

SCHEME II: SEED ORGANIZATIONS, COORDINATION & MARKET DEVELOPMENT

A. Seed Organizations

Approach for XII Plan

The main focus during the XII Plan under seed sector is to standardize and improve the quality of seed by bringing all the stakeholders under the ambit of Silkworm Seed Act and facilitate the seed production units to get certified ISO 9001. The policy change in seed sector proposed to be initiated during XII Plan sector would be to transform the Seed organizations of CSB to assume the role of a regulating and facilitating authority by limiting its role in maintaining the nucleus seed source and producing considerable number of basic seed, especially bivoltine and Vanya silk sector, and prepare the State owned seed units as basic seed production units, and to generate the entire commercial production through private participation with necessary quality control measures. XII Plan Sub-Group report recommended for higher provisions which are now being rolled out through various programmes. Sector-wise approaches are given below.

MULBERRY SEED – (NATIONAL SILKWORM SEED ORGANIZATION (NSSO))

Silkworm seed production in India has witnessed massive transformation over the past few years. Silkworm seed production both at Government and private level have realized the importance of adopting newer and efficient methods to improve the quality and recovery and thereby improving the profitability of the enterprise as a whole. The R&D institutes of CSB have played remarkable in this direction. The National Silkworm Seed Organization in the country is contributing nearly 60% of the country's bivoltine raw silk production through distribution of 251.54 lakh bivoltine dfls directly and the balance 40% indirectly through supply of bivoltine basic seed to various States for utilizing the same for production of commercial seed production. The Adopted Seed Rearers concept has resulted in improved productivity at Silkworm Seed production units.

The policy change in seed sector proposed and initiated during XII Plan sector have to transform the Seed organization of CSB the role of a regulating and facilitating authority by limiting its role in maintaining the nucleus seed source and producing considerable number of basic seed, especially bivoltine and prepare the State owned seed units as basic seed production units, and to generate the entire commercial production through State / Private Participation with necessary quality control measures. The seed produced by NSSO would cater to the need of the State Sericulture Departments for producing commercial silkworm seed needed for the farmers. In order to achieve the target of 5000 MTs of bivoltine silk, the requirement of seed is indicated in the table below:

[Unit in lakh nos.]

Year	CSB (NSSO)	State and Private	Bivoltine seed
2012-13 *	159.73	123.78	283.51
2013-14 *	178.08	212.89	390.97
2014-15*	251.54	171.46	423.00
2015-16	275.00	244.00	519.00
2016-17	300.00	325.00	625.00

* achieved

It could be seen from the above table that the seed production has to be considerably increased during 2015-16 and 16-17 to achieve the Bivoltine silk production target set for XII Plan. Considering the above target, the following interventions are proposed towards restructuring of **Seed Sector under Central Sector** for mulberry seed during the remaining Plan period:

Ongoing activities

- a) Maintenance of technical essential facilities in 80 Units of NSSO (BSFs, SSPCs, SCPCs, SSCs, and ZSSPOs) for the production of basic and commercial silkworm seed as per the set mandates,
- b) Minor works, renovations, repairs and maintenance of service buildings (grainages and rearing houses) and staff quarters, cold storages, moth preservation chambers and others
- c) Purchase and maintenance of equipments, maintenance of mulberry plantations etc.
- d) Project implementation, monitoring, crop review and related establishment expenses of field units
- e) **Up-gradation of infrastructure facilities to meet Seed Act requirements in 35 units - BSFs and SSPCs to increase production capacity :** It is proposed provide assistance to RSPs / State for infrastructure improvement for production of quality BV seed. Since, the demand for Bivoltine Seed is very high during XII Plan and NSSO grainages are able to meet about 60% of the required Bivoltine Seed, it is proposed to encourage Registered Private Seed Producers and State grainages to produce Bivoltine Commercial Seed to meet the gap.
- f) **Strengthening Mulberry silkworm seed crop rearers (ASRs) for quality seed cocoon generation:** The mulberry plantation and labour of the private ASR is utilized by NSSO to rear seed cocoons from its own P1 layings to generate quality seed cocoons, instead of setting up new Seed Farm Stations for rearing purpose. NSSO officers carry out crop inspections at ASR seed farms during rearing period to ensure quality. In XI Plan, NSSO reared quality seed cocoons through 910 ASRs. During XII Plan, NSSO needs to produce 375 lakh dfls per annum(i.e. an increase of about 33%)

for which this programme needs to be continued and the existing and new ASRs need to be given need based support for capacity building to generate quality seed cocoons required by SSPCs to produce quality commercial layings. Under the programme, 500 farmers would be assisted @ Rs. 60,000/- per farmer with facilities like rearing trays, chawki rearing stand, room heaters, humidifiers, de-humidifiers, power sprayer, disinfection mask, improved moutage, tin sheets etc. besides procurement of equipments by RSPs

