2220.92 ha	66,06025/-	43,67,842
2	2006-07	4266.95 ha	3826.65 ha	91,21,622/-	87,35,626/-
3	2007-08	2763.74 ha	1834.52 ha	98,69,357/-	69,41,111/-
4	2008-09	1679.5 ha	1748.88 ha	1,01,55,482/-	85,48,204/-
5	2009-10	2293.86 ha	2055.4 ha	1,12,61,137/- (Funds received)	1,20,40,531/-
<b>GRAND TOTAL</b>		<b>13402.55 ha.</b>	<b>11686.37 ha</b>	<b>4,70,13,623/-</b>	<b>4,06,33,314/-</b>

## SALIENT ACHIEVEMENTS UNDER NHM DURING

### 1. Area expansion 2005-06, 2006-07, 2007-08, 2008-09 and 2009-10

Component	2005-06	2006-07	2007-08	2008-09	2009-10	G.Total
<b>Perennial crops</b>						
Mango	0	100.4 ha	84.5 ha	300 ha	350 ha	834.9 ha
Cashew	195.42 ha	404.55 ha	124.47 ha	157.3 ha	176 ha	1057.74 ha
Kagzilime	0	0	0	14 ha	40 ha	54.0 ha
<b>Non-Perennial crops</b>						
Banana	44.7 ha	94.7 ha	29.1 ha	84.98 ha	47.4 ha	300.88 ha
Ginger	0	49.9 ha	0	0	0	49.9 ha
Turmeric	0	14.5 ha	0	0	0	14.5 ha
Yam	0	0	11.25 ha	0	4 ha	15.25 ha
Vegetable	1928.5 ha	3055.5 ha	1457.0 ha	840.1 ha	1262 ha	8543.1 ha
Flower crops	52.3 ha	107.1 ha	128.2 ha	352 .5 ha	176 ha	816.1 ha
<b>Total</b>	<b>2220.92 ha</b>	<b>3826.65 ha</b>	<b>1834.52ha</b>	<b>1748.88 ha</b>	<b>2055.4 ha</b>	<b>11686.37 ha</b>

### Project Mode Programme

SI No.	Component	Unit	Amount ( Rs.lakh)
<b>2005-06</b>			
1	Poly green house	7 nos	
<b>2006-07</b>			
1	Estt of model nursery in public sector	1no	18 lakh
2	Estt of model nursery in private sector	1 no	18 lakh
3	Estt of Small nursery in private sector	1 no	1.5 lakh
4	Construction of green house	7nos	0.22 lakh
5	Drip irrigation	70 ha	
6	Sprinkler irrigation	120 ha	11.26 lakh
7	Drip demonstration	10 ha	
<b>2007-08</b>			
1	Plastic Tunnel	45 nos	0.1 lakh
<b>2008-09</b>			
1	Construction of green house	30 nos	1.78 lakh
2	Construction of shade net house	10 nos	0.1 lakh
3	Construction plastic tunnel	45 nos.	0.1 lakh
<b>2009-10</b>			
1	Drip Irrigation	24.793 ha	9.19 lakh
2	Sprinkler Irrigation	39.0 ha	

### 3. Vermi – Compost Unit

(Rs. in lakh)

SI NO.	2005-06		2006-07		2007-08		2008-09		2009-10	
	Unit	Amount	Unit	Amount	Unit	Amount	Unit	Amount	Unit	Amount
1	0	0	9 Unit	2.1 Lakh	10 big 75 small	0.6 lakh 2.85 lakh	8 big 45 small	6.22 lakh	2 Big 55 small	4.725 lakh

**Impact of NHM** – In the last five years, National Horticulture Mission Programme has helped to increase area and productivity of fruit, flowers, Vegetable, Cashew, spices and tuber crops. In the mission period, 11686 ha area has been increased and productivity has gone –up from 9.9 ton to 10.2 ton / ha. During the year 2009-10 drip and sprinkler irrigation was covered 63.79 3 ha.

**J.I.T. visited the following patches of Cuttack District.**

S. N.	Name of the Beneficiary	Address	Crop	Year of Plantation	Area In Hect.	Nos. planted	Nos. survived as on date of inspection	% age of survival	Rem.
1	Sri Sarat Kumar Hati	Vill. Uttampur, Block-Baranga	Banana	2009-10	0.4	800	800	100	Sigatoka disease noticed
	-do-	-do-	Banana	2010-11	0.4	800	800	100	Staking needed
	-do-	-do-	Mango	2010-11	1	100	100	100	
	-do-	-do-	Rose	2009-10	1.5	2040	2040	100	Need pruning
	-do-	-do-	Coconut	2009-10	Bend side	100	100		Leaf spot diseases seen
2	Swami Atmananda	-do-	Mango	2010-11	1.0	100	100	100	Good
	-do-	-do-	Banana	2010-11	0.4	1000	1000	100	Good
3	Smt. Meera Biswal	-do-	Banana	2008-09	0.4	800	800	100	Disease problem
			Banana	2010-11	0.4	1000	1000	100	Good
			Mango	2007-08	4.0	400	400	100	Splitting in bark
4	Manoj Kumar Mohanty	Vill. Raghunath Prasad, Block-Tangi Choudwar	Cashew	2009-10	2.5	500	500	100	Mulching around basin
			Mango	2009-10	1.5	150	150	100	Spray pesticide for control of diseases
5	Kasinath Mohanty	-do-	Mango	2009-10	1.5	150	150	100	Manage canopy
			Cashew	2009-10	2.5	500	500	100	Weed to be removed.
6	Smt. Puspangini Mohanty	Vill. Kochila Nuagaon, Block-Tangi Choudwar	Mango	2007-08	2.0	200	200	200	Canopy management and control of pests.
			Mango	2006-07	1	100	100	100	-do-
			Model Nursery	2009-10	4.0				Work in Progress
7	Smt. Arpita Priyadarshini	Vill. Suanri, Block-	Mango	2008-09	2.0	200	200	100	Barber plantation

		Tangi Choudwar							
			Coconut	-do-	Bund h	200	200	100	Advised to control leaf diseases
			Vermicompost	2009-10	Small				In production stage
8	Rajkishore Panda	Vill-Badajharila Block-Baranga	Mango	2007-08	2.4	240	240	100	RCC ring to be removed
9	Dwarika Nath Das	Vill-Machhapan di Block-Tangi Chawdar	Cashew	2009-10	2	400	400	100	Well maintained.
			Cashew	2010-11	1.5	300	300	100	Good
10	Rasbihari Nayak	-do-	Cashew	2009-10	3	600	600	100	Well maintained.
			Cashew	2010-11	1	200	200	100	Good
11	Bijay Sahu	-do-	Cashew	2005-06	3.5	700	700	100	Need training.
			Cashew	2009-10	0.5	100	100	100	Good
12	Sricharan Mohaptra	-do-	Cashew	2005-06	3.5	700	700	100	Training
			Cashew	2009-10	0.5	100	100	100	Good
13	S.K Maharana Sakti Nursery	Vill. Boanda Garudgaon Block Tangi Chawdar	Model Nursery	2000	6.5	500	--	---	Produced 5 lakh mango/cashew grafted per year
			Vermicompost	2007-08	-	-	-	-	Under production
			Drip	2009-10	3.023	-	-	-	Under operation

Individual sheets of observations attached separately (**Annexure II**).

