



**Manual of Catalytic Development Program**

**Mulberry Sector**





## CHAPTER II

# MULBERRY SECTOR

### Introduction

The diversity of Indian silk is enviable as India is the only country blessed with all the four types of silk, viz., mulberry, tasar, eri and muga and among these, muga silk is unique to India. The country accounts for a little over 18% of the total world silk production, producing 23060 MT of raw silk by the end of XI Five Year Plan (Plan) and stands second in the world silk production. Indian silks are broadly categorized into mulberry and *Vanya* silks.

### Mulberry

Mulberry silk is the most popular and technically equipped as a viable enterprise and contributes to 79% of total raw silk production. Production of mulberry raw silk is mainly confined to the states of Karnataka, Tamil Nadu, Andhra Pradesh, West Bengal and Jammu & Kashmir which together accounts for 97% of the total mulberry silk production. Three categories of mulberry silkworms are reared in the country, viz., Bivoltine which produces high quality silk of import substitute 3A grade, Improved Cross Breed (ICB) capable of producing gradable silk for consumption in power looms, and Cross Breed/Multivoltine, which are much hardy and easier to rear and adopted to fluctuations in the environmental conditions.

Realizing the production potential of sericulture in the country and a need to bridge the gap in demand and supply, it is suggested to bring an additional area of 59,000 ha (148,000 ac) of mulberry plantation for XII Plan. Out of this, 15,600 ha (39,000 ac) shall be taken up through the Catalytic Development Program (CDP) and the remaining through the MGNREGS, RKVY and other similar programs of central and state departments. From the already available plantation and by providing supporting infrastructure for the new plantation, the production of mulberry silk is targeted to reach 23,000 MT by the end of XII Plan. This includes production of 5,000 MT Bivoltine silk of 3A grade and 6,060 MT of ICB gradable silk, which can be used for weaving in power looms replacing the imported silk.

These ambitious targets call for additional interventions through CDP. With the support from CDP, and tapping of funds from other sources, the national average productivity of silk is expected to increase from the current level of 90.55 kg/ha to 95.67 kg/ha at the end of XII Plan. However, the productivity of Bivoltine silk is expected to be higher than 100 kg/ha. The status of area under food plants and production of raw silk at end of XI Plan and projections for XII Plan under mulberry sector are indicated below:

**Table: Status of silkworm food plants during XI and target for XII Plan**

(Raw silk in MT)

#	Performance Indicators	Achievement (End of XI Plan) (2011-12)	Targets for XII Plan	Anticipated increase over XI Plan (%)
I	Mulberry plantation (Lakh ha)	1.81	2.40	33
II	Mulberry raw silk production			
	Bivoltine (BV) (3A and above grade)	1685	5000	197
	Improved Cross Breed (ICB) (2A to 3A grade)	2980	6060	103
	Cross Breed (CB) (below 2A grade silk)	13607	11940	Upgradation to ICB
	<b>Total mulberry raw silk</b>	<b>18272</b>	<b>23000</b>	<b>26</b>

The components proposed under mulberry seed and cocoon sector are focused on production of Bivoltine and ICB silk only during XII Plan, and hence no assistance of any type under these sectors shall be extended for production of Cross Breed silk.

As could be seen from the above Table that, the Cross Breed silk production of 13,607 MT by end of XI Plan shall get scaled down to 11,940 MT by the end of XII Plan as substantial volume of Cross Breed silk shall be upgraded to ICB as per XII Plan strategy. For maintaining the level of Multivoltine/Cross Breed production, or reduction due to upgradation to ICB, the support already provided under CDP till XI Plan shall be optimally utilized. Besides, efforts shall be made for maximization of benefits from existing capacity for improving the quality of Cross Breed silk. Resources shall also be tapped from other schemes of the central and state governments.

The beneficiaries receiving assistance under any component of CDP shall be issued a pass book for proving their identity as a sericulture farmer along with other details such as Aadhaar number, bank account number, education level, family members, size of holding and other infrastructure, sericulture activities performed, manpower engaged, benefits availed at different stages and their utilization, production details, assistance availed from other schemes and departments for sericulture etc.

The beneficiary availing support for any one or more components together with a subsidy element of Rs.100000 and above shall have to enter into a legal agreement with DOS. Failure on the part of beneficiary shall attract penal action as per the legal binding.

### Mulberry Seed

The growth trajectory of silk production could be sustained only through quality silkworm seed. Silkworm seed in the country is produced by various stakeholders *i.e.*, Central Silk Board (CSB), State Sericulture Departments (DOSs), Non-Government Organizations (NGOs) and private entrepreneurs. CSB plays a lead role for nucleus, basic and commercial silkworm seed with intrinsic quality parameters in all spheres of silkworm seed production.

The silkworm seed production system in India recognizes three generations, namely, nucleus, basic and commercial seed and provides adequate safeguards for quality assurance in the seed multiplication chain to maintain the vigour and purity of breeds as it flows from the breeders to the farmers. Silkworm seed industry is highly competitive thereby ensuring an efficient and responsible sector that offers the beneficiaries a continuous supply of high-yielding hybrid seed suitable for different environmental conditions for producing good cocoon crops and products to continue meeting the changing consumer demands.

### Present scenario

National Silkworm Seed Organization (NSSO) is involved in the production of lion's share of Bivoltine hybrid seed and accounts for 70% of total Bivoltine silkworm seed produced. DOSs of Karnataka, Andhra Pradesh and Tamil Nadu also produce the Bivoltine silkworm hybrid seed. About 75% of the commercial seed production is in the hands of private seed producers producing mostly of Cross Breed silkworm seed. In the wake of implementation of CSB Act 2006, the maintenance of quality of silkworm seed is of prime importance for the CSB. NSSO is involved in the maintenance, multiplication of basic seed of parental breeds of silkworm hybrids (both Bivoltine and Multivoltine) as per the quality norms of Seed Act regulations and supply to various seed producing agencies.

The silkworm seed sector is geared up to an increase in the silkworm seed production to 32.78 crore dfls by 2016-17 from 27.58 crore dfls in 2012-13. About 73% of the total silkworm seed requirement in the country is met by the Registered Seed Producers (RSPs) in the private sector, while the DOSs and NSSO contribute to 18% and 9%, respectively.

In consonance with the silk production target set for the XII Plan, the commercial seed requirement during the XII Plan is given below:

**Table: Requirement of commercial silkworm seed during XII Plan**

(Unit : Lakh No.)

Year	Bivoltine	ICB	Cross Breed	Total
2012-13	263	477	2018	2758
2013-14	310	557	2013	2880
2014-15	423	607	1971	3001
2015-16	519	717	1885	3121
2016-17	625	808	1845	3278

Substantial part of the silkworm seed (CSB: 11%, State: 25% and LSPs: 64%) shall have to be produced in state and private grainages. For undertaking this enormous task, the state and private sectors shall be strengthened on certain critical areas, besides facilitating enhanced private participation in seed production. Moreover, the state and private Silkworm Seed Production Centres (SSPCs) shall have to be prepared for implementing the recently enacted Seed Act.

Accordingly, measures shall have to be taken by CSB to revive the existing non-functional seed production units in the state and private sector for augmenting the seed production. These issues shall be addressed during XII Plan through following interventions under CDP:

1. Franchisee disinfection program of NSSO.
2. Support to construct rearing houses for Adopted Seed Rearers (ASRs) of NSSO
3. Revolving capital fund support for state grainages and RSPs
4. Assistance for purchasing seed testing equipment for state grainages and private RSPs
5. Support to strengthen basic seed farms of states.
6. Support to upgrade state and private commercial seed production units

All these components are basically meant to support production of Bivoltine and ICB silkworm seed only. However, seed support for the mulberry sector shall continue for all varieties in order to achieve overall production target as male parent of Bivoltine silkworm is required for Cross Breed seed, in turn, silk production.

The component-wise objectives and description under the mulberry seed sector are as follows:

## 1. Franchisee disinfection program of NSSO

### a) Brief description

This is an on-going program of NSSO implemented under the central sector during the XI Plan, and proposed to be continued during XII Plan period through involvement of private sector (private RSPs). Under this program, the

franchisee Chawki Rearing Centres (CRC) of NSSO shall supply chawki worms to farmers ensuring high productivity. The commercial farmers covered under this program are required to disinfect their rearing house before supply of chawki worms for ensuring crop stability and success. Seri-polyclinics shall be attached to the franchisee CRC units to undertake the disinfection work. Each sericulture poly-clinic shall be provided with a power sprayer and a two/three wheeler for conducting the disinfection of rearing houses in their command areas. During the XII Plan, 100 such units shall be developed at Rs.1.10 lakh per unit. The estimated cost of Rs.1.10 crore shall be fully met by CSB. The component shall be directly implemented by NSSO.

**b) Technical specifications/operational guidelines:**

- The franchisee shall use disinfectants authorized by CSB and National Research Development Corporation (NRDC) and the quantity of the disinfectants and the method of disinfection shall be as per recommendation of research institutes of CSB of particular zone.
- The cost of disinfectants shall be borne by the farmers.
- Service charges for disinfection collected by the franchisee shall not exceed 10% of the cost of disinfectants.
- Reasonable fuel charges for conveyance as agreed upon shall also be paid by the farmer.
- Support shall be extended only to Bivoltine and ICB farmers.
- The franchisee CRCs falling within the jurisdiction of identified clusters shall be prioritized for the support under the component.

The activities along with their cost break-up details required under the component are indicated in the unit cost (refer Unit Cost book) of the component.