g) **Establishment of isolated testing facility at Central Seed Testing Laboratory and other Accredited Laboratories as per Seed Act.** : As per the provisions contained in the Seed Act, Central Seed Testing Laboratory (CSTL) and accredited laboratories would have to undertake the rigorous testing process to ensure that the silkworm seed tested are free from diseases. These laboratories also act as centres for quarantine clearance. The existing facilities at the research institutes cannot be used for this work due to the epidemic nature of the diseases. Hence such facilities would be created in isolation, but in the same campus of the designated centres. During XII Plan 9 such labs will be assisted @ Rs 0.50 lakh per lab.

h) **Remuneration to Seed Officers and Seed Analysts as per Seed Act.**

The Seed Officers and Seed Analysts are the important functionaries for effective implementation of the Seed Act. These personnel will be moving around the field on a continuous basis and need to communicate with the CSSC on many issues. This is an additional job assigned to them apart from the regular official duties. For this purpose, 400 technical personnel would be provided with facilities for mobility and communication @ Rs.4000 per person.

i) **Training programme for Silkworm Seed Producers and Chawki Rearers under the provisions of the Silkworm Seed Act:** As per the Seed Act, the silkworm seed producers and Chawki rearers should be trained in the respective areas for enhancing the quality of the cocoons produced and supplied to the farmers. NSSO would impart such specialized training programmes in identified units.

j) **Quality awareness programmes in CSB/ State based units on Silkworm Seed Act and its requirements:** Sensitizing the persons involved in seed production on the various aspects contained in the Seed Act is taken on priority basis to familiarize with the Act. Hence, sensitization programmes would be conducted for CSB and DoSs personnel in different Seri Zones.

k) **Training of scientific/technical personnel involved in seed quarantine and monitoring programmes:** Silkworm seeds are usually exported to other countries and also imported to India for trial and research purposes. These seeds should be certified from the quarantine angle before reaching to the beneficiaries. Hence, the scientific personnel in SSTL and other accredited laboratories would be trained in the various aspects of quarantine certification in a reputed institution.

- l) **Replacement of four wheeler road vehicles / jeeps of NSSO units for seed extension work in locations where hiring is found not to be feasible:** Vehicles will be purchased only against condemnation as per the guidelines of Ministry of Finance, Government of India

Restructure / Deepening of ongoing schemes for implementation during 2015-16 and 16-17

1. Revolving Capital fund support for State Grainages and RSPs

Working capital plays an important role in deciding the economic performance of the grainage. The silkworm seed production centres in DOS and private sectors often face difficulty in procuring quality seed cocoons due to shortage of Working Capital Fund. The new and first generation entrepreneurs were not interested to take up the business with the existing levels of assistance as the raw material price and the prices of chemicals used in the process of producing silkworm eggs has increased in the recent past. Accordingly, the need for increasing the assistance is felt for producing the commercial bivoltine silkworm seed. Hence, it is proposed to provide one time Working Capital support to the grainages of state governments and private RSPs. The silkworm seed production cycle even though lasts for 7 to 10 days in normal conditions, it will take 4 to 6 months once it is cold stored for want of demand due to variations in rearing conditions. Hence, the storage of silkworm seed up to six months along with the business cycle of 7-10 days, which means a total of about 7 months will be the difference from procuring of raw material and encashing the same in the form of dfls. In view of the above reasons, it is proposed to give a boost by increasing the assistance from **Rs.5.00 lakh to Rs. 15.00 lakhs per unit** with a physical target of 13 units. The assistance will be 100% by CSB.

2. Assistance for purchasing seed testing equipments for State and Private RSPs.

Production of quality silkworm seed is the key for success of the silk industry. The production of quality silkworm seed demands some specific equipment such as moth preservation chamber and incubation chamber of high order. The private RSPs and the state government seed production centres with limited financial resources apart from lack of support from bankers to lend more funds for the purchase of such quality enhancing equipment, which resulted in lack of proper response from private RSPs to carry out the activities. It is proposed to increase the existing assistance level from **Rs.1.75 lakhs to Rs.13.00 lakhs per unit** for procurement of equipment. The physical target suggested is 11 units. The assistance will be 80:20 by CSB & RSPs/State. (Only Traditional States except J&K) and 100% assistance in case of non-Traditional States and J&K.