Cuttack, being a coastal district is primarily a paddy growing District. But some part of the district like Athagarh Sub-division, Sadar Sub-division and Tangi Choudwar block are important fruit growing areas. For holistic development of Horticulture farmers have given priority on production of good quality planting material, vegetable seed and seedlings etc. Farmers have come forward to establish private nurseries in last few years. The farmers are now taking interest for ginger and turmeric cultivation. Cultivation of medicinal plants stands in the second place as regards earning of revenue. Some selective farmers have come forward for medicinal plants cultivation in the district. There has been no significant overall growth in respect to area and productivity. In the last few years NHM programme has helped to increase the area and productivity of fruit, flower, vegetable, cashew, spices and tuber crops. In the mission programme period, 11686 hectares area has been increased and productivity has gone up from 9.9 tons to 10.2 tons per hectare.

**Activities visited**

1. Area expansion programme of fruit crops viz. mango, cashew, coconut, banana, floriculture, papaya & vegetables.
2. Vermi compost units.
3. Drip & sprinkler and Bore well etc.
4. Private model nursery.

**Observation**

1. Under area expansion programme plants are not getting due importance probably due to lack of transfer of Scientific knowledge by the official. There is no canopy management concept among the official which ultimately reflects on production and productivity of crops.
2. The disease/ pest incidence noticed on mango, banana, coconut and papaya are not properly controlled. The local official should suggest the remedial measure to combat the disease/ pest regularly and more during rainy season.
3. RCC ring fixed around the stem of mango at an early stage need to be removed so that proper inter culture operations are under taken. The official working in the district may visit regularly and advised the farmers.
4. Suitable plantation around fence to be advocated to the farmers in new orchards so that the farmers may get additional income.
5. The JIT felt satisfied with the performance of nursery and advised them for proper labelling for the variety identification of the mother plant and QPM with proper labelling and tagging.
6. In many places team also advised the farmers to go for inter crop till the plant attains sufficient height.
7. Cross bamboo staking to be done when banana is in bearing stage.
8. Poor visibility of NHM due to lack of display board at many places.

**KEONJHAR DISTRICT**

Keonjhar is a land locked district with an area of 8240 Sq. Km. It is situated in the northern part of Orissa. It is surrounded by Singhbhum district of Jharkhand in the North, Jajpur in the South, Dhenkanal and Sundargarh in the West and Mayurbhanj and Bhadrak in the East. It lies between 21<sup>0</sup> 1' N and 22<sup>0</sup> 10' N latitudes, between 85<sup>0</sup> 11' and 86<sup>0</sup> 22' longitude and at 480 meters altitude.

The District of Keonjhar started its activities under NHM from 2005-06. A careful review on NHM activities of the district during the year 2009-10 clearly reveals that at certain points the planting materials used for area expansion have not been to the tune of the Team's expectations. However, achievement in respect of area expansion was found to be satisfactory. Because of improper crop management the performance of the plantations in certain points has been found to be discouraging.

Soil acidity and Iron toxicity limits the supply of essential nutrients and hamper crop growth. Wide spread mono-cropping of limited nos. of varieties of crops has made agro economic system homogeneous. Over the past two years mango plantations have been taken up by the department covering more than 9000 hectares of area. Farmers are getting very good return from Mango crop in the district. Similarly, cultivation of vegetables as well as off season vegetables has proved to be quite remunerative to the farmers.

### **Administrative Setup of the District:**

District	Sub-Division	Block	No. of G.P	No. of Villages
Keonjhar	Anandapur	Anandapur	16	125
		Ghasipura	22	179
		Hatadihi	30	212
	Champua	Champua	23	149
		Jhumpura	22	154
		Joda	15	118
	Keonjhar	Banspal	21	163
		Ghatagaon	26	142
		Harichandanpur	25	219
		Keonjhar	24	225
		Patna	20	153
		Saharpada	20	139
		Telkoi	22	149
	<b>Total</b>	<b>13</b>	<b>286</b>	<b>2127</b>

### **Assessment of Infrastructure Gap**

1. The absence of any firm market tie up or contract farming is a major hindrance for promoting cultivation of medicinal and aromatic plants as well as floriculture
2. The storage, processing and marketing facilities are grossly inadequate. There is no exclusive market for horticultural produce.
3. The process of availing loans from banks for land based activities is cumbersome and time consuming. Further in the absence of updating the land records banks find it difficult to extend finance.
4. The existing transit nurseries may be made fully functional and converted into full –fledged nurseries.
5. Considering the varieties and magnitude of the programmes proposed under NHM, there is a need to ensure availability of adequate trained man power in the department to provide effective extension services, technical support and periodic follow up.
6. Most of the farmers still depend on traditional food crops for subsistence. Inadequate awareness about the potential of horticulture sector in the district and its commercial importance are major constraint.
7. The need for adequate supply of quality planting material (QPM) is of paramount importance for the success of different interventions under the NHM. In order to meet such demand, the potential for production of QPM by Govt. farms and nurseries may be optimally utilized and setting up of additional private nurseries may be encouraged.

### Potentiality of Fruit and Vegetable Crops in different blocks

Blocks	Crop usually / that can be grown
Anandapur, Hatadihi, Ghasipura	Coconut, Cashew, Papaya, Banana, Pineapple, Brinjal, Cucumber, Cole crops, pointed Gourd, Chilli, Coriander, Onion etc.
Keonjhar, Jhumpura, Champua, Patna, Ghatagaon, Saharpada	Mango, K. Lime, Guava, Banana, Papaya, Seasonal Vegetables, S. Potato, Turmeric, Off-Season vegetables
Telkoi, Harichandanpur	Mango, Tomato, Banana, Cauliflower, Beans, Radish, Sweet Potato, Yam, Turmeric etc.
Joda, Banspal	Mango, Guava, K. Lime, Tomato, Cauliflower, Beans, Radish, Sweet Potato, Yam, Turmeric, Ginger etc.