**c) Physical targets and financial projections:**

The details of sharing pattern, unit cost, physical targets and financial projections are given below:

Sharing pattern	State Category	CSB	State	Beneficiary
	General category	100%	--	--
	Special category	100%	--	--

Zone	Unit Cost (Rs.)	Physical Target	Financial Projections (Rs. in crore)			
			CSB	State	Beneficiary	Total
Southern	110000	100 No.	1.10	--	--	1.10
North-western	110000					
Central and western	110000					
Eastern	110000					
North-eastern	110000					

**2. Support to construct rearing houses for Adopted Seed Rearers (ASRs) of NSSO**

**a) Brief description:**

The seed cocoons (required for production of dfIs in NSSO) are produced through the selected ASRs. Some of the ASRs do not have good rearing houses to take up the seed cocoon rearing. Since small quantities of dfIs are used for seed rearing, the rearing house shall be small with reduced unit cost. Hence, under this component 275 seed rearers shall be supported for construction of specially designed small rearing houses at Rs.1.20 to 3.00 lakh per unit. The sharing pattern shall be 50:50 by CSB and beneficiaries, respectively. An amount of Rs.4.62 crore is estimated for the component with a CSB share of Rs.2.31 crore. This component shall be implemented by NSSO.

**b) Technical specifications/operational guidelines:**

- The beneficiary shall use specially designed rearing house model suggested by NSSO (CSB) by meeting

50% cost of rearing house and rear the recommended quantity of layings per batch.

- The beneficiary shall be a recognized ASR of NSSO and attached to any of Silkworm Seed Production Centres (SSPCs) of NSSO.
- Support shall be extended to Bivoltine and ICB farmers only.
- The beneficiary shall be a registered seed cocoon producer with a valid certificate under CSB Act, 2006.

The activities and their cost details required under the component are indicated in the unit costs (refer Unit Cost book) of the component.

**c) Physical targets and financial projections:**

The details of sharing pattern, unit cost, physical targets and financial projections are given below:

Sharing pattern	State Category	CSB	State	Beneficiary
	General category	50%	--	50%
	Special category	50%	--	50%

Zone	Unit Cost (Rs.)	Physical Target	Financial Projections (Rs. in crore)			
			CSB	State	Beneficiary	Total
Southern	200000 and 300000	275 No.	2.31	-	2.31	4.62
North-western	125000					
Central and western	125000					
Eastern	120000					
North-eastern	120000					

**3. Revolving capital fund support for state grainages and registered seed producers**

**a) Brief description:**

Working capital plays an important role in deciding the economic performance of the grainage. The SSPCs of state and private sectors often face difficulty in procuring quality seed cocoons due to shortage of working capital fund. All the NSSO grainages are provided with working capital fund. Hence, it is proposed to replicate the same in state and private grainages by providing one time working capital support to 485 grainages. Assistance at Rs.1.35 to 5.00 lakh per grainage based on production capacity in different zones shall be extended with a sharing of 50:50 by CSB and state, respectively. The total cost estimated is Rs.13.06 crore with a CSB share of Rs.6.56 crore.

**b) Technical specifications/ operational guidelines:**

- The cost of seed cocoons required to produce commercial seed shall be covered under the component.
- The beneficiary shall produce the silkworm seed at optimum recovery and undertake sufficient number of production cycles per year required to avoid losses.
- The stakeholder shall be a registered seed producer under the CSB Act 2006 with a valid certificate.
- The amount of revolving fund shall be recommended by the Joint Review Committee (JRC) comprising representatives of NSSO, CSB and state based on the seed production capacity of the RSP, crop cycle and number of crops taken per year and placed before the AMC for final decision.
- Utilization of revolving fund and its flow back shall be closely monitored by DOS.
- Non-erodable revolving fund utilization by the beneficiary has to be supported by adequate documentation and verified at regular intervals by DOS.

The activities and their cost break-up details required under the component are indicated in the unit cost (refer Unit Cost book) of the component.

**c) Physical targets and financial projections:**

The details of sharing pattern, unit cost, physical targets and financial projections are given below:

Sharing pattern	State Category	CSB	State	Beneficiary
	General category (Private and state grainages)	50%	50%	-
	Special category (Private and state grainages)	80%	20%	-

Zone	Unit Cost (Rs.)	Physical Target	Financial Projections (Rs. in crore)			
			CSB	State	Beneficiary	Total
Southern	300000 and 500000	485 No.	6.56	6.50	-	13.06
North-western	300000					
Central and western	300000					
Eastern	135000 and 270000					
North-eastern	135000					

**4. Assistance for purchasing seed testing equipment for state grainages and private registered seed producers**

**a) Brief description:**

Under the Seed Act, it is mandatory for all the grainages to supply only disease free layings for which the testing facilities shall have to be established in the grainages. In order to support them to establish this facility in the grainage, assistance shall be provided for modernizing/developing seed testing labs, procuring equipment, etc. A total of 310 grainages shall be supported during the XII Plan period at Rs. 1.75 lakh per grainage. The sharing pattern for state grainages shall be 50:50 between CSB and state, respectively and for private grainages, the sharing pattern shall be 40:40:20 among CSB, state and beneficiary, respectively. The total cost estimated is Rs.5.43 crore with a CSB share of Rs.2.42 crore.

**b) Technical specifications / operational guidelines:**

- Commercial seed producers shall be covered under the component.
- The beneficiary shall be a seed producer registered under the CSB Act 2006 with a valid certificate.
- RSPs producing a minimum of 2.50 lakh dfls in the preceding year shall merit consideration for support under this component.
- Equipment shall be provided to the beneficiary as per the unit cost.

The activities and their cost break-up details required under the component are indicated in the unit cost (refer Unit Cost book) of the component.

**c) Physical targets and financial projections:**

The details of sharing pattern, unit cost, physical targets and projections are given below:

Sharing pattern	State Category		CSB	State	Beneficiary
	General category	Private grainages	40%	40%	20%
		State grainages	50%	50%	-
	Special category	Private grainages	80%	10%	10%
		State grainages	80%	20%	-



Zone	Unit Cost (Rs.)	Physical Target	Financial Projections (Rs. in crore)			
			CSB	State	Beneficiary	Total
Southern	175000	310 No.	2.42	1.99	1.02	5.43
North-western	175000					
Central and western	175000					
Eastern	175000					
North-eastern	175000					

## 5. Support to strengthen Basic Seed Farms (BSF) of states

### a) Brief description:

Many BSFs under the state sector are obsolete for want of necessary resources and technical support. On the other hand, many others do not have the requisite facilities to undertake the complex job of basic seed multiplication. The Seed Act prescribes for adhering to certain quality norms in seed farms for ensuring disease freeness in the next multiplication level. Hence, the component has been proposed to strengthen the facilities of 35 state seed farms at Rs.5.00 lakh each with a sharing pattern of 50:50 between CSB and state, respectively. The total cost estimated is Rs.1.75 crore with the CSB share of Rs.1.03 crore.

### b) Technical specifications / operational guidelines:

- The government basic seed farms shall be covered under the component.
- The farm shall have been involved in multiplying the basic seeds for producing commercial silkworm hybrid seed.
- A joint verification committee shall select the unit and suggest the requirement after assessing the existing infrastructure, equipment and other facilities.
- Equipment shall be provided to the beneficiary as per the unit cost.
- DOS shall undertake to produce seed in these farms for a minimum period of 5 years.

The activities and their cost break-up details required under the component are indicated in the unit cost (refer Unit Cost book) of the component.

### c) Physical targets and financial projections:

The details of sharing pattern, unit cost, physical targets and financial projections are given below:

Sharing pattern	State Category	CSB	State	Beneficiary
	General category	50%	50%	--
	Special category	80%	20%	-

Zone	Unit Cost (Rs.)	Physical Target	Financial Projections (Rs. in crore)			
			CSB	State	Beneficiary	Total
Southern	500000	35 No.	1.03	0.72	--	1.75
North-western	500000					
Central and western	500000					
Eastern	500000					
North-eastern	500000					

## 6. Support to upgrade state and private commercial seed production units

### a) Brief description:

Under the Seed Act, there are strict norms for the production of commercial seed in all the seed production centres, including private units. However, it is observed that most of the grainages in state and private sectors are not logistically equipped to take this onerous task nor they have the resources to equip with additional facilities. Under these circumstances, it is proposed to support the state and private grainages to up-grade their facilities to produce seed in conformity with the quality norms prescribed under the CSB Act 2006.

The assistance shall be for up-gradation of infrastructure, procurement of equipment etc. A total of 310 grainages shall be supported at Rs.3.50 lakh per grainage. The sharing pattern for private grainages shall be 40:40:20 among CSB, state and private grainages, respectively. For the state grainages, the sharing pattern shall be 50:50 between CSB and state, respectively. The total cost estimated is Rs.10.85 crore with a CSB share of Rs.4.83 crore.

### b) Technical specifications / operational guidelines:

- One-time-assistance shall be provided to the graineurs for recurring/modernizing the equipment as per the unit cost booklet on need basis.
- Support shall be extended only to the RSPs under the CSB Act, 2006
- The grainages shall undertake to produce seed in these farms for a minimum period of 5 years.
- Equipment shall be provided to the beneficiary as per the unit cost. Testing equipment, however, is not included.
- RSPs producing a minimum of 2.50 lakh dfls in the preceding year shall merit consideration for support under this component.

The activities and their cost break-up details required under the component are indicated in the unit cost (refer Unit Cost book) of the component.