3. Support to upgrade Private Commercial Seed Production Units.

It is proposed to support the State and private grainage to up-grade their minimum facilities to produce seed in conformity with the quality norms prescribed under the CSB (Amendment) Act 2006. The assistance will be for up-gradation of infrastructure, procurement of equipments etc. The existing grainages in state and private sector lack adequate equipment for mass testing of silkworm moths and proper infrastructure to house these quality testing equipment. As the XII plan is envisaged to produce quality bivoltine silk, it's achievement depend very much on the quality silkworm seed, which can only be ensured with the creation of adequate testing facility at seed production centres. The assistance level is proposed to increase to **Rs.15.00 lakhs from the existing Rs.3.50 lakhs per unit**. The physical unit proposed is 11 units.

4. Establishment of Mulberry silkworm seed Production Units by the Stats with Cold Storage facilities.

In order to meet the requirement of bivoltine commercial mulberry silkworm Seed by the States of Madhya Pradesh, Odisha, Uttar Pradesh, Uttarakhand and Himachal Pradesh, it is proposed to support establishment of modern higher capacity grainages with cold storage facilities. With the establishment of grainages, the States will be self-sufficient in Bivoltine commercial seed production. Based on the success, the scheme will be extended to other potential Bivoltine States.

5. Support for RSPs for running the Existing CSB Grainage for production of Mulberry Commercial Bivoltine Silkworm Seed under PPP.

It proposed to handover identified CSB grainage to the Registered Silkworm Seed producer to run the grainage under Private-Public-Partnership (PPP). CSB would hand over the entire infrastructure created by CSB to undertake production of Bivoltine Commercial mulberry silkworm Seed by the entrepreneur. The RSP will also be supported for viability gap funding for limited period till it becomes self-sustainable. (viz, difference in cost of production and selling cost of dfls).

VANYA SEED SECTOR

TASAR SEED - BASIC TASAR SILKWORM SEED ORGANIZATION (BTSSO)

The major challenge to achieve the tasar silk production target set for XII Plan is demand supply gap in quality tasar silkworm seed. Hitherto, the main thrust of tasar seed production was laid on the multiplication chain involving the BSM&TCs and PPCs under Govt. sector. However, the concept of Adopted Seed Rearer and Private Grainuer has opened a new dimension for production of commercial tasar seed in

private sector in states like Jharkhand, Chhattisgarh, Madhya Pradesh, Maharashtra, Telengana and West Bengal. This has helped to bridge the gap between demand and supply for seed to some extent. However, it is experienced that the multiplication ratio at different levels needs to be improved in different States for which different programmes are planned during the remaining period of XII Plan. Of late, because of the increased demand of commercial seed, State and Private sectors have been roped in for production of basic seed with the technical supervision of the BTSSO. The ambitious target set for the tasar sector in XII Plan, necessitated the BTSSO units to adopt the twin strategy of producing nucleus seed in their facilities and facilitating State PPCs / Pvt Graineurs to augment production of basic seed required for the industry. The commercial seed will be produced largely under private sector. It is targeted to bring in these changes by the end of the XII Plan period. According to this plan, the seed production for tasar sector has been targeted in the following manner:

Setting Target:

(Unit in lakh Nos.)

Year	Nucleus Seed	Basic seed			Commercial seed	Grand Total
	CSB	CSB	State	Total	State & Pvt.	
2012-13	4.42	20.76	60.88	81.64	489.84	575.90
2013-14	6.29	22.28	74.08	96.36	578.16	680.81
2014-15	18.02	23.15	93.37	116.52	699.12	833.66
2015-16	22.23	27.14	117.34	144.48	866.88	1033.59
2016-17	27.98	37.09	144.79	181.88	1,091.28	1301.14

For this purpose, apart from the existing one nucleus seed production unit (CTSSS, Kota), all the 21 BSMTCS will be up-graded as nucleus seed production units in a phased manner. The basic seed production will be gradually shifted to the State PPCs and to some extent to Private Graineurs to be adopted by BSMTCS for initial capacity building. For this purpose, suitable number of State PPCs have already been created/ strengthened through support from CDP and BTSSO will extend hand holding to some more PPCs during remaining period of XII Plan. To evolve suitable regional lines of breeders' stock for adequate supply to the nucleus seed stations, four P₄ units under Central Silk Board will be needed (three for Bivoltine and one for Trivoltine). P₄ stations are being established under the R&D programmes of CTR&TI, Ranchi. Provision has been earmarked for creating these P₄ units under the R&D component.

To achieve the above targets, the programmes of BTSSO for the XII Plan are grouped under two components; ongoing activities and new initiatives.

Ongoing activities.