### POTENTIALITY

Mango covers over 11000ha in the District and is being marketed in the neighbouring states of Jharkhand and West Bengal besides Orissa. Flowers like Gladioli, Rose and Marigold being grown successfully by farmers. **Besides seasonal vegetables, off-season vegetables like Radish, Cauliflower, Tomato are successfully cultivated in summer and rainy season.**

### CLIMATE:

The climate of the district is characterized by an oppressively hot summer with high humidity. Summer generally commences in the month of March. Temperature begins to rise rapidly attaining the maximum in the month of May. During the Summer maximum temperature is 38.2<sup>0</sup>C. The weather becomes more pleasant with the advent of the monsoon in June and remains as such up to the end of October. The temperature in the month of December is lowest i.e. 11.7<sup>0</sup>C. Sometimes it even drops down to 7<sup>0</sup>C. The average annual rain fall and rainy days are 1499.53/ 1400 mm and 77.8 days respectively.

### Agro Ecological Zones

Agro climatic Zone	Agro Ecological Situations	BLOCKS
NORTH CENTRAL PLATEAU	i) Low elevation, med rainfall	Ghasipura
	ii) Low elevation, low rainfall	Hatadihi part
	iii) Med elevation, low rainfall	Jhumpura, Saharpada
	iv) Med elevation, med rainfall	Patna, Harichandanpur, Joda, Keonjhar, Telkoi
	v) Med elevation, high rainfall	Ghatagaon, Champua
	vi) High elevation, high rainfall	Banspal
NORTH EASTERN COASTAL PLAIN	vii) Red Late rite, rain fed	Anandapur, Hatadihi



## **Irrigation in ha**

<b>Net Irrigated Area</b>	<b>71000</b>
By Channels (Major, MIP, RL etc)	52905
By dug wells/STW	8816
By other sources	9415

The agro-climatic condition, altitude and soil type of Keonjhar district provides a congenial atmosphere for growing a wide range of horticultural crops. The district, being the watershed of river Baitarani and its tributaries, has a total cultivated area of 298000 ha out of which highland constitutes 53% while medium and low land constitute 34% and 13% respectively. Most part of the high land is endowed with deep and well drained soil. This vast tract of land holds high potential for horticultural crops.

## **SWOT**

### **Strength**

1. Off-season cultivation of tomato, cole crops, radish etc.
2. Presence of wide range of diversity in Mango, Custard apple & Jack fruit etc.
3. Potential local cultivation of Brinjal, Cucurbits, Country bean and tuber crops etc.
4. Maize, local black gram (pejua biri) is being cultivated in many areas.
5. Vast tract of uplands for cultivation of remunerative field crops like maize, groundnut & arhar.
6. Long & cold winter favours cultivation of off-season vegetables & many fruit crops.

### **Weakness**

1. Soil acidity and iron toxicity limit the supply of essential nutrients & hamper crop growths.
2. Loss of productive top soil, leaching of plant nutrients & reduced soil productivity due to unabated soil erosion.
3. Shifting cultivation, reckless forest felling, increased mining activities, upsetting natural balance trigger the impact of climate change.
4. Deficiency of micro nutrients like boron & molybdenum decreases the production & quality of crops.
5. Water Logging in command areas and poor community based water management system.
6. Erratic rain fall (Long dry spell & heavy down pour) during the crop growth stage).
7. Small & Marginal farmers constitute the major chunk of population.
8. Fragmented land holding.
9. Inadequate economic condition of farming community.
10. Poor agro processing facility.
11. Poor storage facility.

12. Lack of organized market.
13. Subsistence nature of farming.
14. Wide spread mono cropping of limited no. of varieties of the crops making agro economic system homogeneous.
15. Sub optimum utilization of resources like irrigation, residual moisture & farm waste etc.
16. Low level application of enriched organic matter (Compost, FYM, Vermi compost) etc.

### Opportunities

1. High scope for cultivation of hybrid maize, aromatic rice, pulses etc.
2. Area expansion under off season vegetables and flowers.
3. Establishment of fruit orchards.
4. Scope for crop intensification.

### Threats

1. Over exploitation of natural resources.
2. Biodiversity erosion.
3. Seasonal climatic aberration.
4. Instability in the market.
5. Shifting of livelihood pattern (Agriculture to Mining, Industry & other sectors).

### Area, Production & Productivity (2007-08 to 2009-10)

#### Year 2007-08

Sl No.	Crop	Area In hect.	Production in MT	Productivity in Qtls. Per hect.
1.	Cabbage	2030	62524	308.00
2.	Cauliflower	3280	49200	150.00
3.	Tomato	9880	147212	149.00
4.	Beans	375	1968	52.50
5.	Potato	1785	18805	105.35
6.	Mango	8008	19477	24.30
7.	Guava	1400	1100	15.01
8.	Citrus	1390	1603	20.43
9.	Cashew	3990	2000	31.00
10.	Sapota	84	149	11.40
11.	Coconut	1347	150	28.43
12.	Others	1917	270	15.60

#### Year 2008-09

Sl No.	Crop	Area in ha.	Production in MT	Productivity in q/ha
1.	Cabbage	1370	39319	287.00
2.	Cauliflower	1650	20625	125.00
3.	Tomato	5860	87841	149.00
4.	Beans	272	1429	52.55
5.	Potato	1753	16864	96.20

6.	Mango	9126	21252	23.20
7.	Guava	1479	1205	16.01
8.	Citrus	1394	1793	21.43
9.	Cashew	3995	2079	31.67
10.	Sapota	85	159	12.41
11.	Coconut	1348	152	30.59
12.	Others	1918	274	17.89

**Year 2009-10**

Sl No.	Crop	Area in hect.	Production in MT	Productivity q/ha.
1.	Cabbage	1300	39000	300.00
2.	Cauliflower	1520	22800	150.00
3.	Tomato	5010	74699	149.10
4.	Beans	275	1445	52.59
5.	Potato	1866	20339	109.00
6.	Mango	10088	22458	22.20
7.	Guava	1489	1300	17.23
8.	Citrus	1400	1800	22.79
9.	Cashew	3998	2189	32.49
10.	Sapota	85	159	12.41
11.	Coconut	1349	162	33.50
12.	Others	1920	294	18.98

**Visit of J.I.T. visited in Keonjhar District.**

S. N.	Name of the Beneficiary	Address	Crop	Year of Plantation	Area In Hect.	Nos. planted	Nos. survived as on date of inspection	% age of survival	Remarks
1	Sarat Mohanta	Vill. Kathabari, Block-Keonjhar	Mango	2010-11	2.0	200	194	97	Grafts are under sized.
2	Rangadhara Naik	-do-	-do-	2010-11	2.0	200	190	95	-do-
3	Prafulla Naik	-do-	-do-	2010-11	3.0	300	292	97	-do-
4	Bhimsen Giri	-do-	-do-	2010-11	1.0	100	100	100	-do-
5	Biswanath Naik	Vill. Khuntapada, Block-Ghatgaon	Mango	2010-11	2.0	200	195	97	New plants suffering badly with pests.
6	Makaradhwaja Naik	Vill. Sanabarabeda, Block-Ghatgaon	Cashew	2010-11	1.0	200	192	96	No proper staking of plant.