### c) Physical targets and financial projections:

The details of sharing pattern, unit cost, physical targets and financial projections are given below:

Sharing pattern	State Category		CSB	State	Beneficiary
	General category	Private grainages	40%	40%	20%
		State grainages	50%	50%	-
	Special category	Private grainages	80%	10%	10%
State grainages		80%	20%	-	

Zone	Unit Cost (Rs.)	Physical Target	Financial Projections (Rs. in crore)			
			CSB	State	Beneficiary	Total
Southern	350000	310 No.	4.83	3.97	2.05	10.85
North-western	350000					
Central and western	350000					
Eastern	350000					
North-eastern	350000					

## Mulberry Cocoon (for Bivoltine and Improved Cross Breed only)

Production of quality raw silk depends upon the quantity and quality of mulberry leaves produced and in turn on cocoons produced. Even though cocoon production level in the country has increased to a great extent during the previous Plan period, still there exists a wide gap between the actual yield obtained by the rearers and the possible production level with the evolved technology. The gap is mainly attributed to bio-physical and socio-economic constraints (silkworm seed, rearing practices, soil and other constraints in production of good quality leaf, pests and diseases, input availability, separate rearing house, credit facilities, profitability, attitudes, traditions, risks involved, technical know-how, logistic facilities, marketing and other infrastructural facilities). The inability of the beneficiaries to take up the recommended practices due to financial and other constraints would cause a noticeable decline in output.

The major constraints noticed for getting higher yields are:

- Pests and diseases of silkworms.
- Non-availability of quality leaf.
- Improper disinfection of the rearing house.
- Water scarcity and high temperature during summer.
- High cost of silkworm rearing equipment and difficulty in procuring rotary mountages.
- Lack of technical guidance by extension system.
- Non-availability of timely inputs and difficulty in obtaining dfls etc.

Thus, the following areas under mulberry sector have been identified under CDP to achieve the set goals during the Plan period:

- Enriching the sources of availability of mulberry cuttings of improved varieties required for expansion of plantation area.
- Enhancing cocoon production by way of increasing mulberry wealth in form of tree plantation typical to northern parts of the country which do not support largely for raising bush plantation.
- Increasing the dfl uptake of farmers by increasing the quality leaf production through rejuvenation of existing mulberry tree plantation.
- Introduction of farm/rearing mechanization with labour reduction devices/equipment
- Enriching the source of availability of saplings of improved mulberry variety for quick replacement of old and low yielding mulberry varieties at farmers' level, besides expansion of area under mulberry plantation.
- Conservation and efficient management of water for its effective utility towards higher mulberry leaf production per unit area by adopting appropriate techniques/measures.
- Enhancing the productivity and assisting the sericulture beneficiaries for timely completion of various sericulture operations, besides conservation of energy by the way of providing silkworm rearing equipment and farm implements.
- Undertaking appropriate prophylactic measures to reduce the silkworm cocoon crop losses due to diseases.
- Enhancing cocoon quality and productivity by promoting adoption of recommended models of rearing houses.
- Ensuring the crop stability and cocoon yield by promoting well equipped and managed CRCs for scientific handling of silkworm eggs and rearing of young-age silkworms.
- Application of vermi-culture technology for recycling of sericulture wastes as manure for improvement of soil health and reduction of chemical fertilizer costs.
- Providing assistance for installation of solar systems for basic lighting facility in respect of north-eastern states.

Based on the brainstorming discussions with states, CSB and stakeholders, it is proposed to continue the mulberry cocoon sector components in XII Plan with increased scope and by introducing certain additional/innovative sub-components. While there is a slight enhancement in CSB subsidy for disinfection, rearing houses and CRC applicable to general category states, the sharing pattern for Special Status states remains unchanged at 80:10:10 (CSB:state:beneficiary). CSB shall coordinate and implement this sector of components with the help of DOSs, CBOs, reputed NGOs, SHGs and cooperative societies.

Another important change proposed is the extending CDP benefits to the farmers who do not have cultivable land but undertake rearing activities by purchasing leaves or producing leaves from leased land. There are many such farmers associated with the sericulture industry. The beneficiaries shall be eligible for all benefits under various components of CDP like rearing house, equipment etc.; however, with certain specific terms and conditions to ensure full utilization of facilities within the prescribed time limit.

The following components are proposed under mulberry cocoon sector for Bivoltine and ICB silks only:

1. Support for mulberry plantation development.
2. Assistance for irrigation and other water conservation and usage techniques.
3. Supply of rearing appliances (including improved mountages)/farm equipment to farmers.
4. Supply of quality disinfecting materials and other crop protection measures.
5. Assistance for construction of rearing houses.
6. Assistance for maintenance of chawki gardens, construction of CRCs and procurement of chawki rearing equipment.
7. Production units for biological inputs/door-to-door service agents for disinfection, input supply and assistance for sericulture poly-clinics.
8. Support for development of kisan nurseries.
9. Maintenance cost for mulberry plantation raised during X and XI Plans for north-eastern and hilly states.
10. Support for construction of vermi-compost sheds.
11. Assistance for fencing of mulberry gardens in north-eastern states.
12. Assistance for expansion of rearing houses for construction of mounting halls in north-eastern states.
13. Support for increasing yield of existing rain-fed garden through water conservation techniques.

One beneficiary can avail the assistance up to two hectares for plantation development with supporting components under this sector.

The component-wise objectives, description, operational guidelines, physical targets and financial projections are indicated below:

## 1. Support for mulberry plantation development

### a) Brief description:

Among several factors that contribute to successful silkworm rearing such as temperature, humidity, disease free seed, hygiene etc., supply of nutritious mulberry leaves as feed is vital. Mulberry is a perennial crop and once it is properly established, it can come to full yielding capacity in the second or third year and last for 15 to 20 years, without significant reduction in leaf yield.

During XI Plan period, there has been decline in mulberry area in major sericulture producing states particularly in Karnataka due to various reasons such as fast urbanization, creation of Special Economic Zones (SEZ), depletion of water table, higher input costs, increase in labour wages, migration of youths from rural areas to urban areas etc. Further, in order to achieve the targeted production of 23,000 MT of mulberry raw silk at the end of XII Plan, with special focus on Bivoltine and ICB silk, the mulberry area has to be enhanced to 2.40 lakh ha from the present level of 1.81 lakh ha. Keeping this in view and considering the scope for mulberry development in other potential new areas of traditional as well as non-traditional states, the existing program is proposed to be continued during XII Plan, at least to support a

part of area expansion targets of XII Plan.

During XI Plan, the component for plantation development was implemented with the unit cost of Rs 9000 per acre. Since the input cost has increased in the recent years, the cost has been revised to Rs.14000 during XII Plan.

During XII Plan, the component supports development of 39000 ac of mulberry plantation with a unit cost of Rs.14000 per acre for raising plantation involving inputs such as chemical fertilizers, farm yard manure, pesticides, etc. Individual farmers can raise plantation in their land or public places like panchayat lands or vacant forest lands, etc. Raising of mulberry plantation is also proposed to be dovetailed with other similar programs taken up by other departments of GOI and states. The assistance shall be provided to raise new mulberry plantations or for replacement of old mulberry varieties with new varieties aimed at production of BV and ICB silks only. Beneficiaries can buy mulberry saplings from sources like kisan nursery or they themselves can develop plantation through cuttings.

Under this component, raising or maintenance of tree plantations, replacement of old mulberry varieties with new varieties etc. are envisaged. The assistance proposed to be provided shall depend upon the nature of plantation and its maintenance but well within the approved unit cost. During the XII Plan, for raising 39000 acres of mulberry plantation, the total amount required works out to Rs.54.60 crore (at Rs.14000 per acre), 50% subsidy of which is proposed to be provided by CSB (Rs.29.65 crore) and the rest 50% has to be equally borne by beneficiary and state (25:25). For special status states, the sharing pattern shall be 80:10:10 for CSB, state and beneficiary, respectively as in XI Plan.

**b) Technical specifications / operational guidelines:**

- The DOS shall identify the potential farmers who have preferably sources of water to raise mulberry plantation.
- The field officer concerned shall certify the works undertaken based on her/his visit before and after implementing the program. An undertaking shall be obtained from the farmers to the effect that sericulture occupation shall be continued for a minimum period of 3 years after availing subsidy under the program.
- In case of tree plantation, the assistance of Rs.14000 is provided for raising and maintenance of tree plantation for 300 trees. However, the subsidy amount shall be disbursed according to number of trees on pro-rata basis subject to a minimum number of 100 trees per beneficiary.
- In case, the plantation is raised through cuttings directly, the assistance of Rs.14000 shall cover the cost of seed cuttings (250 kg or 6000 cuttings), inputs (FYM, fertilizers, chemicals etc.), labour, transport and maintenance for 4 to 5 months.
- The assistance is provided to raise new mulberry plantations by replacement of old mulberry varieties. Only high yielding mulberry varieties shall be recommended for particular agro-climatic region for production of Bivoltine/ICB silk.
- Assistance is also provided for gap filling of existing mulberry plantation on pro-rata basis.
- Raising of plantation is also proposed to be dovetailed with similar programs taken up by other ministries or departments. DOSs may avail support of other programs like RKVY, MGNREGS etc., to reduce the burden on labour wages involved in plantation development, as per the actual plantation development cost.
- Depending upon the rearing capacity of the individual farmer and land availability, assistance can be extended further on pro-rata basis.
- DOs shall devise norms indicating minimum number of plants per unit area according to the plant spacing for providing subsidy to the farmers.
- Beneficiaries desiring to expand existing mulberry plantation (developed during XI Plan) are also eligible to avail support under the component.

The activities along with their cost break-up details required under the component are indicated in the unit cost (refer Unit Cost book) of the component.

