

***Final Report***

***On***

***Horticulture Plantation***

***AT***

***ANGUL, GAJAPATI, & PURI***

***FOR***



**P&C DEPARTMENT, GOVT. OF ODISHA  
ODISHA SECRETARIAT**

***by***

**NATIONAL PRODUCTIVITY COUNCIL**



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## **1.0 INTRODUCTION**

Horticulture crops in India include fruits, vegetables, plantation crops, spices and different flowers. Total area under horticulture crops during last five years has increased from 20.52 million hectares (2008-09) to 23.69 million hectares (2012-2013) recording a rise of 15% in the expansion of area.

The major fruits grown in India are Banana, Orange, Grapes, Mango, Papaya, and Sapota etc. the major vegetables are Brinjal, cabbage, Carrot, Cauliflower, Onion, Okra, Potato and Tomato etc. Among plantation Coconut, Cashew nut and Areca nut are grown in different climatic situation. The major spices are Chilly, Garlic, Ginger and Turmeric etc.

Production of horticulture crops in India has increased from 214.44 million tons (2008-09) to 268.85 million tons (2012-13) recording a growth of 25% during last five years. Production of total fruits, Vegetable, plantation fruits and spices have increased from 8.62 million tons to 10.09 million tons, 129.08 million tons to 162.19 million tones, 11.33 million tons to 60.98 million tones and 4.14 million tons to 5.74 million tons respectively during last 5 years (2008-09 to 2012-13).

Productivity of horticulture crops during last 5 years (2008-09 to 2012-13) increased from 104.48 quintal per hectare to 113.47 quintal per hectare. Productivity of fruits, vegetable, plantation fruits and spices have increased from 112.19 quintal per hectare to 116.42 quintal per hectare, 161.77 quintal per hectare to 176.17 quintal per hectare 35.23 quintal per hectare to 46.65 quintal per hectare and 15.76 quintal per hectare to 18.68 quintal per hectare respectively during 2008-09 to 2012-13.

Odisha is bestowed with ten agro-climatic zones favorable for varied number of horticultural crops. Over the years, horticulture has emerged as one of the potential agricultural enterprise in accelerating the growth of state's economy. The area under horticulture crops in Odisha is 13.64 lakh hectares during 2012-13. It produces 12.24 million tons of different horticulture products during 2012-

13. Odisha produces all horticulture crops includes fruits, vegetable, Spices and plantation crops including different flowers.

The state horticulture department has its own horticultural officers in all districts of the state to undertake horticulture plantation and to provide technical advice to the horticultural farmers for undertaking horticultural plantation programme in a scientific way. Besides they procure different planting material from different sources and provide to the farmers as per their requirements. The state government has a massive horticultural plantation programme through which it provides different planting materials to beneficiary farmers. The district level horticultural officers undertake such programs in different blocks of the district through the Asst. Horticulture Officer and other staff stationed at block headquarters. In this study an attempt has been made to evaluate the public service delivery system of horticultural plantation both from supply and demand side in three selected districts namely Angul, Gajapati, and Puri.

Gajapati and Angul district are the major horticultural potential districts in Odisha. Puri is one of the coastal districts where some specific horticultural crops are grown including, coconut, Banana, and Cashew etc. Angul and Gajapati are major producers of Mango, Guava, citrus, Banana, Cashew nut etc. Besides the farmers also grow different flowers. Horticulture plantation programme is one of the important activities of the state government in these three Districts. This programme is implemented through various schemes like National Horticulture Mission (NHM), and Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) etc.

Puri is one of the coastal districts where some specific horticultural crops are grown including, coconut, Banana, and Cashew.

In this study an attempt has been made to evaluate the public service delivery system of horticultural plantation both from supply and demand side in three selected blocks i.e. Chhendipada block of Angul district, Gumma block of Gajapati district and Nimapada block of Puri district in terms of quality of the

service delivery of the programme, resources gap in addressing the service to the farmers as per the desired standard, to examine the level of satisfaction of the beneficiary farmers, and to identify the various gaps & develop policy measures for success of the plantation programme.