7	Dilip Kumar Naik	Vill. Khuntapada, Block-Ghatgaon	Mango	2009-10	1.0	100	96	96	Planting material not good.
8	Achyutananda Dalei	-do-	Mango	2009-10	2.0	200	198	99	Planting material not good.
9	Gouri sankar Panda	-do-	Mango	2009-10	4.0	400	390	97	Remove weed, apply pesticide to control insects.
10	Arjun Mohanta	-do-	Banana	2009-10	0.5	1000	1000	100	Apply proper dose of fertilizer
11	Dilip Kumar Bej	-do-	Mango	2007-08	1.4	140			Subsidy availed twice from different source.
12	Smt. Saramita Singh	Sanabarabada, Block-Ghatgaon	Cashew	2010-11	1.0	200	200	100	National inferior quality.
13	Ramesh Chandra Naik	Vill. Asanpat, Block-Jhumpura	Mango	2007-08	4.0	400	361	90	Stem cracking to convert with pasting.
14	Motilal Naik	-do-	Mango	2007-08	2.74	274	246	90	-do-
15	Kiran Naik and other 11 nos. of farmers	-do-	Mango	2010-11	40.50	4050	3888	96	Good plantation.

Individual sheets of observations attached separately (**Annexure III**)

The Team also visited one registered Trupty private nursery located at Baxibarigaon village developed by Sri Khetrabasi Behera, recipient of award Krushak Siromoni. The nursery mostly raises mango and cashew grafts apart from budded rose. The team members advised of Trupty Nursery to convert the nursery into a model one. The nursery maintains the mother blocks of mango and cashew very nicely. It has sold about 3.5 lakh cashew grafts and 2.5 lakh mango grafts this year.

The JIT visited a mango plantation developed by large number of tribals. The team members felt shocked to see that most of the grafts are in miserable health. On enquiry, it was revealed by the beneficiaries that the grafts were procured from Kuanr Farm, a Govt. Nursery. The team later on visited the Kuanr Farm wherein it was found that most of the grafts produced and maintained by the farm were not up to the tune of

expectation. The people involved in the production of planting materials in the farm have been advised to take proper care of the freshly grafted plants.

#### **Activities visited by JIT**

1. Area expansion programme of fruit crops (Perennial /non perennial)
2. Model Nursery.
3. Govt. Model Nursery
4. Drip / borewell

#### **Details of observation made by JIT in district Keonjhar**

1. Massive programme under area expansion has been taken up this year but the JIT felt dissatisfied with the planting material being supplied by the Govt. nursery to the tribal beneficiaries. Other places team has also faced the same situation.
2. Local variety of banana is given more priority which has a maximum incidence of diseases, which requires replacement with G 9(TC).
3. Under area expansion programme of mango single cultivar is being given to the farmers for planting at few places. However, constant guidance is required to the needy farmers before planting of orchard in tribal areas by the department.
4. In Govt. nursery old mother plants are still existing, need rejuvenation so that more bud sticks are taken from such rejuvenated trees.
5. Micro irrigation (drip & sprinkler irrigation) system have been given to the farmers, needs proper training.
6. Target fixed under micro irrigation has been achieved partially.
7. It has been observed that the programme implementing officials are not fully trained and also escaping the regular visit at the sites to guide them properly.
8. Low activities under PHM.
9. Planting material supplied to the beneficiaries by the Department / Registered private nurseries have been found sub standard.
10. Less encouragement for inter cropping the new orchards.
11. Most of the places, permanent board with NHM logo was found missing.

#### **MAYURBHANJ DISTRICT**

From the peaks of Meghasani in the core of Similipal National Park to the plains of Amarda with Budhabalang , Baitarani and Suno river to Kalo , Deuli and Khadakhai reserves lies the district of Mayurbhanj in the state of Orissa. The district is divided into three major geographical units viz. Eastern Plains, Western Plateau and intervening Similipal range having total geographical area of 10418 square kilometres comprising 26 Blocks in 4 (four) Sub- divisions.

The total cultivated area of the district is 4, 47,214 hect. out of which high land is 1,95,441 hect. (43.70%) & medium land is 1,24,730 hect. (27.90 %) . The soil of the District may be divided into two broad groups i.e. Red & Laterite Soil . Under Red soil, there are typical red, red loam, and red clay loam. Under Laterite, Morrum Laterite and Rocky Laterite soils are in abundance.

The climate of the District is characterised by hot summer and fairly cold winter. The highest temperature ranges from 43 to 45 degree Celsius and lowest upto 7 to 10

Degree Celsius. The rain fall starts mostly from mid June and continues upto mid October and the average annual rain fall is 1645mm.

Besides orchards of traditional fruit crops established by the local people, there a few orchard set up by the Maharaja of Mayurbhanj and subsequently British Rulers. A concerted effort to harness the potential of vast barren land largely suitable for horticulture plantations was made from the year 1995-96 on wards and was successful also. Intensive approach in the context will help to improve the economy of the farmers in general and tribal farmers in particular.

#### **Area and Production of Horticulture Crop**

SI No	Crop	Area ( ha)	Production ( in Tones)
1	Vegetable Crops	73195	695719
2	Fruit Crops	16823	81653
3	Condiments	17370	24050
4	Flowers	156	1339

#### **Area and Production (Fruit Crops)**

SI No	Component	2004-05	2008-09
1	Area	11318	16823
2	Production	53933	81653
3	Productivity	4.76	4.85

#### **Infrastructure**

##### **a) MARKETS-**

Local Market	:-	80
Regulated	:-	03
Un-regulated	:-	45

B) Processing units	:	4
C) Cold Storage	:	10

#### **SWOT Analysis**

SI No	Strength	
<b>Strength</b>		
1	Varied Agro Climatic conditions	Helps to grow varied Horticulture Crops
2	Good Transportation facilities	Road and Train connects TATA, West Bengal and Capital of State and Major markets
3	Vast Stretch of high lands	Conducive for plantation of fruit like

		Mango & Cashew
4	Many River and Nalas Flow	Help in life saving irrigations
<b>Weakness</b>		
1	Lack of processing unit	Leads to low price and distress sale
2	Lack of storage infrastructure	Leads to low price
3	Lack of post harvest activities	Sorting, grading & packing not followed properly
4	Less Irrigation facilities	Production of Vegetable and flower is reduced
5	Agriculture is not encouraged through Credit link Nationalised banks.	Big project not come up
<b>Opportunity</b>		
1	Scope for establishment of processing Industries	Tomato, Mango, Lime, Cashew Industries may come up
2	Scope for establishment of Market infrastructure	All type of fruits, Vegetable and Agril. Commodities market
3	Banking Net work	Adequate for financing project
4	Research activities	K.V.K. and other Institute may take up Research for development of Horticulture
<b>Threat</b>		
1	Flood in some areas of the District	Rashgovindpur, Badasahi & Betnoti Block are most affected
2	Erotic Rain fall	Create problem in dry land
3	Fluctuating Market price	Planning of crop pattern
4	Perishability of hort. Crop	Cold chain facilities required
5	Soil erosion in hilly areas	Gully control, Soil & water conservation required

#### **Hindrances in implementation of National Horticulture Mission Programme**

- For PHM activities, credit linked back ended subsidy provision is creating hindrances in achieving the target.
- Less subsidy in case of cashew and floriculture specially Rose & Gladioli is making the farmers switching over to others crops .