**c) Physical targets and financial projections:**

The details of sharing pattern, unit cost, physical targets and financial projections are given below:

Sharing pattern	State Category	CSB	State	Beneficiary
	General category	50%	25%	25%
	Special category	80%	10%	10%

Zone	Unit Cost (Rs.)	Physical Target	Financial Projections (Rs. in crore)			
			CSB	State	Beneficiary	Total
Southern	14000	39000 acres	29.65	12.48	12.47	54.60
North-western	14000					
Central and western	14000					
Eastern	14000					
North-eastern	14000					

**2. Assistance for irrigation and other water conservation and usage techniques**

**a) Brief description:**

Sericulture is practiced mostly by depending on groundwater as a source of irrigation. Growing demand for groundwater, substitution of labour intensive lifts by capital-intensive electrical pump sets, increase in well density and frequent failure of monsoon rains have resulted in reduction in ground water table and thereby put the farmers in distress condition. As mulberry is a water intensive plant, efficient use of water is imminent under the water scarcity conditions.

Considering the above facts, during XI Plan, the irrigation component was implemented, to cover all types of irrigation, such as drip, tube/open wells, shallow wells, ponds, farm ponds, surface tanks and similar water harvesting systems including ground level water storage tanks and soil moisture conservation methods.

The component was very popular in the field, particularly in southern states. The component was implemented with a unit cost of Rs.50,000 per ha of which CSB subsidy was Rs.25,000 per ha. The subsidy was given on pro-rata to cover up to one hectare of plantation according to the nature of irrigation system and also the area proposed to be covered with the irrigation system by the farmers. During XII Plan, the area limit has been made flexible in order to bring big farmers/rearers who have large area holding (more than one hectare) to practice sericulture.

The component shall cover all types of irrigation, such as drip, tube/open wells, shallow wells, ponds, farm ponds, surface tanks and similar water harvesting systems including ground level water storage tanks and soil moisture conservation methods for different types of structure for different sericulture zones. The subsidy is proposed to be given according to the nature of irrigation system and also the area proposed to be covered by the farmers. During XII Plan, it is proposed to cover 25,000 ac with various types of irrigation at a total cost of Rs.72.50 crore with unit costs ranging from Rs.25000 to Rs.30000 per acre in different sericulture zones, of which CSB share is Rs.37.68 crore. The sharing pattern is 50:25:25 and 80:10:10 for general and special category states, respectively.

**b. Technical specifications/ operational guidelines:**

- Under drip irrigation, only the recommended design of main and lateral drip lines shall be installed depending upon the type of mulberry plantation and nature of land.
- The most appropriate irrigation system (whether drip or any other irrigation system) shall be provided depending upon the zonal requirements.
- DOSs shall have to identify the beneficiaries and ensure that the beneficiaries bear their share. They may also arrange loans to the beneficiaries through banks or other financial institutions.

- The farmers shall be free to select the manufacturers/suppliers maintained by the state department for installing irrigation system of any kind. DOSs shall have to identify manufacturers for their state to commission the irrigation system desired at farmers' level.
- Beneficiaries possessing the basic requirements like water source for installation of irrigation facilities, like drip, sprinkler etc. shall be eligible. Assistance is also provided for digging of open wells, ponds etc.
- Manufacturers shall provide detailed operational and maintenance manuals at the time of installation.
- DOSs shall ensure supply of good quality irrigation system having Bureau of Indian Standards (BIS) marking and proper after-sales service to the satisfaction of the farmers.
- Subsidy is limited for 2 ha only per beneficiary. Beyond this, the subsidy shall be restricted to 25% each by CSB and state, irrespective of the state category.
- Subsidy shall be given according to the nature of irrigation system, the cost of the system in the particular area and also the area proposed to be covered.
- The state/beneficiary shall certify to the effect that the subsidy of any nature for installation of water conservation techniques for mulberry has not been availed from any other government department.
- Assistance shall also be extended to the beneficiaries on common facility basis.

The activities along with their cost break-up details required under the component are indicated in the unit cost (refer Unit Cost book) of the component.

**c) Physical targets and financial projections:**

The details of sharing pattern, unit cost, physical targets and financial projections are given below:

Sharing pattern	State Category	CSB	State	Beneficiary
	General category	50%	25%	25%
	Special category	80%	10%	10%

Zone	Unit Cost (Rs.)	Physical Target	Financial Projections (Rs. in crore)			
			CSB	State	Beneficiary	Total
Southern	30000	25000 acres	37.68	17.41	17.41	72.50
North-western	25000					
Central and western	25000					
Eastern	25000					
North-eastern	25000					

### 3. Supply of rearing appliances (including improved mountages)/farm equipment to farmers

**a. Brief description:**

Various equipment and machineries are used in sericulture farming to enhance productivity and conserve energy required for various operations. The appliances used in silkworm rearing differ from place to place and also according to the system of rearing and mulberry harvest. The most common method of rearing in India is the shelf rearing as it facilitates the rearing of a large number of silkworms in a small space. Supply of rearing appliances is an important existing component in the mulberry cocoon production chain supporting sericulturists to train the plantation and to undertake silkworm rearing scientifically.

During X and XI Plans, the component gained momentum among the BV farmers encouraging the production of BV silk. Farmers were supported with modern rearing equipment such as farm machinery, shoot rearing racks, rotary mountages that are essential for Bivoltine sericulture. The unit cost approved for XI Plan was Rs.50,000 per farmer.

However, during XII Plan, keeping in view the overall development of sericulture and targets of Bivoltine and ICB silk production, it is proposed to cover majority of the farmers for production of Bivoltine and ICB farmers only. The unit costs ranging from Rs, 40,000 to Rs.70,000 per acre per farmer for different sericulture zones are proposed for this component in XII Plan taking into consideration the cost of rotary mountages, other rearing equipment and farm implements, respectively. The scheme shall also support labour saving farm appliances, rearing equipment and other devices to improve mechanization to promote family labour and reduce dependency on hired labour. It is proposed to cover 58,000 ac at a total cost of Rs.364.50 crore of which CSB share is Rs.194.68 crore.

**b. Technical specifications/ operational guidelines:**

- DOSs shall identify the beneficiaries with the support of their field functionaries/Panchayat Raj Institutions (PRIs).
- DOSs shall constitute a State Level Purchase Committee (SLPC) with members drawn from CSB and state for procurement of equipment under this component by following transparent procedures. The purchase committee shall ensure procurement of equipment through the department or facilitate purchases made by approved bodies.
- The rearing appliances and farm implements (as per approved list) shall be supplied to the farmers as per their actual requirement within the unit costs.
- Flexibility is built-in to provide assistance for mechanization equipment like mini power tillers, matured silkworm seed separator, brush weed and branch cutter wherever necessary without affecting the main objective of the component and within the approved unit cost. This is more appropriate in community rearing.
- Landless and small farmers may also be supported with rearing equipment as per the requirement (5 rearing trays and 10 mountages to rear 15-20 dfls per batch) at a unit cost of Rs. 5,000 per beneficiary as approved for XI Plan.
- Subsidy shall be released on pro-rata basis subject to a maximum of Rs.70,000 for rearing 250 dfls per batch in southern India and 150 dfls per batch in east and north-eastern India keeping in view the unit costs approved for different zones. For zones other than south, the unit cost for rearing of 250 dfls per batch shall be Rs. 70,000.
- Solar lights are also included in the equipment list. Farmers from north-eastern and hilly states shall get priority for solar lights within the prescribed unit cost for the region (one solar panel and three lanterns)

The activities along with their cost break-up details required under the component are indicated in the unit cost (refer Unit Cost book) of the component.

**c) Physical targets and financial projections:**

The details of sharing pattern, unit cost, physical targets and financial projections are given below:

Sharing pattern	State Category	CSB	State	Beneficiary
	General category	50%	25%	25%
	Special category	80%	10%	10%

Zone	Unit Cost (Rs.)	Physical Target	Financial Projections (Rs. in crore)			
			CSB	State	Beneficiary	Total
Southern	70000	58000 acres	194.68	84.91	84.91	364.50
North-western	40000					
Central and western	50000					
Eastern	50000					
North-eastern	50000					



#### 4. Supply of quality disinfecting materials and other crop protection measures for farmers

##### a) Brief description:

Disinfection is an integral part of healthy and successful silkworm rearing. It aims at the total elimination of disease causing pathogens. Silkworms are infected by several diseases caused by bacteria, virus, fungi and protozoa. The curative methods are not economical for any of the silkworm diseases and as such, the silkworm diseases are best prevented than cured. The silkworm diseases are prevented by adoption of proper and effective methods of disinfection and step-wise maintenance of hygiene during rearing. Availability of quality disinfecting materials in appropriate pack is one of the key factors for effective disinfection and thereby ensuring crop stability for successful harvest of cocoon crops.

During the XI Plan, the component was implemented for Bivoltine seed farmers and the unit cost of the disinfectant pack was at Rs.3000 per farmer. The cost was to be shared by CSB, state and beneficiary at 25:25:50. The component has helped to improve the hygienic conditions in the rearing sheds and also raised the awareness among the seed rearers to maintain such conditions for better quality and productivity. The component has been very effective and accepted well among the farmers especially in non-traditional states.

Continuation of this component during XII Plan shall play a key role in increasing production and productivity of Bivoltine silk. During XII Plan, it is proposed to provide assistance for both seed and commercial Bivoltine and ICB cocoon farmers. While CSB provides size and composition of the disinfectant module and a list of approved suppliers to the farmers, disinfectants to be supplied by the concerned agencies shall be subjected to quality test either by the state or CSB. It is proposed to cover 50,000 farmers in 5 years of XII Plan with two unit costs, i.e., Rs. 5,000 for southern and Rs. 4,000 for other zones, respectively. The proposed provision of Rs.24.00 crore includes CSB share of Rs.12.72 crore with a sharing pattern of 50:25:25.

