

**FINAL REPORT**

**EVALUATION OF CENTRAL SECTOR SCHEME  
DURING XI PLAN**

**Seed Organization &  
Human Resource Development**



**SPONSORED BY**

**CENTRAL SILK BOARD  
MINISTRY OF TEXTILES  
GOVERNMENT OF INDIA**



**SUBMITTED BY**

**ECONOMIC SERVICES GROUP  
NATIONAL PRODUCTIVITY COUNCIL  
NEW DELHI**



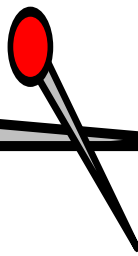
## CONTENTS

S. No.	Particulars	Page No.
<b>Chapter 1</b>	<b>ABOUT THE STUDY</b>	<b>1-7</b>
<b>1.1</b>	<b>Introduction</b>	<b>1</b>
<b>1.2</b>	<b>Seed Organizations</b>	<b>1</b>
<b>1.3</b>	<b>Human Resource Development (HRD)</b>	<b>2</b>
<b>1.4</b>	<b>Objectives of the Evaluation Study</b>	<b>3</b>
<b>1.5</b>	<b>Terms of Reference for the Evaluation Study</b>	<b>3</b>
<b>1.6</b>	<b>Methodology adopted for Evaluation Study</b>	<b>4</b>
<b>1.7</b>	<b>Chapter Scheme of the Report</b>	<b>7</b>
<b>Chapter 2</b>	<b>EVALUATION OF PHYSICAL AND FINANCIAL PROGRESS OF SO&amp;HRD SCHEME IMPLEMENTATION DURING XI PLAN</b>	<b>8-24</b>
<b>2.1</b>	<b>Seed Organizations</b>	<b>8</b>
<b>2.2</b>	<b>Human Resource Development (HRD)</b>	<b>18</b>
<b>2.3</b>	<b>Supportive facilities extended by CSB during XI Plan under the SO &amp; HRD scheme</b>	<b>20</b>
<b>2.4</b>	<b>Financial Performance of the SO &amp; HRD Scheme during XI Plan</b>	<b>20</b>
<b>Chapter 3</b>	<b>MAJOR ACTIVITIES OF SO &amp; HRD DURING XI FIVE YEAR PLAN</b>	<b>25-58</b>
<b>3.1</b>	<b>Introduction</b>	<b>25</b>
<b>3.2</b>	<b>National Silkworm Seed Organization</b>	<b>25</b>
<b>3.3</b>	<b>Seed Act</b>	<b>36</b>
<b>3.4</b>	<b>Supporting Activities</b>	<b>38</b>
<b>3.5</b>	<b>Organizational Set Up of BTSSO, Bilaspur</b>	<b>40</b>
<b>3.6</b>	<b>Muga Silkworm Seed Organization (MSSO) and Eri Silkworm Seed Organization (ESSO)</b>	<b>47</b>
<b>3.7</b>	<b>Human Resource Development (HRD)</b>	<b>53</b>

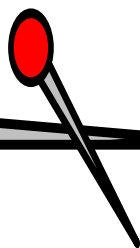


## CONTENTS

S. No.	Particulars	Page No.
<b>Chapter 4</b>	<b>FIELD SURVEY FINDINGS -SEED ORGANIZATIONS</b>	<b>59-97</b>
4.1	Introduction	59
4.2	Locational details of the Seed Organisations – Field Survey	59
4.3	Quality Parameters and checks being followed by Implementing organizations	95
<b>Chapter 5</b>	<b>FIELD SURVEY FINDINGS : LICENSED SEED PRODUCERS, CHAWKI REARING CENTRES &amp; COCOON FARMERS</b>	<b>98-107</b>
5.1	Introduction	98
5.2	General profile of the respondents	98
5.3	Sericulture activity undertaken and Experience in Sericulture	100
5.4	Impact of sericulture activity on beneficiaries' family income of Chawkie Rearing Centre & Licensed Seed Producers/Private Graineur	101
5.5	Source of silkworm seed w.r.t Chawkie Rearing Centre, Licensed Seed Producers/Private Graineur & Sericulture Farmer Beneficiaries	101
5.6	Technology related exposure	102
5.7	Training & quality improvement	102
5.8	Catalytic Development Programme components associated with seed sector	104
5.9	Subsidy Related Information	104
5.10	Major concerns & requirements of CRCs & LSPs	105
5.11	Major improvements as observed by the CRCs & LSPs in the quality of seed	106
5.12	Sericulture activities undertaken by farmer beneficiaries	106
5.13	Training of sericulture farmer beneficiaries	106
5.14	Quality improvement observed by farmer beneficiaries	107
5.15	Adoption level of new technologies by sericulture farmer beneficiates	107



<b>CONTENTS</b>		
<b>S. No.</b>	<b>Particulars</b>	<b>Page No.</b>
<b>5.16</b>	<b>Major concerns and requirements of sericulture farmer beneficiaries</b>	<b>107</b>
<b>Chapter 6</b>	<b>FIELD SURVEY FINDINGS OF HRD SCHEME</b>	<b>108-121</b>
<b>6.1</b>	<b>Introduction</b>	<b>108</b>
<b>6.2</b>	<b>Field surveys of stakeholders</b>	<b>109</b>
<b>6.3</b>	<b>Human Resource Development w.r.t HRD beneficiaries</b>	<b>114</b>
<b>6.4</b>	<b>Steps that are being taken up for developing human resource in CSB</b>	<b>118</b>
<b>6.5</b>	<b>Possible area of improvements required in the HRD scheme during XII Five Year Plan</b>	<b>119</b>
<b>6.6</b>	<b>Improvement noticed</b>	<b>119</b>
<b>6.7</b>	<b>Reasons for satisfaction/dissatisfaction</b>	<b>120</b>
<b>6.8</b>	<b>Steps either taken up or are planning to take up in the subject area based on knowledge gained from the training</b>	<b>120</b>
<b>6.9</b>	<b>Suggetions for making the training programme more beneficial during the XII Five Year Plan</b>	<b>121</b>
<b>Chapter 7</b>	<b>SUMMARY AND RECOMMENDATION</b>	<b>122-126</b>
<b>7.1</b>	<b>Major Observations</b>	<b>122</b>
<b>7.2</b>	<b>Seed Organisations</b>	<b>123</b>
<b>7.3</b>	<b>Human Resource development</b>	<b>125</b>
<b>7.4</b>	<b>Overall Observations</b>	<b>126</b>
<b>7.5</b>	<b>Gist of Major Observations</b>	<b>127</b>



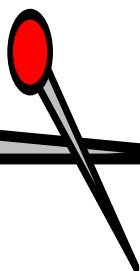
<b>CONTENTS</b>		
<b>S. No.</b>	<b>Particulars</b>	<b>Page No.</b>
<b>7.6</b>	<b>Recommendations</b>	<b>131</b>
<b>ANNEXURES</b>		
<b>Annexure 1.1</b>	<b>Survey Questionnaire: Silk Worm Seed Organization &amp; Hrd (NSSO/BTSSO/MSSO/ESSO And Zone-Wise ZSSPOS/SSPCS/ Basic Seed Farms/ Sericulture Service Centres / Seed Grainages)</b>	<b>136</b>
<b>Annexure 1.2</b>	<b>Survey Questionnaire: Silk Worm Seed Organization &amp; HRD (Chawkie Rearing Centers)</b>	<b>140</b>
<b>Annexure 1.3</b>	<b>Survey Questionnaire: Silk Worm Seed Organization &amp; HRD (Licensed Seed Producers (LSPS)/Private Graineurs)</b>	<b>145</b>
<b>Annexure 1.4</b>	<b>Survey Questionnaire: Silk Worm Seed Organization &amp; HRD (Sericulture Farmer Beneficiaries)</b>	<b>149</b>
<b>Annexure 1.5</b>	<b>Survey Questionnaire: Silkworm Seed Organization &amp; HRD (Human Resource Management In Charge Of Central Silk Board)</b>	<b>153</b>
<b>Annexure 1.6</b>	<b>Survey Questionnaire: Silkworm Seed Organization &amp; HRD (Central Silk Board Employees/ Trainees)</b>	<b>155</b>
<b>Annexure 1.7</b>	<b>Component wise outlay/ expenditure during 2007-08 to 2011-12 for the Seed Organization, HRD &amp; Market Development Scheme</b>	<b>157</b>
<b>Annexure 6.1</b>	<b>Units of Central Silk Board, Bangalore as on 16.06.2011</b>	<b>162</b>
	<b>Study Team</b>	





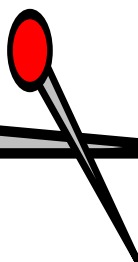
**List of Tables**

<b>Table No.</b>	<b>Particulars</b>	<b>Page No.</b>
1.1	<b>XI Plan Allocation and Expenditure of Central Sector Scheme SO &amp; HRD – All India</b>	<b>3</b>
1.2	<b>Distribution of Seed Organisations, Chawkie Rearers, LSPs and Cocoon Farmers – Proposed Sample Frame</b>	<b>5</b>
1.3	<b>Distribution of Seed Organisations, Chawkie Rearers, LSPs and Cocoon Farmers – Actual Field Survey</b>	<b>6</b>
1.4	<b>Distribution of Respondents dealing with HRD activities- Field Survey Plan</b>	<b>7</b>
1.5	<b>Details of the Distribution of Respondents dealing with HRD activities Covered through direct field survey by NPC Study Team</b>	<b>7</b>
2.1	<b>DFL Production by NSSO during XI Five Year Plan</b>	<b>10</b>
2.2	<b>Organizational Setup of NSSO</b>	<b>11</b>
2.3	<b>Details of basic seed production at various levels</b>	<b>13</b>
2.4	<b>New hybrids production</b>	<b>14</b>
2.5	<b>State-wise details of registration done under Central Seed Act in 2011-12</b>	<b>16</b>
2.6	<b>DFL Production by BTSSO during XI Five Year Plan</b>	<b>17</b>
2.7	<b>DFL production by NSSO during XI Five Year Plan</b>	<b>18</b>
2.8	<b>Eri Seed Production by ESSO during XI Five Year Plan</b>	<b>18</b>
2.9	<b>Achievement of HRD scheme during XI Five Year Plan</b>	<b>20</b>
2.10	<b>Financial Progress of activities undertaken under SO &amp; HRD Scheme during XI th Five Year Plan Period</b>	<b>21</b>
3.1	<b>Seed Cocoon Generation in BSFs during 2010-11</b>	<b>29</b>
3.2	<b>Basic Seed Production in different zones (P3, P2 &amp; P1)</b>	<b>29</b>
3.3	<b>Multivoltine P3, P2 &amp; P1 PM DFLs to different states</b>	<b>30</b>
3.4	<b>Multivoltine Seed Cocoon</b>	<b>30</b>
3.5	<b>Distribution of Bivoltine P1 DFLs</b>	<b>30</b>
3.6	<b>Training and Extension Programmes</b>	<b>32</b>

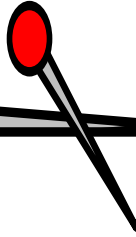


<b>List of Tables</b>		
<b>Table No.</b>	<b>Particulars</b>	<b>Page No.</b>
<b>3.7</b>	<b>Details regarding Training Programmes organized in India</b>	<b>33</b>
<b>3.8</b>	<b>Study Tour Programme</b>	<b>34</b>
<b>3.9</b>	<b>Performance of Bivoltine Hybrid DFLs SSCs and SSUs of four States</b>	<b>35</b>
<b>3.10</b>	<b>Training of Seed Officers &amp; Seed Analysts under Seed Act</b>	<b>37</b>
<b>3.11</b>	<b>Applications received and considered for registration as on 31-3-2011</b>	<b>37</b>
<b>3.12</b>	<b>Highlights of the achievements</b>	<b>39</b>
<b>3.13</b>	<b>Highlights of the achievements</b>	<b>42</b>
<b>3.14</b>	<b>Nucleus Seed Production</b>	<b>43</b>
<b>3.15</b>	<b>State wise Supply of DFLs</b>	<b>44</b>
<b>3.16</b>	<b>Details of Seed Cocoon purchased</b>	<b>45</b>
<b>3.17</b>	<b>Crop wise production of Muga dfls</b>	<b>48</b>
<b>3.18</b>	<b>Muga Basic &amp; commercial dfl supply</b>	<b>49</b>
<b>3.19</b>	<b>Training details of Muga</b>	<b>50</b>
<b>3.20</b>	<b>Production of Eri dfls by Different ESSPCs</b>	<b>51</b>
<b>3.21</b>	<b>Supply of Eri dfls to different agencies</b>	<b>51</b>
<b>3.22</b>	<b>Training details for Eri</b>	<b>52</b>
<b>3.23</b>	<b>Achievements under HRD scheme during XIth Five Year Plan</b>	<b>58</b>
<b>4.1</b>	<b>Details of Seed Organizations</b>	<b>59</b>
<b>5.1</b>	<b>Gender, Caste &amp; Educational Background of the Respondents</b>	<b>99</b>
<b>5.2</b>	<b>Sericulture activity undertaken and Experience in Sericulture</b>	<b>100</b>
<b>5.3</b>	<b>Source of Silkworm Seed</b>	<b>102</b>
<b>5.4</b>	<b>Awareness and Participation Regarding Training Programme (LSPs)</b>	<b>103</b>
<b>5.5</b>	<b>Awareness and Participation Regarding Training Programme (CRCs)</b>	<b>104</b>
<b>5.6</b>	<b>Subsidy Related Information</b>	<b>105</b>





<b>List of Tables</b>		
<b>Table No.</b>	<b>Particulars</b>	<b>Page No.</b>
6.1	Details of training activities undertaken by the HR department of CSB Bangalore	109
6.2	Year wise details of Training undertaken during XIth Five year plan by CSB, Bangalore	110
6.3	Level wise number of trainees trained during XIth Five year	111
6.4	Details of training activities undertaken by the HR department during last five years by BTSSO, Bilaspur	112
6.5	Year wise details of Training undertaken during XIth Five year plan by BTSSO, Bilaspur	113
6.6	Level wise number of trainees given training during the XIth Five year plan by BTSSO, Bilaspur	113
6.7	Periodic audit of implementation of Government of India policies	114
6.8	Details of the Central Silk board officials evaluated through direct field survey by NPC team for the evaluation of HRD activities of the scheme	114
6.9	Type of Organization	115
6.10	Experience in CSB	116
8.1	Production Estimates (NSSO)	128
8.2	Basic Seed Production Proposed For The XII Plan (NSSO)	129
8.3	Total Fund Requirement For Mulberry Seed Development	134
8.4	Production Estimates (BTSSO)	136
8.5	Ongoing activities (BTSSO)	137
8.6	Details of vehicles of BSMTCs condemned on age cum condition	139
8.7	Total Fund Requirement For Tasar Seed Development	139
8.8	Production Estimates (MSSO)	141
8.9	Location of Muga Seed Production Units	142



<b>List of Tables</b>		
<b>Table No.</b>	<b>Particulars</b>	<b>Page No.</b>
<b>8.10</b>	<b>Details of vehicles</b>	<b>143</b>
<b>8.11</b>	<b>Total Fund Requirement For Muga Seed Development</b>	<b>144</b>
<b>8.12</b>	<b>Production Estimates (ESSO)</b>	<b>146</b>
<b>8.13</b>	<b>Total Fund Requirement For Eri Seed Development</b>	<b>147</b>
<b>8.14</b>	<b>Total Fund Requirement For the Scheme</b>	<b>148</b>
<b>8.15</b>	<b>Consolidated Expenditure During Xi Plan Period [ 2007 - 08 To 2011 - 12 ] On The Continued / Ongoing Activites Of Board Secretariat, Regional Offices &amp; Certification Centres And Non Mulberry Raw Material Banks</b>	<b>150</b>
<b>8.16</b>	<b>Zonal Offices for implementing the CDP activities</b>	<b>151</b>
<b>8.17</b>	<b>Raw Material Banks and Sub-depots</b>	<b>154</b>
<b>8.18</b>	<b>Total Cost Estimate For Human Resource Development</b>	<b>155</b>



**List of Figures**

<b>Figure No.</b>	<b>Particulars</b>	<b>Page No.</b>
<b>2.1</b>	<b>Organizational set up of Seed Organization under NSSO</b>	<b>10</b>
<b>2.2</b>	<b>Bivoltine and Cross Breed DFLs production of NSSO during XI Five Year Plan</b>	<b>14</b>
<b>4.1</b>	<b>Year Wise Demand/Sale of DFLs ('000s) of Bivoltine and Multivoltine DFLs</b>	<b>62</b>
<b>5.1</b>	<b>Experience of Chawkie Rearing Centre, Licensed Seed Producers/Private Graineur and Sericulture Farmer Beneficiaries</b>	<b>101</b>
<b>5.2</b>	<b>Awareness and Participation Regarding Training Programme</b>	<b>103</b>
<b>6.1</b>	<b>Place of employment for CSB employees/trainees interviewed</b>	<b>115</b>
<b>6.2</b>	<b>Educational Background of Central Silk Board Employees/Trainees interviewed</b>	<b>116</b>
<b>6.3</b>	<b>Frequency of training received by Central Silk Board employees/trainees interviewed during XIth Five Year Plan</b>	<b>117</b>
<b>6.3.3</b>	<b>Satisfaction level of CSB employees/trainees with the training programme</b>	<b>117</b>

## CHAPTER I

### ABOUT THE STUDY

#### 1.1 Introduction

India is the only country which has all the four kinds of commercially exploitable silk namely, domesticated mulberry silk (*Bombyx mori*), semi domesticated eri silk (*Philosomia ricini*), wild tasar silk (*Antheraea mylitta*) and exclusive wild golden muga silk (*Antheraea assama*). India is the second largest producer of raw silk after China and the biggest consumer of raw silk and silk fabrics. Globally, sericulture has been phased out in many countries, notable in Japan, due to rapid industrialization and urbanization. European countries which had good production bases, have transformed completely as consuming countries with no production at all.

Indian silk industry has improved manifold since independence from the raw silk production level of 1437 MT during First Plan period (1969-74) to 23060 MT at the end of the 11<sup>th</sup> Plan period. This has been possible due to sustained efforts of Central Silk Board, its research agencies, State Sericulture departments and private stakeholders. Development and introduction of improved races of silkworm breeds, high yielding food plants, improvement in rearing practices, organized seed production network, technology up-gradation in reeling, weaving, wet processing, etc., along with the investment made by the governmental agencies have led to an overall improvement in productivity and quality.

The Central Silk Board (CSB) is a Statutory body constituted under the act of Parliament. It works under the administrative control of the Ministry of Textiles, Govt. of India. To fulfill the mandate, the CSB had set up a National Silkworm Seed Organization for production and supply of basic and hybrid seed for promotion & development of sericulture industry in the country.

Central silk Board has been implementing various Central Sector Scheme under which one of the scheme is Seed Organization and Human Resource Development. In order to find out the effectiveness of the implementation of the Scheme, CSB engaged National Productivity Council (NPC) to undertake a third party evaluation of the scheme during XI Five Year Plan. The present study has been undertaken on the basis of a memorandum of understanding (MoU) between NPC and CSB.

The evaluation study has been undertaken based on the objectives and term of reference given below. Since the scheme has two parts such as Seed Organization and Human Resource Development, the evaluation has been separately conducted for these two sectors

#### 1.2. About the Scheme

##### 1.2.1 Seed Organizations

Healthy basic seed is the backbone of sericulture industry. Poor seed health is the primary reason for poor productivity. Basic seed, at the same time, may act as one of the main vehicles for dissemination of diseases. Seed-borne pathogens, such as protozoa, fungi, bacteria and viruses are serious constraints to sericulture industry. Hence, healthy basic seed material, free from diseases and having high viability is essential for establishing the crop in the first instance. The

commercial silkworm seed is made available to the farmers through an intricate 4 tier seed multiplication process. The State and private seed production units are the last link of the seed production network whereas the CSB continues to hold the first three multiplication levels i.e. nucleus and basic seed. Central Silk Board, over the Plan periods, had invested much of its material and manpower to develop well organized and systematic “Seed Organizations”, separately for Mulberry, Tasar, Muga & Eri. Each of these organizations have been provided with necessary functional freedom supported by adequate facilities to upkeep a three tier multiplication system for retaining the inherent genetical characters like, hybrid vigour and disease freeness and above all maintain and regulate high quality standards among all the stakeholders in the seed production scenario. Seed Organisations have also been entrusted with the responsibilities of implementing the recently enacted Seed Act bring in quality standards in Seed production process.

### **1.2.2 Human Resource Development (HRD)**

The HRD component includes the Project monitoring activities coming under Central Sector Plan programmes carried out through 300 CSB units located in the different parts of the country. These activities are undertaken at National level in CSB HQs, Bangalore, Regional levels at Regional Offices (10 nos.), Certification Centres and Price Stabilization Programme for Vanya through the Raw Material Banks located at Chaibasa (Jharkhand) and Sibsagar (Assam).

The Board Secretariat monitors the technical activities of all its nested units in the areas of research, extension, basic seed production, publicity, price stabilization for vanya silk sector etc. besides maintaining the overall administrative and financial apparatus of 300 units manned by 3900 employees. The Secretariat also act as an interface between various arms of Govt. of India, State sericulture departments, National and International agencies, private stake holders starting from the poor farmers to high profile exporters and a slew of other agencies associated with sericulture and silk industry. Apart from the regular monitoring of research and technical ongoing activities, the Secretariat is also involved in conceiving, formulating, evaluating and monitoring various Centrally Sponsored Schemes, christened as Catalytic Development Programme (CDP), implemented through the State sericulture departments. Besides, the Board Secretariat is also assisting the States to formulate projects for assistance from various national and international agencies.

The Regional Offices (ROs) work as the ambassador offices of the CSB Head Office in various States to work on similar lines, but focusing on State specific needs. The RMBs are functioning as market regulators for Vanya silks produced by Tribals by stabilizing the price of commodities in the open market at an appreciable level by way of procurement and offloading of stocks at appropriate occasions. It also helps the consumers like cooperatives, women SHGs, small and marginal reelers, weavers etc for getting steady supply of raw materials at reasonable cost.

Although, the achievements of the scheme cannot be fully measured in terms of physical numbers, the chief aim mandated is to facilitate the nested units and stakeholders to achieve the mandated targets. Apart from the above technical achievements and targets, the activities include overall management of administrative and financial aspects of all CSB units, publicity, implementation of official language act, Right to information acts etc.

**Table 1.1** provides year to year budgetary expenditure during XI Five Year at all India level. It may be noted from table 1.1 that the initial allocation under the scheme was only Rs. 46.50 crores whereas the implementation outpaced the outlay by almost double at Rs. 78.32 crores during the XI Five Year Plan.

**Table 1.1. XI Plan Allocation and Expenditure of Central Sector Scheme SO & HRD – All India**

**(Value: Rs Crores)**

Particulars	XI Plan Original Out lay	XI Plan Out lay (Revised)	2007-08 Actual	2008-09 Actual	2009-10 Actual	2010-11 Actual	2011-12 Actual	XI Plan expenditure
Seed Organization and HRD-Coordination and Market Development	<b>46.50</b>	<b>77.92</b>	<b>11.30</b>	<b>16.21</b>	<b>12.83</b>	<b>16.15</b>	<b>21.83</b>	<b>78.32</b>

### 1.3. Objectives of the Evaluation Study

#### A. Silkworm Seed Organization:

To study the role of Silkworm Seed Organization in the maintenance of the quality silkworm basic seeds and supply of commercial silkworm seeds, support of technical inputs to sericulturists/private entrepreneurs and its effectiveness in improving the production & productivity for quality cocoon yield.

#### B. Human Resource Development:

To study the effectiveness of the implementation of Human Resource Development in Central Silk Board, exposure of employees about new technologies in research field, improvement of subject knowledge etc. Effectiveness of the implementation of Human Resource Development programme for the advancement of its employees, enforcement of HRD policies for the progression of its employees issued by Govt. of India.

### 1.5. Terms of Reference for the Evaluation Study

#### A. Silkworm Seed Organization:

- i. Evaluate how farmers are benefited from Seed Support and Technical Assistance and Human Resource Development Programme covering both Mulberry & Vanya sector, viz., NSSO: BTSSO; MSSO: ESSO and zone-wise ZSSPOs: SSPCs.
- ii. Evaluate LSPs and their grainages in providing quality seed, their difficulties, etc.
- iii. Evaluate the responsibility of ensuring quality improvement and to keep abreast with the latest technology to provide Training to Licensed Seed Preparers (LSPs) and Chawkie

Rearing Centers (CRCs) as Amended in the CSB Act & Central Silkworm Seed Regulation -2010.

### B. Human Resource Development:

- i. Study the effectiveness of the implementation of Human Resource Development in Central Silk Board.
- ii. Exposure to employees about new technologies in research field, Accounts, General Administration,
- iii. Improvement of subject knowledge among the employees.
- iv. Effectiveness of the implementation of Human Resource Development programmes for the advancement of its employees.
- v. Implementation of the Govt. of India policies.

## 1.5 Methodology adopted for Evaluation Study

Separate methodologies have been adopted for both Seed Organization and HRD for undertaking the evaluation study.

### A. Silkworm Seed Organization

The evaluation study would be undertaken mainly under two phases. During the **first phase of the study** a thorough review of the technology/methods adopted by various seed organisations for seed production, their intended objectives, their issues were analyzed.

Second phase of the study included detailed field interviews of various seed organisations of CSB (providing seeds upto level three), seed organisations of Department of Sericulture, Licensed Seed Producers, Graineures, cocoon farmers (who actually uses seed), Sericulture demonstration/Extension officers who provide training to Graineures/ LSPs, staff of Chawkie rearing centers (owned by State Government & CSB), private CRCs with the help of structures questionnaires (**Annexure 1.1 to Annexure 1.6**). State wise distribution of Cocoon farmers, Chawkie Rearing centres, Seed Grainages proposed for the field survey are given in **Table 1.2**.

**Table 1.2: Distribution of Seed Organisations, Chawkie rearers, LSPs and Cocoon Farmers – Proposed Sample Frame**

S.No	State	NSSO/ BTSSO/ MSSO/ ESSO (SO&HRD 01)	LSPs/ Private Graineurs (SO & HRD 02)	Chawkie Rearing Centre (SO & HRD 03)	Cocoon Farmers (SO & HRD 04)	HRM In charge of CSB (SO & HRD 05)	CSB Employees/ Trainees (SO & HRD 06)
1.	Karnataka	1	8	5	19	1	3
2.	Andhra Pradesh	1	2	-	13	-	-

3.	Himachal Pradesh	-	3	-	1	-	1
4.	Maharashtra	1	1	-	-	-	5
5.	Uttarakhand	1	1	-	5	-	4
6.	Jammu & Kashmir	1	1	-	1	-	6
7.	Chhattisgarh	1	-	2	-	1	4
8.	Assam	2	-	-	6	-	7
9.	Jharkhand	1	-	1	10	-	1
10.	Manipur	-	-	-	2	-	1
11.	Tamil Nadu	1	-	-	-	-	3
12.	Meghalaya	1	-	-	-	-	5
13.	West Bengal	1	-	-	-	-	-
	<b>Total</b>	<b>12</b>	<b>16</b>	<b>8</b>	<b>57</b>	<b>2</b>	<b>40</b>

Note: The coverage of actual number of stakeholders may vary based on ground realities.