#### **Progress:**

Looking to the above advantage of the district, Mayurbhanj was included under National Horticulture Mission during 2005-06 for the holistic development of Horticulture.

#### **Area covered under fruit crops (2005-2010)**

Name of Crops	Year wise area covered in hect.					
	2005-06	2006-07	2007-08	2008-09	2009-10	Total up to 2009-10
Mango	684.20	890.20	1094.5	1170	2050	5847.40
K.Lime	0	0	75.90	71	96	242.90

Cashew	0	240	437.15	450	450	1577.15
Banana Suckers	30	36.25	51.5	71.85	31.80	169.90
Banana T.C	0	0	0	2.05	0	2.05
Anola	0	45	70	18	0	133

**Physical and Financial Achievement and target (2008-09 to 2010-11)**  
**2008-09**

Sl No	Name of the Programme	Financial		Physical	
		Allotment	Expenditure	Target	Achievement
1	Mango Plantation	9280250	9236926	1170	1170 Ha.
2	K.Lime Plantation	672470	648601	71	71
3	Cashew Plantation	2703750	1780693	450	450
4	Anola Plantation	49750	49750	18	18
5	Banana Cultivation	150000	190163	30	35.4
6	Banana Cultivation (07-08))	150000	150000	38.5	38.5
7	1 <sup>st</sup> .Yr.Maint of Mango Plantation	2684556	2524088	852.24	814.24
8	1 <sup>st</sup> .Yr.Maint.of K.Lime Plantation	472445	265494	607	56.1
9	1 <sup>st</sup> .Yr.Maint.of Cashew Plantation	468090	441378	207.94	194.39
10	1 <sup>st</sup> .Yr.Maint.of Anola Plantation	109906	90175	43.1	41.75
11	1 <sup>st</sup> .Yr.Maint. of Banana	45000	45000	21	19.5
12	2 <sup>nd</sup> .Yr.Maint. of Mango Plantation	2791060	2702222	590.69	580
13	2 <sup>nd</sup> .Yr.Maint of Cashew Plantation	459270	454015	136.08	136.08
14	2 <sup>nd</sup> .Yr.Maint of Banana Plantation	16650	16650	3.7	3.7
15	Model Nursery (Public)	3600000	2025630	3	3
16	Small Nursery (Public)	900000	531688	3	3
17	Vermi Compost (Big)	300000	240000	10	8
18	Vermi Compost (Small)	315000	240000	42	32 No.
19	Training INM/IPM (Exposure Visit (Inside)	525000	480000	350	350
20	Marigold (Winter/ Summer)	633600	560124	800	770
21	Rose (SF/ MF and Others)	1331050	1023794	388	351
22	Tuberose (SF/MF	751444	531719	200	200



	and Others)				
23	Gladioli (SF/MF and Others)	37373	38291	700	700
24	Vegetable Mini Kit	131700	49602	19350	19350
25	Poly green house	55900	11180	10	1
26	Shed Net house	7000	7000	21	3
27	Mulching	70000	60416	28	10
28	INM / IPM	185000	127900	185	130
29	Onion Storage	40000	24000	5	3
30	Production of Q.P.M.	100000	112666	115000	111334
	<b>TOTAL</b>	<b>29036264</b>	<b>24659165</b>		

**2009-10**

Sl No	Name of the Programme	Financial		Physical	
		Allotment	Expenditure	Target	Achievement
1	Mango Plantation		23316222	2050	2050
2	K.Lime Plantation		1079008	96	96
3	Cashew Plantation		2954048	450	450
4	Banana Cultivation		289500	110	31.80
5	1 <sup>st</sup> .Yr.Maint of Mango Plantation		3678660	817.48	817.48
6	1 <sup>st</sup> .Yr.Maint.of K.Lime Plantation		278507	61.8	61.80
7	1 <sup>st</sup> .Yr.Maint.of Cashew Plantation		704692	312.26	312.26
8	1 <sup>st</sup> .Yr.Maint.of Anola Plantation		67500	15	15
9	1 <sup>st</sup> .Yr.Maint. of Banana		43000	27.28	27.28
10	2 <sup>nd</sup> .Yr.Maint. of Mango Plantation		3674135	547.5	547.5
11	2 <sup>nd</sup> .Yr.Maint of Cashew Plantation		756773	222.3	222.3
12	2 <sup>nd</sup> .Yr.Maint of K.Lime Plantation		385897	57.07	57.07
13	2 <sup>nd</sup> .Yr.Maint of Anola Plantation		193626	31.83	31.83
14	Model Nursery (Private)		2041500	3	3
	Model Nursery (Public)		3635008	3	3
15	Small Nursery (Public)		308437	3	3
	Small Nursery (Private)		140000	3	3
16	Vermi Compost (Big)		90000	7	3
17	Vermi Compost (Small)		375000	70	50

18	Marigold (Winter/Summer)		320992	390	390
19	Rose (SF/ MF and Others)		-	80	80
20	Gladioli (SF/MF and Others)		68408	1000	1000
21	Vegetable Mini Kit		1793515	24825	24825 KIt
22	Exposure Visit outside the State		138000		69
	<b>TOTAL</b>	<b>51496699</b>	<b>46332428</b>		

**2010-11 (Up to July'2010)**

Sl No	Name of the Programme	Financial		Physical	
		Allotment	Expenditure	Target	Achievement
1	Mango Plantation			1745	1705
2	K.Lime Plantation			50	50
3	Cashew Plantation			225	225
4	Banana Suckers			30	0
5	Banana T.C			30	0