##### b) Technical specifications/ operational guidelines:

- CSB shall finalize zone/state-wise list of approved disinfectant suppliers and disinfection material module
- The disinfectants shall be used as per the recommendations of the research institutes for the particular region.
- Subsidy shall be released on pro-rata basis subject to a maximum of Rs.5,000 or Rs.4,000 (as per zonal unit cost) per acre per year at Rs.1,000 or Rs.800 per crop for 5 crops. However, depending on the number of crops and rearing capacity, all zones can propose the maximum unit cost of Rs. 5,000.
- The disinfectants shall be procured from list of approved suppliers/agencies and supplied to the farmers by the concerned agencies subject to quality test either by the state or CSB research institutes/laboratories.
- In case of *Navinya* for the control of root rot in mulberry, the subsidy shall be released on pro-rata basis subject to a maximum of Rs.3,000 per acre.
- The disinfectants supplied shall be well within expiry date.

The activities along with their cost break-up details required under the component are indicated in the unitcost (refer Unit Cost book) of the component.

##### c) Physical targets and financial projections:

The details of sharing pattern, unit cost, physical targets and financial projections are given below:

Sharing pattern	State Category	CSB	State	Beneficiary
	General category	50%	25%	25%
	Special category	80%	10%	10%

Zone	Unit Cost (Rs.)	Physical Target	Financial Projections (Rs. in crore)			
			CSB	State	Beneficiary	Total
Southern	5000	50000 farmers	12.72	5.64	5.64	24.00
North-western	4000					
Central and western	4000					
Eastern	4000					
North-eastern	4000					

## 5. Assistance for construction of rearing houses

### a) Brief description:

Against a target to support construction of 1,11,081 rearing houses in XI Plan, the achievement was only 61,587 rearing houses (55%). One of the reasons for not achieving the target was escalation in cost of the construction material and labour, low subsidy, especially in major sericulture states falling under general category. The beneficiaries were unable to meet their share of 50%. Therefore, keeping in view the suggestions made by states, the unit cost and subsidy are proposed to be slightly enhanced and rationalized during XII Plan to meet the escalation of construction cost and labour in different regions of the country.

- Considering the topography of different regions and rearing capacity of farmers in major states, it is proposed to extend the assistance for three models of rearing houses at Rs. 90,000, 1,75,000 and 2,75,000, respectively during XII Plan. Further, for the states who desire to support the farmers for construction of rearing houses with locally available materials, an assistance of Rs.30,000 shall be given to construct the low-cost rearing houses. The same shall be adjusted against the total number of rearing houses under the scheme and provisions have been proposed accordingly among the above three categories.
- It is proposed to assist 45,000 rearing houses at a total cost of Rs.571.50 crore with a CSB assistance of Rs.136.03 crore during XII Plan. Unlike the XI Plan, the sharing pattern for the new 4 models of rearing houses shall be varying on a sliding scale, as indicated below:

Model	Rearing house (Cost/Area/Capacity)	Sharing pattern (CSB:state: beneficiary)
Low cost	Rs. 30000 (225 sq.ft to rear 50 dfls/batch)	35 : 35 : 30
III	Rs. 90000 (225 sq.ft to rear 50 dfls/batch)	35 : 35 : 30
II	Rs. 175000 (600 sq.ft to rear 150 dfls/batch)	20 : 30 : 50
I	Rs. 275000 (1000 sq.ft to rear 250 dfls/batch)	10 : 20 : 70

- This component shall also have scope for assisting farmers possessing mulberry plantation between 2 and 5 ha for construction of a second rearing house or for enlarging the existing rearing house sanctioned during X and XI Plan periods, for production of Bivoltine and ICB cocoons only. However, the central subsidy shall be limited to 25% irrespective of the model they are opting as a second rearing house during XII Plan, irrespective of the status of the state (general or special).

### b) Technical specifications/ operational guidelines:

- Considering the topography of the region and rearing capacity, assistance shall be provided for three models of rearing houses, viz., 1,000 sq ft (250 dfls rearing capacity); 600 sq ft (150 dfls rearing capacity) and 225 sq ft (50 dfls rearing capacity) at a unit cost of Rs.2.75, 1.75 and 0.90 lakh, respectively.
- Though there are separate rearing house models with unit costs for different zones, depending on the rearing capacity of the farmer, plantation availability, number of crops per year etc, DOSs can propose the designs and models indicated for southern zone, with adequate justification.

- The rearing houses shall be constructed away from the dwelling houses as per the approved designs to avoid contamination of diseases.
- The floor and inside walls shall be plastered. The rearing houses shall be compact for maintaining the temperature and humidity and for conducting effective disinfection. Provision shall also be made to make the rearing house air tight for proper disinfection
- Adequate ventilation facilities shall be provided.
- The rearing house shall accommodate three or four tiers of rearing racks.
- Since the type/design of rearing houses differs from region to region and also from plain to hilly areas within the state, the building shall be constructed as per the prescribed design/models proposed by DOSs.
- For constructing low cost rearing houses with locally available materials, the unit cost of Rs.30,000 shall be adopted. This shall have a capacity to rear 50 dfls per batch. However, DOSs may propose higher cost for this model, subject to a maximum of Rs. 50000 based on requirement of specific zone, availability of local materials, cost and justification with the approval of PMC.
- Even though the rearing house constructed by a farmer is not exactly as per the recommended model, the subsidy can be considered for release, if it meets the requirement of rearing of recommended quantity of dfls and justifying the cost involved, based on a joint inspection by CSB and DOS.
- Micro-finance or other financial institutions may be encouraged for providing loans to the beneficiaries in order to reduce their burden and ensure better construction of rearing sheds.
- The farmers shall give an undertaking that they shall undertake rearing for a minimum period of 5 years and the rearing house shall be utilized for the purpose for which it is intended, and not for any other purpose.

The activities along with their cost break-up details required under the component are indicated in the unit cost (refer Unit Cost book) of the component.

**c) Physical targets and financial projections:**

The details of sharing pattern, unit cost, physical targets and financial projections are given below:

Sharing pattern	State Category	Model	CSB	State	Beneficiary
	General category (For four models of rearing houses)	Low cost		35%	35%
III			35%	35%	30%
II			20%	30%	50%
I			10%	20%	70%
Special category	All models		80%	10%	10%

Zone	Model	Unit Cost (Rs.)	Physical Target	Financial Projections (Rs. in crore)			
				CSB	State	Beneficiary	Total
Southern	Low	30000	45000 No.	136.03	142.91	292.56	571.50
	III	90000					
	II	175000					
	I	275000					
North-western	Low	30000					
	III	75000					
	II	125000					
Central and western	Low	30000					
	III	75000					

Zone	Model	Unit Cost (Rs.)	Physical Target	Financial Projections (Rs. in crore)			
				CSB	State	Beneficiary	Total
Eastern	Low	30000					
	III	60000					
	II	120000					
	I	175000					
North-eastern	Low	30000					
	III	60000					
	II	120000					
	I	175000					

**6. Assistance for maintenance of chawki garden, construction of chawki rearing centre and procurement of chawki rearing equipment**

**a) Brief description:**

Chawki means the first two stages of silkworm rearing. It is the most crucial period of silkworm rearing that demands optimum temperature and humidity, hygienic conditions, good quality tender leaf, good rearing facilities and above all, technical skills. If the chawki worms are not reared properly, the silkworms become susceptible to diseases in later stages resulting in crop losses. As most of the sericulturists do not have such facilities, CRCs are established to ensure crop stability and high cocoon yields.

During XI Plan, the component was implemented particularly for Bivoltine sericulture development, with the unit cost of Rs.5.00 lakh per CRC and the subsidy was given to the extent of 50% shared equally by CSB and state (25:25), respectively and the rest 50% from the beneficiary. During XI Plan, 484 CRCs were supported as against 600 (81%). Although there has been a good progress during XI Plan, as observed by NPC study team, the concept of CRC is very low in the field and many of the commercial cocoon farmers in traditional sericulture belt undertake chawki rearing at their own rearing sheds, which is not advisable. Hence, it is felt that, the implementation of this component shall be continued more vigorously and more number of CRCs need to be established especially in southern states to boost the production of Bivoltine and ICB silk.

Therefore, it is proposed to continue the program during XII Plan to cover only Bivoltine and ICB rearers, with an additional sub-component to provide assistance for maintenance of chawki garden as in the case of XI Plan. The component is proposed to be extended to NGOs, SHGs, CBOs and individual farmers who are willing to establish CRCs on the lands owned by them or under lease basis for a minimum period of 5 years.

Due to cost escalation in construction and equipment, during XII Plan, the unit cost of CRCs is proposed to be enhanced up to Rs.6.00 lakh towards construction of CRC building, procurement of equipment and maintenance of chawki gardens. It is proposed to support setting up of 600 CRCs during XII Plan. Total cost proposed for this component is Rs. 31.00 crore, of which CSB share is Rs. 13.20 crore. The unit cost also includes the cost for maintenance of chawki garden. The proposed sharing pattern is 35:35:30 by CSB, state and beneficiary, respectively against the existing sharing pattern of 25:25:50 .

**b) Technical specifications/ operational guidelines:**

- DOSs shall consider applications from the sericulture business enterprises, CBOs, SHGs or individuals willing to establish CRCs on the land owned by them or under possession on long term lease basis and send proposals with the recommendations.
- CRCs proposed to be set-up in identified cluster area for Bivoltine and ICB production shall have the priority for extending benefits under the component.
- The beneficiary shall be possessing two acres of own or leased chawki garden with irrigation facilities for taking up the rearings of 1.50 to 1.60 lakh dfls of chawki worms worth 5,000 dfls per batch at an interval of 10 days (32 batches per annum). However, there shall be exceptions in those states where limited crops are taken in a year.