Puri is one of the coastal districts where some specific horticultural crops are grown including, Coconut, Banana, and Cashew.

## **2.0 TERMS OF REFERENCE:**

**The study is based on the specific terms and reference as mentioned in the proposal**

- To study the existing service delivery system on horticultural production
- To understand the level of satisfaction of the horticultural farmers in receiving saplings/planting materials through a field survey among different stake holders.
- To identify the various gaps in the horticulture service delivery system.
- To identify the critical factors responsible in causing inefficiency in the system.

## **3.0 DATA AND THE METHODOLOGY:**

The study was undertaken in three selected blocks, namely Gumma block of Gajapati district, Chhendipada block of Angul district and Nimapada block of Puri district. In each block, a cluster of villages are selected based on higher proportionate of number of horticultural beneficiaries. The selected cluster of villages of three districts and blocks are mentioned below.

**The villages selected in different blocks for the study are mentioned below**

<b>Name of the district</b>	<b>Blocks selected for study</b>	<b>Villages selected for study</b>
Angul	Chhendipada	Chandiguda
		Tangiri
		Balinali
Gajapati	Gumma	Brusav
		Seramga
		Baojhal
Puri	Nimapara	Kapileswar
		Vhodar
		Ateihuda

The data relating to the quality of supply delivery system of horticultural plantation in Gumma block of Gajapati district, Chhendipada block of Angul district and Nimapada block of Puri district are collected from the technical personnel of the horticulture department of the concerned block and district. The data relates to system of identification of beneficiaries, type of plantation to be undertaken in the specific area, type of inputs and number of plants to be supplied to each beneficiary, frequency of visit of technical personnel to the planting side, problems faced by the technical personnel during implementation of the project, type of training given to the beneficiaries, type of nursery maintained by the department and infrastructure available for raising seedlings and planting material etc.

In order to study the quality of horticultural plantation under taken by the beneficiaries, the horticultural farmers benefited through the system were identified in the cluster of villages of three selected blocks. More than ten percent of the beneficiaries are selected from the total beneficiaries on random for detail investigation. This was followed in all the three blocks. The detailed information is collected through the pre-tested questionnaire on personal interview.

The data collected from the selected beneficiaries includes extent of awareness created on adoption of horticulture plantation by the technical personnel of the

horticulture department, training given to the beneficiaries, technical input provided and post plantation support offered including post-harvest management.

#### **4.0 GENESIS OF HORTICULTURAL PLANTATION PROGRAMME IN ODISHA**

The Horticulture plantation programme is undertaken by the department of Horticulture; Govt. of Odisha through various schemes like National Horticulture Mission (NHM), Mahatma Gandhi National Rural Employment Act (MGNREGA), and the state Govt. has its own budget provision for development of horticulture plantation programme

#### **5.0 HORTICULTURE PLANTATION IN ODISHA:**

##### **5.1 Selection of Beneficiaries, Planting Type & Scheme:**

The local officials identify the beneficiaries by organizing Pali Sabha and Grama Sabha, prior to the identification of scheme or type of plantation to be undertaken. The technical personnel visit the site and examine the type of land, soil type, and availability of water and technical feasibility of the proposed plantation programme. Based on this, they decide the type of plantation to be undertaken. They provide the inputs as per the provision of the scheme. Normally, the dept. supplies the planting materials in the first year. 75% of the fertilizer and pesticide are provided to the beneficiaries in the first year of plantation.

##### **5.2 Project Implementation:**

Visit of the technical personnel and their intervention in the plantation programme is important at the project implementation stage.

- As per the study the technical personnel do not have any information with them regarding their visits to the planting side in Gajapati district.
- It is a fact that the technical personnel do not make their visit in Puri and Angul district in an organized way.