The ongoing activities are the mandated activities of BTSSO in BSMTCS and CTSSS. These include activities related to basic seed production and supply, conducting departmental rearing, organizing skill development programmes, adopting State PPCs and Private Graineurs, organizing seed cocoon production through Adopted Seed

Rearers (ASRs) etc. So the major portion of Plan allocations would have to be utilized for the above technical activities besides meeting expenses on Nucleus and Basic Seed production expenditure in 21 BSMTCs for XII Plan requirement, cost of tools and plant, consumables, maintenance of plantation, repairs and maintenance of service buildings, administrative buildings & staff quarters, minor works in grainages and rearing houses, seed extension activities etc. Because of the up-gradation of the BSMTCs as nucleus seed production centres, the ongoing expenditure is also expected to be increased: Scheme wise details are given below

- a) Nucleus and Basic Seed production expenditure in 1 CTSSS and 21 BSMTCs for XII Plan requirement
- b) Cost of tools and plant, consumables, repairs and maintenance of service buildings, administrative buildings & staff quarters
- c) Minor works in grainages and rearing houses, maintenance of plantation, seed extension activities, etc
- d) Project implementation, monitoring and related establishment expenses of field units. Considering the manpower shortage with BSMTCs, expenditure for hiring of two junior consultants @ Rs 30,000/- pm for two years to each BSMTC to support technical seed production activities of BSMTCs and one Para extension worker for each BSMTC @ Rs 15,000/- pm for two years is also proposed for organizing the Adopted Seed Rearers and Private Graineurs for production of additional quantity of basic seed through BSMTCs.
- e) **Composite Grainage Buildings of 1 BSMTCs- Ambikapur (Chhattisgarh) :** The BSMTCs of Ambikapur was functioning in the old infrastructure provided by State Govt, which is in dilapidated condition. As the role of the BSMTC has been redefined and it requires up-gradation of infrastructure with all the ancillary facilities for production of quality nucleus and basic seeds. Since land has been made available to BSMTC Ambikapur, it is proposed to erect composite building including office, grainage, oviposition and testing halls and other facilities to increase the production capacity and efficiency during remaining period of XII Plan.
- f) **Renovation / additional buildings (mud wall) in BSMTCs and other nested units to increase production capacity :** As explained above, all the BSMTCs are proposed to be up-graded to produce additional requirement of nucleus / basic seed. For this purpose, the existing BSMTCs need to be up-graded with additional facilities for capacity enhancement. Besides, the existing buildings are quite old and need to be renovated for taking up the specialized job of nucleus/ basic seed production. Hence, seed cocoon preservation facilities with mud walled cocooning hall and grainage house in all the BSMTCs
- g) **Infrastructure improvement by erecting Tubular Structure with shade nets and civil works for stores in 21 BSMTC / sub units for producing Nucleus Seed to increase production capacity:** The requirement of Nucleus and Basic seed has increased to achieve the target fixed for Tasar raw silk production during XII Plan. It is necessary to augment the capacities of all the BSMTC, many of which

are working in forest areas where pucca building can not be erected. As it is not possible to meet the entire requirement of space and infrastructure in all the BSMTTC during XII plan, it is proposed to support BSMTTCs with one temporary Tubular Structure with shade nets for preserving the seed cocoons for a period of 5-6 months.

- f) **Supply of grainage and rearing equipments for 21 BSMTTCs** : In order to undertake the more scientifically sophisticated job of nucleus seed production, the BSMTTCs would have to be provided with good equipments for rearing and grainage activities. Most of the available equipments in the units are old and need to be replaced.
- h) **Purchase / Replacement of four wheeler road vehicles / jeeps of BSMTTCs** : It is proposed to replace the existing 4 wheelers for effective monitoring of seed rearing conducted in remote areas. Mobility is a vital component for tasar sector as most of the plantations are situated in remote areas where public transport is not available nor is hiring not feasible due to remoteness.
- i) **Provision for meeting completion cost of works in progress from XI Plan - A** token provision of **Rs.0.05 Cr.** is earmarked for this purpose.

Restructure / Deepening of ongoing schemes for implementation during 2015-16 and 16-17: (Measure for Improvement in Quality and Productivity of Tasar seed)

a) **Assistance to Adopted Rearers for development of Chawkie garden:** It is proposed to assist Tasar rearers to establish Chawki Gardens @ 0.1 ha. per rearer with 1.8 m x 1.8 m spacing suitable for young age silkworm rearing under nylon nets for improving production and productivity for seed cocoons. This will facilitate young age rearing in chawki gardens followed by late age rearing in grown up trees. BTSSO units shall support the beneficiary with supply of seedlings, cost for Chawkie plantation development, inputs, etc. with a unit cost of Rs 6,300/-under this component. During the remaining Plan period, 1660 units of Chawkie garden of Adopted Tasar Rearers will be supported for improving production and productivity of seed cocoons.