**Table 1.3** provides the spread of actual field survey across various seed organizations in India. Due to field related issues the actual beneficiary sample survey varies from the initial field survey plan. The field surveys have been conducted in consultation with seed organizations of CSB at the field level with structure questionnaires (**Annexure 1.1 to Annexure 1.4**).

**Table 1.3: Distribution of Seed Organisations, Chawkie rearers, LSPs and Cocoon Farmers – Actual Field Survey**

S.No.	State	NSSO/BTSSO/ MSSO/ESSO (SO&HRD 01)	LSPs/Private Graineures (SO&HRD 02)	Chawkie Rearing centre (SO&HRD 03)	Cocoon farmers (SO&HRD 04)
1	Karnataka	3	8	5	20
2	Andhra Pradesh	2	2		13
3	Tamil Nadu	1			
4	Jammu & Kashmir	2	1		
5	West Bengal	1			
6	Uttarakhand	3	1		5
7	Himachal Pradesh		3		1
8	Maharashtra	1	1		
9	Assam	6			6
10	Meghalaya	3			
11	Manipur				2
12	Chattisgarh	1	1	3	1
13	Jharkhand	1		1	10
	<b>Total</b>	<b>25</b>	<b>17</b>	<b>9</b>	<b>58</b>

Source: NPC Field Survey – August-September 2012



## B. Human Resource Development:

The following methodology has been adopted for undertaking the evaluation study.

During the **first phase of the study** the data/information regarding the Human Resource Development undertaken during the XI plan has been compiled from CSB publications/initiatives websites as well as from the data provided by CSB, Bangalore.

Since the HRD intervention are varying in nature, with a view to get feedback from the beneficiaries, detailed field survey will be conducted with Human Resource Department of CSB, officials of CSB who are dealing with various HRD programmes in the areas of research, accounting and administration (**Annexure 1.5**). The field surveys also included detailed interviews of beneficiaries (**Annexure 1.6**).

Proposed field survey plan is given in **Table 1.4**

**Table 1.4: Distribution of Respondents dealing with HRD activities- Proposed Field Survey Plan**

Sl.No.	Category	Number of respondents
1	Central Silk Board (Human Resource Deptt.)	1
2	Central Silk Board Officials attending Research Oriented Training programme	10
3	Central Silk Board Officials attending Accounts oriented Training programme	15
4	Central Silk Board Officials attending Administration Oriented Training programme	20
	<b>Total</b>	<b>46</b>

Note: The respondents for the evaluation were selected from 10 Regional Offices and selected Extension Offices

Actual field survey distribution is given in **table 1.5**.

**Table 1.5: Details of the Distribution of Respondents dealing with HRD activities Covered through direct field survey by NPC Study Team**

Sl.No.	Category	Number of respondents
1	Central Silk Board (Human Resource Deptt.)	2*
2	Central Silk Board Officials attending Research Oriented Training programme	20
3	Central Silk Board Officials attending Accounts oriented Training programme	5
4	Central Silk Board Officials attending Administration Oriented Training programme	17
5	Others	1
	<b>Total</b>	<b>45</b>

Source: NPC Field Survey – August-September 2012

\*Human Resource Management in charge at Central Silk Board, Bangalore and BTSSO, Bilaspur were interviewed by NPC field survey team with structured questionnaires.

## **1.6. Chapter Scheme of the Report**

The Evaluation Report has been presented in **Seven Chapters**. Chapter One presents the background of the study, objectives, terms of reference, methodology and field survey scheme. Second Chapter evaluates the physical & financial progress of various components of SO&HRD scheme and production, quality, target & achievements of various Seed Organizations. Chapter Three analyses the major activities of the Seed Organizations & HRD undertaken during XI Plan. Chapter Four provides field survey findings from the Different Seed Organizations. Chapter Five evaluates the schemes based on the feed back received from Licensed Seed producers, Chawki Rearing Centres, Cocoon Farmers. Chapter Six provides the feedback received from the Human Resource Development Scheme Implementers as well as Beneficiaries. Chapter Seven provides the Summary and recommendations of the evaluation study with a view to continue the scheme during XII Plan and also to make the scheme more effective.

## CHAPTER II

### EVALUATION OF PHYSICAL AND FINANCIAL PROGRESS OF SO&HRD SCHEME IMPLEMENTATION DURING XI PLAN

Sustained efforts of Central Silk Board, its research institutes, Seed Organizations, resulted in the development and introduction of improved races of silkworm breeds, high leaf yielding food plants, improvement in rearing practices, organized seed production network, technology & quality up-gradation in reeling, weaving, wet processing, etc.. As discussed in the first chapter, the scheme has two parts such as Seed Organization and Human Resource Development. The details regarding the institutions involved in implementing the scheme are discussed in the following sections.

#### 2.1. Seed Organizations

Central Silk Board, over the Plan periods, had invested much of its material and manpower to develop well organized and systematic “Seed Organizations”, separately for Mulberry, Tasar, Muga & Eri. Each of these organizations have been provided with necessary functional freedom supported by adequate facilities to upkeep a three tier multiplication system for retaining the inherent genetical characters like, hybrid vigour and disease freeness and above all maintain and regulate high quality standards among all the stakeholders in the seed production scenario. Seed Organisations have also been entrusted with the responsibilities of implementing the recently enacted Seed Act bring in quality standards in Seed production process. Major seed organizations working in the area of mulberry sector is National Silk Worm Seed Organisation. Similarly, Basic Tasar Silk Worm Seed Organisation is involved in Tasar seed development and distribution, Muga Silkworm Seed Organisation is involved in muga seed development and distribution and Eri Silkworm Seed Organisation is involved in development & distribution of Eri Seed.

##### 2.1.1 National Silkworm Seed Organization

National Silkworm Seed Organization is a separate entity under Central Silk Board, established in the year 1975 to supplement the efforts of State Governments in supplying high quality Bivoltine and Multibivoltine silkworm seeds to the farmers. NSSO has been in existence for over 35 years with Established grainages including cold storage and other infrastructure to meet the finer aspects of seed management. The organization has been the only “ISO 9001:2008” certified Mulberry Silkworm Seed Producers in the country.

National Silkworm Seed Organization (NSSO) has made contribution in evolving the mulberry silkworm seed production techniques in an orderly manner by enforcing the three tier multiplication methods on an easily replicating manner for adoption among state counterparts, instilling quality consciousness among seed producers, transforming the silkworm seed production as a profitable entrepreneurial option among the private players, an effective and capable delivery system to disseminate new findings and technologies developed and verified by research institutes to the field and effectively assuming the leadership role in silkworm seed production in India. The introduction of ISO certification in many seed production centers of NSSO has created the “search good” factor among farmers to look for quality silkworm seed for

better yield and generated competition among seed producers. Of late, the NSSO has taken over the onerous task of implementing the provisions contained in Silkworm Seed Act which is expected to open up the seed sector for a barrier free developmental regime and at the same time enforcing quality standards and transparency in all stages of seed production chain and supply.

The activities of NSSO is spread among the mulberry silk production bases of almost all parts of the States through a net work of 113 nested units for maintenance and production of basic seed apart from providing extension support in selected areas. While the main focus of the NSSO is centered around producing basic seed and meeting most of the bivoltine seed requirements of the country, it is also producing some amount of Cross Breed (CB) layings to maintain the leadership role in commercial seed production activities. The organization is making sustained and concerted efforts to provide improvement and standardization of silkworm seed in its facilities for replication elsewhere with the aid of specific supportive schemes taken up during the XI Plan periods.

NSSO has a mandate to maintain, multiply and supply authorized silkworm stocks, production and supply of quality industrial silkworm seeds and transfer of technologies in the field to improve the productivity and quality of silk.

The present arrangement of NSSO as an organization is as follows:

- **Directorate**
- **Zonal Silkworm Seed Offices**
- **Silkworm Seed Production Centres**
- **Basic Seed Farms**
- **Seed Cocoon Procurement Centres**
- **Cold Storage Plants**

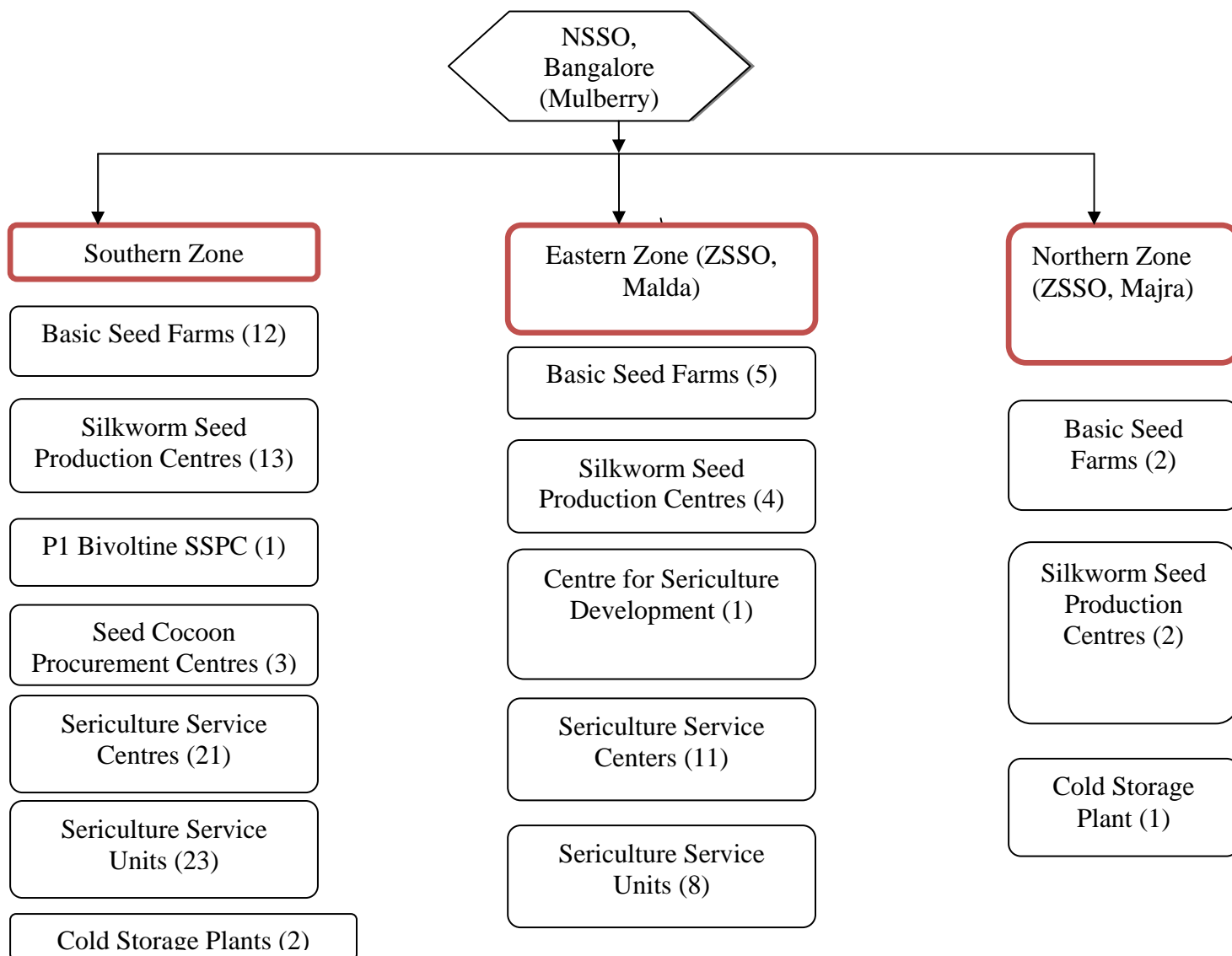
In addition to the above, there are 32 Sericulture Service Centres and 31 Sericulture Service Units functioning under NSSO at different states for increased distribution of silkworm seed through effective extension service. The extension staffs of these units technically supervise rearing and help farmers to increase productivity and quality of output through transfer of proven technologies. They collect field data as feed back information on technology adoption / effectiveness, which will be later used as a tool for continual improvement. The Details of organizational setup under the the purview of NSSO, Bangalore, is given in **table 2.2**.

National Silkworm Seed Organization is the only organisation having the unique distinction of being ISO 9001:2008 certified. In spite of the stiff competition from other Seed producing agencies like Department of Sericulture, LSPs, considerable share of the country's seed requirement is met by the nineteen SSPCs of NSSO. During 2011-12, against a target of 315 lakh DFLs, 321.54 lakh DFLs were produced, which is no mean feat, the seed production has crossed the 3.00 crore mark, after a considerable gap of 2-3 decades. A significant improvement in the quality and quantity of cocoons generated at the farms was also observed.

The activities of NSSO, are carried out in Zonal Silkorm Seed Offices, Basic Seed Farms (BSFs), Centres for Sericulture Development, Seed Cocoon Procurement Centres, P1 Silkorm Seed Production Centres, Silkorm Seed Production Centres, Cold Storage Plants, Chwaki Rearing Centres, Sericulture Service Centres and Sericulture Units. The major activities includes mandated technical activities of all the units, upgrading and maintaining the infrastructure, imparting training among various agencies engaged in seed production process, monitoring the seed production units and to popularize Seed Act Reforms, proposed by the GOI. In the process to improve the backward linkage to ensuring the quality, Adopted Seed rearers [ASRs] programme was popularized by NSSO for bivoltine sector which was quite successful in reducing the burden on the production units but also able to maintain the increased demand of seed for the industry. These ASRs are supported with supply of essential equipments for achieving the set quality standards of seed cocoons.

The detailed schematic representation of organizational setup of NSSO is given in **Figure 2.1**.

**Figure 2.1 : Organisational set up of Seed Organisation under NSSO**



The farmers of Tamilnadu, Maharashtra, J&K, parts of Karnataka, AP and Uttarakhand presently prefer rearing double hybrids (FC1xFC2) as compared to single hybrid (CSR2 x CSR4). The production and distribution of double hybrids is about 40% of the total bivoltine hybrid production in the country and increased 13% over 2010-11. The shift towards double hybrids in the Northern States is distinct and is performing better than the traditional single hybrid (SH6 x NB4D2) with an increased productivity from 50 kg to 60 kg/100 DFLs. In the year 2010-11, the production of traditional hybrids was reduced by 40% in Northern states paving way for the enhanced distribution of double hybrids. Further, the FC2 component of double hybrid is currently being used as male parent for the production of cross-breed with Pure Mysore in Southern States and Nistari in Eastern region. The productivity of Cross Breed with FC2 as male component resulted in higher productivity and also better egg recovery in seed production process.

NSSO is convening Race authorization programme under which silkworm races are tested and authorized. There are plans afoot to produce and popularize the newly authorized bivoltine hybrids and improved cross-breeds in collaboration with States. The production of popular cross breed dfls would be undertaken utilizing sex-limited bivoltine breeds for cocoon colour to decrease the cost of production and increased efficiency in egg production

The measurable physical achievements under the category of the ongoing activities of NSSO are the DFL production. The progress of which in the first four years of XI Plan period and the target for the terminal year, is given in **Table 2.1**:

**Table 2.1: DFL Production by NSSO during XI Five Year Plan**

(Unit : Lakh Nos)

2007-08		2008-09		2009-10		2010-11		2011-12	
Target	Achmt	Target	Achmt	Target	Achmt	Target	Achmt.	Target	Achmt.
269	284	286	280	298	283	310	293	315	322

**Table 2.2: Organizational Setup of NSSO**

NSSO, BANGALORE				
KARNATAKA		TAMIL NADU	ZSSO, Malda WEST BENGAL	ZSSO, Dehradun UTTARANCHAL
SCPC Kunigal		SCPC Denkanikottai	P3 A.falkatta(MV)	P3 Majra
SCPC,K.R.Pet			P2 Karnasubarna(BV)	P2 Sheeshambara
		P2 Krishnagiri (MV)	P2 Banguria (MV)	
P3 Mysore		P2 Y. Hills (BV)	P2 Dhubulia (MV)	SSPC Dehradun
P3 Nagamangala				
P2 Dharmapura (BV)				
P2 Gavimata (BV)		SSPC Dharmapuri	SSPC Berhampore	
P2 Nagenahalli(MV)		SSPC,Hosur	SSPC D.B Pur	<b>JAMMU &amp; KASHMIR</b>
		SSPC Tirupattur	SSPC Kolitha	
SSPC Bangalore			SSPC Raiganj	SSPC Udhampur
SSPC Mysore		SSC Bagalur		
SSPC Ramanagaram		SSC Palacode	SSC Hemtabad	
SSPC Vijayapura		SSC Natrampalli	SSC Bhadrapur	
SSPC Chintamani		SSC Coimbatore	SSC Sainthia	
SSPC K.R.Nagar			SSC Alinagar	
SSPC Malavalli		SSU,Gopichettapalyam	SSC Amrity	SSTL = 1
			SSC Sujapur	ZSSOs = 2
Grainage/P1,Chikka malavadi			SSC Mothabari	BSFs = 20
		<b>ANDHRA PRADESH</b>	SSC Panchagram	SSPCs = 20
			SSC Kaliachak	SSCs = 32
		P2 Horsely Hills	SSC Kaliatala	SCPCs = 3
SSC K.R.Pet		P2 Madakasira (BV)		SSU = 1
SSC C.R.Patna		P2 Parigi (MV)		Grng. = 1
SSC Ch.nagar				
SSC K.P.Doddi		SSPC Hindupur	<b>BIHAR</b>	<b>Total =80</b>
SSC C.B.Pur		SSPC Madanapalle		
SSC Gowribidanur		SSPC Chittoor	P2 Purnea	
SSC Srinivaspura				
SSC K.M.Doddi		SSC Penukonda		
SSC Belgaum		SSC Kuppam	<b>ORISSA</b>	
SSC Mudalgi		SSC Vijayawada	CSD, Ramgiri	
SSC Haveri		SSC Palamaner		
SSC Attibele		SSC Molakalacheruvu	<b>KERALA</b>	
		SSC Madakasira	SSPC. Palakkad	
<b>SSTL Kodathi</b>			P2, Palakkad	
BSF,Yediyur				

### 2.1.1.1 Basic Silkworm Seed Production

19 Basic Seed Farms and one Centre for Sericulture Development of NSSO are manned by well experienced Scientists thereby assuring quality in basic seed maintenance and multiplication. These farms are categorized into various levels, ranging from P3 ~ P1 and follow one way system of multiplication of stocks of approved breeds. During 2010-11, the farms performed extremely well in bivoltine seeds, as 60.56 lakh bivoltine and 54.79 lakh multivoltine seed cocoons were produced, as compared to 46.30 lakh bivoltine and 75.05 lakh multivoltine seed cocoons during 2010-11. 90 % of the cocoons generated were utilized both for basic and commercial seed production, indicating the quality of seed cocoons.



During the year 2010-11, 7.69 lakh bivoltine seed were produced and 7.76 lakh supplied. With regard to multivoltine, 2.79 lakh dfls were produced and 2.77 lakh were supplied (**Table 2.3**). The detailed schematic representation of organizational setup is given below:

**Table 2.3: Details of basic seed production at various levels**

Breeds	Level (Production in number)				
	P4/Stock	P3	P2	P1	Total
<b>Production</b>					
Bivoltine		2802	40350	726305	769457
Multivoltine	410	1296	8521	269013	279240
<b>Total</b>	<b>410</b>	<b>4098</b>	<b>48871</b>	<b>995318</b>	<b>1048697</b>
<b>Supply</b>					
Bivoltine		175	18856	757297	776328
Multivoltine		846	8521	267918	277285
<b>Total</b>		<b>1021</b>	<b>27377</b>	<b>1025215</b>	<b>1053613</b>

### 2.1.1.2 Generation of seed cocoons

NSSO introduced the concept of 'Adopted Seed Rearer' (ASR) which gained rapid momentum due to its success. Well experienced and skilled ASRs are selected by individual SSPCs after a careful survey. These ASRs are supplied with quality P1 basic seed of both bivoltine and multivoltine breeds, followed by regular monitoring and supervision of silkworm rearings. 562.09 lakh bivoltine seed cocoons were procured by the SSPCs for both bivoltine hybrid and crossbreed dfl production. 78.24 lakh bivoltine seed cocoons were supplied to SSPCs, DOS and LSPs of West Bengal, against an indent of 78.07 lakhs achieving 100.22 %. SCPCs Kunigal and Denkanikottai supported the SSPCs in a big way. Kunigal procured 106.48 lakh multivoltine seed cocoons. SCPC Denkanikottai distributed 51378 P1 dfls of Pure Mysore and RD1` races and generated 156.72 lakh seed cocoons with an average yield of 43.43 kg per 100 dfls and supplied 200.30 lakh cocoons to SSPCs. NSSO continued with multivoltine seed cocoon generation through ASRs at Kunigal and Punganur. 51.64 lakh seed cocoons from Kunigal ASRs and 40.70 lakh seed cocoons generated through ASRs of Punganur were utilized by SSPCs of south India.

### 2.1.1.3. Commercial seed production

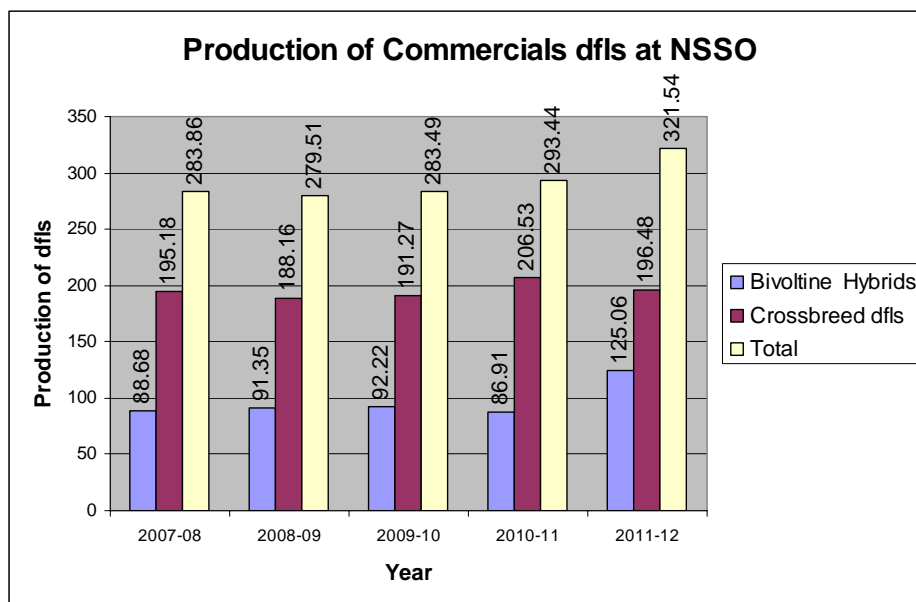
Nineteen SSPCs of NSSO are managed by technically competent Scientists efficiently, with a major thrust on ensuring quality cocoon crops at F1 farmers level. A highly commendable feat was achieved by these units of NSSO during the year with a record production of 321.54 lakh DFLs against a target of 315.00 lakh dfls, achieving 102.08 % which is the highest in the last two decades. 125.06 lakhs of bivoltine hybrids were produced against a target of 91.00 lakhs (137.43 %). This included 54.42 lakhs of CSR hybrids, 64.53 lakhs of double hybrids, 5.45 lakhs of traditional hybrids and 0.66 lakhs of DUN hybrids. The multibivoltine production was 196.48 lakh dfls.



The production details of bivoltine hybrids and crossbreed dfls at NSSO, for the last five years is given at **Figure 2.2**.

During the year 2011-12, NSSO supplied 125 lakh bivoltine hybrids and 196.48 lakh multibivoltine hybrids to various state departments and CSB units.

**Figure 2.2: Bivoltine and Cross Breed DFLs production of NSSO during XI Five Year Plan 2007-08 to 2011-12**



The details of new hybrids produced during the year is given in **table 2.4**.

**Table 2.4: New hybrids production**

Combination	Quantity Produced(no.)
CSR48 x CSR5	28600
Mcon4 x Bcon4	10300
Bcon1 x Bcon4	18706
RD1 x NB4D2	52700
PM x CSR2 (SL)	77040

### 1. Quality parameters in F1 DFL production

Eighteen SSPCs of NSSO have been ISO certified, indicating the importance given for maintenance of quality management. This was reflected in the commercial seed produced at these units. Recovery of multibivoltine hybrids produced in the southern region was 30.36 % against the norm of 28 %. With regard to bivoltine hybrid dfls production in the southern region, the average productivity in the case of CSR hybrids was 64.05 g / kg cocoon (norm – 60 g / kg cocoon), and for double hybrids it was 71.07 g / kg cocoon) (Norm – 65 g / kg cocoon).

## 2. Extension and Training

The extension units viz., SSCs and SSUs of NSSO play a vital role in not only distribution of commercial seed produced at SSPCs of NSSO but also provide extension support in crop monitoring and transfer of proven technologies to the field. During 2011-12, 32 SSCs and 31 SSUs distributed 198.07 lakh dfls which included 34.74 lakh bivoltine hybrid dfls.

Distribution of dfls through franchisee CRCs gained immense popularity, as these CRCs procured dfls from the SSPCs, chawki reared and supplied them to commercial farmers which resulted in improved cocoon productivity. 66 Franchisee CRCs distributed 66.47 lakh dfls during the year, which included 40.71 lakh crossbreed and 25.75 lakh bivoltine hybrid dfls.

NSSO coordinated study tour of 944 farmers, students and officers from various parts of the country to sericultural areas of Karnataka. Apart from this, various training programmes in different aspects of sericulture were coordinated and 35 officials of NSSO, DOS and other agencies were trained.

## 3. Seed Act

Implementation of the provisions of Central Silk Board (Amendment) Act, 2006 has been one of the important activities of NSSO. The organization considers that creating awareness among the seed sector entrepreneurs and seed cocoon producers about the Central Seed Act is of prime importance. In this direction, awareness programmes were conducted in West Bengal and Karnataka and urged the concerned stake holders to get registered as early as possible.

To facilitate percolation of the detailed information pertaining to the Act, a comprehensive booklet on the 'Frequently Asked Questions' which answers all the possible questions was printed, published and distributed among the beneficiaries. The booklets were published in bilingual form such as Kannada-English and Hindi-English. The books in Bengali-English, Tamil-English and Telugu English are under the process of printing.

For monitoring the activities of the registered producers, working linkage was established in Karnataka so that the details of the producers belonging to the operational jurisdiction of each Seed Analysts and Seed Officers are made available.

A total of 62 Seed Officers/Seed Analysts were trained in 6 batches during the year in three accredited laboratories namely, SSTL, Bangalore; CSRTI, Berhampore & CMERI, Lahdoigarh and DTH, Itanagar, Arunachal Pradesh. This was in continuation with the training already conducted for 271 Seed Officers/Seed Analysts during 2010-11, for techno-legally empowering them as implementation personnel.

The Registration Committee met twice during the year and examined a total of 1728 applications submitted for registration. This included 806 silkworm seed producers, 344 chawki rearers and 578 seed cocoon producers. Including those applications cleared consequent up on necessary verification and recommendation by Seed Officers/Seed Analysts after being kept in abeyance, 769 seed producers, 283 chawki rearers and 597 seed cocoon producers were registered during the year. Subsequently, the Registration Certificates were prepared and sent to these 1649 applicants (**Table 2.5**).

The National Registers as required were prepared and updated in respect of Registered Seed Producers and Registered Chawki Rearers who have been registered so far.