- In all the selected districts the technical personnel even do not intervene at the time of planting. Beneficiaries only receive the technical instruction while the planting material supplied to them and they plant accordingly.
- Large farmers appreciate the plantation programme more as compared to marginal and small farmers in all the districts.
- Due to lack of adequate technical field staff, they could not make adequate visit to the planting site. As a result quality of planting becomes poor, which causes lower survival of plants and yield.
- The illiterate beneficiaries particularly in Gajapati and Angul district do not receive proper technical instructions for success of the planting.

### **5.3 Training:**

Training to the beneficiaries on pre-plantation, post plantation activities, use of fertilizers and pesticides and watering of plant including marketing of the products are essential for success of the Horticulture plantation. But training is given only on pre-plantation and post plantation activities of two days duration to each by a non-government organization in Gajapati district, while in other two districts training is arranged by the horticulture department at block/district headquarters.

### **5.4 Maintenance of nursery and availability of planting materials:**

Gajapati district is having four numbers of nurseries to meet the demands of saplings/planting material of the district. Each nursery is having areas of more than four hectare. There is facility of poly house/Green house in the nursery. But these nurseries do not meet the demand of sapling and planting material of the district. As a result the horticulture department brings some planting materials from outside of distance 40-80 kilometers.

Since the nurseries have not better facilities, the survival rate is very less and cost per unit of planting material/sapling is very high. But these nurseries are not accredited by the National Horticulture Board or by the University.



Puri district is suitable for coconut plantation. This district shares highest number of coconut plants to the state. The district is having a best nursery for coconut at Sakhigopal, which meets the requirement not only for the district but to the entire state. But Nimapada block doesn't have a good nursery. They mainly depend upon Sakhigopal nursery for coconut. The directorate of horticulture arranges other plants to the blocks to meet their demand.

The Dy. Director of horticulture, Anugul district arranges all planting materials to meet the requirements of different blocks. But Chhendipada block is having no nursery; as a result supply of planting materials to Chhendipada block becomes limited.

#### **6.0 DEMAND AND SUPPLY GAP OF PLANTING MATERIALS:**

In all the districts the horticulture departments does not make real estimate of their requirements of plants in consultation with farming community. As results the horticultural farmers do not get require plants/saplings, they need. In fact the horticulture department procures some quantity of planting materials and allocates it to different blocks based on their experience. The number of plants/saplings allocated to different blocks is shown as the demand for the farming community of the respective blocks. Since the allocated planting materials are much less than their demand, the plants are sold to the farmers immediately. And finally they inform the state government that in each block the target met as per the demand such practiced does not make a growth in horticulture. Such system may be stopped and real assessment for requirement of different planting materials may be made in much advance of the planting time. Such assessment may be made at village/ Panchayat/ Block level. This will bring a realistic estimate of requirement of different planting materials at village/ Panchayat/ Block level. If supply of planting materials can be made based on such estimate, a real growth in horticulture can be achieved. It will bring a change in horticultural planning from top approach to bottom approach, which will benefit much more to the farmers.