- Depending on the chawki rearing capacity, local needs, the number of farmers to be serviced by the CRC etc. the higher model of CRC with the unit cost of Rs.6.00 lakh proposed for southern zone can be opted by other zones with adequate justification.
- DOS shall have to bear the beneficiary share in addition to its matching share if it desires to set-up CRC in its farms.
- Micro-level CRCs in small clusters (covering 10 to 20 farmers) shall also be considered for an assistance of Rs.50,000 to Rs.100,000 for procurement of rearing equipment (like rearing trays and stands, hygrometer, humidifier, leaf chopping machine and compressor power sprayer etc.) with a unit cost of Rs.50,000 to Rs.100,000 or as per actual local needs.
- CRC shall be registered with CSB as per the Seed Act.
- DOS shall assist the entrepreneurs for getting the required loan from banks or other financial institutions to meet their share.
- Groups with at least 10 members shall be considered for assistance.
- The beneficiary, who avails this component, shall be trained on chawki rearing technology at any of the training centres of CSB or state.
- Formal induction and refresher trainings shall be organized to keep the beneficiaries updated with technology and scientific management practices.
- CRC shall be set up away from late age silkworm rearing building.
- Type and design of CRC differ for regions from plains to hilly areas within the state. Accordingly, CRC shall be constructed as per the prescribed design for the region concerned.
- SLPC constituted by DOS shall assist the units in procurement of equipment.
- DOSs shall plan and finalize the targets for CRCs in such a way that adequate number of CRCs is established in all commercial cocoon clusters.
- CRC shall adopt the improved mulberry varieties and recommended technology packages suitable for chawki rearing.
- CRC shall be operational for a minimum period of 5 years and shall maintain records for inspection by concerned authorities as per the Seed Act.

The activities along with their cost details required under the component are indicated in the unit cost (refer Unit Cost book) of the component.

**c) Physical targets and financial projections:**

The details of sharing pattern, unit cost, physical targets and financial projections are given below:

Sharing pattern	State Category	CSB	State	Beneficiary
	General category	35%	35%	30%
	Special category	80%	10%	10%

Zone	Unit Cost (Rs.)	Physical Target	Financial Projections (Rs. in crore)			
			CSB	State	Beneficiary	Total
Southern	600000	600 No.	13.20	9.55	8.25	31.00
North-western	400000					
Central and western	400000					
Eastern	400000					
North-eastern	400000					

## 7. Production units for biological inputs, door-to-door service agents for disinfection, input supply and assistance for sericulture poly-clinics

### a) Brief description:

This component consists of three parts namely, i) Setting-up of production units for biological inputs; ii) Door-to-door service agents for disinfection and input supply and iii) Setting-up of sericulture poly-clinics. This was introduced newly during XI Plan and implemented as separate components. During XII Plan, it is proposed to combine these components and implement as an integrated unit, each one servicing a large area/cluster and can be linked to CRC also.

#### i) Setting-up of production units for biological inputs:

During XI Plan, the acceptance of this component was very low due to lack of technical know-how. Therefore, during XII Plan, it is planned that the research institutes of CSB shall provide training to the beneficiaries selected for setting-up the production units for biological inputs.

The research institutes have made a number of innovations where microbes have been isolated and cultured which can be used either to enrich the soil fertility (bio-fertilizers) or control the diseases (antagonistic microbes) or bio-pesticides or bio-control agents and other plant/animal products used in sericulture. It is proposed to commercialize these innovations through qualified entrepreneurs, if required through collaborative efforts.

The research institutes which have isolated or developed various inputs such as microbes, shall help the states to scrutinize applications received from the qualified graduates/post-graduates who have got the basic facilities like land, building etc. After approval of the projects, the funds shall be released to the entrepreneurs. The entrepreneurs shall pay the royalty to the technology developer, decided by a committee constituted during the course of the implementation of the scheme.

#### ii) Door-to-door service agents for disinfection and input supply:

During XI Plan, this component was quite useful and acceptable especially in traditional sericulture belts. During XII Plan, it is proposed to encourage private service agents to carry out the disinfection and supply of inputs to the farmers at their door steps. Interested unemployed youth, entrepreneurs or interested persons shall be identified through local panchayats or NGOs/SHGs/CBOs and/or other local bodies and shall be provided with a motor cycle or three wheelers to carry the disinfecting equipment like power sprayer, accessories and safety equipment etc. These door-to-door service agents shall provide disinfection service at the door steps of the farmers and charge for the same. They shall also supply the disinfectants and other inputs/utilities to the farmers at their door steps in the geographical area covered/served by a CRC.

#### iii) Setting-up of sericulture poly-clinics:

It is proposed to set up sericulture poly-clinics on the lines of agriculture, where the educated youth run the poly-clinics which serve as knowledge centers and provide necessary consultancy and inputs to the sericulturists. Qualified sericulture graduates and diploma holders having knowledge on testing procedures shall be considered for selection under the scheme through a transparent procedure. Training shall be imparted in the research laboratories or institutes on testing of soil, leaves or silkworms and in identifying the deficiencies and diseases to be groomed as entrepreneurs for testing soils, leaf samples, silkworms etc. The units shall serve as laboratories for problem identification, trouble shooting and act as consultancy centres. These sericulture poly-clinics shall charge for testing, consultancy and other services and in addition, function as sales centers for disinfectants, chemicals, appliances and other devices used in sericulture.

The total fund proposed for implementation of the above three sub-components during XII Plan is Rs.9.94 crore to support 400 units of which CSB share is Rs.5.32 crore. The unit costs proposed for the 3 sub-components are Rs. 3.00 lakh for southern zone and Rs.1.50 lakh to Rs.1.84 lakh for other zones with a sharing pattern of 50:25:25 and 80:10:10 for CSB, state and beneficiary for general and special status states, respectively.

**b) Technical specifications / operational guidelines:**

- DOSs shall identify the eligible entrepreneurs, unemployed graduates, diploma holders with basic qualification in sericulture/agriculture/ horticulture/ bio-chemistry/zoology/animal husbandary or any other fields having knowledge of sericulture, technical and entrepreneurial skills.
- The identified candidates for setting up of sericulture poly-clinics shall be assessed by a committee comprising senior scientists from CSB, two officers of DOS and bank officer, respectively, for consideration of assistance.
- The identified entrepreneurs/unemployed graduates shall be trained on the concerned activity in a research institute/training centre of the CSB before taking up the activity.
- The entrepreneurs/unemployed graduates who receive assistance shall be issued a certificate either from DOS/CSB as the authorized person to sell/distribute the biological control agents and other inputs.
- Selected entrepreneurs shall be provided with equipment as per the unit cost book.
- DOS shall support the production units for biological inputs for at least two years for marketing of the products to the farmers.
- DOS/CSB shall adopt a quality control system to ensure the quality of biological agents produced and distributed in the field.
- The component shall be linked to an existing or new CRC with a coverage of beneficiaries in the same jurisdictional cluster area for effective output and outcome of Bivoltine and ICB cocoons.
- It is not compulsory to implement all the 3 sub-components by a single entrepreneur. In such cases, the unit cost shall be restricted to the cost of particular sub-component(s).
- The door-to-door service agents shall provide disinfection service, supply the disinfectants and other inputs at the door steps of the farmers and charge for the same.
- With regard to group activity, the benefits of all the three sub-components shall be availed for maximum coverage.
- The components shall be availed for implementation in the cluster project areas by the agencies involved in project implementation and monitoring, including CSB.

The activities and their cost break-up details required under the component are indicated in the unit cost (refer Unit Cost book) of the component

**c) Physical targets and financial projections:**

The details of sharing pattern, unit cost, physical targets and financial projections are given below:

Sharing pattern	State Category	CSB	State	Beneficiary
	General category	50%	25%	25%
	Special category	80%	10%	10%

Zone	Unit Cost (Rs.)	Physical Target	Financial Projections (Rs. in crore)			
			CSB	State	Beneficiary	Total
Southern	300000	400 No.	5.32	2.31	2.31	9.94
North-western	150000					
Central and western	150000					
Eastern	184000					
North-eastern	150000					

## 8. Support for development of kisan nurseries

### a) Brief description:

Mulberry being a perennial plant, its initial establishment is important to ensure optimum growth for continuous yield of quality nutritious leaves over the years. Plantation through cuttings does not ensure good establishment and gap filling of failed pits in established garden is not successful practically, especially in closed system of intensive cultivation. Planting saplings has got many advantages like timely plantation, high survival rate due to existing root system scope for removal of weak and undesirable saplings at nursery stage, quick and better establishment, uniform development and successful establishment of the garden. The saplings are also used for replacement of old mulberry plantations and gap filling etc. It is, therefore, a viable proposition to raise saplings in large scale and make them commercially available to farmers as most of the farmers prefer saplings for plantation.

To facilitate large scale production of saplings on commercial scale as an economic enterprise, it is proposed to introduce this new component during XII Plan. Improved varieties of mulberry saplings are recommended for sustainable growth of the mulberry garden. As the DOSs are not having sufficient infrastructure and manpower to raise the required quantity of mulberry saplings to cover the target of more than about 1,00,000 acres of additional plantation in XII Plan, it is proposed to encourage private kisan nurseries on a Public Private Participation (PPP) model.