**Table 2.5 : State-wise details of registration done under Central Seed Act in 2011-12**

STATE	SEED PRODUCE RS	CHAWKI REARERS	SEED COCOON PRODUCE RS	TOTAL
Andhra Pradesh	23	35	1	59
Arunachal Pradesh	1	0	0	1
Assam	21	0	2	23
Bihar	35	5	0	40
BTC- Kokrajhar	0	0	54	54
Chattisgrah	49	17	0	66
Jammu Kashmir	0	0	10	10
Jharkhand	3	0	0	3
Himachal Pradesh	1	8	0	9
Karnataka	121	78	89	288
Madhya Pradesh	89	30	0	119
Maharashtra	6	6	21	33
Meghalaya	5	0	287	292
Mizoram	8	0	0	8
Orissa	252	26	0	278
Sikkim	0	7	0	7
Tamil Nadu	9	27	132	168
Tripura	1	11	0	12
Uttarakhand	3	6	0	9
Uttar Pradesh	2	0	0	2
West Bengal	140	27	1	168
TOTAL	769	283	597	1649

### 2.1.2. Tasar Silkworm Seed (Basic Tasar Silkworm Seed Organization)

BTSSO, head quartered at Bilaspur, looks after the entire Tropical tasar basic seed production through 1 nucleus seed unit at Kargi Kota and 21 Basic Seed Multiplication Training Centres located in 9 tasar producing States. It undertakes the responsibility of producing the entire basic seed required for the Tasar sector, generated through a three tier multiplication system. The basic seed produced by the BSMTCs would be further multiplied by the State grainages and private grainers before reaching to the farmers. Along with producing the basic seeds required for the sector, the BSMTCs are also supporting the seed production centers of State and private sector for maintaining quality standards, improving seed production techniques, and training to technicians and skilled workers.

The seed produced in the BTSSO units for the first four years of the plan period and the progress of seed produced in CSB units during XI plan are given in **Table 2.6**.

**Table 2.6: DFL Production by BTSSO during XI Five Year Plan (Unit lakh Dfls)**

2007-08		2008-09		2009-10		2010-11		2011-12	
Target	Achmt	Target	Achmt	Target	Achmt	Target	Achmt.	Target	Achmt.
25.04	30.81	30.01	33.13	35.04	29.17	32.10	31.49	32.59	34.76

### 2.1.3. Muga Silkworm Seed (Muga Silkworm Seed Organization)

The Muga Silkworm Seed Organization (MSSO) is headquartered at Guwahati with 9 basic seed production units for different levels of multiplication, in 3 NE States of Assam, Meghalaya and Arunachal Pradesh. Its major job is to supply the entire basic seed (P<sub>4</sub> & P<sub>3</sub>) required for the sector to the State farm cum grainages and private grainers for further multiplication as commercial seed.

The major drawback of maintaining muga silkworm seed is the absence of a genetically embedded diapause trait in its lifecycle, unlike mulberry or other vanya silkworms. Because of this, the race undergoes relentless multiplication process, without any break, virtually contributing to the deterioration of important features like racial vigour and vitality. To some extent, this genetic deterioration has been regulated by adopting certain techniques coupled with careful planning during the seed production processes. Due to this major handicap, the seed production in muga sector is a difficult and painful process. To overcome this problem, continuous monitoring and assistance from CSB is most essential on a variety of areas. Moreover, the State owned seed multiplication centres and private grainers are yet to acquire the desired level of quality and productivity standards. Hence, necessary support has been extended to the sector for the production of basic seed, create infrastructure facilities for seed sector and imparting training to state counterparts and other stakeholders to adopt latest technology packages. It has also been ensured to strengthen adopted seed rearers at each level of seed multiplication for the production of quality seed cocoons. In the meantime, adopting few private grainuer groups by the basic seed units of CSB on demonstration purpose has evoked a

sense of quality awareness among private seed producers. In order to develop secure seed zones for Muga, CSB had developed isolated seed zones in non-traditional areas like; South Sikkim, Kalimpong, Gopeshwar (Uttarakhand), and Chintapally (Andhra Pradesh).

In Muga sector, the P<sub>4</sub> and P<sub>3</sub> basic seed production is managed by the CSB, whereas the P<sub>2</sub> layings are prepared by the State Government and P<sub>1</sub> layings by private rearers. The progress of basic seed produced in the CSB units during the first four years of plan period and the progress of seed produced in CSB units during XI plan is given in **table 2.7**.

**Table 2.7 : DFL production by NSSO during XI Five Year Plan**

(Unit in Lakh Dfls)

2007-08		2008-09		2009-10		2010-11		2011-12	
Target	Achmt	Target	Achmt	Target	Achmt	Target	Achmt.	Target	Achmt.
2.72	1.36	3.24	1.14	1.74	1.48	<b>2.57</b>	<b>2.74</b>	<b>2.55</b>	<b>2.52</b>

#### 2.1.4. Eri Silkworm Seed (Eri Silkworm Seed Organization )

The Eri Silkworm Seed Organization (ESSO) is also headquartered at Guwahati along with MSSO, and nested with 5 SSPCs in 4 States. By and large eri silkworm rearers usually prepare their own layings in unhygienic conditions resulting in low productivity. In order to bring the eri seed production in an organised manner, the CSB had established one SSPC for Eri in Assam. This SSPC has been established as a demonstration unit to popularise the concept of disease freeness among farmers to improve the productivity. Subsequently, State Governments have also established grainages to meet the increased seed requirements from farmers. With the spread of ericulture in other areas, the demand for eri dfls is growing consistently. To meet this additional demand, CSB had established 4 SSPCs in; Azara, Assam, Hosur (TN), Peddapuram (AP) , Fatehpur (U.P) & Sujapur (Punjab). CSB has recently established a Basic Seed Farm for Eri in Hosur.

The progress of seed produced in CSB units during the first four years of plan period and the progress of seed produced in CSB units during XI plan is given in **table 2.8**.

**Table 2.8: Eri Seed Production by ESSO during XI Five Year Plan**

(Unit in Lakh Nos.)

2007-08		2008-09		2009-10		2010-11		2011-12	
Target	Achmt	Target	Achmt	Target	Achmt	Target	Achmt.	Target	Achmt.
2.50	2.50	2.65	1.62	2.50	1.95	2.50	2.59	2.80	3.17

## 2.2 Human Resource Development (HRD)

The HRD component includes the Project monitoring activities coming under Central Sector programmes carried out through 300 CSB units located at different parts of the country. These activities are directed at National level from CSB HQs, Bangalore, Regional levels at Regional

Offices (10 nos.), Certification Centres and Price Stabilization Programme for Vanya through the Raw Material Banks located at Chaibasa (Jharkhand) and Sibsagar (Assam). The activities of the CSB HQs, Regional Offices, Certification Centres and Raw Material Banks for Vanya silks are included under this head.

The Board Secretariat monitors the technical activities of all its nested units in the areas of research, extension, basic seed production, publicity, price stabilization for vanya silk sector etc. besides maintaining the overall administrative and financial apparatus of 300 units manned by 3900 employees. The Secretariat also act as an interface between various arms of Govt. of India, State sericulture departments, National and International agencies, private stake holders starting from the poor farmers to high profile exporters and a slew of other agencies associated with sericulture and silk industry. Apart from the regular monitoring of research and technical ongoing activities, the Secretariat is also involved in conceiving, formulating, evaluating and monitoring various Centrally Sponsored Schemes, christened as Catalytic Development Programme (CDP), implemented through the State sericulture departments. Besides, the Board Secretariat is also assisting the States to formulate projects for assistance from various national and international agencies.

The Regional Offices (ROs) work as the ambassador offices of the CSB Head Office in various States to work on similar lines, but focusing on State specific needs. The RMBs are functioning as market regulators for Vanya silks produced by Tribals by stabilizing the price of commodities in the open market at an appreciable level by way of procurement and offloading of stocks at appropriate occasions. It also helps the consumers like cooperatives, women SHGs, small and marginal reelers, weavers etc for getting steady supply of raw materials at reasonable cost. The activities of all the States have also been monitored through State Level Sericulture Coordination Committees, where in the technical support and inputs from ROs are essential for organizing the meetings and follow-ups. The RO functioning at Guwahati is looking after the entire sericulture activities of NE States The ROs are also carrying out voluntary inspection of silk goods for exports.

Although, the achievements of the scheme cannot be fully measured in terms of physical numbers, the chief aim mandated is to facilitate the nested units and stakeholders to achieve the mandated targets. Apart from the above technical achievements and targets, the activities include overall management of administrative and financial aspects of all CSB units, publicity, implementation of official language act, Right to information acts etc.

There are 3 Raw Material Banks (RMBs) for Tasar, Eri and Muga along with 8 sub-depots in different States. The RMBs are functioning as market regulators by stabilizing the price of commodities in the open market at an appreciable level by way of procurement and offloading of stocks at appropriate occasions. It also helps the consumers like cooperatives, women SHGs, small and marginal reelers, weavers etc for getting steady supply of raw materials at reasonable cost.

The achievements of this sub-component is not measurable in physical terms except the progress of RMB. But this is a much-needed backward linkage to facilitate the nested units and stakeholders to achieve the mandated targets. The following is a tabulation of some of the measurable achievements during the different constituent years of XI Plan (Table 2.9).

**Table 2.9: Achievement of HRD scheme during XI Five Year Plan**

Sl.No.	Particulars	2007-08 (Achmt)	2008-09 (Achmt)	2009-10 (Achmt)	2010-11 (Achmt)	2011-12 (Target)
1	Implementation & monitoring of CDP scheme (Rs. Lakh)	11	12	22	30	25
2	Meetings of the Board (nos)	04	05	05	05	06
3	Parliamentary Committees Meetings (Nos.)	09	06	05	05	05
4	Parliament question (Nos)	97	50	100	100	100
5	Meetings like RCC, RAC, SLSCC, AMC, Annual Plan etc (Nos)	60	60	60	60	60
6	Reports (Nos)	25	25	25	25	25
7	Preparation of projects (nos)	05	05	05	05	05
8	Technical proposals (Nos)	256	286	300	350	356
9	Procurement of Cocoons (Lakh Nos)					
	RMB-Tasar	130.57	198.86	169.35	159.69	170.00
	MRMB- Muga	8.20	04.80	4.02	4.919	9.50
10	Sale of Cocoon (Lakh Nos)					
	RMB-Tasar	114.51	135.30	173.57	203.97	170.00
	MRMB- Muga	7.36	4.80	4.03	4.919	8.00

### 2.3. Supportive facilities extended by CSB during XI Plan under the SO& HRD scheme

- Facilitated to popularize improved mulberry varieties (V1 & S36), silkworm breeds (CSR breeds) developed by CSB,
- Established 44 Seed Testing Centers and Public/Pvt. Grainages

### 2.4. Financial Performance of the SO & HRD Scheme during XI Plan

The detailed performance and Component wise Outlay / Expenditure of SO & HRD & Market Development scheme during 2007 - 08 to 2010 - 11 and approved outlay for 2011-12- has been given in **Table 2.10**.



**Table 2.10: Financial Progress of activities undertaken under SO & HRD Scheme during XI Five Year Plan Period**

#	Scheme / Components	XI Plan Outlay	XI Plan Outlay [ Revised ]	TOTAL EXPENDITURE FOR XI PLAN
1	2	3	4	10
<b>A</b>	<b>Components under Mulberry Sector</b>			
1	On-going activities of NSSO and nested units	0.00	9.07	12.94
2	Support to Mulberry Seed Crop Rearers - (Adopted Seed Rearers) for quality seed cocoon generation (100% support)	1.20	0.73	0.73
3	Empowerment of LSPs by skill development (100% support)	0.10	0.06	0.06
4	Franchise Support System	0.63	0.46	0.46
5	Infrastructure improvement in Basic Seed Farms (BSFs) and Silkworm Seed Production Centre (SSPCs) of NSSO including establishment of a fourth Cold Storage Plant in Bangalore (100% support)	4.55	4.64	4.64
6	Infrastructure for implementation of provisions of the CSB (Amendment) Act, 2006 (100% support)	0.50	0.15	0.15
7	Publicity for Quality Silkworm Seed Production by LSPs (100% support)	0.05	0.00	0.00
8	Hiring of experts / professionals / subject matter Specialists for implementation of various Schemes	0.10	0.03	0.03



	formulated under Mulberry Seed Sector (100% support)			
9	Hiring of experts for the implementation of various provisions and regulations enacted in Central Silk Board (Amendment) Act, 2006 (100% support)	0.30	0.00	0.00
10	Training of Staff for Quarantine Testing of Silkworm eggs under Mulberry and Non-Mulberry Sector (100% support)	0.07	0.08	0.08
11	Training of Seed Officers (100% support)	0.17	0.20	0.20
12	Support for up-grading skills of seed farmers in non-traditional States under Mulberry Sector (100% support)	0.07	0.11	0.11
13	Support for Disease Monitoring in existing Seed Production network across the Country (100% support)	0.12	0.07	0.07
	<b>Sub Total Mulberry</b>	<b>7.86</b>	<b>15.59</b>	<b>19.46</b>
<b>B</b>	<b>Components under Non - Mulberry Sector</b>			
<b>i</b>	<b>Components of BTSSO</b>			
1	Support for on going plan activities- Procurement of seed cocoons, skill enhancement training programme and contingent expenditure	1.07	13.23	13.23

2	Raising and Maintenance of plantation in BSM&TCs and other nested units	0.92	0.66	0.66
3	Renovation of existing buildings in BSM&TCs and other nested units	0.60	0.23	0.23
4	Development of Infrastructure at BSM&TCs and nested units-Grainage houses, office building, oviposition/moth examination room, borewell, submersible pump and overhead tank	2.30	1.20	1.20
5	Procurement of grainage and rearing equipments for BSM&TCs and other nested units	0.35	0.18	0.18
	<b>Total for BTSSO</b>	<b>5.24</b>	<b>15.50</b>	<b>15.50</b>
<b>ii</b>	<b>Muga Silkworm Seed Organization (Muga)</b>			
1	Support for on going plan activities-Procurement of seed cocoons, skill enhancement training programme and contingent expenditure	0.64	2.64	2.64
2	Assistance to Adopted Seed Rearers and maintenance of farm and grainages	0.36	0.13	0.13
3	Assistance to Private Graineurs	0.26	0.12	0.12
4	Extension activities, engagement of contractual manpower, publicity, project monitoring and award to best performer	0.22	0.10	0.10
5	Strengthening of P4/P3 units-Construction of Office cum laboratory and training building, grainage cum cocoonage building, renovation of existing building equipment support.	1.16	2.67	2.67
	<b>Total for MSSO</b>	<b>2.64</b>	<b>5.66</b>	<b>5.66</b>
<b>iii</b>	<b>Eri Silkworm Seed Organization (ESSO)</b>			
		0.76	1.70	1.70
	<b>Total Seed Organization</b>	<b>16.50</b>	<b>38.45</b>	<b>42.32</b>
	<b>Non-Recurring</b>	<b>6.78</b>	<b>20.06</b>	<b>20.06</b>
	<b>Recurring</b>	<b>9.72</b>	<b>18.39</b>	<b>22.26</b>
<b>b.</b>	<b>HRD-COORDINATION AND MARKET DEVELOPMENT</b>			
<b>1</b>	<b>Board Secretariat</b>			
a	Ongoing regular activities	<b>14.24</b>	27.66	24.19
b	Renovation of Qtrs and CSTRI, Hostel at Bangalore	<b>0.00</b>	0.00	0.00

c	Token provision for a building complex of auditorium, museum, conference hall at Bangalore	<b>0.00</b>	0.00	0.00
e	Renovation of CSB Guest houses	<b>0.00</b>	0.00	0.00
f	Fencing of CSB land at Bangalore	<b>0.00</b>	0.00	0.00
g	Publicity activities	<b>0.00</b>	0.00	0.00
	<b>Total</b>	<b>14.24</b>	<b>27.66</b>	<b>24.19</b>
<b>2</b>	<b>RO/RDOs(ongoing activities)</b>	<b>11.61</b>	7.90	7.90
a	Construction of office building for RDO, Guwahati	<b>0.00</b>	0.00	0.00
b	Repairing of RDO Lucknow building	<b>0.00</b>	0.00	0.00
<b>3</b>	<b>Certification Centres</b>	<b>0.13</b>	0.09	0.09
<b>4</b>	<b>RMBs/MRMBs</b>	<b>4.02</b>	3.82	3.82
	<b>Total</b>	<b>30.00</b>	<b>39.47</b>	<b>36.00</b>
	<b>Non-Recurring</b>	12.00	6.58	<b>6.58</b>
	<b>Recurring</b>	18.00	32.89	<b>29.42</b>
	<b>TOTAL FOR SEED &amp;HRD</b>	<b>46.50</b>	<b>77.92</b>	<b>78.32</b>
	<b>Non-Recurring</b>	18.78	26.64	26.64
	<b>Recurring</b>	27.72	51.28	51.68

## CHAPTER III

### MAJOR ACTIVITIES OF SO & HRD DURING XI FIVE YEAR PLAN

#### 3.1 Introduction

Central Silk Board in association with State departments and private growers had invested much of its material and manpower to develop well organized and systematic seed production networks separately for Mulberry, Tasar, Muga & Eri sectors. This institutional framework has been provided with necessary functional freedom supported by adequate structural facilities to upkeep a three tier multiplication system for retaining the inherent genetical characters like hybrid vigour, disease freeness and above all maintains and regulates high quality standards among all the stakeholders in the seed production scenario. The ultimate aim of CSB in seed sector is to assume more as a regulating and facilitating authority by limiting its role in maintaining the nucleus seed source and producing some portion of basic seed, especially bivoltine and Vanya silk sector, transform 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.

Further the Human Resource Development aspect of the scheme is directed towards undertaking the activities including Board's Secretariat, Regional Offices, Raw Material Banks and Certification Centers. The Board's Secretariat coordinates the technical activities of all its nested units in research, extension, basic seed production, publicity, price stabilization for vanya sector, market development etc. besides maintaining the overall administrative and financial apparatus of 300 units manned by 3993 employees.

Under the arrangement of Seed organizations the responsibilities of implementing the recently enacted Seed Act bring in quality standards in Seed production process. Major seed organizations working in the area of mulberry sector is National Silk Worm Seed Organisation. Similarly, Basic Tasar Silk Worm Seed Organisation is involved in Tasar seed development and distribution, Muga Silkworm Seed Organisation is involved in muga seed development and distribution and Eri Silkworm Seed Organisation is involved in development & distribution of Eri Seed. The Seed organizations have been playing a major role in sufficing the demand for seed at various levels. With the advent of high end technology and quality based pricing the basic support i.e. the seed supplied to the rearers need to be of very high standard, for the purpose Up-gradation of infrastructure facilities in NSSO, BTSSO, MSSO and ESSO units.

#### 3.2 National Silkworm Seed Organization

The National Silkworm Seed Organization (NSSO) is the front runner involved in multi-faceted activities of silkworm seed production which assumes more importance than any other areas of sericulture development because seed production and supply need to be on a continuous basis and the balance between demand and supply should always be maintained. To ensure this, along with the production and supply of the disease free layings (dfls) from the Silkworm Seed

Production Centres (SSPCs), the Basic Seed Farms (BSFs) stand on their toes prepared to supply the basic seed at different levels through downstream multiplication. The BSFs of NSSO meet the basic seed and parent seed cocoon requirement of various state governments also apart from ensuring a continuous internal supply. The production of over 1.3 crores of seed cocoons achieved by the farms during the year was no mean task which was possible only because of the committed efforts of all the personnel involved.

The performance of the SSPCs was truly commendable. The production level of about 294 lakh dfls with a recovery percentage way above the industry standards was materialized. The high yield of 61-65 g of eggs recorded per kilogram of seed cocoons by the bivoltine seed production centres of NSSO deserves a big round of applause. NSSO remains as the first stop for quality silkworm seeds for various state government departments which is underlined by the supply of more than 93 lakhs bivoltine dfls supplied to these departments. NSSO also lives up to the popular demand and expectation for high quality multivoltine x bivoltine hybrids realizing the fact that volume is equally important and hence produced and supplied 2.07 crore dfls. Eighteen of the 19 SSPCs of NSSO are now ISO 9001:2008 certified and the quality management system maintained and followed meticulously in these units reflects in the quality of the product and the service rendered.

### 3.2.1. Highlights of Activities NSSO

#### 3.2.1.1 Basic Seed Farms

- 19 Basic Seed Farms brushed 0.40 lakh basic seed (bivoltine: 0.14 lakh and multivoltine: 0.26 lakh) and generated 121.35 lakh seed cocoons (46.30 lakh bivoltine and 75.05 lakh multivoltine).
- 9.87 lakh basic seed was produced (7.12 lakh bivoltine and 2.75 lakh multivoltine) to meet the seed requirement. The P1 bivoltine basic seed production during the year was 6.86 lakhs. SSPC K.R. Nagar production 6.58 lakh bivoltine P1 dfls.
- 17.61 lakh multivoltine seed cocoons produced at Nagenahalli, Chikkamalavadi, Krishnagiri, Palakkad and Parigi farms were supplied to SSPCs in south zone and 5.24 lakh crossbreed dfls were produced with an egg recovery of 29.74%
- Basic Seed Farms and Centre for Sericulture Development earned revenue of Rs. 74.44 lakhs.

#### 3.2.1.2 Silkworm Seed Production Centres

- 19 SSPCs produced a quantity of 293.44 lakh crossbreed and bivoltine dfls.
- Multibivoltine dfls production was 206.54 lakh which included 101.11 lakh PM x CSR2, 26.91 lakh PM x FC2, 48.27 lakh N x NB4D2, Nx N and 30.25 lakh of N x M12 (W)dfls.
- In multibivoltine dfl production, a recovery of 30.19% was recorded in south zone SSPCs against a norm of 28%.

- A total of 86.91 lakh bivoltine hybrid dfls were produced consisting of 34.29 lakh CSR hybrids, 43.89 lakh double hybrids, 0.50 lakh DUN hybrids and 8.23 lakh traditional hybrids (SH6 x NB4D2).
- An average egg yield of 60.99 g per kg seed cocoon was recorded in CSR hybrids and 65.31 g per kg seed cocoon in double hybrids (against the norm of 60 g seed per kg of CSR cocoon and 65 g seed per kg of Double hybrids cocoon). An average egg yield of 54.57 g per kg seed cocoon in SH6 x NB4D2 hybrids and its reciprocal was recorded.
- 60.76 lakh bivoltine seed cocoons were supplied from the south to SSPCs of NSSO, DOS and LSPs of West Bengal and also DOS Uttar Pradesh.
- Supplied 93.72 lakh bivoltine hybrid dfls to various state departments and CSB units.
- ISO 9001:2008 Quality Management System was maintained in SSPCs at Ramanagaram, Bangalore, Mysore, Vijayapura, Chintamani, Malavalli, Palakkad, Dehradun, Hosur, Dharmapuri, Thirupattur, Madanapalle, Hindupur and Chittoor. Besides four SSPCs of West Bengal viz., Kalitha, Dakshinbhanipur, Berhampore and Raiganj were certified with ISO 9001: 2008, increasing the total number to 18.

### 3.2.1.3 Extension Services

- NSSO' 32 Sericulture Service Centres and 32 Sericulture Service Units distributed 207.87 lakh silkworm hybrids to sericulturists, which includes 31.19 lakh bivoltine hybrids and 103.04 lakh crossbreeds.
- 52 Franchisee CRCs functioning under SSPCs, brushed 46.69 lakh dfls (30.12 lakh M x Bi and 16.57 lakh bivoltine hybrids) and supplied chawki larvae to the farmers. This is 7.80 lakh dfls more than that of the previous year, and also number of franchisees increased from 36 to 52.
- 16.08 lakh (dfls) chawki silkworms were distributed through CRCK.P.Doddi under SSPC Ramanagaram covering 1061 farmers with an average yield of 62.93 kg cocoons per 100 dfls and generated Rs.4.82 lakh revenue.
- NSSO coordinated study tour of 181 farmers/students/officers from various parts of the country to Seri cultural areas of Karnataka.
- National (9) and International (51) training was imparted to 60 officers/officials of NSSO, DOS and third country under JICA programme in various aspects of sericulture under different programmes.

### 3.2.1.4 Cluster Promotion Programme under CDP XI Plan

- Supplied 32.54 lakh bivoltine hybrid disease free layings in the Chawki Rearing Centres and farmers in 22 clusters in Karnataka, Andhra Pradesh, Tamil Nadu and Maharashtra 9079 farmers harvested an average yield of 63.26 kg per 100 dfls.

### 3.2.1.5 Central Silk Board (Amendment) Act

- For implementation of CSB (Amendment) Act, 2006, training was organized to Seed Officers and Seed Analysts after nomination and finalization of their operational jurisdiction.
- Formulation and implementation of guidelines and creating awareness among various stakeholders was done.
- Manual on Seed Act implementation for Seed Officers and Seed Analysts was prepared and published.
- Operational jurisdiction was fixed for 63 Seed Analysts and 295 Seed Officers covering all 4 varieties of silk across the country, based on the density of seed production activities.

### 3.2.2. Basic Seed Production of NSSO

National Silkworm Seed Organisation assumes and plays an appreciable leadership role in production of basic and commercial silkworm seed. The relevance and importance of Basic Seed Seed Farms set up and run by NSSO has become all the more pivotal with the advent of Central Seed Act which exhorts adherence to quality norms at all levels of silkworm seed production and distribution.

NSSO's basic silkworm seed generation and multiplication programme largely adheres to the limited generation system. The 19 Basic Seed Farms (BSFs) and one Centre for Sericulture Development (CSD) fulfills the requirement of basic seed of the respective areas including the state departments. These basic seed farms position themselves with absolute role clarity in the one way system of seed multiplication, namely P4 – P3 – P2 – P1, NSSO commands the multiplication and maintenance of P3, P2 and P1 seed and the system provides adequate safeguards for quality assurance in the seed multiplication chain to maintain the purity of the silkworm breed as it flows down from the breeders to the farmers. Since the farms are strategically located across the country, foreseeing the regional requirement of basic seed, coupled with advance planning, NSSO is able to meet the zonal demand, in time. High quality basic seed can be generated if only the mulberry farm is maintained well and high quality leaf is produced. The basic seed farms, as a matter of fact, are also engaged in generation and utilization of compost, vermin-compost, green manure, water conservation through rain water harvesting, drip irrigation etc. which contribute largely to quality leaf production. The BSFs that maintain and multiply bivoltine or multivoltine silkworm breeds performed to their potential during the year.

For all the BSFs, annual performance targets were fixed during the beginning of the year for mulberry garden maintenance, rearing of dfls, seed cocoon generation, revenue generation etc. Concerted efforts of the personnel involved resulted in the generation of quality and dependable seed cocoons of both bivoltine and multivoltine varieties in different zones as indicated in **Table 3.1**. It may be noticed from **Table 3.1** that achievement of Northern Zone is the highest as compared to South and East Zones.