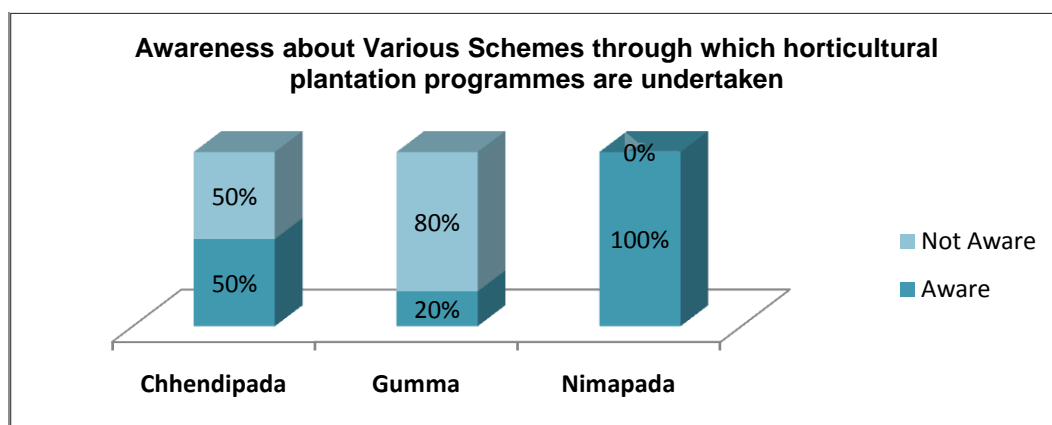
## **7.0 FARMERS RESPONSE ON HORTICULTURAL PLANTATION:**

- Awareness among farming community on various horticulture programmes including National Horticultural mission (NHM), and Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) is very crucial for adoption and success of horticultural program me.
- Training is one of the important activities for providing technical inputs to the farmers on planting technique, number of plants to be grown per hectare, amount of fertilizer and manure to be given to the crops in different stages starting from planting to harvest.
- Timely availability of sapling with the beneficiaries is important for the success of the programme.
- Plantation of horticultural crops needs some basic technical knowledge while planting the plant in the field which the farmers do not know properly. Besides horticulture plantation at farmers field needs constant supervision of the technical personnel for success of the programme.
- Temporary water supply to the new planting side is essential for higher rate of survival of horticultural planting.
- Availability of fertilizer at the planting time and use of pesticide at subsequent stages of crop growth are essential for success of the plantation.
- Post-harvest management is very crucial for horticulture products in respect of harvesting, grading, packing, storing, and selling it at the proper market for providing market support to the farmers.

In this context a field survey was conducted to capture the farmer's response on the above problematic issues in selected blocks of three districts and presented below.

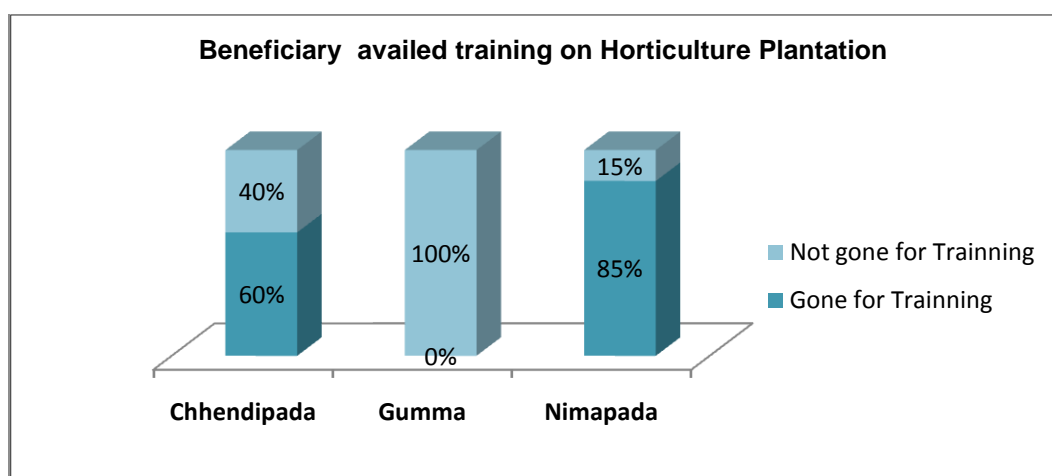
**Farmer's response in three selected blocks (Chhendipada of Angul, Gumma block of Gajapati and Nimapada of Puri district)**