b) **Assistance to Tasar Adopted Rearers for maintenance of existing Tasar plantation** : In order to improving foliage quality and productivity of existing Tasar plantation raised earlier, it is proposed to support Seed Rearers with a unit cost of Rs 17,000/-per rearer for maintenance of plantation, soil & moisture conservation, intercultural operations, supply of insecticides/ fungicides for managing pest and diseases of host plants, organic and inorganic inputs, and other technology inputs as recommended by CTR&TI, Ranchi. The BSM&TC will extend assistance to Tasar Rearers subject to undertaking from them that they will take up seed crop rearing and supply the seed cocoons to BSMTTCs and the Private Graineurs adopted by BSMTTC/ PPCs for production of seed. During the remaining Plan period, 1660 Adopted Tasar Rearers will be supported for maintenance of existing plantations for improving production and productivity of seed cocoons.

c) Assistance for Tropical Tasar Rearers : In order to improving seed cocoon productivity of existing Tasar seed rearers who are willing to take up rearing of nucleus and basic seed of 200 to 250 dfls for supply of seed cocoons to PPCs/ BSM&TCs/ Basic Seed Production Units, assistance for equipments and appliances is proposed with a unit cost of Rs 20,000/- per rearer for ensuring successful seed crops. During the remaining Plan period, 1660 Adopted Tasar Rearers will be supported for equipments for improving production and productivity of seed cocoons.

d) Disinfectants support to Adopted Seed Rearers : 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 component is proposed to be implemented for Adopted Seed Farmers at a unit cost of Rs.2,200/- per farmer. The component is expected to help to improve the hygienic conditions in the rearing fields for better quality and productivity. During the remaining Plan period, 1660 Adopted Tasar Rearers will be supported for disinfectants for improving production and productivity of seed cocoons

e) Assistance to Adopted Private Tasar Graineurs: The focus of Basic Tasar Silkworm Seed Organization units has now been shifted towards supply of nucleus seed and basic seed to a limited extent. With increased demand of Basic seed in XII Plan, it is desirable to train and build capacities of the Private Graineurs to produce basic seed under organic linkages and supervision of BSMTCS/ PPCs. This approach will help to narrow the gaps for availability of basic seed. Hence, it is proposed to promote Private Graineurs at a unit cost of Rs 3.00 lakh towards construction of Grainage building, procurement of grainage equipment, consumables and working capital for purchase of seed cocoons, incentive @ Rs 6.00 / per basic dfls produced, insurance coverage, etc. This would enable the graineurs to process 40,000 seed cocoons and produce 6,000 dfls per grainage operation. This intervention will help to produce quantity of 25.5 lakh basic dfls / year helping to produce 2.04 Cr commercial dfls and around 1020 MT tasar silk. The concerned BSMTTC will check and certify the quality of seed before procurement. During the remaining Plan period, 450 private graineurs will be supported to augment and strengthen quality seed production linkages.

f) Establishment of Basic Seed Production Units: Some of the Tasar producing States are yet to attain their capabilities to produce Tasar basic seed despite support extended to strengthen their PPCs during earlier Plan periods. It may be practically difficult for the States like West Bengal, Telangana, Madhya Pradesh, Uttar Pradesh and Odisha to meet the entire basic seed demand in view of the insufficient infrastructure and resources. Hence, it is proposed to promote establishment of Basic Seed Production Unit at a unit cost of Rs 50.00 lakh each towards construction of building and supply of grainage equipment, working capital and consumables with a capacity to preserve 1.5 lakh seed cocoons & produce 25,000 Tasar basic seed with handholding from BSMTCS under Central Sector Scheme. Apart from this, two PPC at Godda and Chaibasa of Jharkhand state shall be adopted by Deoghar and Kharsawan BSMTCS respectively for enhancing the basic seed production. Necessary provision for operational cost are kept in the ongoing schemes. During the remaining Plan period, 4

Basic Seed Production units of the State Govts (PPC) will be supported to augment and strengthen quality seed production linkages.

g) Assistance for Mobile Testing Facility for disease monitoring and seed cocoon testing : Tasar silkworm seed multiplication involves various agencies viz., BSMTCs, State PPCs, Basic Seed Production Units and Private Graineurs. For ensuring disease freeness there is need to strengthen disease monitoring and surveillance across all the seed multiplication agencies. To facilitate this activity, it is proposed to support 9 mobile customized pick-up van fitted with necessary equipment/ facilities each with a unit cost of Rs 7.0 lakh initially to support prolific seed producing areas of traditional tasar states. The mobile van and equipments will be owned and maintained by BSMTCs located in traditional Tasar states and shall be used for monitoring diseases in seed rearers, PPC and private graineurs. During the remaining Plan period, 9 **Mobile Testing facility** will be supported for ensuring production of disease free seed.