A farmer or an entrepreneur desirous to take up kisan nursery shall raise 1,28,000 saplings of high yielding and improved mulberry variety in one acre per year to support direct plantation in 25 acres. With a one time support for this activity, it is possible for the kisan nursery to sustain and continue the activity. However, DOSs and other implementing agencies shall have to support the kisan nurseries by procuring the saplings for distribution to the beneficiaries of identified project or cluster area by giving at least 4 months advance indents. It is proposed to develop kisan nurseries in 400 acres during XII Plan with a total cost of Rs.4.60 crore which includes Rs.2.50 crore as CSB share. A unit cost of Rs.1.15 lakh per kisan nursery is proposed. As such, 400 acres of kisan nurseries can support direct plantation in about 10,000 acres at 5,000-5,500 saplings per acre per year. The state may also replicate this model by availing funds from other sources to achieve the plantation targets of XII Plan.

### b) Technical specifications/ operational guidelines:

- Assistance shall be provided to be beneficiaries having minimum one acre of irrigated land (owned/leased) with fertile soil suitable for sapling production.
- The soil of the identified garden shall be tested in a government soil testing laboratory.
- The nursery land shall be flat and elevated with adequate irrigation facilities. Submersible areas must be avoided.
- The land shall be inspected jointly by DOS and CSB and certified for taking up nursery for availing the assistance.
- Though mulberry saplings can be raised throughout the year, it is advisable to raise saplings three to four months before the planting season, *i.e.*, February to April, so that the saplings shall be ready for plantation by June - August taking the advantage of monsoon rains.
- Saplings can be raised directly in nursery beds or in polythene bags of 23 to 25 cm height and 10 to 15 cm diameter, filled with mixture of soil, organic manure and sand. The polythene bags shall be provided with holes at the bottom to drain excess water. Saplings in polythene bags are easy to maintain and transport.
- Recommended mulberry varieties shall be used for raising the saplings. CSB/DOS shall arrange supply of cuttings of recommended improved mulberry varieties required for raising the nurseries.
- The subsidy amount shall be given according to number of acre of kisan nurseries on pro-rata basis subject to a maximum of 10 acres per entrepreneur.
- Despite of the ceiling limit, DOS can support more area depending on the capacity of the identified entrepreneur and potential in the area for sericulture development.
- DOSs and other implementing agencies can also support the nurseries raised by the farmers.

The activities along with their cost break-up details required under the component are indicated in the unit cost (refer Unit Cost book) of the component.



**c) Physical targets and financial projections:**

The details of sharing pattern, unit cost, physical targets and financial projections are given below:

Sharing pattern	State Category	CSB	State	Beneficiary
	General category	50%	25%	25%
	Special category	80%	10%	10%

Zone	Unit Cost (Rs.)	Physical Target	Financial Projections (Rs. in crore)			
			CSB	State	Beneficiary	Total
Southern	115000	400 acres	2.50	1.05	1.05	4.60
North-western	115000					
Central and western	115000					
Eastern	115000					
North-eastern	115000					

**9. Maintenance cost for mulberry plantation raised during X and XI Plans (for Bivoltine and Improved Cross Breed only)**

**a) Brief description:**

Maintenance of mulberry plantation is essential for healthy silkworm rearing. It involves various operations like annual bottom pruning, weeding and inter-cultivation, application of organic manure and chemical fertilizers etc. Since the farmers practicing mulberry sericulture in north-eastern states and other hilly areas mostly belong to the economically weaker section, they are unable to follow the schedules of systematic cultivation practices for the maintenance of rain-fed mulberry garden due to lack of man power and financial resources. This is one of the main reasons for decline in production and productivity in mulberry unlike tasar, eri and muga, for want of support to maintain these plantations. If such farmers are supported for maintenance of plantations developed during previous plan periods, there shall be improvement in production and productivity of Bivoltine and ICB cocoons.

During X and XI Plan period, support was extended to about 2,22,500 acres of mulberry plantation under CDP, which includes 13,650 acres in north-eastern region.

Therefore, in order to improve the production and productivity, this component is proposed to support such poor farmers for maintenance of the mulberry plantation developed during the earlier Plan periods, which would not only help them to reduce the mortality rate, but also improve the production and productivity of Bivoltine and ICB cocoons. During XII Plan, it is proposed to support maintenance of 5,000 acres of such plantations and a provision of Rs.2.25 crore including a central share of Rs 1.79 crore is proposed for north-eastern and other hilly regions of the country with a unit cost of Rs.4,500 per acre.

**b) Technical specifications / operational guidelines:**

- DOSs shall select mulberry plantations raised during previous Plans aimed at production of Bivoltine and ICB cocoons only.
- Prescribed systematic schedule of cultivation practices for maintenance of rain-fed mulberry plantation (annual bottom pruning, weeding and inter-cultivation, application of bulk organic manure, chemical fertilizer etc.) shall be adopted for better production and productivity
- Assistance shall be provided for maintenance of old mulberry gardens in respect of north-eastern and other hilly regions in order to improve the production & productivity,
- Mulberry gardens developed in earlier Plans with a minimum number of 2,500 plants per acre are eligible for maintenance cost.
- In case of tree plantation, assistance of Rs.110 per tree shall be provided to a minimum of 100 plants on pro-rata basis.

The activities along with their cost break-up details required under the component are indicated in the unit cost (refer Unit Cost book) of the component.

**c) Physical targets and financial projections:**

The details of sharing pattern, unit cost, physical targets and financial projections are given below:

Sharing pattern	State Category	CSB	State	Beneficiary
	General category	50%	25%	25%
	Special category	80%	10%	10%

Zone	Unit Cost (in Rs.)	Physical Target	Financial Projections (Rs. in crore)			
			CSB	State	Beneficiary	Total
Southern	Not applicable	5000 acres	1.79	0.23	0.23	2.25
North-western	4500					
Central and western	Not applicable					
Eastern	Not applicable					
North-eastern	4500					

**10. Support for construction of vermi-compost sheds**

**a) Brief description**

Mulberry being a perennial plant requires a lot of soil nutrition for the production of quality mulberry leaf required for silkworm rearing. However, the soil fertility has been depleting over the years in the mulberry gardens due to continuous cultivation. In order to enrich the soil, sufficient quantity of organic manures should be added to the garden to maintain the soil health. Due to reduced availability and increased cost of organic manures such as FYM, poultry manure, tank silt etc., the farmers are not in a position to apply the recommended quantity of organic manures for mulberry garden.

The sericulture wastes such as silkworm bed residues, left-over leaf, silkworm litter etc., generated during the activity can be effectively converted into nutrient rich organic manure (compost) and recycled for mulberry cultivation. Vermi-composting is an environmental friendly and effective technique for waste re-cycling and increasing fertility of the soil. Earthworms effectively convert organic wastes into vitamins, enzymes, antibiotics, protein-rich products and others organic compounds. Vermi-compost, besides being effective in improving nutrient content of land thereby saving fertilizer costs, promotes faster growth of plants, increases water-holding capacity of soil, reduces salinity and acidity, induces resistance to pest and disease attack, enhances soil productivity and increases crop yield with less irrigation resulting in better crop .

This component was approved by CSB as an additional input to CDP during the X Plan with a unit cost of Rs.14,000, was not continued in XI Plan. There has been a great demand for this component in X Plan and the states have repeatedly requested for re-introduction of the component. As such, it is proposed to implement this component during XII Plan with a unit cost of Rs.20,000 to cover 5,000 units at a total cost of Rs. 10.00 crore involving a central share of Rs.5.44 crore. One vermi-compost shed normally consists of 4 tanks and the initial investment of Rs.20,000 includes construction of tanks, thatched shed and cost of earth worms worth of 7 kg. The sale price of vermi-compost is approximately Rs.2,500 to Rs.3,500 per MT.

**b) Technical specifications / operational guidelines:**

- Beneficiaries with a minimum one acre of mulberry garden are eligible for assistance.
- DOS shall ensure utilization of vermi-compost only for mulberry garden. In this regard, an undertaking shall be obtained from the beneficiary.

- The vermi-compost sheds shall be constructed as per the specifications to ensure treatment of 9-12 quintals of waste in a cycle of 40-45 days.
- The supply of earthworm feed shall be ensured as recommended by the research institutes of CSB.
- The subsidy shall be provided only once to a beneficiary. The beneficiaries availing subsidy earlier under CDP or any other program for construction of vermi-compost shed are not eligible to avail the subsidy again under this component.
- Only Bivoltine and ICB farmers are eligible for support of this component.
- DOSs shall also tap the avenues for dovetailing the component under similar programs of other ministries or departments. In such cases, assistance shall be reduced accordingly.
- DOSs shall certify and the beneficiary shall give an undertaking to the effect that they have not availed assistance for vermi-compost shed from any other department

The activities along with their cost break-up details required under the component are indicated in the unit cost (refer Unit Cost book) of the component.

**c) Physical targets and financial projections:**

The details of sharing pattern, unit cost, physical targets and financial projections are given below:

Sharing pattern	State Category	CSB	State	Beneficiary
	General category	50%	25%	25%
	Special category	80%	10%	10%

Zone	Unit Cost (Rs.)	Physical Target	Financial Projections (Rs. in crore)			
			CSB	State	Beneficiary	Total
Southern	20000	5000 No.	5.44	2.28	2.28	10.00
North-western	20000					
Central and western	20000					
Eastern	20000					
North-eastern	20000					

**11. Assistance towards fencing of mulberry gardens in north-eastern states**

**a) Brief description:**

There has been a continuous demand from north-eastern states for providing support to fence the mulberry garden to save the plantations from cattle grazing and destruction of mulberry plantation. Mostly, the mulberry plantations in north-eastern states are far away from the dwelling houses and regular watch and ward is not practical for the farmers. If support is provided for fencing of the mulberry plantation, it can sustain the plantation for higher leaf yield and increase in cocoon production. Therefore, it is proposed to support 5000 acres of mulberry plantation for fencing in XII Plan, including the surviving plantations of earlier Plan periods, with a unit cost of Rs.10,000 per acre. The total cost is proposed as Rs.5.00 crore with a CSB share of Rs.4.00 crore. This is applicable to north-eastern states only.