**Figure 1 : Awareness about Various Schemes through which horticultural plantation programmes are undertaken**



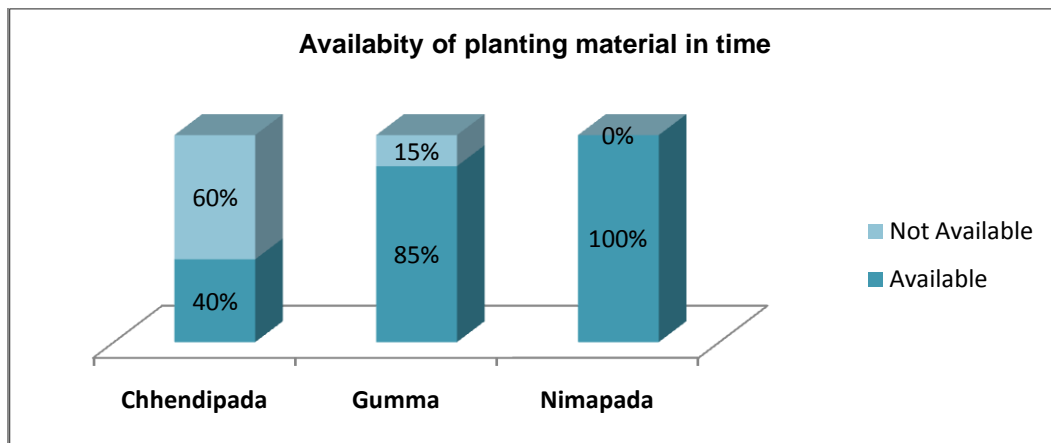
Source (From Field Study)

**Figure 2 : Beneficiary availed training on Horticulture Plantation**



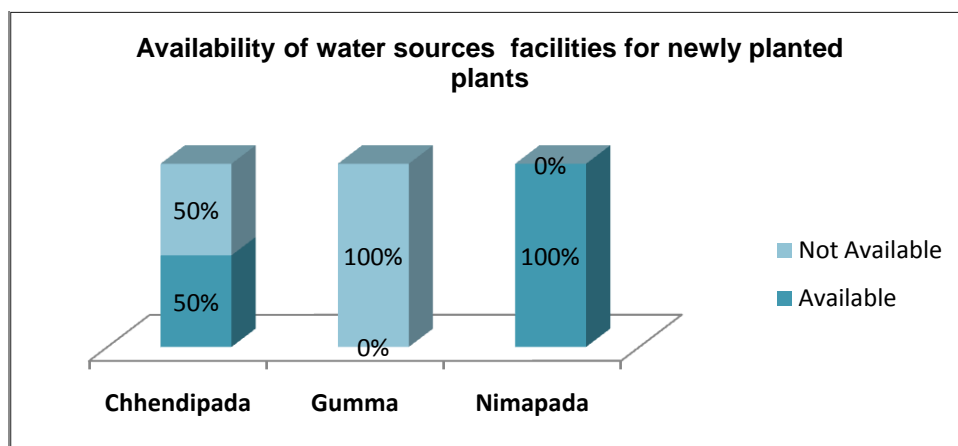
Source (From Field Study)

Figure 3 : Availability of planting material in time



Source (From Field Study)

Figure 4 : Availability of water sources facilities for newly planted plants



Source (From Field Study)