h) Door to Door Service Agents for Disinfection and inputs supply (1 unit to 100 seed Rearers attached to BSMTCs) : The committee constituted by Ministry of Textiles for addressing the critical gaps relating to Vanya Silk Sector (pre-cocoon) has recommended to institute a mechanism for disinfection of fields and inputs supply to farmers. Hence, it is proposed to encourage 46 units of Door to Door Service Agents each with a unit cost of Rs 1.50 lakh to carry out the disinfection of block plantations and supply of inputs to the farmers at their door steps. These units shall be established by identifying interested unemployed youths / entrepreneurs / and will be provided with a motorcycle / three wheelers to carry disinfecting equipments like power sprayer, accessories and safety equipments etc. During the remaining Plan period, 46 Door to Door Service Agents will be supported for ensuring production of disease free seed cocoons.

MUGA SEED- (MUGA SILKWORM SEED ORGANIZATION (MSSO)

Setting targets: Overall seed requirement for the sector against the XII Plan target of silk production is given below

The	#	Year	Total Commercial Seed (Lakh Nos.)	Basic Seed Requirement (Lakh Nos.)			
				P4 (CSB)	P3 (CSB)	P2 (CSB)	P1 (State)
	1	2012-13	135	0.197	1.26	6.94	23.14
	2	2013-14	145	0.205	1.31	7.46	24.86
	3	2014-15	160	0.225	1.44	8.23	27.43
	4	2015-16	175	0.247	1.58	9.00	30.00
	5	2016-17	200	0.281	1.80	10.29	34.29

basic seed required for the P4, P3 and P2 levels will be produced by the CSB units, for which another four numbers each P3 units will be required. Of the four units, proposal for establishment of three P3 Units under NERTPS in Silchar, Kokrajhar (Assam) and Mokokchung (Nagaland) has been submitted to MOT, whereas, one P3 Unit will be established at Kalimpong (West Bengal) under Central Sector Scheme. The P1 layings will be produced by the State departments. In order to meet the increasing demand for Basic seed and in view of the limited resources available at Govt. level, initiatives are also being proposed for bringing private participation for production of Basic seed in addition to the commercial seed. The programmes of MSSO for the XII Plan are grouped under three components; Ongoing activities, Special initiatives and Measures for improvement in quality and productivity of Muga Seed.

Ongoing activities

The ongoing activities are the mandated activities of MSSO operated through the basic seed production centres. These units are the participants of the seed multiplication process wherein quality and disease freeness are the main agenda. The technical activities of these units include; basic seed production and supply, conducting departmental rearing, organizing skill development programmes, quarantine testing, etc. So a portion of Plan allocations would have to be utilized for the above technical activities besides meeting expenses on Nucleus and Basic Seed production expenditure in 10 Muga Seed Production Units for remaining period of XII Plan requirement, cost of tools and plant, consumables, maintenance of plantation, repairs and maintenance service buildings, administrative buildings & staff quarters, minor works in grainages and rearing houses seed extension, etc. as per the details given below:

- a) Nucleus Seed and Basic production expenditure in 10 Muga Seed Production Units for XII Plan requirement
- b) Cost of tools and plant, consumables, repairs and maintenance of service buildings, administrative buildings & staff quarters
- c) Minor works in grainages and rearing houses, maintenance of plantation, seed extension activities, etc.
- d) Project implementation, monitoring and related establishment expenses of field units
- e) **MSSO/ESSO Head Quarters Building:** The genesis of MSSO dates back to 1980s when CSB implemented a Muga Seed Development Project (MSDP) for NE States. MSDP was later re-organized and re-christened as MSSO with two P4 units, six P₃ units for production of basic seed, and one Muga Silkworm Seed Production Centre for commercial seed. Over the years, the activities of MSSO have increased many folds due to the increased basic seed production in its units, and the nature of activities to be organized in the most difficult terrains of NE. Since its establishment, the MSSO has been functioning in a rented building with lot of limitations. Ironically some of the field units have good infrastructure and staff quarter facilities. Since CSB has to support the Muga seed sector for a long time to

reach the expected level of sustainability, it is necessary to create a permanent infrastructure for this important unit in NE. Accordingly, it is proposed to create a permanent infrastructure for MSSO HQs at Guwahati with staff quarters. Land is already available for CSB at Khanapara. This Office would also function as the HQs for Eri as both the offices are operated simultaneously.