**Table 3.1: Seed Cocoon Generation in BSFs during 2010-11**

(in lakhs)

Particulars		Zone			
		South	North	East	Total
Bivoltine	Target	44.72	5.45	2.04	52.21
	Achievement	37.72	7.84	0.74	46.30
	%	84.34	143.85	36.27	88.68
Multivoltine	Target	40.38	-	49.85	90.23
	Achievement	34.15	-	40.90	75.05
	%	84.57	-	82.05	83.18
Total	Target	85.10	5.45	51.89	142.44
	Achievement	71.87	7.84	41.64	121.35
	%	84.45	143.85	80.25	85.19

Source: NSSO Report

Seed cocoons thus generated were effectively utilized for the production of Basic seed at different multiplication levels before finally ending up with the much needed commercial seeds of required combinations. **Table 3.2** gives the quantum of basic seed produced in different zones for both bivoltine and multivoltine varieties.

**Table 3.2 Basic Seed Production in different zones (P3, P2 & P1) (in lakh DFLs)**

Particulars		Zone			
		South	North	East	Total
Bivoltine	Target	6.81	0.30	-	7.11
	Achievement	6.82	0.30	-	7.12
	%	100.15	100.00	-	100.14
Multivoltine	Target	0.75	-	1.68	2.43
	Achievement	0.98	-	1.77	2.75
	%	130.67	-	105.36	113.17
Total	Target	7.56	0.30	1.68	9.54
	Achievement	7.80	0.30	1.77	9.87
	%	103.17	100.00	105.36	103.46

Source: NSSO Report

Clear guidelines were also available to the farms in respect of leaf productivity with provisions for adequate inputs such as organic and inorganic fertilizers. The farms were constantly encouraged to initiate soil reclamation through green manuring, application of press mud, tank silt, red earth. It is a matter of utmost contentment to state that the farms could generate 295.65 tonnes of compost and 39.91 tonnes of vermin-compost, during the year.

### Southern Zone

The southern zone farms continued with regular activities of mulberry garden maintenance, brushing of dfls, seed cocoon generation, seed production and revenue generation as per the targets fixed. The leaf productivity in these farms was maintained as per norms with the application of adequate inputs like organic and inorganic fertilizer. In addition, other soil



amendments like green manuring, application of press mud, tank silt and red earth were carried out to maintain the fertility of the soil.

**Table 3.3 Multivoltine P3, P2 & P1 PM DFLs to different states**

S.No.	State	Qty.supplied (In DFLs)
1	Karnataka	7752
2	Tamil Nadu	61214
3	Andhra Pradesh	8832
4	Kerala	868
5	Maharashtra	12750
6	Madhya Pradesh	5558
7	Mizoram	5
8	Tirpura	1004
	<b>Grand Total</b>	<b>97983</b>

Source: NSSO Report

Surplus multivoltine seed cocoons generated at multivoltine farms were supplied to SSPCs of southern zone for crossbreed DFLs production, and their performance is indicated below:

**Table 3.4 Multivoltine Seed Cocoon**

Basic Seed Farm	Cocoons Kept for seed (Nos)	Dfls produced(Nos)	Recovery %
Nagenahalli	712194	210589	29.57
Chikkamalavadi	158039	52205	33.03
Krishnagiri	251656	77259	30.70
Palakkad	175689	22842	31.78
Parigi	463137	127664	27.57
<b>Total</b>	<b>1760685</b>	<b>523559</b>	<b>29.74</b>

Source: NSSO Report

**Table 3.5 Distribution of bivoltine P1 DFLs**

S.No	State	Quantity Supplied
1	Karnataka	25979
2	Andhra Pradesh	10859
3	Tamin Nadu	43205
4	Maharashtra	10050
5	Madhya Pradesh	7114
6	Chattisgarh	700
7	Uttar Prades	5250
8	Assam	4000
9	Tripura	355
10	Jammu & Kashmir	2000
11	West Bengal	10800
	<b>Total</b>	<b>120312</b>

Source: NSSO Report

### Centre for Sericulture Development (CSD)

- Centre for Sericulture Development, Ramagiri continued its multi-functional role aimed at introduction of sericulture in cluster areas.
- The centre focused on rural development by demonstrating the potential of sericulture as a commercially viable crop in the state, by
- Supporting identified farmers with mulberry plantation and rearing activities.
- Providing training and technical guidance to the farmers.
- Assisting in marketing of F1 cocoons.
- Co-ordinating with respective state departments.
- The centre brushed 1200 dfls of SK6 x SK7, CSR2 X CSR4 combination and generated 23891 cocoons (by number) and 32.28 kg (by weight) per 100 dfls. A revenue of Rs.95270.00 was generated at the unit.

### 3.2.3 Silkworm Seed Production Centres

#### 3.2.3.1 Seed Cocoon Procurement Centres

Seed Cocoon Procurement Centres continued to support the SSPCs by generating and supplying quality parent seed cocoons there by helping them to maintain quality standards at F1 level.

Generation of bivoltine seed cocoons through Adopted Seed Rearers

- All SSPCs in south and North zones generated quality P1 bivoltine seed cocoons through Adopted Seed Rearers locally, which is self sufficient to meet the male parent requirement for cross breed production and also for bivoltine hybrid production.

#### 3.2.3.2 Commercial seed production

The Silkworm Seed Production Centres (SSPCs) of NSSO are engaged in production and supply of quality commercial seed. The seed sector plays a vital role in the nation's sericulture development. The other agencies involved are the grainages of State Departments of Sericulture and Registered Seed Producers in the private sector. NSSO has 19 Silkworm Seed Production Centres with state-of-the-art technology and manned by well experienced personnel. These units contribute to 11.40% of the country's silkworm seed production and more than 44% of country's bivoltine hybrid seed. The organization has a unique distinction of producing quality silkworm seed, as 18 of the units are ISO 9001:2008 certified. 19 SSPCs produced 293.44 lakh dfls (86.91 lakh of bivoltine hybrids and 206.53 lakh crossbreeds) and achieved 94.66% of the target fixed for the year.

### 3.2.3.3 ISO 9001: 2008 certification

- Fourteen SSPCs of NSSO namely, Bangalore, Mysore, Chintamani, Malavally, Vijayapura, Palakkad, Ramanagaram, Dehradun, Hosur, Dharmapuri, Thirupattur, Madanapalle, Hindupur and Chittoor continued to maintain Quality Management System in seed production under ISO 9001:2008 standard.
- The performance of all the SSPCs was commendable during the year, with excellent customer feedback. ISO certification helped these SSPCs to accelerate improvement in quality and productivity of silkworm eggs thereby achieving their goal with error elimination and sustain success with a marketing edge.
- During the year 2010-11, four SSPCs of West Bengal namely, Kalitha, Dakshinbhanipur, Berhampore and Raiganj were also certified, thus increasing ISO certified SSPCs to 18.

### 3.2.4. Extension and Training

The Silkworm Seed Production Centres are supported by the extension units i.e., Sericulture Service Centres (SSCs) and Sericulture Service Units (SSUs) in seed distribution, generation of seed cocoons and dissemination of sericulture technologies to the farmers. The extension units are instrumental in achieving better productivity and in turn better income to the Seri culturists in their command area.

#### 3.2.4.1 Performance of Sericulture Service Centres and Sericulture Service Units

32 Sericulture Service Centre and 32 Sericulture Service Units under 17 SSPCs were involved in extension activities.

#### 3.2.4.2 Transfer of Technology and Extension Communication Programmes

Several technologies developed by R & D Institutes in mulberry cultivation and silkworm rearing were propagated among 18196 farmers. A total of 759 group discussions, 741 farmers meeting and 249 field days/seminars/exhibition were conducted during the year 2010-11 (Table 3.5). The details are given below.

**Table 3.6: Training and Extension Programmes**

State	Group Discussions	Others	Farmers Meet
Karnataka	240	80	438
Andhra Pradesh	176	82	113
Tamil Nadu & Kerala	64	-	128
West Bengal	279	87	62
Total	750	240	741

- Includes field days, seminars, exhibition etc.

The Extension Section, NSSO is involved in organizing training programmes both at national and international level, apart from organizing study tours for farmers, officials and students.

### 3.2.4.3 National and International Training Programmes

9 Scientists from different units units participated in different training programmes organized by CSB institutions, NAARM Hyderabad (4), National Productivity Council Jaipur (1) (Table 3.6). A total of 51 international participants in four batches from Ghana, Nigeria, Uganda, Kenya, Madagascar, Krygzgistan, Nepal were imparted training under third country international training programme under JICA.

**Table 3.7: Details regarding Training Programmes organized in India**

#	Training Programme	No.of staff	Duration	Place of Training
1	Bivoltine sericulture technology	14	8	SSPC+SSTL
2	Bivoltine sericulture technology (specialized course)	5	25	SSPC+SSTL
3	Skill upgradation of training programme	1	6	CSR&TI Berhampore
4	Bivoltine Sericulture Technology	13	1	SSPC+SSTL
5	Preparing winning research proposals	4	7	NAARM, Hyderabad
6	Silkworm Seed Production	3	5	SSPC, Bangalore
7	Bivoltine Sericulture Technology	15	7	SSPC+SSTL
8	Bivoltine sericulture technology (Specialized course)	4	24	SSPC+SSTL
9	Systematic problem solving	1	5	National Productivity Council Jaipur
	Total	60	93	

### 3.2.4.4 Farmers Study Tour Programme

During the year, NSSO organized/co-ordinated study tour for 181 farmers from Assam, Jammu & Kashmir, Punjab, Maharashtra and Tamil Nadu to sericultural areas of Karnataka, for on the spot appraisal of sericulture activities, technologies, packages, etc.

**Table 3.8: Study Tour Programme**

#	Department/College	No. of persons	Duration
1	DOS, Tamil Nadu	10	1
2	DOS, Assam (Lakhimpur)	29	8
3	DOS, Jammu & Kashmir	58	6
4	DOS, Maharashtra	4	1
5	DOS, Punjab	32	8
6	DOS, Jammu & Kashmir	48	5
	Total	181	

Source: NSSO Report

### 3.2.5 Franchisee Chawki rearing centres under HRD- seed sector XI Plan

A total of 52 Franchisee CRCs functioning under various SSPCs in the south zone brushed 46.69 lakh dfls and supplied chawki larvae to the farmers. This included 30.12 lakh crossbreed and 16.57 lakh bivoltine hybrid dfls. During the year, 13 CRCs entered into Mou/agreement with NSSO under SO & HRD XI Five Year. Extended assistance to two franchisee CRCs in Tamil Nadu and Andhra Pradesh under NRDC assistance New Delhi. The progress is given at Table-III (7).

#### Performance of Chawki Rearing Centre

CRC K.P. Doddi brushed 1.60 lakh dfls against the target of 2.10 lakh (76.19%). and distributed the chawki larvae to 1061 farmers. The performance was excellent and 63.56 kg cocoon yield per 100 dfls was recorded on an average. The revenue generated at the unit was Rs.4.82.

### 3.2.6 Cluster Promotion Programme

32.54 lakh bivoltine hybrids were brushed in 22 clusters in Karnataka, Tamil Nadu, Andhra Pradesh and Maharashtra. Chawki larvae were certified and distributed to 9079 farmers harvesting an average yield of 63.26 kg per 100 dfls in the programme.

**Table 3.9: Performance of Bivoltine Hybrid DFLs SSCs and SSUs of four States**

State	Target (Nos)	Achievement (Nos)	% Achievement	
<b>KARNATAKA</b>				
	SSCs	4140270	4427619	106.94
	SSUs	3614300	4798476	132.76
	<b>Total</b>	<b>7754570</b>	<b>9226095</b>	<b>118.98</b>
<b>TAMIL NADU AND KERALA</b>				
	SSCs	1400000	1466419	104.74
	SSUs	900000	508807	56.53
	<b>Total</b>	<b>2300000</b>	<b>1975226</b>	<b>85.88</b>
<b>ANDHRA PRADESH</b>				
	SSCS	1830000	2074096	113.34
	SSUS	603000	433190	71.84
	<b>TOTAL</b>	<b>2433000</b>	<b>2507286</b>	<b>103.05</b>
<b>TOTAL (SOUTH ZONE)</b>				
	SSCs	7370270	7968134	108.11
	SSUs	5117300	5740473	112.18
	<b>TOTAL</b>	<b>12487570</b>	<b>13708607</b>	<b>109.76</b>
<b>WEST BENGAL</b>				
	SSCs	4576500	4549283	99.41
	SSUs	2630000	2529165	96.17
	<b>Total</b>	<b>7206500</b>	<b>7078448</b>	<b>98.22</b>
<b>GRAND TOTAL</b>				
	SSCs	11946770	12517417	104.78
	SSUs	7747300	8269638	106.74
	<b>Total</b>	<b>19694070</b>	<b>20787055</b>	<b>105.55`</b>

Source: NSSO Report

### 3.3 SEED ACT

National Silkworm Seed Organization (NSSO) is vested with the responsibility of monitoring the implementation of Central Silk Board (Amendment) Act, 2006. Necessary amendments to the Act existing prior to 2006 were introduced to regulate the production and distribution of silkworm seeds in the Indian states and union territories and passed by the parliament and published in the Gazette of India on 14<sup>th</sup> September 2006. NSSO plays an important role in this welcome change and stands to facilitate an easy and smooth transition from the state regulated industrial practices to more open and free trade practices in coordination with the state sericulture departments. Under the Act, the Govt. of India constituted Central Silkworm Seed Committee (CSSC) to register all the eligible entrepreneurs.

The Director, NSSO is the Chairperson of the Registration Committee and is authorized to register and maintain the records of silkworm seed producers, commercial chawki rearers, seed cocoon producers and dealers apart from ensuring the adherence of quality norms at all levels of seeds production.

The organization also maintains National Registers which will be repositories of all the relevant details pertaining to the implementation of regulation made in the Act. Nomination and training to Seed Officers and Seed Analysts who are the actual field functionaries in the implementation scheme, coordination of refresher training for registered entrepreneurs and monitoring the performance of the entrepreneurs on a continuous basis are also the duties entrusted with NSSO.

- After the Notification of the Central Silk Board Silkworm Seed Regulations 2010, on March 16, 2010, the guidelines for the implementation of the provisions of the Regulations were prepared and published as a Manual to technically empower the Seed Officers and Seed Analysts nominated for the purpose of implementation.
- 295 Seed Officers and 63 Seed Analysts belonging to 24 states and BTC Kokrajhar were nominated/appointed after specifying their operational jurisdiction.
- A day's Trainers' Training Programme was arranged in Central Silk Board, Bangalore on 22-2-2011 in which two scientists each from the Designated Training Centres were trained to in-turn train the Seed Officers and Seed Analysts in their respective training centres.
- Two days training programmes were arranged at 8 training centres viz. SSTL, Kodathir, CSTRI, Mysore; KSSRDI, Bangalore, APSSRDI, Hindupur, CSRTI, Berhampore; CSRTI Pampore, CTRTI, Ranchi and CMERTI, Lahdoigarh, Out of 295 Seed Officers, 239 were trained and out of 63 Seed Analysts, 57 were trained.
- To impart the refresher and regular training to Silkworm Seed Producers and Chawki Rearers under the provisions of the Act, the curriculum has been prepared in consultation with the concerned experts. The details are given at Table-IV (1)
- The first meeting of the Registration Committee was convened on 20<sup>th</sup> and 21<sup>st</sup> January 2011 to examine the applications received and to consider for registration under the provisions of the Act. 628 applications received as on 19-1-2011 were scrutinized, out of which 401 were from silkworm seed producers and 227 from chawki rearers. Registration was awarded by the committee to 410 applicants and the certificates were issued. Details are at Table 3.9.

**Table 3.10: Training of Seed Officers & Seed Analysts under Seed Act**

State	Seed Officers appointed	Seed Officers Attended Training	Seed Analysts Appointed	Seed Analysts Attended Training
Karnataka	112	102	25	25
Andhra Pradesh	23	20	5	4
Tamil Nadu	20	18	4	4
Kerala	3	0	1	1
Maharashtra	4	4	1	0
West Bengal	21	20	6	5
Jharkhand	29	25	10	8
Chattisgarh	5	4	1	1
Orissa	9	7	3	3
Jammu & Kashmir	5	4	1	1
Kokrajhar	4	3	0	0
Assam	4	4	1	1
Manipur	10	8	1	1
Arunachal Pradesh	14	0	0	0
Tripura	3	0	0	0
Mizoram	2	2	0	0
Sikkim	1	1	0	0
Meghalaya	2	0	0	0
Nagaland	2	2	0	0
<b>Total</b>	<b>295</b>	<b>239</b>	<b>63</b>	<b>57</b>

Source: NSSO Report

**Table 3.11 Applications received and considered for registration as on 31-3-2011**

State	Seed Producers				Chawki Rearers				State Total
	Existing		New	Total	Existing		New	Total	
	Eligible	Abeyance			Eligible	Abeyance			
Karnataka	218	33	15	<b>266</b>	42	13	117	172	<b>438</b>
Andhra Pradesh	4	0	0	<b>4</b>	0	0	0	0	<b>4</b>
Tamil Nadu	17	6	0	<b>23</b>	2	23	0	25	<b>48</b>
West Bengal	3	0	0	<b>3</b>	0	0	0	0	<b>3</b>
Uttarakhand	1	0	0	<b>1</b>	0	0	0	0	<b>1</b>
Kerala	1	0	0	<b>1</b>	0	0	0	0	<b>1</b>
Madhya Pradesh	42	0	0	<b>42</b>	19	0	0	19	<b>61</b>
Maharashtra	46	0	0	<b>46</b>	0	0	6	6	<b>52</b>
Bihar	4	0	0	<b>4</b>	0	0	5	5	<b>9</b>
Jammu & Kashmir	10	0	0	<b>10</b>	0	0	0	0	<b>10</b>
Jharkhand	1	0	0	<b>1</b>	0	0	0	0	<b>1</b>
<b>Total</b>	<b>347</b>	<b>39</b>	<b>15</b>	<b>401</b>	<b>83</b>	<b>36</b>	<b>128</b>	<b>227</b>	<b>628</b>

Source: NSSO Report



### 3.4 SUPPORTING ACTIVITIES

#### 3.4.1 COLD STORAGE PLANT

The Cold Storage wing located at NSSO Head Quarters monitors the functioning of Cold Storage Plants and diesel generator sets installed at various places.

- Ensured trouble free functioning of the Cold Storage units, walk-in cold rooms, 27.5 KVA Honda D.G. Sets, electrical installations etc., installed at various locations throughout India effectively and efficiently.
- The Cold Storage Plant at V.P.Farm, Mysore is the oldest unit rendered 30 years of valuable service to the sericulture industry. During the year, 6.64 lakh bivoltine parental stock races, 50.02 lakh CSR hybrids, 8.00 lakh crossbreeds and 0.65 lakh Pure Mysore dfls were preserved at the unit. A total quantity of 55.80 lakh CSR hybrid and 8.00 lakh crossbreed dfls were incubated and supplied to the farmers. All the cold storages and DG Sets are under Annual Maintenance Contract.
- At amount of Rs.1.58 crore was deposited with CPWD Mysore for construction of another cold storage with 50.00 lakh dfl storage capacity to meet the production demand under XI and XII Five Year Plan.
- Cold Storage Plant at Central Sericultural Germplasm Resources Centre, Hosur was renovated by replacing brine chilled system with Dx-type refrigeration system at a cost of Rs.27.86 lakhs. Presently, about 25.00 lakh dfls is preserved under different schedules at the units. As the cold storage at SSPC Dehradun is under repair, dfls produced in the north zone are being preserved at CSGRC Hosur unit.
- Installed 15 incubation chambers in 11 SSPCs in Karnataka, Andhra Pradesh, Tamil Nadu, Kerala and West Bengal to preserve silkworm eggs in optimal condition for uniform development of embryo and ensure good hatching.
- Maintained all electrical installations at various centres in good working condition.

#### 3.4.2 Basic Tasar Silkworm Seed Organization (BTSSO)

Basic Tasar Silkworm Seed Organization (**BTSSO**) has been working with 21 Basic Seed Multiplication & Training Centres and one Central Tasar Silkworm Seed Station, Kargi Road Kota). BTSSO has been monitoring the BSM&TCs and CTSSS for production of high quality tasar disease free layings as per requirements of tasar silk producing states of the country. The highlights of the achievements are enumerated as under:

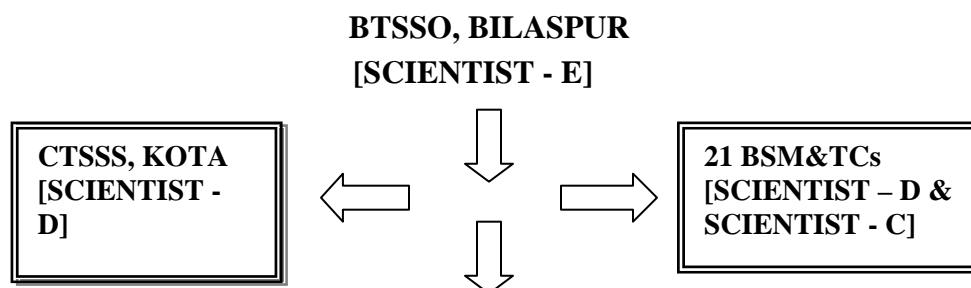
Table 3.12 Highlights of the achievements

Sl.No.	Activity	Achievements	
		Number	Achievement
			Over Target (%)
1.	Cocoon Processed (Lakh no.)	140.93	97.61
2.	Dfl Production (Lakh no.)	35.08	107.64
3.	Cocoon : Dfl Ratio	4.016	-
4.	Dfl supply (Lakh no.)	34.23	119.89
5.	Dfl reared (Lakh no.)	1.32	103.15
6.	Cocoon Production (Lakh no.)	110.69	172.58
7.	Cocoon yield/Dfl	83.86	
8.	Basic seed replenishment by CTSSS,Kota (thousand no.)	nil	
9.	New Plantation (ha.)	11.73	
10.	Maintenance of Plantation (ha.)	675.99	
11.	No. of PPC adopted	22	
12.	No. of rears adopted	1340	
13.	Seed supplied to adopted rearers (Lakh no.)	2.68	
14.	Training imparted	559	
	A. Private Greanuers 105		
	B. Adopted rearers 268		
	C. DOS Staff 186		
15.	Person trained under skill enhancement programme	420	
	A. Microscopist 136		
	B. Grainage Operater 173		
	C. Rearing worker 111		
16.	Farmers day/ field day organised	9	

Source: BTSSO Report

### 3.5 Organizational Set Up of BTSSO, Bilaspur

The headquarters of BTSSO is located at Bilaspur in Chhattisgarh state. Central Tasar Silkworm Seed Station (CTSSS), Kota and 21 numbers of Basic Seed Multiplication and Training Centres (BSM&TCs) located in nine tasar producing states, are functioning under the administrative and technical control of this organization.

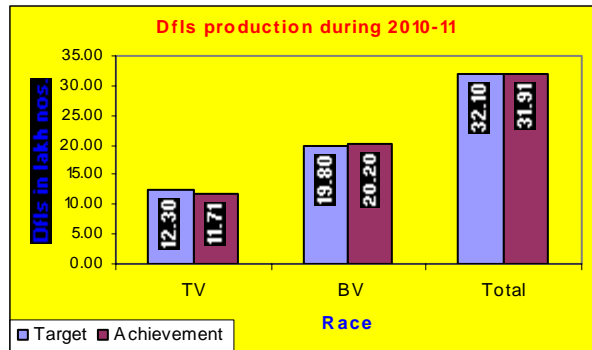


Sl. No.	State	No. of BSM&TCs	Location
1	Jharkhand	4	Kathikund, Madhupur, Kharswan and Deogarh
2	Bihar	1	Bhgalpur
3	Chhattisgarh	5	Pali, Boirdadar, Bastar, Bilaspur and Ambikapur
4	Madhya Pradesh	1	Balaghat & Sub-unit Sihora
5	Orissa	4	Nowrangpur, Pallahara, Baripada and Sundergarh
6	Andhra Pradesh	3	Chinoor, RC Varam and Narsapur
7	Maharashtra	1	Bhandara
8	West Bengal	1	Patelnagar
9	Uttar Pradesh	1	Dudhi
<b>Total</b>		<b>21</b>	

**3.5.1. COCOON PROCESSED-** During the year a total 140.93 (target -144.38) lakh cocoons were processed for production of 35.08 lakh dfls against the target of 32.59 lakh dfls.

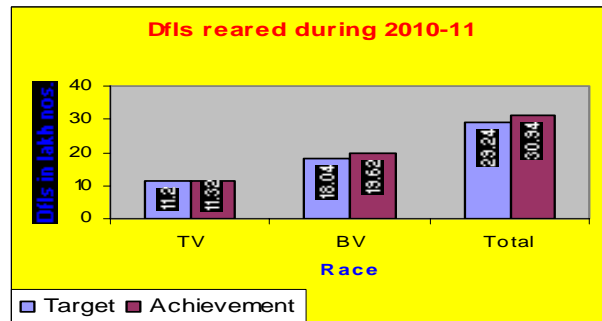
**3.5.2. SEED PRODUCTION**

31.91 lakh disease free layings were produced (20.20 BV and 11.71 TV) during this year. Achievement against the target fixed was 99.74 %.



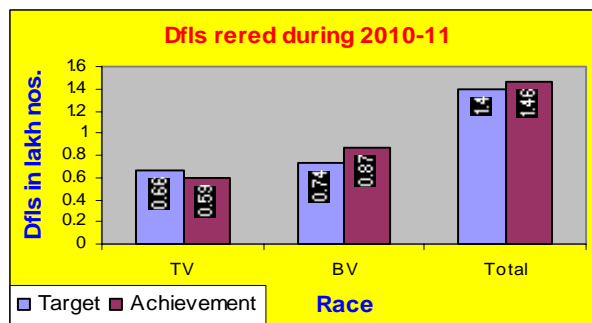
**3.5.3. SEED SUPPLY**

A total 30.94 lakh (19.62 BV and 11.32 TV) dfls were supplied during this year to various states/ NGOs. Achievement against the target fixed was 105.85%



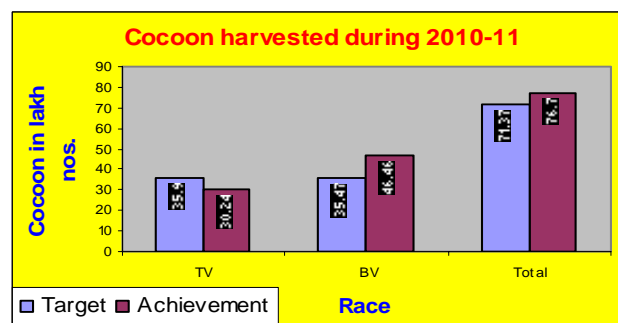
**3.5.4. DFLs REARED**

During the year under report 1.46 lakh dfls were reared. Out of which 0.87 lakh BV dfls and 0.59 lakh TV dfls were brushed. Achievement against the target fixed was 103.54%.



**3.5.5. Harvesting of seed cocoons**

The dfls were reared 1.46 lakh (Tar.- 1.41 lakh) and the centres harvested 76.7 lakh (BV 46.46 and TV 30.24) cocoons. Achievement against the target fixed was 107.47%



### 3.5.6. Technical progress:

#### 3.5.6.1 A. Nucleus seed:

##### 1. CTSSS, Kargi Kota

The Central Tasar silkworm Seed Station Kargi Road, Kota (C.G.) is only P3 station in tropical Tasar and assigned to the following responsibility :-

- Raising of nucleus seed both DABA Bivoltine & Trivoltine.
- Production on nucleus dfls both Bivoltine and Trivoltine.
- Replacement of seed stock (biennial) of BSM&TC's.