**Farmer's response in Chhendipada of Angul, Gumma block of Gajapati and Nimapada of Puri district.**

<b>CHHENDIPADA</b>	<b>GUMMA</b>	<b>NIMAPADA</b>
50% of the farming community are not aware of various schemes through which horticultural plantation programmes are undertaken.	80% of the farming community are not aware of various schemes through which horticultural plantation programmes are undertaken.	All the farmers are aware of various schemes through which horticulture plantation are undertaken
40% of the beneficiary farmers have not undergone training on horticulture plantation including fertilizer use during plantation in subsequent stages	None of the of the beneficiary farmers have undergone training on horticulture plantation including fertilizer use during plantation in subsequent stages	15% of the beneficiary farmers have not undergone training on horticulture plantation including fertilizer use during plantation in subsequent stages
60% of farmers reported that planting material are not available them in time	15 to 20% of farmers reported that material are not available them in time	All the farmers reported that they get the planting material in time
50% planting side have the facilities of water sources to provide irrigation to the newly planted plants.	None of the planting side has the facilities of water sources to provide temporary /permanent irrigation to the newly planted plants.	All planting side have the facilities of water sources to provide irrigation to the newly planted plants.
The technical personnel did not pay regular visit to the planting site. But during any farmers fare/ farmers training organised nearby planting site, they make a visit the planting site along with trainees/ farmers	Due to shortage of technical staff in the field they do not make any visit to farmer's site even during the entire season. But during the visit of any higher technical officer, the technical staff only visit the planting site before visit of the higher officer	Although the technical staff do not make regular visit to the planting site, they make two to three visits during the season.
Adequate quantity of fertilizer required for plants are not provided	Adequate quantity of fertilizer required for plants are not provided	Adequate quantity of fertilizer required for plants are not provided
Farmers have poor knowledge on post-harvest management in respect of grading, packing, storing processing and even selling in the appropriate	Farmers have poor knowledge on post-harvest management in respect of grading, packing, storing processing and even selling in the appropriate market	Farmers have poor knowledge on post-harvest management in respect of grading, packing, storing processing and even selling in the appropriate market

market for getting better price. Farmers need training on these aspects which is not being provided.	for getting better price. Farmers need training on these aspects which is not being provided.	for getting better price. Farmers need training on these aspects which is not being provided.
There is no grading and packing facilities for the horticultural produce in the villages where horticultural plantation have been under taken. The farmers need such facilities in common places.	There is no grading and packing facilities for the horticultural produce in the villages where horticultural plantation have been under taken. The farmers need such facilities In common places.	Farmers are provided with Facilities for grading, packing, and temporary storing by the government in few common places, locally known as pack house in the villages where horticultural planting have been undertaken. The farmers reported that such facilities can be extended.
At present for better marketing of horticulture produce, few sale centres have been established in urban and semi-urban areas in the name of <b>UDYAN FRESH</b> by the private farms with government support. The farmers need to establishment their procurement centre nearby villages where horticulture plantation are under taken	At present for better marketing of horticulture produce, few sale centres have been established in urban and semi-urban areas in the name of <b>UDYAN FRESH</b> by the private farms with government support. The farmers need to establishment their procurement centre nearby villages where horticulture plantation are under taken	Few procurement centres of <b>UDYAN FRESH</b> are located in the block. The farmers reported that such procurement centre may be extended for the benefit of horticultural farmers

## 8.0 SWOT ANALYSIS

In this study an attempt has been made to study the Strength, Weakness, Opportunities and Threat of the horticultural plantation under taken by the Directorate of Horticulture in the state with an idea to take policy decisions to strengthen the system and also to convert weakness to opportunities. While executing the plantation programme, proper watch to be given on the factors concerning for success of the horticulture development system.

**8.1 Strength:**

- There is separate directorate for horticulture for development Horticulture in the state.
- There are nurseries maintained by OUAT, Regional Plant Resources Center (RPRC) and ICAR institute in the state head quarter.
- A good number of qualified horticultural experts are working in the state.
- National horticulture mission is operating in the state which provides lot of technical strength to the horticulture department.

**8.2 Weakness:**

- The horticulture department has no adequate technical staff at field level to supervise plantation programme.
- The state doesn't have proper nurseries at block headquarters to provide planting material
- Horticulture department doesn't assess in advance the requirement of planting materials for different blocks of the state.
- The state government does not have a well advanced nursery to meet the requirement of planting materials of the horticultural farmers of the state.

**8.3 Opportunities:**

- There are good nurseries maintained by ICAR institute, regional plant resources centre, OUAT and private organization, the state government should utilize such opportunities.
- The government of India is providing lots of resources through National Horticulture Mission to the state, the state government should explore such opportunities.
- The National Coconut Board and the National Horticulture Board are operating in the state. The directorate of horticulture should utilize their facilities available in the state for the benefit of the horticultural farmers.
- Odisha is having lots of diversity in climate with existence of ten agro-climatic zones: the state

- Horticulture department should utilize such diversity in climate by planting various horticultural plants in different agro-climatic zones.