- f) **Establishment of one Muga P₃ farms at Kalimpong (W.B.):** The State owned farm cum grainages have been strengthened to produce quality Muga commercial dfils as per norms (1:10) fixed by the research institutes of CSB. Though sufficient infrastructure has been established, the State farm - cum - grainages are not able to produce quality Muga dfils as per norms. As explained above, one P₃ centre is required to meet the additional basic seed requirement for achieving the XII Plan target. The unit will be established in the campus of existing Mulberry Basic Seed Farm at Kalimpong (W.B.).
- g) **Provision for meeting completion cost of civil works in progress from XI Plan:** A token provision of **Rs. 0.15 Cr.** is earmarked for this purpose.
- h) **Purchase / Replacement of four wheeler road vehicles / jeeps:** Mobility is a vital component for Muga sector as most of the plantations are situated in remote areas where public transport is not available nor is hiring feasible. It is proposed to purchase 9 four wheelers for effective monitoring of seed rearing conducted in remote areas
- i) **Provisions for rearing in Special Seed Zones :** To tackle the problems related to conducting rearing during Pre-seed Crops MSSO, Guwahati has identified Special Seed Zones both for Summer & Winter in the States of Mizoram, Nagaland & West Bengal. The rearing in these areas needs to be organized through Seed Rearers identified and adopted by MSSO in these States. These seed farmers will be provided support in the form of good quality seed, rearing appliances and disinfectants with assured buy back mechanism for seed cocoons to be produced by them.

(Apart from the above, establishment of P-3 Muga Seed Units at Pailapool - Silchar (Assam), Mokokchung (Nagaland) and Kowabil - Kokrajhar (Bodoland) and one SSPC at Tura (Meghalaya) have been sanctioned at a cost of Rs 18.713 Cr under NERTPS of MOT to augment muga silkworm basic seed production). Restructuring / Deepening of ongoing schemes for implementation during 2015-16 and 2016-17:

Assistance for Mobile Testing Facility for disease monitoring and seed cocoon testing: Muga silkworm seed multiplication involves various agencies viz., P-3 and P-2 Seed station of MSSO, State Basic Seed Farms and Private Graineurs. For ensuring disease freeness there is need to strengthen disease monitoring and surveillance across all the seed multiplication agencies. To facilitate this activity, it is proposed to support 5 mobile customized pick-up van fitted with necessary equipment/ facilities each with a unit cost of Rs 7.0 lakh initially to support prolific seed producing areas of traditional Muga states. The mobile van and equipments will be owned and maintained

by MSSO units located in traditional Muga states and shall be used for monitoring of diseases at the level of seed rearers, State Seed Farms and Private Graineurs. During the remaining Plan period, it is proposed to support **5 nos. of Mobile Disease Testing Facility** for ensuring production of disease free seed.

Besides, additional proposal shall also be submitted for consideration under NERTPS of MOT to support to seed farmers and private graineurs for bringing improvement in Quality and Productivity of Muga seed.

ERI SEED– (ERI SILKWORM SEED ORGANIZATION (ESSO))

Eri is one of the promising varieties of silk which has tremendous potentiality for development in NE. If enough silkworm seed is supplied to farmers, eri production can be increased substantially. Most of the eri seeds are produced by the farmers in their dwelling house in the most unhygienic manner. The seed production network introduced by the CSB is yet to take firm grip due to various social and economic reasons. However, it is noticed that the rearing undertaken through the seed procured from organized seed production centres has substantially increased the productivity parameters. During the consistent efforts of the CSB and State govt., the concept of organized 3 layered seed production is beginning to give desired results now.

During XII period, emphasis will be on firming up establishment of the Eri seed multiplication system through continuous support from CSB. The broad focus areas are:

- Establishment of elite/basic stock maintenance under R&D,
- Setup Basic Eri Seed Farms at Assam, Andhra Pradesh, Odisha, and Uttar Pradesh, whereas one Basic Eri Seed Farms at Hosur in Tamil Nadu has already been established.
- Seed production under Pvt. sector:
 1. Organizing Seed Rearers to generate quality seed cocoons for supporting Private Graineurs.
 2. Organizing Private Graineurs with backward and forward linkages.

Setting the targets:

The XII plan set a target of 5600 MT Eri spun silk from the level of 3072 MT at the end of XI Plan. Based on this, the seed requirement of the sector is worked out as follows:

(Dfls in Lakh nos.)