**Production of Quality Planting Materials in Mayurbhanj district**

Year	Name of the Hort. /AHO	Name of Planting Materials	Nos. Produced	Total for the District	
2005-06	Baripada	Mango Grafts	45000	Mango Grafts - 55000	
	Rairangpur	-do-	5000		
	Karanjia	-do-	0		
	AHO, K.P.Farm	-do-	5000		
2006-07	Baripada	Mango Grafts K.Lime Seedlings	50000 70000	Mango Grafts - 66500 K.Lime Seedlings - 80000	
	Rairangpur	Mango Grafts K.Lime Seedlings	8500 5000		
	Karanjia	Mango Grafts K.Lime Seedlings	3000 5000		
	AHO, K.P.Farm	Mango Grafts	5000		
2007-08	Baripada	Mango Grafts K.Lime Seedlings	70000 20000	Mango Grafts - 87000 K.Lime Seedlings - 26500	
	Rairangpur	Mango Grafts K.Lime Seedlings	5000 1500		
	Karanjia	Mango Grafts K.Lime Seedlings	7000 5000		
	AHO, K.P.Farm	Mango Grafts	5000		
2008-09	Baripada	Mango Grafts	80000	Mango Grafts - 93000 K.Lime Seedlings - 13334	
	Udala	Mango Grafts	5000		
	Rairangpur	Mango Grafts K.Lime Seedlings	2000 8334		
	Karanjia	Mango Grafts	5000		
	AHO, K.P.Farm	Mango Grafts K.Lime Seedlings	6000 5000		

2009-10	Baripada	Mango Grafts K.Lime Seedlings Sapota grafts	80000 30000 1200	Mango Grafts – 134030 K.Lime Seedlings – 61191 Sapota Grafts- 1200 Litchi gootees - 2000 Coconut Seedlings- 5000
	Udala	Mango Grafts K.Lime Seedlings	2500 8000	
	Rairangpur	Mango Grafts K.Lime Seedlings	13260 13053	
	Karanjia	Mango Grafts K.Lime Seedlings	8000 5000	
	AHO, K.P.Farm	Mango Grafts K.Lime Seedlings Litchi gootees Coconut Seedlings	30270 5138 2000 5000	

### Micro Irrigation (2009-10 to 2010-11)

#### Year 2009-10

Sl No	Name of the Unit	Spill Over	Amount received	Grand Total	Expenditure	Balance	Remarks
1	2	3	4	5	6	7	8
1	Micro Irrigation subsidy	5825844	9879000	145704844	11079061	4625783	
3	Interest money	32288	12660	159248	0	159248	
	<b>Total</b>	<b>5858132</b>	<b>1005960</b>	<b>15864092</b>	11079061	<b>4785031</b>	

#### Year 2010-11 (Up to July'10)

Sl	Name of the Unit	Spill Over	Amount received	Grand Total	Expenditure	Balance	Remarks
1	2	3	4	5	6	7	8
1	Micro Irrigation subsidy	4625783	0	4625783	4511887	113896	
3	Interest money	159248	50861	210109	0	210109	
	<b>Total</b>	<b>4785031</b>	<b>50861</b>	<b>4835892</b>	<b>4511887</b>	<b>324005</b>	

## Micro Irrigation System

### Drip Irrigation

Year	Physical (in ha.)		Financial (in Rs.)	
	Target	Achievement	Target	Achievement
2005-06	0	0	0	0
2006-07	0	0	0	0
2007-08	0	0	0	0
2008-09	90.00	31.00	0	765904
2009-10	220.00	0	0	0
<b>Total</b>	<b>310</b>	<b>31</b>	<b>0</b>	<b>765904</b>

### Sprinkler Irrigation

Year	Physical (in ha.)		Financial (in Rs.)	
	Target	Achievement	Target	Achievement
2005-06	0	0	0	0
2006-07	0	0	0	0
2007-08	0	0	0	0
2008-09	210	185		1400409
2009-10	700	53		526522
<b>Total</b>	<b>910</b>	<b>238</b>		<b>1926931</b>

### J.I.T. visited the following patches of Mayurbhanj District.

S. N	Name of the Beneficiary	Address	Crop	Year of Plantation	Area In Hect.	Nos. planted	Nos. survived as on date of inspection	% age of survival	Remarks
1	Satish Ch. Naik & other 8 farmers	Vill- Ghagarda Block- Sukruli	Mango	2010-11	10	1000	990	99	Plastic mulch to be applied
2	Dukhabandhu Barik	Vill- Kankada Block- Karanjia	Modal Nursery	2009-10					Functioning very nicely
3	Sachindra nath Mohanta	Vill- Bhalupahadi Block-Kusemi	Mango	2009-10	1	100	92	92	Staking is required
			Vermicompost unit	2008-09					In operation
4	Saguram Soren	Vill-Dhodichua Block-Kusumi	Mango	2008-09	0.8	80	80	100	Good inter cropping in mango.
5	Rekhamani Das	Vill-Majhigan Block Bahalda	Mango	2009-10	4	400	400	100	Good management take inter crops.
6	Dinesh Ch. Das	-do-	Mango	2009-10	2	200	200	100	Good upkeep
7	Tarak Nath Das	-do-	Mango	2009-10	4	400	400	100	-do-
8	Dillip Adhikari	Vill- Chuapani Block- Bangiripasi	Mango	2009-10	3	300	300	100	Maintaining well.
9	Duryodhan Adhikari	-do-	Mango	2010-11	0.4	40	40	100	-do-

1 0	Krishna Nath	Vill-Sasdapal Block- Bangiripasi	Mango	2010-11	2	200	195	97	Advised to plant one cvs of mango.
1 1	Arun Karmakar	Vill-Mohiniganj Block- Baripada	Mango	2008-09	1.2	120	120	100	Good growth of mango.
			K.Lime	2007-08	0.4	160	160	100	Pruning required
			Banana( T.C)	2010-11	0.16	480	460	96	Take care of sigatoka
1 2	Chudhuri sapan Kumar Mohapatra	Vill- Angargadia Block - Badsahi	Model Nursery	2009-10					Functioning nicely

The district Mayurbhanj started its activities under NHM since 2005-06 for the holistic development of Horticulture. It was observed by the JIT that the achievements made during the years had been quite satisfactory. However for further development necessary efforts should be made to streamline the PHM activities. The staffs responsible for the NHM activities have taken enough interest the area expansion of mandatory crops such as mango, cashew, K. lime and banana. It was also observed that the plantations belonging to resource-rich farmers have been well cared because of the execution of drip irrigation/sprinkler and other recommended management practices for the respective crops. Some of the beneficiaries have constructed agro shed net houses and naturally ventilated poly houses for the purpose of planting quality planting materials and growing some high value crops under protected conditions

The Team visited one Model Nursery (Private) developed by Chaudhury Sapan Kumar Mohapatra at village Angargadia of Badsahi Block during the year 2009-10. The team found the nursery to be of exemplary status and can lead the area in both production of planting materials and training of rural youth in Horticulture. The project cost of the venture was Rs. 25 Lakh but a sum of Rs. 18 lakh was considered for NHM purpose. The subsidy released to the bank till date was Rs. 8, 11,500.00 (Rupees Eight Lakh Eleven Thousand Five Hundred only) for various units. Seventeen varieties of commercial and hybrid mango have been planted in the nursery for mother plants. Apart from this, 75 nos. of local elites are also available for production of QPM in the nursery. Leading varieties of cashew have also been planted and maintained as mother plants. The entrepreneur has a target to produce 15000 nos. of mango grafts, 30000 nos. of cashew grafts and 25000 nos. of budded rose this year. The team also visited the nursery of rootstalks of both mango and cashew and got quite satisfied with the quality and quantity of work. Mr. Mohapatra has set up one vermin compost unit from where he is producing 20 tons of manure per month. The produce is being used by him in his own farm and also sold to the local farmers. He has also installed drip irrigation system in mango, Rose and papaya which is working satisfactorily. **A very hi-tech pollution free unit of production of electricity from wood was also found inside the premises. The unit is producing 1 kilowatt of electricity of 400 volts 3 phase from every 1.3 kg of wood.** He is also interested to set up one cashew processing unit for which he was instructed to contact local Horticulturist for necessary help.