#### **8.4 Threat:**

- The R&D in horticulture in the state is in a poor form.
- The horticultural scientist in the state so far have not developed good crop varieties in fruit plants except few varieties in Cashew and Coconut.
- The horticulture department so far has a poor network at block level to supervise the horticultural programme.

#### **9.0 CONSTRAINTS:**

- The horticulture department has no adequate technical staff at field level to supervise plantation programme.
- The state doesn't have proper nurseries at block headquarters to provide planting material.
- Horticulture department doesn't assess in advance the requirement of planting materials for different blocks of the state.
- The state government does not have a well advanced nursery to meet the requirement of planting materials of the horticultural farmers of the state
- The horticulture department so far has a poor network at block level to supervise the horticultural programme.
- Training is one of the important activities for providing technical inputs to the farmers on planting technique, number of plants to be grown per hectare, amount of fertilizer and manure to be given to the crops in different stages starting from planting to harvest such training is not given properly.
- Lack timely availability of saplings with the beneficiaries tends to constrain the success of the programme.
- Plantation of horticultural crops needs some basic technical knowledge while planting the plant in the field which the farmers do not know properly. Besides horticulture plantation at farmers field needs constant



supervision of the technical personnel for success of the programme. But the technical staff rarely visits the planting site.

- Availability of fertilizer at the planting time and use of pesticide at subsequent stages of crop growth are essential for success of the plantation. This is not properly done.
- Post-harvest management is very crucial for horticulture products in respect of harvesting, grading, packing, storing, and selling it at the proper market for providing market support to the farmers. These supports are not properly provided to the farmers

## **10.0 POLICY OPTIONS:**

The present study has critically evaluated the public service delivery system both from supply and demand side in Chhendipada block of Angul district, Gumma block of Gajapati district and Nimapada block of Puri district in terms of quality of services delivered to the farmers for the success of horticultural plantation. The study has identified constraints with the officials of the horticulture department as well as beneficiaries who have actually executed the horticultural plantation. Keeping in this view, Policy options have been developed for strengthening supply delivery system for success of plantation.

1. The technical personnel of the horticulture department should make their visit in an organized way, including their visit at the time of the planting, time of application of fertilizer and pesticide and also at different stages of plant growth for success of the programme. (Para 3)
2. The department of horticulture should be fully equipped with technical staff that can make frequent visit to the planting side.(Para 5.2).
3. Training on planting technique, number of plants to be planted per the unit area, use of fertilizer and pesticide in the horticultural plantation, nursery management, poly house/Green house management, irrigation to the plantation crops, intercropping in side horticulture plantation including type of intercrops to be grown and post-harvest management including

grading, packing, storing, etc. should be organized for the beneficiaries of a cluster of villages.(Para 5.3)

4. Concept of developing a small nursery near planting side will much more important for expanding horticulture plantation among farmers other than beneficiaries .(Para 5.4)
5. All the beneficiaries should be provided with adequate number of planting materials to meet the requirement. Besides planting materials must be available in time for timely planning. (Para 5.4)
6. The beneficiaries are marginal farmers, tribals and poor. Due to less supply of fertilizer through the project, the poor farmers do not able to afford to purchase fertilizer and they allow the plant to grow without proper doze of fertilizer which leads poor growth followed by poor yield. Such category of beneficiaries are to be provided with required quantity of fertilizer and pesticide for the success of plantation.(Para 5.2)
7. Plantation Crop Grower Consortium (PCGC) may be formed including all beneficiaries on the spirit of cooperative for not only the marketing of the produce but also for procurement of inputs for expanding plantation. (Para 7)
8. Since the marginal, small and tribal farmers have threat to food security, proper intercropping should be planned which could able to provide food to them till harvest of the plantation crops, so that, the poor, marginal and tribal farmers will be more encouraged. After the project is completed, the poor, small, marginal and tribal beneficiaries may be extended the supply of inputs like fertilizer and pesticide for proper growth.