Year	Commercial seed requirement	Share of Commercial seed		Basic seed	
		Pvt. 90%	Govt. 10%	Basic Seed (P2) – CSB	Basic Seed (P1)- STATE
2012-13	495.94	446.34	49.59	0.31	12.40
2013-14	540.45	486.41	54.05	0.34	13.51
2014-15	585.75	527.18	58.58	0.37	14.64
2015-16	829.80	746.82	82.98	0.52	20.75
2016-17	903.23	812.90	90.32	0.56	22.58

From the above set targets of seed production, the entire basic seed at P₂ level will be met by CSB, besides producing part of the P₁ basic seeds for non-traditional states. To support the entire production of P-2 basic seed for the Eri sector and part of P-1 seed for non-traditional states, 4 new P₂ farm will be established at Azara, Assam, Koraput, Odisha, Peddapuram, Andhra Pradesh and Behera, Uttar Pradesh. The remaining part of the P₁ seed in NE will be produced by the State, for which necessary support has already been extended under CDP and some assistance is proposed under NERTPS. Although, CSB and State will produce part of the commercial seeds, major part of the commercial seed requirement will be generated by organizing seed producers in private sector, thus relieving the farmers from un-hygienically producing the seeds themselves. Organization of Seed rearers and Private Graineurs shall be supported to limited extent through ESSO in the Central Sector Scheme.

Ongoing activities

The ongoing activities are the mandated activities of ESSO operated through the Eri Basic seed production centers and Eri grainage. These units are the participants of the seed multiplication process wherein quality and disease freeness are the main agenda. The technical activities of these units include; basic seed production and supply, conducting departmental rearing, organizing skill development programmes, quarantine testing, etc. So the major portion of Plan allocations would have to be utilized for the above technical activities besides meeting Basic and Commercial Seed production expenditure in 6 Eri Basic Seed Production Units for XII Plan requirement, cost of tools and plant, consumables, maintenance of plantation, repairs and maintenance service

buildings, administrative buildings & staff quarters, minor works in grainages and rearing houses seed extension, etc.. as per the details given below:

- a) Basic Seed production expenditure in 6 Eri Seed Production Units for XII Plan requirement
- b) Cost of tools and plant, consumables, repairs and maintenance of service buildings, administrative buildings & staff quarters
- c) Minor works in grainages and rearing houses, maintenance of plantation, seed extension activities, etc
- d) Purchase / Replacement of four wheeler road vehicles / jeeps
- e) Project implementation, monitoring and related establishment expenses of field units.
- d) Establishment of additional P2 Eri Basic Seed farm at Koraput (Odisha), Peddapuram (A.P.) and Behera (U.P.) :** A committee for streamlining the activities of Eri seed sector has recommended strengthening basic seed facilities. Accordingly, it is proposed to establish/ strengthen three unit at Koraput (Odisha), Peddapuram (A.P.) and Behera (U.P.). Action has been initiated towards identification and procurement of land from State Govt. for establishment of the said three units during the XII Plan period.

(Apart from the above, establishment of P2 Eri Basic Seed Farm at Topatoli, Assam has been sanctioned at a cost of Rs 9.54 Cr under NERTPS of MOT to augment Eri silkworm basic seed production).

Restructuring / deepening of ongoing scheme for implementation during last two years of XII Plan: Additional proposal shall also be submitted for consideration under NERTPS of MOT to support to seed farmers and private graineurs for bringing improvement in Quality and Productivity of Muga seed.

Sourcing of skilled labour for seed production activities:

Services of skilled workers are needed in basic seed farms and seed production centres of NSSO, BTSSO, MSSO and ESSO (total 118 units) for the skilled activities like; food plant cultivation and maintenance, leaf plucking, pruning, application of farm yard manure (FYM) and fertilizers, cultural operations and irrigation, plant protection measures, disinfection, undertaking seed rearing, grainages activities (cocoon cutting, pairing and despairing, acid treatment, egg preparation, packaging, etc), watch and ward work during outdoor rearings for protecting crops from predators in natural vanya food plantations, cocoon preservation, peduncle cuttings, collection of natural cocoons, sorting, transfer of larvae to the food plants, etc. Further, skilled workers would also be engaged for the works in RMBs (total 8 units) like; cocoon sorting, preservation, garland making, drying of cocoons in Hot air driers, watch and ward, supporting trading activities etc.

Since, the seed production target has increased during XII Plan to the tune of ; mulberry - 26.27%, Tasar – 224.21%, Eri - 76.30%, and Muga - 446.21%, labour input is critically important for producing nucleus and basic seeds. This is in line with the target of achieving the raw silk production of 32,000 MT at the end of the Plan period. The nucleus and basic produced are the only source for commercial seed production in the seed production units of 24 States and numerous Registered Seed Producers (RSP) in the country. Since all these seed producers are being brought under the ambit of Seed Act, CSB is committed to supply source material for further multiplication at the same time ensures disease freeness and quality. Accordingly an expenditure of Rs.24.82 Cr has been incurred during first three years of the XII Plan and an amount of **Rs. 37.50 cr.** is proposed under this component during remaining period of XII Plan period.

Following on-going Central Sector Schemes of CSB will be continued without any modifications

1. Coordination and market development
2. Quality Certification System and Export & Brand Promotion