##### a) Raising of nucleus seed stock

For production of seed cocoons, a total 6100 dfls (BV 3600 & TV 2500) were reared at CTSSS, Kota and 2,10,700 were harvested @ 34.54 cocoons per dfls.

**Table 3.13: Highlights of the achievements**

Place	crop	Eco Race	No. of dfls reared	Cocoons harvested	Yield/dfls
Kargi Kota	I	BV	2100	43800	20.86
		TV	500	26500	53.00
		<b>Total</b>	<b>2600</b>	<b>70300</b>	<b>27.03</b>
	II	BV	1500	45000	30.00
		TV	1000	30400	30.40
		<b>Total</b>	<b>2500</b>	<b>75400</b>	<b>30.16</b>
	III	TV	1000	65000	65.00
	<b>Grand Total</b>	BV	3600	88800	24.67
		TV	2500	121900	48.76
		<b>6100</b>	<b>210700</b>	<b>34.54</b>	

Source: BTSSO Report

##### b) Nucleus seed production

For nucleus seed production a total 229684 cocoons were processed and 41485 dfls were produced at a cocoon : Dfl ratio of 5.53 at Central Silkworm seed station, Kota. The dfls so produced, were supplied to various agencies including sister units during the year.

**Table 3.14: Nucleus Seed Production**

Place	crop	Eco Race	No. of cocoon Processed	No. of dfls Produced	Cocoon dfls Ratio
Kargi Kota	I	BV	72788	14355	5.07:1
		TV	73462	9470	7.76:1
		Total	146250	23825	6.13:1
	II	BV	40000	6865	5.87:1
		TV	23400	6095	3.84:1
		Total	63400	12960	4.94:1
	III	TV	20034	4700	4.26:1
	Grand Total	BV	112788	21220	5.32:1
		TV	116896	20265	5.75:1
			229684	41485	5.53:1

Source: BTSSO Report

### c) Replenishment Programme

To rejuvenate the stock of the BSM&TC, the Central Tasar Silkworm Seed Station, Kota replenishes the basic seed on biennial basis. Under this, nucleus seed was supplied to selected BSM&TCs. Daba Bivoltine seed supplied during second crop while Daba Trivoltine seed was supplied in third crop.

#### 1. Performance of Daba Bivoltine.

Under the replenishment programme during II crop during 2010-11 a total of 5,165 Bv dfls were supplied to 8 BSM&TCs Madhupur, Deoghar, Narsapur, Kendujhar, Pali, Bastar, Dudhi and Kathikund. Each of these centre was supplied with 100 dfls on cellular basis and the remaining in batches of 5 dfls. The average hatching in the replenished seed was recorded to be 87.75% where as average cocoon yield per Dfls was 64.39 and the average shell weight was 1.80 gm. Higher cocoon yield were recorded at BSM&TC Pali (123 cocoon/dfls) followed by Dudhi (87 cocoons/ dfls) and Madhupur (77 cocoons/dfls)

#### 2. Performance of Daba Trivoltine.

A total of 3600 Daba TV dfls were supplied to six BSM&TCs viz, Baripada, Sundergarh, Patelnagar, Bhandara, Bilaspur and Boirdadar in third crop. Average hatching was 87.77% and average cocoon yield per dfls was 76.56%. Average shell weight was recorded to be 1.22gm. Higher cocoon yield was observed in BSM&TC Patelnagar (110 cocoons/dfls) followed by Baripada (96 cocoon /dfls) and Bilaspur (93 cocoons/ dfls).

### 3.5.7.1. BSM &TC's

In order to organise basic seed production at the state Pilot Project Centres (PPC), a total no of 4.09 lakh Nucleus seed were supplied to various states in addition to 15.99 lakh basic and 10.36 lakh additional dfls supplied as support to the state sericulture departments under seed multiplication programme.

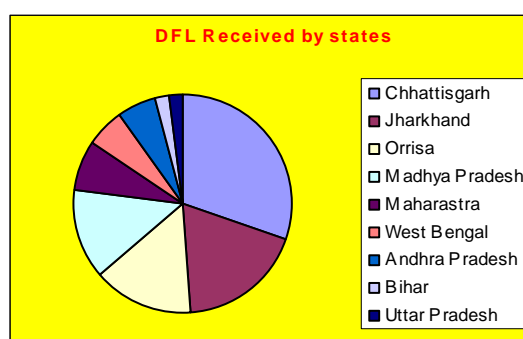
Basic Seed Multiplication & Training Centres (BSM&TCs) maintain commercially exploited breeds in order to meet the seed requirement of the state Sericulture Departments (DOS) and voluntary organizations. The main activities of the BSM&TCs are:

- Maintenance of basic seed stock
  - Production of quality basic seed
  - Production of quality nucleus seed
  - Maintenance of tasar food plants by use of recommended doses of inputs and agronomical package
  - of practices
  - Implementation of Adopted Seed Rearers concept for production of seed cocoons
- Adoption of Private Graineurs for development of entrepreneurship in tasar seed sector

State wise dfl supply made by BSMT&C shows following pattern

**Table 3.15: Statewise Supply of DFLs**

SL No	Name of the recipient states	No of dfls received	% of supply
1	Chhattisgarh	9,02,200	30.40
2	Jharkhand	5,44,964	18.36
3	Orrisa	4,41,071	14.86
4	Madhya Pradesh	3,94,505	13.29
5	Maharastra	2,20,030	7.41
6	West Bengal	1,75,140	5.90
7	Andhra Pradesh	1,64,572	5.55
8	Bihar	63,980	2.16
9	Uttar Pradesh	61,280	2.06
	Total	29,67,742	-



### 3.5.7.2. OTHER PROGRAMMES

#### (i) Back-up Assessment:

To assess the performance of basic seed supplied by the BSM&TCs back up assessment system was developed by supplying separate lot of dfls to identified rearers.

#### (ii) Adoption of Pilot Project Centers:

In Tasar seed sector standard norms for seed multiplication rate i.e., dfls to dfls ratio is 1:10. Since the state PPCs face problems to achieve this norm due to certain constrains, BTSSO has been entrusted to adopt one PPC in each state and demonstrate the feasibility of dfls to dfls ratio at least 1:6 at field level. Under this programme technical know-how and quality disease free layings were provided by 15 BSM&TCs to 21 identified PPCs during first and second crop in different states.

Desired DFL multiplication ratio could be achieved by most of the PPC except PPC Chandua in Orissa and PPC Patri in Maharashtra where multiplication ratio was recorded 1:5.13 and 1:3.74 respectively because of non availability of staffs and infrastructure.

### (iii) Adoption of Private Graineurs:

Considering gap between demand and supply of tasar seed it is imperative to promote private entrepreneurship for commercial seed production. BTSSO units have adopted private graineurs providing necessary support to strengthen the backward and forward linkages. This programme was initiated during 2003-04 on trail basis and continued over the years.

### (iv) Seed Supply under Special SGSY Project:

To promote tasar silk a project entitled - “special Swranjaynti Gramin Swarojgar Yojana” (SGSY) was launched since 2003-04 in Jharkhand and Bihar states. Under this project BTSSO has been entrusted the responsibility of basis seed supply to seed rearers (SRs) and nucleus seed supply to the Adopted Seed Rears (ASRs) through the implementing agency PRADAN.

#### 3.5.7.3. Preservation of nucleus seed cocoons

Out of the total seed cocoon produced, a total 19,64,331 nucleus seed cocoons were kept under preservation for first crop grainage next year at five BSM&TCs as follows:

**Table 3.16: Details of Seed Cocoon purchased**

Sl. No.	BSM&TC	No. of seed cocoons preserved	Mode of rearing
1	Kathikund	4,26,500	DR+AR+ASR
2	Madhupur	4,12,231	DR+AR
3	Kharswan	5,00,200	DR+ASR
4	Deoghar	1,60,400	AR
5	Bhagalpur	4,65,000	AR+ASR
Total		19,64,331	

Source: BTSSO Report

#### 3.5.7.4. Performance of Adopted Seed Rearers (ASRs) :

A new concept of generating seed cocoons for preservation through adopted seed Rearers is an important aspect of Special SGSY Project for development of tasar in Jharkhand and Bihar .The ASRs were selected with the help of the Implementing agency PRADAN and necessary training was imparted by the BSM&TCs.



### 3.5.8 Maintenance of Economic Plantation

660.99 ha. economic plantation was maintained at BSM&TCs and CTSSS. 233.84 ha provided with inputs like chemical fertilizer/FYM and the rest -417.15 ha. plantation was maintained by providing cultural operations and insecticide application etc. **TRAINING**

#### A. Training Imparted –

Basic Seed Multiplication and Training Centres of this organization have imparted various training programmes on maintenance of tasar food plants, tasar silkworm rearing, tasar seed production, moth examination etc. Details are as under:

##### a. Training to Private graineurs seed rearers & DOS staff:

On form training programme based on practical aspect of rearing, grainage, and moth examination and raising and maintenance of tasar food plantation were imparted to private graineurs, seed rearers and DOS staff at BSM&TCs .

##### b. Skill enhancement Programme:

During the XIth plan period microscopists, grainage operators and rearing workers were trained in moth examination, seed production and seed cocoon generation.

##### c. Farmers day:

In order to understand the field problem of tasar farmers and to suggest a appropriate solution on spot farmers day were also being organised at BSM&TCs.

#### B. Training received –

During the period under report various technical staff attended Resource Development Training Programme at Central Silk Board, Bangalore. The main focus of training was on updating the skill, knowledge and advance techniques developed in tasar seed sector, of technical personal working under BTSSO.

### 3.5.9. Strategies Adopted for Seed Quality Improvement

An integrated strategy focused on host plant improvement and silk disease containment was adopted by CTSSS, Kota and the BSM&TCs during the year. The strategy consists of following components:

- i. Only one time use of the tasar food plantation in a year for silkworm rearing.
- ii. Rearing of young age larvae on chawki garden under nylon net.
- iii. Adoption of proper brushing schedule.
- iv. Visual selection of healthy mated female moths by identifying non spotted clear haemolymph.
- v. Use of nylon bags for egg lying particularly in 2<sup>nd</sup> and 3<sup>rd</sup> crop grainage.
- vi. Adoption of improved technology for egg washing.
- vii. Use of CTR-Path-12 during silkworm rearing.
- viii. Strict visual selection of healthy and robust seed cocoons for diapausing broods for basic seed selection (only 80% selected seed cocoon utilisation).

### 3.6 Muga Silkworm Seed Organization (MSSO) and Eri Silkworm Seed Organization (ESSO)

Muga Silkworm Seed Organization (MSSO) and Eri Silkworm Seed Organization (ESSO), have been established to meet the need of basic seed production and supply to Sericulture Departments of different States, eight P-4/P-3 units and one SSPC under Muga sector continued with maintenance of parental stocks for basic seed production and supply in addition to commercial seed production. During 2011-12, a total of 2.130 lakh gram Muga basic seed and 0.386 lakh gram commercial seed were produced with over all achievement of **100.56 %**.

While under ESSO, ESSPCs against a target of 2.75 lakh dfls, a total of 3.179 lakh Eri dfls were produced which included 0.377 lakh Eri basic and 2.801 lakh commercial seed, the over all achievement was 115.60%. A new Eri Basic Seed Farm has come in to being under ESSO at Hosur (Tamil Nadu) during the current year and it has already produced 20551 basic Dfls.

For the past few years, Muga seed production during summer season suffered greatly due to change in climatic factors. MSSO, in its effort to solve this problem conducted test rearing in cooler areas in higher altitudes of Kalimpong in West Bengal and Ri-Bhoi district in Meghalaya which has flickered rays of hope.

In order to popularize and encourage Muga seed production at private farmers level, MSSO continued its effort of seed production at adopted muga seed rearers and private graineurs levels under SO&HRD programme and a total of 32,875 gram P1 basic seed was produced during the 2011-12.

To disseminate knowledge on various pre-cocoon aspects of Muga and Eri culture, 10 Awareness Camps under Muga sector and 4 under Eri sector were organized in Assam, Meghalaya, Tamil Nadu, Uttar Pradesh and Andhra Pradesh under extension activity programme. Eri SSPCs also conducted 8 Field days to encourage private farmers in Ericulture. MSSO is making a concerted effort through its training programmes in encouraging Private Graineurs, Seed Rearers for adopting seed production technology and production of quality Muga & Eri seed and trained a total of 444 persons (Eri= 86; Muga=358) including DOS staff and private farmers during the period under report. As a result, some positive developments can be seen as private graineurs produced 3.4 lakh gram muga seed which were distributed to commercial rearers.

In its endeavour to meet the demand for basic Dfls during XII five year plan, MSSO envisages to reorient its production strategies and proposed to double the production without compromising the quality at three levels comprising its Units, Adopted Seed Rearers and Special Seed Zones (SSZ) for which SSZs have already been identified for successful implementation of seed production programmes

#### 3.6.1. MUGA SECTOR

- Produced and supplied 2.13 lakh gram Basic Muga seed against 2.00 lakh gm with 106.39 % achievement.
- Produced and supplied 0.39 lakh gram Commercial Muga seed against the target of 0.50 lakh gm with 77.23 % achievement.
- MSSO organized Refresher course training to the Technical Staff of Sericulture Deptt. of different muga growing states and trained 35 staff.

- MSSO organized training programme for the rearers and graineurs under Beneficiary Empowerment Programme (CDP) of different muga growing states and trained 323 beneficiaries.
- Organised 10 Muga Awareness Camps in new as well as in traditional zones of Assam and Meghalaya to create awareness among the beneficiaries about improved method of silkworm rearing and seed production.
- Organised 10 Field days in different states to disseminate the technology to the beneficiaries for augmentation of muga commercial seed production.
- MSSO organized Training to 20 Existing Private muga seed Producers on quality improvement under ISDS Programme.

### 3.6.1.1. Performance review

During the year 2011-12, MSSO, targeted production of 2.00 lakh grams of basic and 0.50 lakh gm commercial muga seeds to meet the demand for P2, P1 and commercial link crops from State departments, NGOs, farmers and also for its internal use.

Against the target, MSSO, produced 2.130 lakh gm Basic and 0.386 lakh gm commercial Muga disease free layings with total achievement of 100.57 %.

The overall performance of crops and production was satisfactory except during Aherua, Bhodia and Late Bhodia crops. It is pertinent to mention that the Aherua, Bhodia and Late Bhodia crops were badly affected due to unprecedented prevalence of long unfavorable climatic conditions that prevailed over the entire region which affected the seed crop rearing. Crop wise seed production and supply is furnished at **Table- 3.17 & 3.18.**

**Table-3.17: Crop wise production of Muga dfls**

Name of the crops	Annual target of dfl prodn. (gm)	Dfl produced (gm)		Total	% of Achiev.
		Basic	Commercial		
Late Jarua, 10 (P1)	8480	37361	-	37361	441
Baisakhi (P3)	64320	78885	-	78885	123
Aherua (P2)	26860	16366	-	16366	61
Bhodia (P1)	13180	4758	-	4758	36
Late Bhodia (P3)	64200	45468	-	45468	71
Aghenua (P2)	23200	30203	-	30203	130
<b>Sub Total Basic</b>	<b>200240</b>	<b>213041</b>	<b>-</b>	<b>213041</b>	<b>106</b>
Jethua Commercial	25000	-	22758	22758	91
Kotia Commercial	25000	-	15855	15855	63
<b>Sub Total Commercial</b>	<b>50000</b>	<b>-</b>	<b>38613</b>	<b>38613</b>	<b>77</b>
<b>Total</b>	<b>250240</b>	<b>213041</b>	<b>38613</b>	<b>251654</b>	<b>101</b>

**Table-3.18: Muga Basic & commercial dfl supply**

Agencies to whom supplied	Qty supplied ( gm)		Total
	Basic	Commercial	
DOS, Assam	84941	13910	98851
Arunachal Pradesh	-	3335	3335
DOS, Meghalaya	3748	1710	5458
DOS, Mizoram	4000	2000	6000
DOS, Nagaland	8648	-	8648
DOS, Manipur	4967	-	4967
DOS, W.Bengal	5600	-	5600
DOS, M.P.	1210	-	1210
DOS, Sikkim	1010	-	1010
Private /NGO	30032	17658	47690
Other CSB	3481	-	3481
Internal	26839	-	26839
ASRs	38480	-	38480
Wild conservation	85	-	85
<b>Total</b>	<b>213041</b>	<b>38613</b>	<b>251654</b>

### 3.6.1.2 Extension Activities

Following Extension Activities were carried out during the period under report:

1. **Refresher Course Training to DOS, Staff:** MSSO organized Refresher Course Training Programme to the technical staff of Directorate of Sericulture, Meghalaya in different areas on improved technology of grainage operation with special reference to adoption of Fujiwara method of mother moth examination for detection of pebrine spore. The intensive practical training was imparted by MSSO to 35 DOS staff.
2. **Refresher Course Training to Pvt. Beneficiaries:** MSSO organized Refresher Course Training Programme to the private Graineur beneficiaries under Catalytic Development Programme /Beneficiaries Empowerment Programme and trained 323 persons under the programme on improved technology of grainage operation with special reference to adoption of Fujiwara method of testing for detection of pebrine spore.
3. **Training to Existing Pvt Graineurs:** MSSO organized Refresher Course Training to the 20 Existing Private Seed Producer on quality improvement under ISDS programme.

**Table 3.19: Training details of Muga**

Training Programme	Venue of training	No. of participant		Location of trainee
		DOS staff	Pvt. Gr.	
Training to muga Private Graineurs under Beneficiary Empowerment Programme	1 Govt P-2 muga Farm, Khanapara, Guwahati-22		136 60	Kamrup, Goalpara, Abhayapuri, Barpeta (Assam.)
	2. Govt Sericulture Farm, Pailapol, Silchar		60	Cachar, Hailakandi and Karimganj (Assam)
	MSSO, P-3, Jia		85	Lower Dibang, Valley, Lohit, Changlang (Arunachal Pradesh),
Training on muga grainage technology to DOS Staff /Pvt Graineur	MSSO,P-3 Unit,Nongpoh	35	1	Meghalaya
Training on muga rearing/grainage technology to muga Rearers .	SSPC,Koliabari		10	Nagaland
Managerial & Technical Training on muga grainage Technology.	SSPC,Koliabari		5	Assam
Training on muga grainage technology to private. Graineurs.	SSPC,Koliabari		16	BTC, Dhemaji (Assam)
Training to muga Rearers on muga /grainage technology	MSSO,P-3 Unit,Adokgiri		10	East Garo Hills, Meghalaya
Training to existing Private Muga Seed Producers on quality improvement under ISDS	SSPC,Koliabari		20	BTC, Assam
<b>Total</b>		<b>35</b>	<b>343</b>	

4. **Muga Awareness Programme:** MSSO units organized a total of 10 Muga Awareness Programme during the year in different new seed zones and in traditional zones of N.E. region.
5. **Field Day :** Under the programme a total of 10 Field Days were organized by the nested units of MSSO in different states of NE region. The beneficiaries like ASRs/ rearers and Private Graineurs participated in the Field days. The participating farmers/graineurs were explained about the latest technology of rearing and seed production for augmentation of commercial seed production. In addition, the events were attended by the Field Officers of the concerned state Sericulture Departments also.

### 3.6.2. ERI SECTOR

- Produced 0.377 Lakh Basic Eri seed and supplied to different ESSPCs and DOS for multiplication..
- Produced 2.801 Lakh Commercial Eri seed and supplied to different state Sericulture Department.
- Thus, a total of 3.179 lakh dfls were produced and supplied against the target of 2.750 lakh with 116 % achievement.
- A total of 46 staff of DOS in N.E.States were trained in collaboration with Regional Office, Guwahati, on improved method of Eri silkworm seed crop rearing and grainage.
- MSSO organized training to 25 private graineurs/rearers of Nagaland ,Meghalaya and Punjab on improved grainage technology.
- Organised 8 Field days and 4 Awareness Programme in different locations of Eri growing states.

#### 3.6.2.1.Performance review

During the year 2011-12, ESSO produced 317893 dfls( Basic =37710 and Commercial =280183) against a target of 275000 dfls with 115.60% achievement and supplied to different agencies as shown in **Table-3.20 & 3.21.**

**Table-3.20: Production of Eri dfls by Different ESSPCs**

Annual Target	Achievement		Total	Achiev. %
	Basic	Commercial		
275000	37710	280183	317893	116

**Table-3.21 Supply of Eri dfls to different agencies.**

#	To whom supplied	Quanty supplied		Total
		Basic	Commercial	
1	DOS, Assam	-	13596	13596
2	DOS, Sikkim	-	8060	8060
3	DOS, Chattishgarh	-	1300	1300
4	DOS, Maharastra	-	2050	2050
5	DOS, Andhra Pradesh	300	29075	29375
6	DOS, UP	15673	156031	171704
7	DOS, Orissa	2600	5000	7600
8	DOS, M.P.	350	27368	27718
9	DOS, Uttarakhand	600	13379	13979
10	DOS, Punjab	800	6116	6916
11	DOS, W.Bengal	200	-	200

12	DOS, Nagaland	-	4576	4576
13	DOS, Karnataka	-	1400	1400
14	DOS, Tamilnadu	500	-	500
15	DOS, Kerela	-	826	826
16	Shramik Bharti (NGO)	-	2500	2500
17	GVMN ( NGO)	-	200	200
18	KASARDS (NGO)	475	1700	2175
19	Internal ( ESSPCs)	9558	1210	10768
20	Other CSB	260	100	360
21	Private	-	5696	5696
22	ASRs (Assam)	3593	-	3593
23	ASRs-(T.N)	1721	-	1721
24	ASRs-(AP)	60	-	60
25	ASRs-(Karnataka)	965	-	965
26	ASRs-(Kerela)	50	-	50
27	Coimbatore University	5	-	5
	<b>Total</b>	<b>37710</b>	<b>280183</b>	<b>317893</b>

Following Extension Activities were carried out during the period under report:

1. **Training to DOS, Staff :** ESSO imparted training to 61 technical staff of state Sericulture department on improved technology of grainage operation with special reference to adoption of Fujiwara method of mother moth examination for detection of pebrine spore.

**Table 3.22: Training details for Eri**

Training Programme	Venue of training	No. of participant		Location of trainee
		DOS staff	Pvt. Gr./Reaer	
Training on eri grainage trchnolgy to State Govt Officials of N.E. States in collaboration with Reginal Office, CSB,Guwahati.	Govt. P-2 Muga Farm, Khanapara, Guwahati-22	46		Assam, Nagaland, Meghalaya.....
Training to Private Grainers on eri grainage technology.	ESSPC, Azara, Guwahati-17		5 5	Nagaland Meghalaya
Training on eri grainage technology.	ESSPC,Sujanpur	15	15	Sujanpur, Punjab.
<b>Total</b>		<b>61</b>	<b>25</b>	



2. **Eri Awareness Programme:** ESSPCs organized a total of 4 Awareness Programme during the year in different states
3. **Field Day:** Under the programme a total of 8 Field Days were organized by the different ESSPCs in different states. The beneficiaries like ARS/ rearers and Private graineurs participated in the Field days. The participating farmers/graineurs were explained about the latest technology of rearing and seed production activities. In addition, the events were also attended by concerned Field Officers of state Sericulture Departments.

### 3.7. HUMAN RESOURCE DEVELOPMENT (HRD)

The functional arms for undertaking the activities of this component include Board's Secretariat, Regional Offices, Raw Material Banks and Certification Centers. The Board's Secretariat coordinates the technical activities of all its nested units in research, extension, basic seed production, publicity, price stabilization for vanya sector, market development etc. besides maintaining the overall administrative and financial apparatus of 300 units manned by 3993 employees.

The Secretariat also acts as an interface between the various arms of Govt. of India, State Sericulture Departments, national and international agencies, private stakeholders starting from the poor farmers to high profile exporters and a slew of other agencies associated with sericulture and silk industry. Apart from the regular monitoring of research and technical on-going activities, the secretariat is also involved in conceiving, formulating, evaluating and monitoring various centrally sponsored schemes, christened as Catalytic Development Programme (CDP), implemented through the state sericulture departments.

Besides the above, bulk of the human resource requirement of all its employees are met exclusively at the HQs, administratively headed by Member Secretary supported by Research, Technical, Establishment, vigilance, Accounts, Audit, Bills, Stores, Law, Labour, Statistics, Corporate & Entrepreneurs Development, Publicity, Rajabhasha, protocol sections. It also houses the Office of the Chairman.

The Regional Offices (RO) of CSB work in various states for effective liaison of the activities of CSB in these states. The activities of all the States are also to be monitored through State Level Monitoring Committees, wherein the technical support and inputs from ROs are essential for organizing the meetings and to follow-up the decisions taken thereof. In order to eliminate the presence of middlemen who were exploiting the primary producers, CSB had established 3 Raw Material Banks (RMBs) for Tasar, Eri and Muga with a network of 8 sub-depots in different states.

The brief performance of Regional Offices during the XI five year plan is given below;

#### I. RO, Guwahati

- Maintained a close liaison with State Sericulture Depts. / CSB units for overall development of sericulture industry in NE States and coordinating implementation of various schemes / programmes being implemented by CSB in the states.
- Convening of Joint Coordination Committee in NE States for effective implementation of the programmes / schemes in the states.



- Organising Silk Mark Expo's / Silk Mark Awareness programmes / Fashion Shows / Road Show for the valued consumers under Guwahati SMOI chapter .
- Coordinating VIP / dignitary visits to the sericulture areas of NE States.
- Preparation of Project under CDP/ CPP in association with the concerned DoS.
- Organized Beneficiary Empowerment Programme training on Eri Culture in association with MSSO / ESSO.
- Participated in meeting of Sub-Group on NE Region.
- Implementation of Official language policy being done as per the Annual programme envisaged by the Dept. of Official language, Ministry of Home Affairs.
- Implementation of Post Cocoon Schemes under CDP which are being directly implemented by RO.

## II. RO, Bhubaneshwar

- Maintained a close liaison with State Sericulture Depts. / CSB units for overall development of sericulture industry in the State of Odisha, Madhya Pradesh and Chhattisgarh and coordinating implementation of various schemes / programmes being implemented by CSB in these states.
- Convening of State Level Sericulture Coordination Committee meetings in the States of Odisha, Madhya Pradesh and Chhattisgarh.
- Attended various meeting related with mulberry and non-mulberry as and when invited by the concerned unit in-charges located in the jurisdiction of the RO.
- Coordinated in persuasion for submission of UCs from the concerned States for CSB share released to them for implementation of various programmes being implemented in the states, monthly /quarter progress report, as also for conducting Joint Assessment of creation of toilets crèches cum Rest shed/ CRCs.
- Undertaken Socio-economic survey, Feasibility Studies in the cluster areas to interact with the CPP beneficiaries on site to assess the impact created on the livelihood of the rural poor tasar / mulberry rearers in the areas of the CPP being implemented.
- Coordinating with Research Institutes for sponsoring Officers / Officials / lead farmers for different training programmes conducted by CSRTI, Berhampore.
- Organization of SMOI, Expos's
- Organizing / Participated in workshop / field day/ farmers day/ krishi mela/ farmers meet etc.
- Protocol assistance rendered to all the delegates visiting from Ministry/ Scientist from CSB / State Govt.

## III. RO, Hyderabad

- Maintained a close liaison with State Sericulture Dept. / CSB units etc.
- Convening of State Level Sericulture Coordination Committee in the State.
- Coordinate / assist for implementation of Catalytic Development Programmes being implemented in the State.
- Monitor/ Coordinate and evaluate the progress in implementation of various Sericulture development programme undertaken in the region with particular reference Cluster Promotion Programme.
- Extend guidelines and assistance to private entrepreneurs / Govt. agencies.