**b) Technical specifications / operational guidelines:**

- Assistance under this component shall be provided to the beneficiaries having minimum of one acre mulberry plantation.
- The farmers shall go either for hedge fencing with vegetative crops or bamboo fencing.
- The subsidy shall be provided to the farmers of north-eastern states only to protect the plantations meant for production of Bivoltine and ICB cocoons.

- The state shall certify and the beneficiary shall give an undertaking to the effect that support was not taken for this component from any other department.

The activities along with their cost break-up details required under the component are indicated in the unit cost (refer Unit Cost book) of the component.

**c) Physical targets and financial projections:**

The details of sharing pattern, unit cost, physical targets and financial projections are given below:

Sharing pattern	State Category	CSB	State	Beneficiary
	Special category	80%	10%	10%

Zone	Unit Cost (Rs.)	Physical Target	Financial Projections (Rs. in crore)			
			CSB	State	Beneficiary	Total
Southern	Not applicable	5000 acres	4.00	0.50	0.50	5.00
North-western	Not applicable					
Central and western	Not applicable					
Eastern	Not applicable					
North-eastern	10000					

**12. Assistance towards expansion of rearing houses for construction of mounting halls in north-eastern and hilly states**

**a) Brief description:**

Mounting of silkworms is an essential activity of cocoon production. Improper use of mounting material and lack of care during mounting of mature silkworms are the causes for formation of defective cocoons which affects the reeling performance. Even though the silkworm larvae are healthy, it is estimated that the farmers loose about 5 to 8% of the larvae at the spinning stage due to improper mounting management.

Therefore there is a need to support this activity for increase in the production and productivity of cocoons, which is presently much below the national average in north-eastern and hilly region. Sericulture farmers from north-eastern and hilly areas have their plantations far from their dwelling houses. The rearing houses have been constructed nearer to the plantation without any facility for indoor mounting. Therefore, considering the need for increasing production and productivity of Bivoltine and ICB cocoons, and also as requested by DOSs of north-eastern and hilly states, it is proposed to support for construction of mounting hall for the existing rearing houses constructed in X and XI Plans as well as for new rearing houses to be constructed in XII Plan.

During X and XI Plans, about 15,000 rearing houses were supported in north-eastern and hilly states. It is proposed to support 5,000 mounting halls including the new rearing houses to be constructed in these places during XII Plan. The unit cost proposed for construction of one mounting hall is Rs.30,000. An amount of Rs.15.00 crore is proposed for this purpose which includes a CSB share of Rs. 12.00 crore.

**b) Technical specifications/ operational guidelines:**

- Separate mounting hall (size : 20'x15'x12') with good ventilation is ideal for mounting of silkworms of 100 dfls.
- DOSs shall identify eligible farmers having stable plantation, functional rearing house and conducting regular rearing, for assistance for construction of mounting halls at a unit cost of Rs.30,000.
- Beneficiaries possessing more than one rearing house, supported by required area of plantation, shall also be considered for assistance and the subsidy shall be provided on pro-rata basis.

- Preference shall be given to the farmers in hilly regions, whose rearing houses are far from dwelling houses.
- The plan and sketch of the mounting hall with the details on mounting capacity, type of mounting hall along with details of floor, wall and roof shall be provided by the state, as per local needs

The activities along with their cost break-up details required under the component are indicated in the unit cost (refer Unit Cost book) of the component.

**c) Physical targets and financial projections:**

The details of sharing pattern, unit cost, physical targets and financial projections are given below:

Sharing pattern	State Category	CSB	State	Beneficiary
	Special category	80%	10%	10%

Zone	Unit Cost (Rs.)	Physical Target	Financial Projections (Rs. in crore)			
			CSB	State	Beneficiary	Total
Southern	Not applicable	5000 No.	12.00	1.50	1.50	15.00
North-western	30000					
Central and western	Not applicable					
Eastern	Not applicable					
North-eastern	30000					

**13. Support for increasing the yield of existing rain-fed mulberry garden through water conservation techniques**

**a) Brief description:**

About 45% of the sericulture farmers in India cultivate mulberry in rain-fed conditions. True moisture stress is experienced in rain-fed areas only when annual rainfall is less than 1,000 mm with limited number of rainy days. Nearly one third of the mulberry area in southern and central states belong to this category. Generally, the yield and quality of leaf are poor under such conditions. Specific package of practices for mulberry cultivation to improve both yield and quality of leaf under such stress conditions is required to be adopted. Package of practices mainly involve use of high yielding mulberry varieties adopted to stress conditions, measures for better establishment during initial stages of plantation and suitable agronomical practices emphasizing soil moisture conservation and timely plant protection measures.

Therefore, with the increasing scarcity of water, it is necessary to introduce innovative technologies to enhance water conservation ability of the soil. Since mulberry is a perennial crop, such efforts shall have a greater impact in improving the leaf yield. The field studies undertaken by CSB and University of Agricultural Sciences (UAS), Bangalore have proved that the income from sericulture can be substantially improved by resorting to the water conservation methods in rain-fed gardens.

Considering the need for improving the productivity of rain-fed gardens, the farmers shall be supported to develop their existing rain-fed gardens by the recommended water conservation techniques. Under the program, in between rows of mulberry, biomass filled trenches shall be made along with planting live hedges. This vegetative bund cum trenches serve as water conservation structures and decomposing biomass shall provide necessary nutrition to the mulberry plantations in addition to absorbing maximum moisture, maintain humidity, increases soil fertility due to higher content of organic matter and also prevents soil erosion. Every trench acts as mini water harvesting tank and moisture retention pocket. Under the component, 5,000 acres shall be supported at Rs.10,000 per acre. The total cost estimated is Rs. 5.00 crore, out of which the CSB share is Rs.2.74 crore.

**b) Technical specifications/ operational guidelines:**

- The component shall be supported to farmers of rain-fed areas only who undertake Bivoltine and ICB rearing.
- Construction of bunds and formation of sub-plots of convenient size shall be identified and planned as per the slopes.
- The trenches shall be filled with green biomass is filled in the trenches, in alternative layers of green biomass and compost/FYM in alternate layers uniformly in 3/4 depth of the trench. Remaining portion of trench to be filled with soil and closed.
- Leguminous crops to be grown between rows, to generate in situ green manure, which shall be later, ploughed back after harvesting.
- A water conserver of 1000 cu ft capacity is to be set up at suitable location.
- Farmers with existing rainfed gardens of minimum two years old and up to 1 ha are eligible for assistance under this component. The farmers shall be identified by the field units of DOS, who must hold valid pass book given by DOS or any other document proving their identity as a sericulture farmer.
- The field officer shall certify that the beneficiary has not availed any assistance for similar work from other programs of government or agency and also certify that the works undertaken are based on her/his visit before and after implementing the component.
- An undertaking shall be obtained from the beneficiary to the effect that sericulture activity shall be continued for a period of 3 years after availing the subsidy under the component.
- Recommended mulberry varieties suitable for the zones shall be selected for new plantations.
- The leaf productivity of the supported beneficiaries shall be recorded for a minimum period of 3 years

The activities along with their cost break-up details required under the component are indicated in the unit cost (refer Unit Cost book) of the component.

**c) Physical targets and financial projections:**

The details of sharing pattern, unit cost, physical targets and financial projections are given below:

Sharing pattern	State Category	CSB	State	Beneficiary
	General category	50%	25%	25%
	Special category	80%	10%	10%

Zone	Unit Cost (Rs.)	Physical Target	Financial Projections (Rs. in crore)			
			CSB	State	Beneficiary	Total
Southern	10000	5000 acres	2.74	1.13	1.13	5.00
North-western	10000					
Central and western	10000					
Eastern	10000					
North-eastern	10000					

**Expected outcome**

The implementation of the program shall supplement the efforts of states resulting in production of 23,000 MT of mulberry raw silk (which includes 5,000 MT of 3A grade Bivoltine silk and 6,000 MT gradable ICB silk) by the end of XII Plan, i.e., 2016-17. Implementation of the components under cocoon sector shall help to improve the quality and productivity because of the adoption of improved technologies. Besides, these components shall ensure production of

quality cocoons to bring a quantum jump in the production of high quality Bivoltine silk from the present level of around 1,685 MT to 5000 MT by the end of XII Plan. Substantial volume of Cross Breed cocoon production of the previous Plan period shall be upgraded to ICB production as per the strategy of XII Plan. This shall bring down the existing demand-supply gap. Because of CDP interventions and profitability of sericulture sector, there shall be an incremental increase of raw silk to about 4,728 MT over XI Plan supporting generation of additional employment of 16.80 lakh persons by the end of XII Plan. The income generated by implementation of components of mulberry cocoon sector shall help to improve the socio-economic conditions of the farmers. However, reduction in allocation may adversely affect in achieving the set targets.

Even though the envisaged mulberry silk production target for XII Plan is 23000 MT, the support proposed under mulberry sector components of CDP shall be mainly towards achieving the production target of 5000 MT of BV silk and 6060 MT of higher grade ICB silk (2A/3A grade) suitable for weaving in power looms aimed at reducing import dependence for high quality yarn. The remaining production of 12000 MT of Cross Breed or Multivoltine silk shall be achieved by marginally augmenting the support already provided under CDP till XI Plan by building-up proper linkages for their sustenance and maximizing benefits from the existing capacity through productivity improvement measures. **However, seed support for the mulberry sector shall continue for all varieties in order to achieve overall production target as male parents of Bivoltine silkworms are required for Cross Breed silk production.**