The climate of the district characterised by hot summer and cold winter is highly suitable for Kagzi lime cultivation. A local variety namely, Kuliana local land race developed from Kuliana village is widely popular in the state and also outside the state for its size and juice content. It covers more than 300 ha. in the district. It is being widely grown both sides of river Budhabalanga, which provides a congenial micro climatic condition for its growth.

### Activities visited by JIT

1. Area expansion (Mango, K. Lime, Banana (T.C), Floriculture)
2. Private model Nursery
3. Vermi compost pits
4. Drip

### Details of observation made by JIT in the District of Mayurbhanj

1. Team felt satisfied with the achievement made in the district, by and large area expansion programme is going on at a right direction except canopy management (mango) and training/ pruning (K. lime, cv. Culiana, local land race) which has to be taken up in a big way.
2. Potential area for mango cultivation needs rejuvenation of old and senile orchard for improving productivity and promotion.
3. Model nurseries visited by the team felt satisfied seeing the good quality planting material (mango, cashew, lime etc.) but at one point the graft union height was not at proper place.
4. Vermi compost unit given to beneficiaries, do not produce vermi wash which is an integral part of organic farming.
5. Still there is tremendous scope to enhance the productivity of the fruit crops in the district.
6. There is no mulching around the basin of plants in the orchard.
7. NHM Board with logo was not displayed at few places.

### Balasore District

Balasore is one of the important Agricultural District known for growing of paddy, vegetables, betelvine, cashew, mango, banana, coconut etc. on large scale. The Agro- Climatic Zone of Balasore District is North- Eastern Coastal Plain is situated at Coastal area of Bay of Bengal.

### Area and production of Horticulture crops (2009-10)

Sl.No.	Crops.	Area (ha)	Productivity(q/ha)	Production (in MT)
1.	Vegetable crops	48433	115	5,56,980
2.	Fruit crops	10479	36	37,724
3.	Betelvine	931	50,000(leaves/unit of 5 cent)	15,388 (leaves in lakh nos.)
4.	Flower crops	396	5	1980
5.	Spices	6745	9.50	6408

**Climate:** - The climate of Balasore District is favourable for growing of Horticultural crops like mango, cashew, banana, coconut, vegetable and betelvine. It's climate is North- Eastern coastal plain characterized by high temperature, moist sub-humid, medium and high rainfall and mild winter. The annual rainfall is 1568 mm distributed over 72 rainy days. The mean annual minimum temperature is 14.8 degree centigrade.

**Soil:-** From the soil profile point of view the District consists of red, laterite, deltaic, alluvial, coastal alluvial and saline type of soil. Due to water logging of some areas particularly in the deltaic areas soil erosion is increasing rapidly.

## **SWOT**

### **Strength:**

1. Agro climate condition of Balasore District is suitable for growing fruits, Vegetables, flowers, Betelvine & spices.
2. High and Medium land (about 57% of total cultivated area) can be utilized for Horticulture crops.
3. Govt. farms and nurseries are producing quality materials.
4. The District has Krushi Vigyan Kendra to provide new and need based technologies to farm community.
5. Good transport facility i.e. South East main Railway & National highway is running through this District.
6. Agro credit facility: - Farmers are encouraged through a no of commercial and co-operative Bank to take crop loans by Agro credit facility.

### **Weakness:**

1. Most of lands are low land flood affected and water logged land.
2. Non availability of adequate planting materials.
3. Poor economic condition of small and marginal farmers.
4. Most of plantations are bound plantation and peripheral plantation.
5. Lack of infrastructure facilities for post harvest management and marketing.
6. Inadequacy of trained manpower and infrastructure.

### **Opportunities:**

1. There is tremendous demand for fruits, Vegetables, flowers in the District which otherwise is being met by importing from other States.
2. Scope for establishment of processing unit.
2. Availability of suitable land for growing Horticultural crops.
3. Scope for protected cultivation of flowers, Vegetables and also planting materials
4. Scope to generate marketable surplus for export
5. There is adequate scope for transportation surplus produces both by Road and Railways.

### **Threats:**

1. Uncertainty in weather condition and frequent occurrence of natural climates like flood, cyclone and drought etc.
2. Uncertainty about market stability and farmers do not get proper remunerative price.
3. Exploitation by middlemen in the market chain
4. Poor economic condition of small and marginal farmer.
5. Highly fluctuating market price for Horticultural crops for this planned cropping pattern, and assured & regulated marketing system.



### Strategies

1. By conducting meeting at village level by the District level officers.
2. By giving wide publicity in local as well as in state level newspapers and advertising through Television and Radios.
3. By displaying boards / charts / photos regarding N.H.M. scheme details at Block level and District level offices and awareness being created by distribution of leaflets among the farmers.
4. By conducting training / seminar / workshop through Krushi Vigyan Kendra and Govt. department.
5. Encouraging the entrepreneurs to establish wholesale markets, post harvest management structure and cold chain facilities.

### Hindrances of National Horticulture Mission

- (i) Non availability of compact patches due to small land holdings.
- (ii) For post harvest activities availing of bank loan and other formalities bit cumbersome

### Area expansion programme:

Sl. No.	Name of the fruit crops	Area covered (in ha.)					Total
		2005-06	2006-07	2007-08	2008-09	2009-10	
1	<b>Perennial crop</b>						
	Mango	306	379.6	353.00	255	250	1543.6
	Cashew	--	50.00	95.25	130	135	410.25
	Total	306	429.6	448.25	385	385	1953.85
2	<b>Non Perennial crop</b>						
	Banana	75	55	33.85	34.5	40	238.35
	Floriculture	--	41	42	209	85	377
	Total	75	96	75.85	243.5	125	615.35

### Statement showing increase in area of major fruit crops

Sl.No.	Name of the major fruit crops	Area as on 2004-05 (in ha)	Area after implementation of N.H.M. i.e. as on 2009-10 (in ha)	Percentage of increase of area.
1	Mango	3,265	4,809	47.28
2	Banana	319	557	74.60
3	Cashew	500	910	82.00

**Comparative statement of productivity and production of major fruit**

Name of the crop	2004-05			2009-10		
	Area (in Ha)	Productivity (Qnt/Ha)	Production in M.T.	Area (in Ha.)	Productivity (Qnt/Ha)	Production in M.T.
Mango	3,265	30	97.95	4,809	40	19,236
Banana	319	216	6,890	557	225	12,533
Cashew	500	12	600	910	15	1365
Vegetable	21,498	109	2,34,328	48,433	115	5,56,979
Floriculture	120	3.5	420	568	5	2840

**Impact:**

During the last five year National Horticulture Mission helped to increased in area and productivity of fruit crops like Mango, Cashew, Banana and Vegetable crops, Flower crops like Marigold, Rose and Gladioli.