- Collect and compile economic and statistical data pertaining to Sericulture & silk industry in the region.
- Nominated as Member Convener for SLSCC meeting of the State.
- Undertaken regular visit to all the Sericulture Institutions functioning in the state.
- Undertaken Socio-economic survey, feasibility Studies in the cluster areas to interact with the CPP beneficiaries on site to assess the impact created on the livelihood of the rural poor tasar / mulberry rearers in the areas of the CPP being implemented.
- Collection and compilation of Sericulture Statistics and report to Central Office.
- Organizing of Market promotion & promotion of SILK MARK Scheme

#### IV. RO, Kolkata

- Maintained a close liaison with State Sericulture Depts. / CSB units for overall development of sericulture industry in the State
- Convening of State Level Sericulture Coordination Committee in the State.
- Coordinate and liaison with the state Govt. / Institutes / Research Organization etc.
- Formulation, implementation & Monitoring of Sericulture development Project / Schemes being implemented in the State.
- Impact assessment, Evaluation & Base line Survey of Sericulture development Scheme.
- Collection of Statistical details and other vital information.
- Market promotion & promotion of SILK MARK.
- Organization of Training / Workshop / Seminars.
- Publicity Extension and other related works.
- Attended various meeting related with mulberry and non-mulberry as and when invited by the concerned unit in-charges located in the jurisdiction of the RO.

#### V. RO, Mumbai

- Maintained a close liaison with State Sericulture Depts. / CSB units for overall development of sericulture industry in the State of Maharashtra, Gujarat & Goa and coordinating the implementation of various schemes / programmes being implemented by CSB.
- Convening of State Level Sericulture Coordination Committee in the State.
- Attended various meeting related with mulberry and non-mulberry as and when invited by the concerned unit in-charges located in the jurisdiction of the RO.
- Undertaken visits to the Sericulture units / institutions and held interaction with the beneficiaries where the CDP programmes are being implemented.
- Organizing of Market promotion & promotion of SILK MARK.
- Attended various meeting related with mulberry and non-mulberry as and when invited by the concerned unit in-charges located in the jurisdiction of the RO.

#### VI. RO, Lucknow

- Maintained a close liaison with State Sericulture Depts. / CSB units for overall development of sericulture industry in the State.

- Attending preparation of MIS report and Coordinating remittance of Seed cost pertaining to mulberry and non-mulberry.
- Persuasion for implementation of the provisions of Seed Act and details of Seed producers, LSPs and CRCs and implementation of decisions of CSB with the Dept. of Sericulture.
- Convening of State Level Sericulture Coordination Committee in the State and follow-up the decisions with the concerned units.
- Attended various meeting related with mulberry and non-mulberry as and when invited by the concerned unit in-charges located in the jurisdiction of the RO.
- Undertaken visits in the cluster areas to interact with the CPP beneficiaries on site to assess the impact created in the areas of the CPP being implemented.
- Implementation of Official language policy being done as per the Annual programme envisaged by the Dept. of Official language, Ministry of Home Affairs.
- Organizing of Market promotion & promotion of SILK MARK Scheme.

## VII. RO, Jammu

- Maintained a close liaison with State Sericulture Depts. / CSB units for overall development of sericulture industry in the State.
- Preparation of MIS report and Coordinating for supply of silkworm seed from NSSO, Bangalore.
- Collection of Statistical details and other vital information.
- Attended various meetings related with mulberry as and when invited by the concerned unit in-charges located in the jurisdiction of the RO.
- Convening of State Level Sericulture Coordination Committee in the State and follow-up the decisions with the concerned units.

## VIII. RO, Patna

- Maintained a close liaison with State Sericulture Depts. / CSB units for overall development of sericulture industry in the State of Bihar and coordinating the implementation of various schemes / programmes being implemented by CSB in Bihar and Jharkhand States.
- Convening of State Level Sericulture Coordination Committee in the State.
- Attended various meeting related with mulberry and non-mulberry as and when invited by the concerned unit in-charges located in the jurisdiction of the RO.
- Coordinated in persuasion for submission of UCs from the concerned States for CSB share released to them for implementation of various programmes being implemented in the states, monthly /quarter progress report, as also for conducting Joint Assessment of creation of toilets crèches cum Rest shed/ CRCs.
- Collection of Statistical details and other vital information.

## IX. RO, Chennai

- Maintained a close liaison with State Sericulture Depts. / CSB units for overall development of silk industry in the State.

- Undertaking pre-shipment inspection on Natural Silk Goods up on request from the exporters on voluntary basis.
- Organising Silk Mark Expo's / Silk Mark Awareness programmes for the valued consumers under Chennai SMOI chapter.
- Coordinating in implementation of Health Insurance Programme for Women.
- Undertaken visits by the in-charge officer / Staff of RO to the CDP areas to study the impact on implementation of CDP / CPP.
- Convening of State Level Coordination Committee meeting in the capacity of Member Convener for effective implementation of the programmes / schemes being implemented in the state.
- Attending RAC / RRAC meetings within the jurisdiction of the RO.
- Participating in exhibitions, workshops, farmers meet, Entrepreneurship Development Programmed organized by DoS.
- Undertaken base line survey on Economic of Sericulture and findings / suggestions made to the DoS to chalk out their Action Plan for preparation of plan schemes and CDP schemes for the State.
- Undertaken visits in the cluster areas to interact with the CPP beneficiaries on site to assess the impact created on the livelihood of the rural in the areas of the CPP being implemented.
- Protocol facilities are being extended to the visiting dignitaries, Officers from MoT, CSB, DoS, R&D units besides members of the Parliamentary Committees and Official Language from time to time.

## **X. RO, New Delhi**

- Maintained a close liaison with Ministry of Textiles, New Delhi ad State Sericulture Depts. / CSB units coming under the jurisdiction of Regional Office for overall development of silk industry in the State.
- Convening of State Level Sericulture Coordination Committee meetings in the States of Punjab, Haryana, Uttarakhand and Himachal Pradesh and follow-up the decisions with the concerned units..
- Attending RAC / RRAC meetings as an invitee within the jurisdiction of the RO..
- Participating in important meetings, exhibitions, workshops, Seminars.
- Coordinates with State Sericulture Depts. of Punjab, Haryana, Uttarakhand and Himachal Pradesh for smooth implementation of CDP/ CPP during XI Plan.
- Implementation of Sericulture Development Schemes other than CDP.
- Monitoring / Coordinating in implementation of Cluster Development Project in Hamirpur and Mandi of Himachal Pradesh State.
- Collection and compilation of periodical data / reports and forwarded to Central Office for compliance.
- Assisted Silk Division in processing of CSB proposals for release of Plan & Non-Plan GIA with supporting documents and follow-up with the IFW so as to ensure timely release of fund to CSB.
- Assisted MOT in finalization of EFC memorandum revised cost estimates for CDP schemes & Central schemes and its circulations to the Ministry of Finance & Planning Commission.

- Organizing of Market promotion & promotion of SILK MARK Scheme.
- Coordination in dfls / cuttings supply & DCB clearance and Silkworm Seed Registration.
- Implementation of Official language policy being done as per the Annual programme envisaged by the Dept. of Official language, Ministry of Home Affairs.
- Arranging necessary transportation and accommodation arrangements for visiting dignitaries / officers visited RO, New Delhi.

### 3.7.1 Achievements under HRD scheme during XIth Five Year Plan

The achievements of this sub-component is not measurable in physical terms except the progress of RMB. But this is a much-needed backward linkage to facilitate the nested units and stakeholders to achieve the mandated targets. The following is a tabulation of some of the measurable achievements during the different constituent years of XI Plan.

**Table 3.23: Achievements under HRD scheme during XIth Five Year Plan**

#	Particulars	2007-08 (Achmt)	2008-09 (Achmt)	2009-10 (Achmt)	2010-11 (Achmt)	2011-12 (Target)
1	Implementation & monitoring of CDP scheme	11	12	22	30	25
2	Meetings of the Board (nos)	04	05	05	05	06
3	Parliamentary Committees Meetings (Nos.)	09	06	05	05	05
4	Parliament question (Nos)	97	50	100	100	100
5	Meetings like RCC, RAC, SLSCC, AMC, Annual Plan etc	60	60	60	60	60
6	Reports (Nos)	25	25	25	25	25
7	Preparation of projects (nos)	05	05	05	05	05
8	No. of technical proposals	256	286	300	350	356
9	Procurement of Cocoons (Lakh Nos)					
	RMB-Tasar	130.57	198.86	169.35	159.69	170.00
	MRMB- Muga	8.20	04.80	4.02	4.919	9.50
10	Sale of Cocoon (Lakh Nos)					
	RMB-Tasar	114.51	135.30	173.57	203.97	170.00
	MRMB- Muga	7.36	4.80	4.03	4.919	8.00

## CHAPTER IV

### FIELD SURVEY FINDINGS - SEED ORGANIZATIONS

#### 4.1 Introduction

This chapter analysis the field survey findings from various seed organizations from Mulberry, Tasar, Muga and Eri categories. From the Mulberry category eleven Seed Organizations have been interviewed. From the Tasar category two Seed Organizations have been studied, from Muga category seven Seed organizations have been studied and from Eri category five Seed organizations have been studied. The data and information have been collected through detailed personal discussion with structured questionnaire (**Annexure 1.1**).

The evaluation includes the major races of seeds produced and quality parameters during XI Five Year Plan.

#### 4.2 Locational details of the Seed Organisations – Field Survey

Field survey includes 25 Seed Organisations selected from different categories of seed organizations located at different geographical regions of the country (Table 4.1).

**Table: 4.1 Details of Seed Organizations**

S.No	Category of Seed Organization	District	State
<b>4.2.1</b>	<b>Mulberry</b>		
1.	National Silkworm Seed Organization	Bangalore	Karnataka
2.	P4 Basic Seed Farm	Manasbal	Jammu & Kashmir
3.	Zonal Silkworm Seed Organization	Malda	West Bengal
4.	Zonal Silkworm Seed Production Organization (P3 Basic Seed Farm)	Dehradun	Uttarakhand
5.	P2 Basic Seed Farm	Dehradun	Uttarakhand
6.	Silkworm Seed Production Centre	Dehradun	Uttarakhand
7.	Silkworm Seed Production Centre	Udhampur	Jammu & Kashmir
8.	Silkworm Seed Production Centre	Kolhapur	Maharashtra
9.	Silkworm Seed Production Centre	Mysore	Karnataka
10.	Silkworm Seed Production Centre	Hindupur	Andhra Pradesh
11.	Sericulture Service Centre	Narsinghpura	Karnataka
<b>4.2.2</b>	<b>Tasar</b>		
12.	Basic Tasar Silkworm Seed Production	Bilaspur	Chhattisgarh
13.	Basic Seed Multiplication & Training Centre	Dumka	Jharkhand

<b>4.2.3</b>	<b>Muga</b>		
14.	Muga Silkworm Seed Organization	Guwahati	Assam
15.	P4 Muga Silkworm Seed Organization	East Garo Hills	Meghalaya
16.	P4 Muga Silkworm Seed Organization	West Garo hills	Meghalaya
17.	P3 Muga Silkworm Seed Organization	Ri Bhoi	Meghalaya
18.	P3 Muga Silkworm Seed Organization	Kamrup	Assam
19.	P3 Muga Silkworm Seed Organization	North Lakhimpur	Assam
20.	Muga Silkworm Seed Production Centre	Kamrup	Assam
<b>4.2.4</b>	<b>Eri</b>		
21.	Eri Silkworm Seed Organization	Guwahati	Assam
22.	Eri Silkworm Seed Production Organization	East Godavari	Andhra Pradesh
23.	Eri Silkworm Seed Production Centre	Kamrup	Assam
24.	Eri Silkworm Seed Production Centre	Hosur	Tamil Nadu
25.	Eri Silkworm Seed Production Centre	Pathankot	Punjab

#### 4.2.1 Seed Organizations (Mulberry)

##### 4.2.1.1 National Silkworm Seed Organization

NSSO, CSB, Government of India, Ministry of Textiles, IV floor, CSB Complex, BTM layout, Hosur Road, Madivala, Banagalore-560068 Karnataka

##### Variety:

<b>Bivoltine Hybrids</b>	<b>Multivoltine Hybrids</b>
CSR2 X CSR4	PM X CSR2
CSR4 X CSR2	PM X FC2
FC1 X FC2	N X Bi
FC2 X FC1	N X (SK6 X SK7)
SH6 X NB4D2	N X M12 (W) & reciprocals
NB4D2 X SH6	

A total of 6 bivoltine hybrids and 6 Multivoltines hybrids were under production at NSSO, Bangalore.



**Genotypes and variety wise Production and Demand/Sale of DFLs ('000s):**

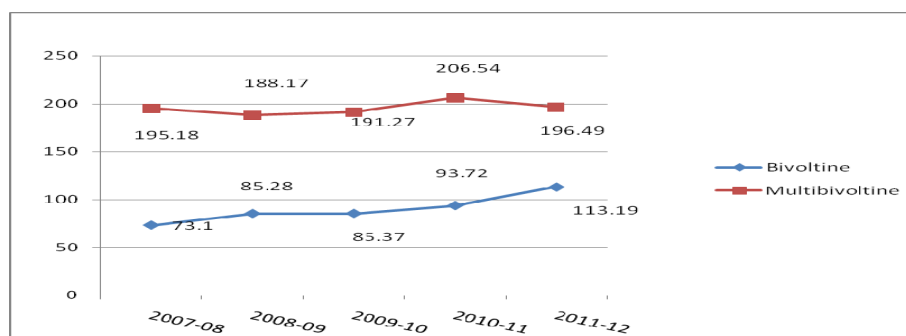
Bivoltine Hybrids		Multibivoltine Hybrids		Demand/Sale (in lacs dfls)	
Variety	Production (in lac dfls)	Variety	Production (in lac dfls)	Bivoltine	Multibivoltine
<b>2007-08</b>					
CSR2 X CSR4	34.71	PM X CSR2	109.98	73.10	195.18
CSR4 X CSR2	30.27	PM X FC2	7.26		
FC1 X FC2	7.36	N X Bi	36.83		
FC2 X FC1	7.35	N X (SK6 X SK7)			
SH6 X NB4D2	3.94	N X M12 (W) & reciprocals	40.90		
NB4D2 X SH6	3.88	Others	0.21		
Others	1.18				
<b>Total</b>	<b>88.68</b>		<b>195.18</b>		
<b>2008-09</b>					
CSR2 X CSR4	15.43	PM X CSR2	84.76	85.28	188.17
CSR4 X CSR2	15.06	PM X FC2	28.99		
FC1 X FC2	23.59	N X Bi	46.34		
FC2 X FC1	25.58	N X (SK6 X SK7)			
SH6 X NB4D2	4.88	N X M12 (W) & reciprocals	28.08		
NB4D2 X SH6	5.24	Others			
Others	1.55				
<b>Total</b>	<b>91.35</b>		<b>188.17</b>		
<b>2009-10</b>					
CSR2 X CSR4	22.85	PM X CSR2	104.61	85.37	191.27
CSR4 X CSR2	20.14	PM X FC2	24.35		
FC1 X FC2	20.69	N X Bi	36.91		
FC2 X FC1	22.17	N X (SK6 X SK7)			
SH6 X NB4D2	3.19	N X M12 (W) & reciprocals	25.27		
NB4D2 X SH6	2.99	Others	0.13		
Others	.19				
<b>Total</b>	<b>92.22</b>		<b>191.27</b>		
<b>2010-11</b>					
CSR2 X CSR4	18.39	PM X CSR2	101.11	93.72	206.54
CSR4 X CSR2	15.90	PM X FC2	26.91		
FC1 X FC2	21.12	N X Bi	48.27		



FC2 X FC1	22.77	N X (SK6 X SK7)		
SH6 X NB4D2	5.01	N X M12 (W) & reciprocals	30.25	
NB4D2 X SH6	3.22	Others		
Others	0.50			
<b>Total</b>	<b>86.91</b>		<b>206.54</b>	
<b>2011-12</b>				
CSR2 X CSR4	30.64	PM X CSR2	120.59	
CSR4 X CSR2	23.78	PM X FC2	6.51	
FC1 X FC2	31.12	N X Bi	41.91	
FC2 X FC1	33.41	N X (SK6 X SK7)		
SH6 X NB4D2	2.90	N X M12 (W) & reciprocals	26.87	113.19
NB4D2 X SH6	2.55	Others	0.61	196.49
Others	.065			
<b>Total</b>	<b>125.05</b>		<b>196.49</b>	

The above table reveals that the production and demand / sale of the multibivoltine DFLs have moreover been equal, however, it may be noted that the demand for bivoltine was shifting from CSR2 X CSR4 & reciprocals to FC1 X FC2& reciprocals in case of bivoltine and in case of multivoltine hybrids the race PM X CSR2 was still going strong.

**Figure 4.1: Year Wise Demand/Sale of DFLs (‘000s) of Bivoltine and Multivoltine DFLs**



From the figure, it is evident that the demand / sale of the multibivoltine DFLs was moreover stagnating and the demand / sale of the Bivoltine DFLs have shown an incremental trend.

### Quality Parameters

The various quality parameters being followed by NSSO are as follows:

1. Maintenance and multiplication of authorized breeds as per norms
2. Generation of quality bivoltine and multivoltine seed cocoons at adopted seed rearers level with the following parameters:

Parameters	Bivoltine	Multibivoltine
Yield per 100 dfls	>55 kg	>45kg
Pupation %	>90%	>90%
Cocoons per kg	600	875
Single cocoon weight	1.60 kg	1.14 kg
Shell ratio	21	14

Procurement of seed cocoons and production of hybrid dfls at grainages:

- Bivoltine Hybrids
  - Egg recovery of dfls in terms of g/kg cocoon - > 65 g/kg cocoon
  - Quantity of dfls in terms of weight per box - 18 g
  - Cocoon dfl ratio - 1:4
- Multibivoltine Hybrids
  - Egg recovery of dfls in terms of g/kg cocoon - > 30%
  - Quantity of dfls in terms of weight per box - As per requirement
  - Cocoon dfl ratio - 1:4

### Training Details

**Trainings for Stakeholders/Entrepreneurs/Sericulture Farmers:**

Year	Training Programme	Stakeholders/ Entrepreneurs/ Sericulture Farmers
2007-08	Support for upgrading skills of existing seed rearers in non traditional states covered northern region	19
2008-09		30
2009-10		30
2010-11		35
2011-12		36

The training programme were undertaken for Support for upgrading skills of existing seed rearers has been mandated under the seed act and the same is being undertaken regularly to keep up with the required changes in non traditional states covering northern region.the staff members were also being trained for quarantine testing of silkworm eggs regularly.

### Trainings for Staff Members

Year	Topic	Number of Participants
2007-08	Quarantine testing of silkworm eggs	8
2008-09	Quarantine testing of silkworm eggs	38
2009-10	Quarantine testing of silkworm eggs	34
2010-11	Training of seed officers and seed analysts	271
2011-12	Training of seed officers and seed analysts	62

### Initiative Plans

The new Initiative Plans for the NSSO include Mobile disinfection unit to be provided to franchisee CRCs alongwith Construction of rearing house for Adopted seed rearers and Infrastructure improvement of Basic Seed Farms. The initiatives have been found to be very useful and the same are recommended for implementation in XII th five year plan.

#### 4.2.1.2 P4, Basic Silkworm Seed Farm, Manasbal

##### Manasbal-193504 (J&K)

##### Variety:

SH-6, NB4D2, CSR-2, CSR-4, CS-6 & Pam-101

A total of 6 pure races were being maintained at P4, Basic Silkworm Seed Farm, Manasbal.

##### **Genotypes and variety wise Production and Demand/Sale of DFLs ('000s):**

Year	Genotype/ Variety	Production (in 000 DFLs)	Demand/Sale (in 000 DFLs)
2007-08	SH-6, NB4D2, CSR-2, CSR-4	P2 level 3600 F1 level 2400	P2 level 3600 F1 level 2400
2008-09	SH-6, NB4D2, CSR-2, CSR-4	P2 level 4100 F1 level 2550	P2 level 4100 F1 level 2550
2009-10	SH-6, NB4D2, CSR-2, CSR-4	P2 level 4000 F1 level 5210	P2 level 4000 F1 level 5210
2010-11	SH-6, NB4D2, CSR-2, CSR-4	P2 level 3300 F1 level 4400	P2 level 3300 F1 level 4400
2011-12	SH-6, NB4D2, CSR-2, CSR-4	P2 level 3100	P2 level 3100

**Problems:**

There are problems w.r.t. the storage space availability at Manasbal. Separate storage for cocoons not available. Separate storage for cocoons not available. Further, Separate rearing building for late age worms and separate grainage building for the conduct of breeding and preparation of silkworm seed not available.

**Trainings:****Trainings for Staff Members**

Year	Topic	Number of Participants
2010-11	Orientation/refresher course programme (5 days)	2
2011-12	Intensive bivoltine rearing programme (45 days)	2

**Improvements**

- As discussed with the officials, it was revealed that the training programme had to be arranged on all the sericultural/moricultural aspects for different cadres separately.
- All trainings should be given practically and demonstrated properly to avoid confusions.
- Trainings should also be arranged for farmers/women workers at all levels in particular local languages and the course material/ possible literature should made available in local languages.
- The field days/vichar goshtis should be arranged at proper intervals to take feedback at farmers' level.

**4.2.1.3 Zonal Silkworm Seed Organization, Malda**

Central Silk Board, Ministry of Textiles, Govt of India, Maheshmati, Malda-732101, West Bengal

**Variety:**

1. Multivoltine: Nistari & M12W
2. Bivoltine: SK6 X Sk7

1 bivoltine hybrid and 1 Multivoltine hybrid and their reciprocals were under production at ZSSO, Malda.

**Genotypes and variety wise Production and Demand/Sale of DFLs ('000s):**

Year	Genotype/ Variety	Production (in 000 DFLs)	Demand/Sale (in 000 DFLs)
2007-08	N X(SK6XSK7), NXNB4D2, NXM12W & its reciprocal	78.03	78.03
2008-09	N X(SK6XSK7), NXNB4D2, NXM12W & its reciprocal	71.15	71.15
2009-10	N X(SK6XSK7), NXNB4D2, NXM12W & its reciprocal	58.88	58.88
2010-11	N X(SK6XSK7), NXNB4D2, NXM12W & its reciprocal	73.11	73.11
2011-12	N X(SK6XSK7), NXNB4D2, NXM12W & its reciprocal	68.78	68.78

The above table reveals that the production and demand / sale of the DFLs have been equal, however, in the year 2009-10, the production and demand / sale of the DFLs indicated that there was a significant decline in the production during the year .

**Problems:**

The NPC study team during field survey was informed that the high temperature, humidity and variation. Further, due to lack of cold storage the controlled climatic conditions cannot be maintained and the infrastructure was affecting the performance.

The training programme undertaken by Zonal Silkworm Seed Organization, Malda for the staff members included Farm management, Rearing of silkworm, Right To Information Act, Computer Training, MDP, ISO 9001 auditor training, training on Central Seed Act, Research Proposals etc.

**Trainings conducted For Staff Members**

Year	Topic	Number of Participants
2007-08	Sericulture training	35
2008-09	NA	NA
2009-10	Farm management, Silkworm Rearing, RTI, Comp. Trg	17
2010-11	MDP, ISO, Disciplinary, Skill updating	87
2011-12	ISO auditors, central seed act, research proposals	55

**4.2.1.4 Zonal Silkworm Seed Organization,**

**Majra, Dehradun, Uttarnachal**

**Variety:**

1. NB4D2/ CSR2/ Sk6/ V1
2. SH6/CSR4/Sk7/S1635
3. Doon 6/SCR6/ S146
4. Doon 22/CSR27/ Exotic varieties

A total of more than 20 pure and bivoltine hybrids were under production at ZSSO, Majra.

**Genotypes and variety wise Production and Demand/Sale of DFLs ('000s):**

<b>Years</b>	<b>Total DFL</b>	<b>DFLs Supplied</b>	<b>Write Off</b>	<b>Remarks</b>
2007-08	4548	3364	1184	Due to change in programme and due to want of demand official kept for write off
2008-09	14810	14810	Nil	
2009-10	1680	1575	105	
2010-11	1740	1740	Nil	
2011-12	4347	2202	2145	
2012-13	12032	12032	Nil	

The above table reveals that the production has been more than the demand / sale of the DFLs have been equal, however, in the year 2009-10, the production and demand / sale of the DFLs indicated that there was a significant decline in the production during the year .

**Problems:**

Quality assurance only with true hybrid and disease freeness pertaining to Pebrine disease. The seed thus produced is being preserved in cold storage plant and the cold storage plant of Dehradun is not functioning, therefore the seed has to be sent to hosur for storage.

**Trainings:****Trainings conducted For Stakeholders/Entrepreneurs/Sericulture Farmers**

Year	Training Programme
2007-08	Unit has trained B Sc Agricultural students of Uttarakhand under Orientation Programme on Sericulture and IP Programme of IGFAI University Dehradun
2008-09	
2009-10	
2010-11	
2011-12	

**Initiative Plans**

- Name:* To adopt PCR technology for pathogene detection at BSF level for achieving more authentic and reliable results.  
*Objective:* To detect low level infection of peprine and microstadian besides detection of Borne NDV infection
- Name:* Purchase of scientific and modern equipment of rearing and farm  
*Objective:* For achieving better results on scientific way

**Improvements**

Periodical HRD training is required for skill improvement of staff with exposure to new areas other them sericulture may be taken up. Region based multilocal training centres with fully developed infrastructure should be established.

**4.2.1.5 P2, Basic Seed farm**

Sheesham Bara, PO-Jhajra, Dehradun-248171 (UK)

**Variety:**

- Silkworm: SHG, NB4D2, DUN6, DUN22, CSR2, CSR6, CSR26, CSr27, FC1, FC2
- Mulberry: V1, S1635, 5146, Mandalay (S1), K2

**Initiative Plans**

- Name:* Form road, fence, construction-rearing building  
*Objective:* Smooth working hygiene maintenance, avoid tress passing of cattle  
*Provisional Fund Requirement:* Rs 50 lacs
- Name:* Egg on position and acstivation room

*Objective:* Installation of AC units for controlled aviposition to improve egg recovery and to provide optimum temperature for embryonic development

*Provisional Fund Requirement:* Rs 60,000

3. *Name:* Rearing appliances and farm implement procurements

*Objective:* To strengthen rearing system and mulberry improvement

*Provisional Fund Requirement:* Rs 50,000

### **Improvements**

1. Periodical HRD training which is need based and required for skill improvement of staff, stress management with exposure to new area other than sericulture may be taken up. Region based multi-locational training centres with fully developed infrastructure and qualified faculty or with support of guest faculty should be established.

#### **4.2.1.6 Silkworm Silk Production Centre,**

Mithi Beri, Premnagar, Dehradun (UK)

#### **Variety:**

1. Single and double hybrid of NB4D2, SH-6, FC-2, DUN-6 and DUN-22

#### **Genotypes and variety wise Production and Demand/Sale of DFLs :**

<b>Year</b>	<b>Genotype/ Variety</b>	<b>Production (in 000 DFLs)</b>	<b>Demand/Sale (in 000 DFLs)</b>
2007-08	Single hybrid	794890	7640800
2008-09	Single hybrid	939660	8334260
2009-10	Single hybrid	593950	585800
2010-11	Single & Double hybrid	1029720	999370
2011-12	Single & Double hybrid	846300	801250

#### **Trainings:**

#### **Trainings conducted For Stakeholders/Entrepreneurs/Sericulture Farmers**

<b>Year</b>	<b>Training Programme</b>	<b>Stakeholders/ Entrepreneurs/ Sericulture Farmers</b>
2007-08	EFC	P-1 Seed Rearers
2008-09	EFC	P-1 Seed Rearers
2009-10	EFC	P-1 Seed Rearers



2010-11	EFC	P-1 Seed Rearers
2011-12	EFC	P-1 Seed Rearers

### **Trainings conducted For Staff Members**

Year	Topic	Number of Participants
2007-08	Microscopic examination, seed preservation, computer basic, ISO exposure, rearing & accounts	8
2008-09	Microscopic examination, computer basic, ISO exposure & accounts	9
2009-10	Microscopic examination, seed preservation, computer basic, ISO exposure & accounts	8
2010-11	ISO exposure & accounts	11
2011-12	Rearing, Acid treatment, lab management, disinfection & accounts	6

### **Improvements**

1. Training programme should be arranged for staff, officers of CSB units as well as DOS's at their states or in institutes. Separate training programme for rearers at village level to cover different aspects of sericulture

#### **4.2.1.7 Silkworm Seed Production Center,**

**Laddan Power House Road, Udhampur-182101**

#### **Variety:**

1. Single hybrid of NB4D2, SH6 and double hybrid of FC1 & FC2

#### **Genotypes and variety wise Production and Demand/Sale of DFLs ('000s):**

Year	Genotype/ Variety	Production (in 000 DFLs)	Demand/Sale (in 000 DFLs)
2007-08	Single hybrids	553300	511350
2008-09	Single hybrids	408900	398200
2009-10	Single & double hybrids	629000	628000
2010-11	Single & double hybrids	578500	504100
2011-12	Single & double hybrids	345450	338650

### **Trainings:**

#### **For Stakeholders/Entrepreneurs/Sericulture Farmers**

Year	Training Programme	Stakeholders/ Entrepreneurs/ Sericulture Farmers
2007-08	-	-
2008-09	EFC	P-1 Seed Rearers
2009-10	EFC	P-1 Seed Rearers
2010-11	EFC	P-1 Seed Rearers
2011-12	EFC	P-1 Seed Rearers

### For Staff Members

Year	Topic	Number of Participants
2007-08	-	4
2008-09	-	4
2009-10	ISO exposure & accounts	9
2010-11	Chawki rearing & technology, field rearing supervision, disciplinary proceeding training, seed officer & seed analyst training	7
2011-12	Chawki rearing technology, field rearing supervision	7

### Improvements

1. Training programme should be arranged for staff, officers of CSB units as well as DOS's at their states or in institutes. Separate training programme for rearers at village level to cover different aspects of sericulture

#### 4.2.1.8 Silkworm Seed Production Center,

Gadhinglaj, District Kolhapur under DOS Maharashtra

#### Variety:

1. Bivoltine Double Hybrid-FC1 FC2
2. Multivoltine X Bivoltine cross (PMXCSR2)

#### Genotypes and variety wise Production and Demand/Sale of DFLs ('000s):

Year	Genotype/ Variety	Production (in 000 DFLs)	Demand/Sale (in 000 DFLs)
2007-08	CB + BV	53.99	52.57
2008-09	CB + BV	1219.8	1208.4
2009-10	CB + BV	1060.2	1008.9

2010-11	CB + BV	587.2	565.1
2011-12	CB + BV	807.6	761.4

**Problems:**

1. **Quality:**
2. **Storage:** Storage problem in this granary-cold storage is not in working condition. Electricity supply is not proper
3. **Infrastructure**

**Trainings:****For Staff Members**

Year	Topic	Number of Participants
2007-08	-	-
2008-09	Dfls production technique & management	6
2009-10	Double hybrid seed production technique & management	3
2010-11	Seed Officer Training	2
2011-12	-	-

**Initiative Plans**

1. *Name:* Infrastructure  
*Provisional Fund Requirement:* Rs 25 lacs
2. *Name:* Electricity System  
*Provisional Fund Requirement:* Rs 5 lacs
3. *Name:* Strengthening of grainage  
*Provisional Fund Requirement:* Rs 15 lacs

**Improvements**

1. There should be separate scheme for rearer under CDP
2. There should be special policy for seed area, seed rearers for non-traditional states

**4.2.1.9 Silkworm Seed Production Centre**

**Manandavadi Road, Vidyarapuram Mysore 570008**

**Variety:**

1. PM X BIV, CSR F1 Hybrids (CSR2 X CSR4, CSR4 X CSR2)
2. Double hybrids (FC1 X FC2, FC2 X FC1)

**Genotypes and variety wise Production and Demand/Sale of DFLs ('000s):**

Year	Genotype/ Variety	Production (in 000 DFLs)	Demand/Sale (in 000 DFLs)
2007-08	PM X BIV, CSR	580046	580046
	Hybrids	1606550	1924750
	Double Hybrids	1414450	698650
	<b>Total</b>	<b>3601046</b>	<b>3203446</b>
2008-09	PM X BIV, CSR	482271	475775
	Hybrids	996200	1661604
	Double Hybrids	2282200	1469475
	<b>Total</b>	<b>3760671</b>	<b>2606854</b>
2009-10	PM X BIV, CSR	1286762	1284707
	Hybrids	1211850	1182975
	Double Hybrids	2109300	2011875
	<b>Total</b>	<b>4607912</b>	<b>4479557</b>
2010-11	PM X BIV, CSR	948169	951014
	Hybrids	1522500	1234150
	Double Hybrids	1308150	1886500
	<b>Total</b>	<b>3778819</b>	<b>4071664</b>
2011-12	PM X BIV, CSR	1397054	1397054
	Hybrids	2395050	2289900
	Double Hybrids	2217150	2225850
	<b>Total</b>	<b>6009254</b>	<b>5912804</b>

**Improvements**

1. Officers and staff need to be trained in advanced techniques, refresher courses and advanced programmes/usage of the computer/internet

**4.2.1.10 Silkworm Seed Production Centre, CSB,  
Guddam, Hindupur, AP**

**Variety:** PM X CSR2

**Genotypes and variety wise Production and Demand/Sale of DFLs ('000s):**

Year	Genotype/ Variety	Production (in 000 DFLs)	Demand/ Sale (in 000 DFLs)
2007-08	PM X CSR2	649.126	602.000
2008-09	PM X CSR2	538.611	526.000
2009-10	PM X CSR2	701.626	727.908
2010-11	PM X CSR2	806.216	736.102
2011-12	PM X CSR2	610.337	642.856

**Trainings:**

1. For Staff Members

Year	Topic	Number of Participants
2007-08	-	-
2008-09	-	-
2009-10	ISO Awareness training/Refrsher training	10/3
2010-11	Moth Testing Training	3
2011-12	FAS training / Computer training	1/2

**Initiative Plans**

1. *Name:* Franchise Chawkie Rearing Centres  
*Objective:* For sales promotion of Dfls
2. *Name:* ASR Scheme  
*Objective:* For Generation of quality BSC
3. *Name:* Mobile disinfection  
*Objective:* For disinfecting farmers rearing houses

**Improvements**

Training of Franchise Chawkie Rearing Centre management and disinfection to use mobile disinfection units

**4.2.1.11 Silkworm Seed Service Centre,**

Sericulture Service Centre, T.Nareripura, TQ Mysore

**Variety:**

1. Mys X CR2 = Hybrid
2. CSR2 X CSR4 = Hybrid

**Genotypes and variety wise Production and Demand/Sale of DFLs ('000s):**

Year	Genotype/ Variety	Production (in 000 DFLs)	Demand/Sale (in 000 DFLs)
2007-08	CS2/CSR	600/500	1074/1740
2008-09	CB/CSR	570/500	859/1.14
2009-10	CB/CSR	624/582	930/1.45
2010-11	CB/CSR	630/310	813/2.28
2011-12	CB/CSR	650/610	849/235

**Trainings:**

## 1. For Stakeholders/Entrepreneurs/Sericulture Farmers

Year	Training Programme	Stakeholders/ Entrepreneurs/ Sericulture Farmers
2007-08	Farmer to Farmer Technology	150
2008-09	Capsul Program	23
2009-10	Capsul Program	25
2010-11	Handicraft	40
2011-12	Capsul Program & Handicraft	35

## 2. For Staff Members

Year	Topic	Number of Participants
2007-08	Extension Management	4
2008-09	Grainages technology	4
2009-10	Maintenance of CRC	3
2010-11	Transfer of Technology	2
2011-12	Transfer of Technology	1

**Initiative Plans**

1. *Name:* CPP Rearing equipment  
*Objective:*  
*Provisional Fund Requirement:* Rs 5 lacs
2. *Name:* Kaccha Rearing Shed for general cat also provide like SCP cost of drip irrigation  
*Objective:*  
*Provisional Fund Requirement:* Rs 5 lacs

**4.2.2 Seed Organizations (Tasar)****4.2.2.1 Basic Tasar Silkworm Seed Organization, Bilaspur, Chhattisgarh****Variety:**

1. Daba Bivoltine (DBV)
2. Daba Trivoltine (DTV)

**Genotypes and variety wise Production and Demand/Sale of DFLs ('000s):**

Year	Genotype/ Variety	Production (in 000 DFLs)	Demand/ Sale (in 000 DFLs)
2007-08	DTV & DBV	11.75 & 20.32	11.14 & 19.53
2008-09	DTV & DBV	13.14 & 20.90	12.41 & 20.05
2009-10	DTV & DBV	10.76 & 19.12	10.31 & 18.40
2010-11	DTV & DBV	11.76 & 20.19	11.32 & 19.61
2011-12	DTV & DBV	10.44 & 24.63	10.11 & 24.11

**Trainings:**

1. For Stakeholders/Entrepreneurs/Sericulture Farmers

Year	Training Programme	Stakeholders/ Entrepreneurs/ Sericulture Farmers
2007-08	Seed production, Seed cocoon generation & disease containment	818
2008-09		738
2009-10		786
2010-11		218

2011-12		547
---------	--	-----

## 2. For Staff Members

Year	Topic	Number of Participants
2007-08	Training cum workshop on Intellectual Property Right	9
2008-09	RDP & National Entrepreneurship Development	26
2009-10	RDP (Technical & Administration staff) & RTI	
2010-11	RDP (Technical staff)	24
2011-12	RDP (Scientists)	20

### Initiative Plans

- Name:* Production of nucleus & basic seed  
*Objective:* To supply nucleus & basic seed to state PPC for multiplication
- Name:* Human Resource Development  
*Objective:* To improve the skill of technical personnel, farmers & seed producers
- Name:* Infrastructure Development  
*Objective:* To increase the production capacity by constructing composite/ tubular grainage building

*Provisional Fund Requirement:* Rs 4.25 crores per year

### Improvements

- Training programme should be linked with on going projects to create earning opportunities
- Trainees should be motivated to form SHGs for development of entrepreneurship & bank loan for establishing own entrepreneur
- More emphasis should be given for practical aspects of course to sharpen the skills



#### 4.2.2.2 Basic Seed Multiplication & Training Centre,

Kathikund, Dumka, Jharkhand

Variety:

Tasar Daba Bivoltine

#### Genotypes and variety wise Production and Demand/Sale of DFLs ('000s):

Year	Genotype/ Variety	Production (in 000 DFLs)	Demand/Sale (in 000 DFLs)
2007-08	DBV	136450	136450
2008-09	DBV	137150	137150
2009-10	DBV	69590	69590
2010-11	DBV	73020	73020
2011-12	DBV	57225	57225

#### Problems:

1. **Quality:** NO seed zone declared in between seed rearers, commercial rearers, DOS, CSB & PRADHAN
2. **Storage:** No separate space for storage of pierces cocoons
3. **Infrastructure:** No additional space for trainees to stay during training period

#### Trainings:

1. For Staff Members

Year	Topic	Number of Participants
2007-08	-	-
2008-09	Human Resource Development Programme	2
2009-10	Resource Development Programme	2
2010-11	-	-
2011-12	Refrsher Training Programme	1

### **Initiative Plans**

1. Name: Production of quality basic seed  
Objective: 50000 dfls/year  
Provisional Fund Requirement: As per requirement
2. Name: Production of quality nucleus seed  
Objective: 30000 dfls/year  
Provisional Fund Requirement: As per requirement
3. Name: Adoption of PPC  
Objective: 2 numbers/year  
Provisional Fund Requirement: N/A
4. Name: ISDS training programme  
Objective: 50 persons/year  
Provisional Fund Requirement: Rs 393750
5. Name: HRD  
Objective: One (2012-2013)  
Provisional Fund Requirement: Rs. 300000 at BTSSO level
6. Name: Adopted Rearers programme  
Objective: 30 persons/year  
Provisional Fund Requirement: As per requirement
7. Name: Support of DOS Jharkhand  
Objective: Training, larval, pupal testing  
Provisional Fund Requirement: N/A

### **Improvements**

1. Seed zone to be declared by DOS & Central Silk Board for improvement of the Silk worm seed.
2. For HRD scheme training should be organized for technical persons twice in five year

### 4.2.3 Seed Organizations (Muga)

#### 4.2.3.1 Muga Silkworm Seed Organization,

Banphool Nagar path (Near Housefed), Basiastha Road Post Assam Secretariate, Guwahati

#### Variety:

1. Antherea assamensis Ww

#### Production and Demand/Sale of DFLs ('000s)

Year	Production (in 000 DFLs)		Demand/ Sale (in 000 DFLs)	
	Basic	Commercial	Basic	Commercial
A. MSSO:				
2007-08	100.649	35.392	200.649	35.392
2008-09	63.459	98.482	63.459	98.482
2009-10	118.100	29.935	118.10	29.935
2010-11	153.551	120.777	153.551	120.777
2011-12	213.041	38.613	213.041	38.613
B Spl. CDP/SO&HRD: Production (P-1 Seed) at State Farms % Private Graineurs Level:				
2007-08 (Spl CDP)		340.013		340.013
2008-09 (SO&HRD)	3.167		3.167	
2009-10 (SO&HRD)	240.00	25.00	240.00	25.000
2010-11 (SO&HRD)	77.583	92.502	77.583	92.502
2011-12 (SO&HRD)	32.875		32.875	

**Trainings:**

## 1. For Stakeholders/Entrepreneurs/Sericulture Farmers

<b>Year</b>	<b>Training Programme</b>	<b>Stakeholders/ Entrepreneurs/ Sericulture Farmers</b>
2007-08	Training of muga Technology to Private Graineurs	Sericulture Farmers – 75
2008-09	Training of muga Technology to Private Graineurs	Sericulture Farmers – 240
2009-10	1. Training of muga Technology to Private Graineurs 2. Co-operation for Muga & Eri reeling training	Sericulture Farmers – 45 Sericulture Farmers – 60
2010-11	1. Training to Private Graineurs under muga grainage technology under beneficiary empowerment programme 2. Training to DOS Staff of West Bengal and NE States on Muga rearing and grainage technology	Sericulture Farmers – 65 DOS Staff - 64
2011-12	1. Training to Private Graineurs under muga grainage technology under beneficiary empowerment programme 2. Training to DOS staff of mEghalaya on Muga grainage technology 3. Managerial and Technical training to pvt grainage technology 4. Training to private muga graineurs on Muga grainage technology 5. Training to muga rearers on muga grainage technology 6. Training to muga rearers of Nagaland on muga rearing & grainage technology 7. Training of existing private muga seed producers on quality improvement under ISDS	Sericulture Farmers – 281 Sericulture Farmers – 26 Sericulture Farmers – 5 Sericulture Farmers – 26 Sericulture Farmers – 10 Sericulture Farmers – 10 Sericulture Farmers – 20

**Initiative Plan**

Target of Production	No. of Dfls	Basic
2012-13	MSSO Units ASR level Spl Zone Level Comml	271600 70000 60000 100000
2013-14	MSSO Units ASR level Spl Zone Level Comml	292896 84000 72000 105000
2014-15	MSSO Units ASR level Spl Zone Level Comml	305170 100800 86400 110250
2015-16	MSSO Units ASR level Spl Zone Level Comml	323479 120960 103680 115763
2016-17	MSSO Units ASR level Spl Zone Level Comml	342888 145150 124416 121551

**Improvements**

1. Training curriculum may include 4-5 classes on entrepreneurship development aspects
2. More emphasis should be given on practical classes than on theory & field visit to important sites
3. Provision for flexibility to the programme implementing officer for utilization of fund under different heads within the unit cost for better management as per local condition  
An appropriate developmental scheme may be prepared for supporting the entrepreneurs come out as a result of training

**4.2.3.2 P-4 Unit Muga Silkworm Seed Organisation**

**Mendipathar East Garo Hills Dist-Meghalaya-794112**

**Variety:**

P-3 Level basic muga seeds

**Genotypes and variety wise Production and Demand/Sale of DFLs ('000s):**

Year	Genotype/ Variety	Production (in 000 DFLs)	Demand/Sale (in 000 DFLs)
2007-08	P-3 Level basic muga seeds	9.541	
2008-09	P-3 Level basic muga seeds	12.537	
2009-10	P-3 Level basic muga seeds	7.101	
2010-11	P-3 Level basic muga seeds	8.603	
2011-12	P-3 Level basic muga seeds	19.229	

**Improvements**

1. Practical training muga rearing and muga grainage should be given to the farmers regularly

**4.2.3.3 P4 Unit, Muga Silkworm Seed Organization,**

Central Silk Board, Tura-794101, West Garo Hills, Meghalaya

**Variety:**

1. Tura stock

**Genotypes and variety wise Production and Demand/Sale of DFLs ('000s):**

Year	Genotype/ Variety	Production (in 000 DFLs)	Demand/Sale (in 000 DFLs)
2007-08	Tura stock	14.425	14.425
2008-09	Tura stock	13.065	13.065
2009-10	Tura stock	11.261	11.261
2010-11	Tura stock	14.267	14.267
2011-12	Tura stock	15.100	15.100

**Improvements**

1. Training programme should be organized in a place where facilities for rearing and seed production is available

#### 4.2.3.4 P3 Unit Muga Silkworm Seed Organization, Nongpoh, Ri Bhoi District, Meghalaya

##### Variety:

1. Antheraea Assamesis Ww

##### Genotypes and variety wise Production and Demand/Sale of DFLs ('000s):

Year	Genotype/ Variety	Production (in 000 DFLs)	Demand/Sale (in 000 DFLs)
2007-08	P-3 Level basic muga seeds	1640	1640
2008-09	P-3 Level basic muga seeds	5241	5241
2009-10	P-3 Level basic muga seeds	5390	5390
2010-11	P-3 Level basic muga seeds	12310	12310
2011-12	P-3 Level basic muga seeds	19555	19555

##### Problems:

1. **Infrastructure:** Insufficient space in grainage building for conduction of grainage if seed cocoons numbers over 15000 as well as insufficient staff strength for conduction of big grainages

##### Trainings:

1. For Stakeholders/Entrepreneurs/Sericulture Farmers

Year	Training Programme	Stakeholders/ Entrepreneurs/ Sericulture Farmers
2007-08	-	-
2008-09	Improved Technologies of muga silkworm rearing & seed production	Sericulture Farmers - 20
2009-10	-	-
2010-11	-	-
2011-12	Grainage technologies of mUga silkworm	Stakeholders (DOS staff) & Seri Farmer – 35+1

##### Improvements

1. Exposure visit to Model Farms and successful farmers field for farmers

#### 4.2.3.5 : P3 Unit, Muga Silkworm Seed Organization

PO- Hahim, Dist-Kamrup, Assam-781129

##### Variety:

1. Muga Silkworm - multivoltine

##### Genotypes and variety wise Production and Demand/Sale of DFLs ('000s):

Year	Genotype/ Variety	Production (in 000 DFLs)	Demand/ Sale (in 000 DFLs)
2007-08	Local Variety	5.117	5.117
2008-09		1.590	1.590
2009-10		Nil	Nil
2010-11		8.275	8.275
2011-12		18.258	18.258

##### Initiative Plans

1. *Name:* To create model farmer  
*Objective:* Five nearby farmers to be adopted and supplied with all facilities including technical knowledge  
*Provisional Fund Requirement:* Rs. 5 lacs (approx.)

#### 4.2.3.6 P3 unit.; Muga Silk Worm Seed Organization,

Narayanpur, North Lakhimpur

##### Variety:

1. Anthereae assama Ww

##### Genotypes and variety wise Production and Demand/Sale of DFLs ('000s):

Year	Genotype/ Variety	Production (in 000 DFLs)	Demand/ Sale (in 000 DFLs)
2007-08	Anthereae assama Ww	10450	10450
2008-09	Anthereae assama Ww	16960	16960
2009-10	Anthereae assama Ww	23213	23213
2010-11	Anthereae assama Ww	11845	11845



2011-12	Anthereae assama Ww	21035	21035
---------	---------------------	-------	-------

#### 4.2.3.7 Muga Silkworm Seed Production Centre,

Kaliabari, Boko, Dist. Kamrup, Assam

##### Variety:

1. Antherae Assamensis Ww

##### Genotypes and variety wise Production and Demand/Sale of DFLs ('000s):

Year	Genotype/ Variety	Production (in 000 DFLs)	Demand/ Sale (in 000 DFLs)
2007-08	Antherae Assamensis Ww	53352	53352
2008-09		53352	53352
2009-10		93749	93749
2010-11		153687	153687
2011-12		81985	81985

##### Trainings:

1. For Stakeholders/Entrepreneurs/Sericulture Farmers

Year	Training Programme	Stakeholders/ Entrepreneurs/ Sericulture Farmers
2007-08	Training of Muga technology to private graineur	70
2008-09	Training of Muga technology to private graineur	90
2009-10	1.Training of Muga technology to private graineur	24
	2.Muga & Eri reeling training	60
2010-11	Training on muga technology under beneficiary empowerment programme	52
2011-12	1.Training on muga technology under beneficiary empowerment programme	31
	2.Under ISDS	20

##### Improvements

Muga graineur & rearers should be provided field visit to mulberry rearing and grainage outside NE states

## 4.2.4 Seed Organization (Eri)

### 4.2.4.1 Eri Silkworm Seed Organization,

Basistha Road, Banphool Nagar Path, P.O. Dispur, Guwahati

#### Variety:

Borduar local single cocoon wt(gm)=2.85-3.50, single shell wt.(gm)=0.35-0.45  
Fecundity/Layings: 260-420, No. of Eggs/gm : 630, yield(kg)/100 basic dfl: 25-45 kg

#### Genotypes and variety wise Production and Demand/Sale of DFLs ('000s):

Year	Genotype/ Variety	Production (in 000 DFLs)	Demand/ Sale (in 000 DFLs)	So-HRD	
				Target	Achievement
2007-08	Borduar	257.335	257.335	Pvt graineur	283000
2008-09		162.057	162.057	Pvt graineur	128963
2009-10		194.662	194.662	300000	481233
2010-11		259.619	259.619	400000	401993
2011-12		371.893	371.893	-	-

#### Trainings:

##### 1. For Stakeholders/Entrepreneurs/Sericulture Farmers

Year	Training Programme	Stakeholders/ Entrepreneurs/ Sericulture Farmers
2007-08	Various aspects pertaining to rearing and seed production of eri silkworm	Sericulture Farmers -109
2008-09	Under So-HRD programme under different ESSPCs	Sericulture Farmers-94
2009-10	-	-
2010-11	Improved method of Eri silkworm seed rearing & grainage	Farmers & DOS staff-86
2011-12	Improved method of Eri silkworm seed rearing & grainage	DOS technical staff-61 & Eri farmers-25

## 2. For Staff Members

Year	Topic	Number of Participants
2007-08	-	-
2008-09	-	-
2009-10	-	-
2010-11	Improved method of Eri silkworm seed rearing & grainage	54
2011-12	Improved method of Eri silkworm seed rearing & grainage	61

**Initiative Plans**

- Name:* To establish "Eri parental stock maintenance station" at Alibari after procuring land from Assam Govt.
- Name:* Production of Basic Seed at ESSPC-Hosur by developing basic infrastructure  
*Objective:*  
*Provisional Fund Requirement:* Rs 5 lacs
- Name:* Training top progressive farmers under ISDS
- Name:* To increase holding capacity of ASR  
*Objective:* For generation of seed cocoon. Raising of plantation

**Improvements**

- Entrepreneurship development aspects may be included in training curriculum
- More emphasis should be given on practical classes & exposure/field visit
- Unit cost of training may be increased by maintaining flexibility for utilization of fund under different heads within the unit cost by the implementing officer for better management of training programme
- Appropriate developmental scheme may be formulated for supporting the entrepreneurs some out as a result of training programme

#### 4.2.4.2 Eri Silkworm Seed Production Centre,

##### Rani Chowk Azara Guwahati, Assam

#### Variety:

1. Borduar local

Range of:- Single cocoon wt(gm): 2.85-3.5

Single shell wt (gm): 0.35-0.45

Fecundity/laying: 260-420

No. of eggs/gm: 730

Yield (kg)/100Xdf (basic): 25-45 kg

#### Genotypes and variety wise Production and Demand/Sale of DFLs ('000s):

Year	Genotype/ Variety	Production (in 000 DFLs)	Demand/Sale (in 000 DFLs)			
			Demand		Sale	
			Basic	Commercial	Basic	Commercial
2007-08	Borduar local	49.649	9.014	40.635	5.182(3.832 nos. utilized for self rearing at ASR level)	40.635
2008-09	Borduar local	56.183	13.571	42.612	9.184(4.387 nos. utilized for self rearing at ASR level)	42.612
2009-10	Borduar local	60.549	24188	36361	19.895(4.293 nos. utilized for self rearing at ASR level)	36.361
2010-11	Borduar local	94.071	27.338	66.733	22.969(4.642 nos. utilized for self rearing at ASR level)	66.733
2011-12	Borduar local	99.757	16.999	82.758	12.932(4.076 nos. utilized for self rearing at ASR level)	82.758

#### Trainings:

1. For Stakeholders/Entrepreneurs/Sericulture Farmers

Year	Training Programme	Stakeholders/ Entrepreneurs/ Sericulture Farmers
2007-08	Farmers training on improved rearing technologies of eri silkworm	Sericulture farmers – 50
2008-09	Farmers training on improved rearing technologies of eri silkworm	Sericulture farmers - 54
2009-10	-	-
2010-11	Grainage technology of eri silkworm	Officials from DOS, UP – 5
2011-12	Grainage technology of eri silkworm	Private eri graineurs - 10

## 2. For Staff Members

Year	Topic	Number of Participants
2007-08	-	-
2008-09	-	-
2009-10	1. Silkworm seed production techniques 2. Training on Right to Information Act	3 (officers: 2 & Tech. Asstt: 1) 1 Officer
2010-11	1. Disciplinary proceedings for CSB officers 2. Training for seed officers & seed analysis	1 Officer 1 Officer
2011-12	-	

## Initiative Plans

### 1. Name: Acquiring of Land

*Objective:* To establish “Eri Parental Stock Maintenance Station”