Before implementation of Horticulture mission in Balasore District, the productivity of fruit crops like Mango, Cashew and Banana, were 30 q/ ha. , 12 q/ha and 216 q/ ha respectively where as the productivity of the above fruits crops were 40 q/ha, 15 q/ha and 225 q/ha respectively in the year 2009-10. Similarly the productivity of vegetable crops and Flower crops has been increased from 109 q/ha and 3.5 q/ha to 115 q/ha and 5 q/ ha respectively.

The farmers have been encouraged to establish a no of Mango, Cashew & Banana plantations and vermi compost unit etc. as improved technique of modern Horticultural farming in their farm. The micro irrigation has also helped in over all development of farmers.

**Visit of JIT**

**JIT visited the following beneficiaries**

Sl. No	Name of the Beneficiary	Address	Crop	Year of Plantation	Area In Hect	Nos. planted	Nos. survived as on date of inspection	% age of survival	Remarks
1	Bhagiratha Giri	Vill- Chalanti Block- Jaleswar	Banana	2010-11	1	2000	1800	90	Sigatoka observed more
2.	Nilasaila Nayak	Vill-Maitapur Block- Simulia	Mango	2005-06	2	200	136	42.85	Good
			Mango	2009-	0.4	40	28	10.73	-do-

				10					
3.	Sridhara Praharaj	Vill-Ambapuja Block-Balasore	Banana	2010-11	3	6000	5420	90	Sigatoka observed
4.	Bajendra Giri	Vill-Chalanti Block-Jaleswar	Banana	2009-10	0.75	1500	1352	90	Good crop
5.	Sanyasi Giri	Vill-Chalanti Block-Jaleswar	Banana	2010-11	1.5	3000	2712	90	Good maintenances
6.	Sk. Kefatullah	Vill-Jaganathpur Block-Remuna	Small Nursery (private)	2009-10					Under operation
7.	Gajendra Behera	Naitapur, Simuli	Vermi compost	2006-07	-	-	-	-	Under operation
8.	Suhana	Jagannathpur, Remuna	Small Nursery	2009-10	-	-	-	-	-do-
9.	Sabooja Sathi	Karuda	Nursery	2009-10	-	-	-	-	-do-
	-do-	-do-	Vermi compst	2008-09	-	-	-	-	-do-

#### Activities visited by JIT

1. Area expansion of banana, mango.
2. Nursery development programme.
3. Vermi compost

#### Observation of JIT

1. Team observed that there is tremendous scope for protected cultivation of flowers, vegetables and also seedling of vegetables.
2. There is good scope for cultivation of betel vine which cover more than 1000 ha in the district.
3. No funds were given by SHM of I<sup>st</sup> year maintenance of fruit crops cashew, banana including T.C (7 ha) and Aonla planted during 2009-10.
4. Most of the coconut plantation is on bundh or pheriphery of the yard.
5. The climate is very suitable for banana, coconut, cashew and betel vine cultivation. Mango orchard visited in the vicinity of Balasore, showed very poor performance, the plants were showing sickly look in spite of good effort being made by the farmers.
6. There is no IPM concept in the district where lot of vegetables are grown and supplied to the various markets. Farmers spray lot of pesticides recommended by pesticide dealer and making the pest problem more complex in the region.
7. There is no provision for sterilization of potting soil in the nurseries.

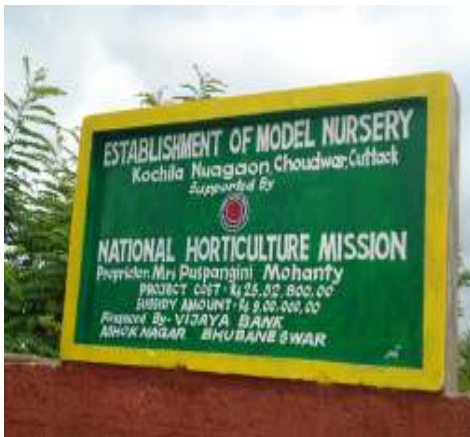
8. In vermi compost unit, there is no provision for collection of vermi wash which is essential component in organic farming.
9. No NHM logo displayed at the sites.

### **Discussion with Director, SMD, Horticulture**

The JIT had a discussion with Shri R S. Gopalan, Director, Horticulture & Mission Director, and appraised regarding issues/bottlenecks in effective implementation of the NHM programme in various district of Orissa and execution of NHM programmes at the ground level. Some components need special attention, were also discussed. The productivity is going down in spite of large area taken by the State under area expansions programme of fruit crops. We also informed about rejuvenation of senile orchard, IPM/INM, PHM where not much work has been done, need special attention, and suggested that the Mayurbhanj district to be given more attention seeing it's potential. We also discussed about the case for availing subsidy from various sources of a farmers for the same piece of land and also poor quality planting material supplied under area expansion programme at some places need to be inquired.

## NHM Activities in Cuttack District









Swami Atmananda  
Cuttack



Sarat Kumar Hati  
Cuttack



Rajkishore Panda  
Cuttack



Sarat Kumar Maharana  
Cuttack



Sarat Kumar Maharana  
Cuttack



Sarat Kumar Maharana  
Cuttack

## Keonjhar







## Balasore



## Mayurbhanj



**NATIONAL HORTICULTURE MISSION**  
**ESTABLISHMENT OF NEW GARDEN - MANGO**

Officer : Smt. Sekharani Das  
 Division : Mangroves  
 District : Mayurbhanj  
 Block : Bahalda  
 Variety : Amrapalli, Mallika  
 Area : 4.00 Ha  
 No. of plants : 400

Project cost :- Rs.1,20,000/-  
 Irrigation installation project cost :- Rs.1,13,392/-  
 Subsidy provision :- Rs.90,000/-  
 Subsidy availed :-  
 1st yr. 45000/-  
 2nd yr. 18000/-  
 3rd yr. 18000/-

For micro irrigation system :- Rs.25,000/-  
 Plantation :- 30.87.2009

HORTICULTURIST  
 HORTICULTURE DEVELOPMENT SOCIETY, RAIRANGPUR, MAYURBHANJ











## Mayurbhanj





## Mayurbhanj



## Mayurbhanj