- i. Maintenance of eri stock
- ii. Raising of primary & secondary food plants for eri silkworm
- iii. Production & supply of basic and commercial; eri dfls
- iv. Training to progressive farmers/rearers/private graineurs/DOS staffs
- v. New construction of administrative-cum-training hall, technical buildings, staff quarters, trainee’s hostel etc
- vi. Construction of approach road, boundary wall, internalia, labour shade

2. *Name:* Preparation of scheme for providing rearing house and implements to selected ASR

*Objective:* To increase the holding capacity of selected ASR for generation of quality seed cocoon in large scale. Raising of plantation to support their seed crop rearing

Target of production	No of dfl
2012-13	90000
2013-14	99000
2014-15	108900
2015-16	119790
2016-17	131769
<b>Total</b>	<b>549459</b>

Training to stake holders for skill upgradation	No of trainees
2012-13	35
2013-14	35
2014-15	35
2015-16	35
2016-17	35
<b>Total</b>	<b>175</b>

### Improvements

1. Selection of trainees: Emphasis should be given for selection of genuinely interested unemployed rural youth
2. Training curriculum may include 4-5 classes on entrepreneurship development aspects
3. Emphasis should be given on practical classes than on theory
4. An appropriate developmental scheme may be prepared for supporting the entrepreneurs come out as a result of the training programme
5. Flexibility for utilization of fund under different heads within the unit cost (except the assistance viz. wage assistance for farmers etc.) may be provided based on the local condition which can be exercised by the implementing officer

#### 4.2.4.3 Eri Silkworm Seed Production Centre,

**IDSMT Office Complex, Opp. To TTD Kalyana Mandapam, peddapuram-533437,  
East Godavari District, Andhra Pradesh**

#### **Variety:**

1. Genotype- Samia Hubner
2. Ecoraces- Borduar, Titabar, Dhanughanga, Khanapara, Sile, Nongpoh, Mendipathar, Kakrajhar

3. Varieties- White plain, Green plain, Yellow Plain, White dotted, Green dotted, Yellow dotted, White Semi Zebra, Green semi zebra, Yellow Semi Zebra, White zebra, Green Zebra & Yellow Zebra

**Genotypes and variety wise Production and Demand/Sale of DFLs ('000s):**

<b>Year</b>	<b>Genotype/ Variety</b>	<b>Production (in 000 DFLs)</b>	<b>Demand/ Sale (in 000 DFLs)</b>
2007-08	Borduar white	42565	42565
2008-09	Borduar white	32765	32765
2009-10	Borduar white	28950	28950
2010-11	Borduar white	38303	38303
2011-12	Borduar white	50240	50240

**Trainings:**

1. For Stakeholders/Entrepreneurs/Sericulture Farmers

<b>Year</b>	<b>Training Programme</b>	<b>Stakeholders/ Entrepreneurs/ Sericulture Farmers</b>
2007-08	Host plant cultivation, rearing technologies, seed cocoon generation, sorting, seed cocoon preservation, grainage operations, mother moth examination & oviposition, loose egg preparation, washing & packing of dfls & economics of grainage maintenance & other techniques related to seed cocoons production & grainage	50 numbers adopted seed rearers & 9 numbers private graineurs trained under special CDP programme

2. For Staff Members

<b>Year</b>	<b>Topic</b>	<b>Number of Participants</b>
2010-11	Eri silkworm rearing & grainage maintenance technologies for production of quality eri seed cocoons & eri dfls	7 numbers staff of DOS Chhattisgarh for 7 days

**4.2.4.4 Eri Silkworm Seed Production Centre,****Hosur, Tamil Nadu****Variety:** B.W.**Trainings:**

1. For Stakeholders/Entrepreneurs/Sericulture Farmers

<b>Year</b>	<b>Training Programme</b>	<b>Stakeholders/Entrepreneurs/Sericulture Farmers</b>
2009-10	Fujiwara Method	03

2. For Staff Members

<b>Year</b>	<b>Topic</b>	<b>Number of Participants</b>
2009-10	Fujiwara Method	03

**Initiative Plans**

- Name:* Submitted estimate for infrastructure development  
*Objective:* Production of 20000 Eri Basic Dfls & 80000 Commercial Dfls  
*Provisional Fund Requirement:* Rs 2 Crores

**Improvements**

- Facilities for power point display
- Permission for purchase of LCD project
- Provision of 2 numbers of Jeep for carrying out Mobile disinfection work, procurement of seed cocoon
- Transportation of chawki worms, transportation of Dfls to Air Port and taking the farmers for study tour

**4.2.4.5 Eri Silkworm Seed Production Centre,****Near Power House Colony-2, Phool Piara Road, Sujampur, 145023  
Distt.Pathankot Punjab****Variety:**

- Eri silkworm seed



**Genotypes and variety wise Production and Demand/Sale of DFLs ('000s):**

<b>Year</b>	<b>Genotype/ Variety</b>	<b>Production (in 000 DFLs)</b>	<b>Demand/ Sale (in 000 DFLs)</b>
2007-08	-	-	-
2008-09	-	-	-
2009-10	-	-	-
2010-11	-	-	-
2011-12	Eri commercial seed	46500	46500

**Trainings:**

## 1. For Stakeholders/Entrepreneurs/Sericulture Farmers

<b>Year</b>	<b>Training Programme</b>	<b>Stakeholders/ Entrepreneurs/ Sericulture Farmers</b>
2007-08	-	-
2008-09	-	-
2009-10	-	-
2010-11	-	-
2011-12	Eri silkworm rearing	15

## 2. For Staff Members

<b>Year</b>	<b>Topic</b>	<b>Number of Participants</b>
2007-08	-	-
2008-09	-	-
2009-10	-	-
2010-11	-	-
2011-12	Eri silkworm rearing	15

**Improvements**

1. All training should be need base

### 4.3 Quality Parameters and checks being followed by Implementing organizations

#### 4.3.1 Mulberry

1. Maintenance and multiplication of authorized breeds as per norms
2. Generation of quality bivoltine and multivoltine seed cocoons at adopted seed rearers level
3. The organization has been certified under ISO 9001:2008 alongwith 18 SSPCs for appropriate Quality management and documentation. The quality of incoming raw material is purchased as per norms; the objectives set for production are strictly adhered to. The final product (seed) is verified for hatchability and quantity, disease freeness.
4. (i) P1 seed cocoon – above 45 kgs/100 dfls  
(ii) Pupation above 80%  
(iii) Seed recovery – above 45 gms/kg of cocoon. Hatching above 90% (one day).  
Yield 45 kgs/100 dfls of F-1 seed. 100% disease free during microscopical examination at each stage or rearing and grainage operations.
5. The fixed bench marks are followed very strictly to maintain the silkworm races at P3 & P2 level.
6. The chawki mulberry garden/general plantation is given all recommended package of practices and all inputs of chemical fertilizers/FYM is given.
7. Quality leaf is plucked in the morning hours and preserved properly and utilized during rearing. Polythene is practiced during chawki rearing of worms.
8. The rearing rooms are maintained with required temperature and hygrothermic conditions are maintained properly.
9. Bed cleanings are followed by applying cleaning nets.
10. Proper hygienic conditions are maintained during rearing process and disinfections are followed as per recommendations and requirements.
11. Newly developed disinfectants are used properly.
12. Each and every mother moth at P4 and P3 level of seed production is examined by following Fujiwara method
13. Adoption of pruning schedule to synchronize different silkworm seed crop rearing
14. Maintenance of field and grainage sanitation
15. In case of P4 level seed production, Stagewise disease monitoring during seed multiplication by Fujiwara technique viz. larval test, seed cocoons test and individual moth testing by fujiwara technique

16. Strict monitoring of rearing at P-2 & P-1 Adopted Seed Rearers at field/ State farms

#### 4.3.2 Tasar

1. Quality assessment during seed cocoon purchase through smear testing of pupa & testis examination
2. Production of DFLs through mother moth examination by adopting prick method followed by centrifuge method
3. Rearing of tasar silk worm & preservation of seed cocoon under shed nets
4. Assurance of 2grams in one DFLs containing approximately 200 eggs
5. Drying eggs by adopting motorized egg drying machine and packing of eggs in muslin cloth bags.

#### 4.3.3 Muga

1. Adoption of pruning schedule to synchronize different silkworm seed crop rearing
2. Maintenance of field and grainage sanitation
3. Stage wise disease monitoring during rearing by Fujiwara technique
4. Strict monitoring of rearing at P-2 & P-1 adopted seed rearers field/ State farms
5. Multi locational rearing for production of quality seed cocoons
6. 40 cocoon per dfl, Pebrine containment – 100%, Multiplication rate – 1.10

#### 4.3.4 Eri

1. Generation of eri seed cocoon through strict selection from ASRs on the basis of their availability of rearing infrastructure and host plant
2. Adoption of improved rearing technologies, proper disinfection, field sanitation & maintenance of hygiene
3. Regular monitoring and sample testing of larvae, pupae etc. by fujiwara technique to ensure disease freeness of the lots
4. Individual mother moth testing for production of basic seed through fujiwara technique
5. Adoption of improved rearing technologies during seed rearing
6. Adoption of disinfection technologies during pre-and post rearing period
7. Monitoring of seed crop rearing at regular interval
8. Random collection of larval samples for testing adopting Fujiwara Technique to ensure disease freeness and selection of lot

**Output** – Av. seed cocoon (kg)/100 dfl: 42kg/100 dfl

### Selection & procurement of seed cocoon

- (i) Random collection of pupal samples for testing adopting Fujiwara Technique prior to procurement/spt examination of pupae whenever there is doubt of mixing of cocoons to ensure disease freeness of the lot
- (ii) No. of cocoon/kg: <351/kg; **Output** – Average number of cocoon/kg: 320 numbers
- (iii) Single cocoon wt (gm): > 2.85 gm
- (iv) Single shell wt (gm): > 0.38
- (v) Silk Ratio (%): > 13%; **Output** – Average 14.38%

### Production of disease free layings/eggs

- (i) Individual mother moth examination for production of basic seed. Output – demand of basic seed increasing
- (ii) Fecundity > 300 numbers. **Output** – Average 350
- (iii) Hatching percentage > 80% **Output** – Average 83%

However, in terms of Quality parameters followed by various units covered during field survey it was found that the quantitative quality parameters included hatching percentage, effective rearing rate, DFL to cocoon ratio, DFL to DFL ratio, yield per 100 dfls, disease freeness etc.

## CHAPTER V

### FIELD SURVEY FINDINGS : LICENSED SEED PRODUCERS, CHAWKI REARING CENTRES & COCOON FARMERS

#### 5.1. Introduction

National Productivity Council (NPC) has carried out a nationwide survey across 15 states during August – September 2012 in order to understand the various aspects of SOHRD scheme w.r.t. Chawkie Rearing Centre, Licensed Seed Producers/Private Graineur and Sericulture Farmer Beneficiaries and to identify identify major constraints that hinder growth and competitiveness of the sector. The field survey has brought out a number of critical factors that would help to frame future policy directions for the stakeholders.

For understanding the ground level specific issues related to Chawkie Rearing Centre, Licensed Seed Producers/Private Graineur and Sericulture Farmer Beneficiaries an extensive field survey was conducted across the country with a structured questionnaire (**Annexure 1.2, 1.3 and 1.4** respectively.). The field survey covered aspects such as socio economic profiling, turnover, factors affecting productivity, supply of silkworm seed, factors responsible for competitiveness at unit level. Besides this discussions have also been carried out with unit representatives and also with various stakeholders concerned with the sector.

#### 5.2 General Profile of the Respondents

It is observed that 76.5 per cent of the respondents of chawkie rearing centre belong to male against 23.5 percent females. Further, under Licensed Seed Producers/Private Graineurs, 80 percent of the respondents are males against 20 percent females. In case of Sericulture Farmer Beneficiaries, it is observed that 89.3 per cent of the respondents belong to male against 23.5 percent females.

Among the caste, 17.6 per cent of the respondents of chawkie rearing centre are SC against 11.8 percent ST and 70.6 percent under the category other than SC & ST. In case of Licensed Seed Producers/Private Graineurs 50 percent of the respondents are ST and 50 percent are under the category other than SC & ST. Further, it is observed that in Sericulture Farmer

Beneficiaries, respondents under the category other than SC & ST are 58.2 percent; ST respondents are 40 percent and 1.8 percent respondents are SC (**Table 5.1**).

Educational background of respondents of chawkie rearing centre are given in **Table 5.1**. It shows that 23.5 percent farmers in chawkie rearing centre studied till primary level, 47.1 percent till secondary level and 29.4 percent are graduates & above.

Under Licensed Seed Producers/Private Graineurs, 20 percent farmers are illiterate, 50 percent studied till secondary level and 30 percent are graduates & above. Again among Sericulture Farmer Beneficiaries, 17.1 percent farmers are illiterate, 49.1 percent farmers studied till primary level, 26.3 percent till secondary level and 7 percent are graduates & above.

**Table 5.1: Gender, Caste & Educational Background of the Respondents**

Particulars	Respondents (%)		
	Chawkie Rearing Centers	Licensed Seed Producers (LSPs)/ Private Graineurs	Sericulture Farmer Beneficiaries
<b>1. Gender</b>			
a) Male	76.5	80	89.3
b) Female	23.5	20	10.7
<b>2. Caste</b>			
a) SC	17.6	-	1.8
b) ST	11.8	50	40.0
c) Others	70.6	50	58.2
<b>3. Education Level</b>			
a) Illiterate	-	20	17.5
b) Primary	23.5	-	49.1
c) Secondary	47.1	50	26.3
d) Graduate & above	29.4	30	7.0

In terms of the age of the respondents, it is observed that the average age of respondents of chawkie rearing centre was about 45 years. Further, under Licensed Seed Producers/Private Graineurs average age of respondents was 43 years.

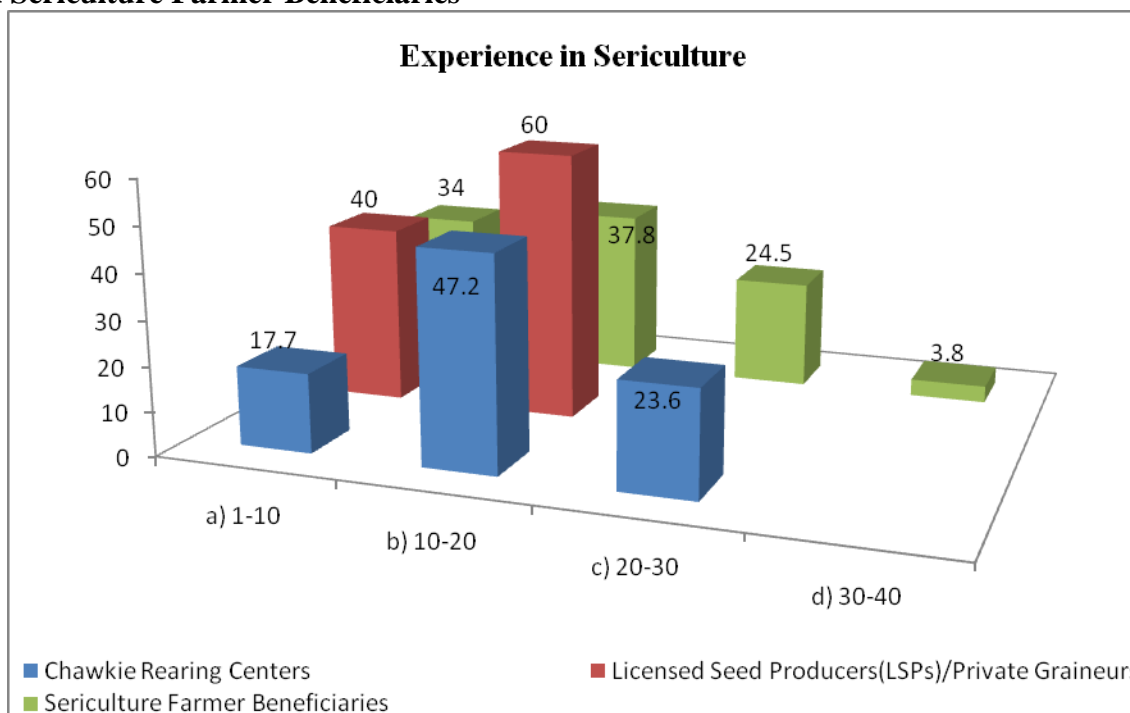
### 5.3 Sericulture activity undertaken and Experience in Sericulture

**Table 5.2** depict the years of experience of the respondents in their particular field and the sericulture activity they are involved in. The experience of the respondents under Chawkie Rearing Centers lies between 1 to 30 years, wherein 17.7 percent of the respondents have 1-10 years of experience in sericulture, 47.2 percent of the respondents have 10-20 years of experience in sericulture and 23.6 percent of the respondents have 20-30 years of experience in sericulture. In case of Licensed Seed Producers (LSPs)/Private Graineurs, 40 percent of the respondents have 1-10 years of experience in sericulture activity and 60 percent of the respondents have 10-20 years of experience in sericulture activity. Sericulture Farmer Beneficiaries' experience varies from 1-40 years, 34 percent of the respondents have 1-10 years of experience in sericulture activity, 37.8 percent of the respondents have 10-20 years of experience in sericulture activity, 24.5 percent of the respondents have 20-30 years of experience in sericulture activity and 3.8 percent of the respondents have 30-40 years of experience in sericulture.

In case of Licensed Seed Producers (LSPs)/Private Graineurs, 50 percent of the respondents are involved in Mulberry activity and 50 percent of the respondents are involved in Tasar activity. Moreover, 72.3 percent of the sericulture farmer beneficiaries are involved in Mulberry activity, 21.4 percent of the respondents are involved in Tasar activity and 5.4 percent of the respondents are involved in Eri activity.

**Table:5.2 Sericulture activity undertaken and Experience in Sericulture**

Particulars	Respondents (%)		
	Chawkie Rearing Centers	Licensed Seed Producers(LSPs)/ Private Graineurs	Sericulture Farmer Beneficiaries
<b>1. Experience in Sericulture (yrs)</b>			
a) 1-10	17.7	40	34
b) 10-20	47.2	60	37.8
c) 20-30	23.6	-	24.5
d) 30-40	-	-	3.8
<b>2. Sericulture Activity</b>			
a) Mulberry	-	50	73.2
b) Tasar	-	50	21.4
c) Eri	-	-	5.4
d) Muga	-	-	-

**Fig. 5.1 Experience of Chawkie Rearing Centre, Licensed Seed Producers/Private Graineur and Sericulture Farmer Beneficiaries**

#### 5.4 Impact of Sericulture Activity on Beneficiaries' Family Income of Chawkie Rearing Centre, Licensed Seed Producers/Private Graineur

In case of Chawkie Rearing Centres, it is found that 64.3 percent of the respondents who are involved in sericulture activity are benefitted with increase in their annual family income over a period of time. Further, 7.1 percent of the respondents face decrease in their annual family income over a period of time and 25.6 percent respondents find no change in their annual family income.

80 percent of the Licensed Seed Producers (LSPs)/ Private Graineurs said that after undertaking the sericulture activity their annual family income increased over a period of time whereas 20 percent of the respondents face decrease in their annual family income.

#### 5.5 Source of Silkworm Seed w.r.t Chawkie Rearing Centre, Licensed Seed Producers/Private Graineur and Sericulture Farmer Beneficiaries

Chawkie Rearing Centre procures silkworm seeds only from Private/Govt. agency/sector. Out of these Private/Govt. agency/sectors, 82.4 percent of them are registered as producer/dealer/supplier of silkworm seed whereas 5.9 percent of these Private/Govt. agency/sectors are not registered as producer/dealer/supplier of silkworm seed (**Table 5.3**). Moreover, 76.5 percent of the farmers did not find any difficulty in the seeds received from the Private/Govt. agency/sector and 17.6 percent find difficulty in the seeds received from the Private/Govt. agency/sector.



82 percent of the Sericulture Farmer Beneficiaries procure seeds from Private/Govt. agency/sector. Out of these Private/Govt. agency/sectors, 57.4 percent of them are registered as producer/dealer/supplier of silkworm seed whereas 21.3 percent of these Private/Govt. agency/sectors are not registered as producer/dealer/supplier of silkworm seed. Further, 54.1 percent of the farmers did not find any difficulty in the seeds received from the Private/Govt. agency/sector and 13.1 percent find difficulty in the seeds received from the Private/Govt. agency/sector.

**Table:5.3 Source of Silkworm Seed**

Particulars	Chawkie Rearing Centers			Sericulture Farmer Beneficiaries		
	Yes	No	Not Responded	Yes	No	Not Responded
	<b>Do you procure seeds from Private/ Govt. agency/sector?</b>	100	0	-	82.0	3.3
<b>Is the Private/Govt. agency registered as producer/ dealer/supplier of Silkworm seed?</b>	82.4	5.9	11.8	57.4	21.3	21.3
<b>Have you faced any difficulties/ issues in the seeds/ eggs received from Private/ Govt. agency/sector?</b>	17.6	76.5	5.9	13.1	54.1	32.8

### 5.6 Technology related exposure

Adaptation of transfer of technology: All the Licensed Seed Producers (LSPs)/ Private Graineurs and Chawkie Rearing Centers were of view that the adaptation of transfer of technology had improved. Some of the rainings included the sex separation of seed cocoon and understanding of cocoon weighing scale.

### 5.7 Training and Quality Improvement

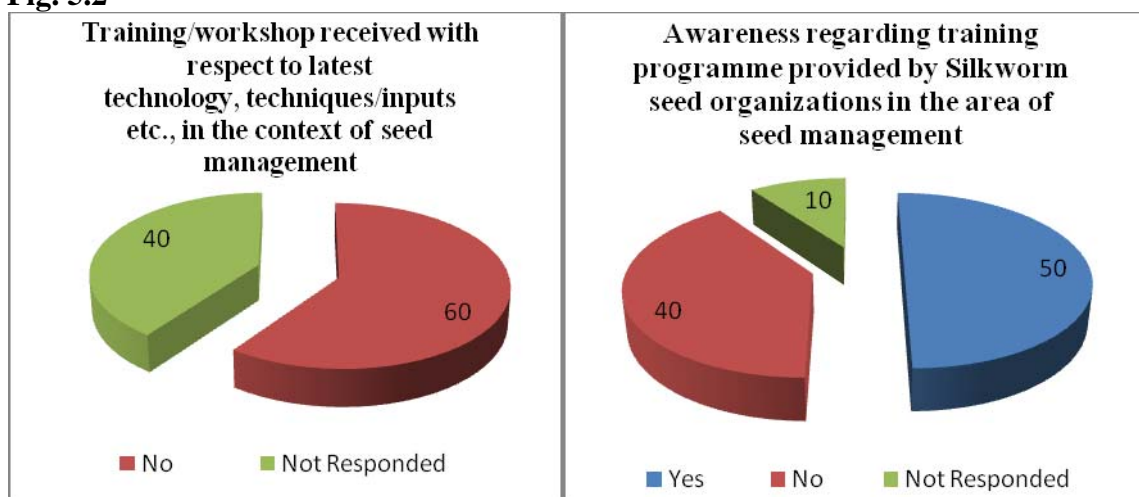
The analysis of awareness level about the training programme provided by silkworm seed organizations in the area of seed management is given in **Table 5.4** The awareness level is average as only 50 percent of the Licensed Seed Producers (LSPs)/ Private Graineurs are aware of the training programmes provided by Silkworm seed organizations in the area of seed

management. Out of the respondents of Licensed Seed Producers (LSPs)/ Private Graineurs, about 60 percent did not received any training/ workshop with respect to latest technology, techniques/inputs etc., in the context of seed management, while the remaining 40 percent did not responded(**Table 5.4**).

**Table: 5.4 Awareness and Participation Regarding Training Programme (LSPs)**

Particulars	Response (%)		
	Yes	No	Not Responded
Awareness regarding training programme provided by Silkworm seed organizations in the area of seed management	50	40	10
Have you received any training/ workshop with respect to latest technology, techniques/inputs etc., in the context of seed management?	-	60	40

**Fig. 5.2**



In case of Chawkie Rearing Centres (CRCs), the awareness level is good as 76.5 percent of the farmers are aware of the training programmes provided by Silkworm seed organizations in the area of seed management/chawki rearing. Out of the respondents of chawkie rearing farmers, about 47.1 percent did not received any training/ workshop with respect to latest technology, techniques/inputs etc., in the context of seed management, while 41.2 percent received the training in the context of chawkie rearing and the remaining 11.8 percent did not responded(**Table 5.5**).

**Table:5.5 Awareness and Participation Regarding Training Programme (CRCs)**

Particulars	Response (%)		
	Yes	No	Not Responded
<b>Awareness regarding training programme provided by Silkworm seed organizations in the area of seed management/chawki rearing</b>	76.5	-	23.5
<b>Have you received any training/ workshop with respect to latest technology, techniques/inputs etc., in the context of chawki rearing?</b>	41.2	47.1	11.8

### 5.8 Catalytic Development Programme components associated with Seed Sector

As reported by farmers of Chawkie Rearing Centres, 76.5% respondents received assistance under Catalytic Development Programme during 2007-2012 while 11.8 percent of the farmers did not receive any assistance and the remaining 11.8 percent of the farmers did not respond. While receiving assistance under Catalytic Development Programme, 58.8 percent of the respondents did not face any difficulty whereas 11.8 percent of the respondents face difficulty and remaining 11.8 percent of the respondents did not respond. The major components received were Maintenance of chawkie Garden, construction of chawkie rearing center building,8 assistance for procurement of chawkie rearing equipments, assistance for subsidy on DFLs procurement or working capital, assistance for Drip irrigation and grainage equipment

### 5.9 Subsidy Related Information

As is evident from **Table 5.6** about 52.9 percent of the respondents of Chawkie Rearing Centres have got subsidy on procurement of DFLs from Govt. seed organization, while 47.1 percent of the respondents of Chawkie Rearing Centres have not got any subsidy.

Moreover, 58.8 percent of the farmers did not face any difficulties in the DFLs, while about 11.8 percent face difficulties in the DFLs and the remaining 29.4 percent did not responded.

**Table 5.6: Subsidy Related Information**

Particulars	Response (%)		
	Yes	No	Not Responded
<b>Do you get subsidy on procurement of DFLs from Govt. seed organization?</b>	52.9	47.1	-
<b>Have you faced difficulties/issues in the DFLs</b>	11.8	58.8	29.4

Further, 52.9 percent of the farmers of Chawkie Rearing Centre said that they have faced problems w.r.t the quality, production, viability, hatching, receipt, transportation of silkworm seed in the last five years, 35.3 percent of the farmers did not faced any problems and others did not respond.

The different trainings provided to LSPs included Seed Production, Egg Handling, Crop Protection and Extension Education. The highest number of LSPs undertook the Seed Production Training.

The different trainings provided to CRCs s included Farm Management, Chawki Rearing, Crop Protection and Extension Education. The highest number of CRCs undertook the Chawki Rearing training

The Reason for low productivity as discussed by the to CRCs s included Climatic variations - Lack of rain followed by the Supply and quality of mulberry leaves and Lack of proper machinery and technology

### **5.10 Major concerns and requirements of CRCs & LSPs:**

The major concerns and requirements as disclosed by the CRCs & LSPs in the order of priority include:

- Requirement of vehicle/ van for transportation of chawki reared worms
- Unstabilized cocoon rates in the market
- Increase in financial assistance for disinfectant garden maintenance and more rearing equipment
- Big humidifier of 25 liters
- Additional provision for CRC irrigation facilities
- Subsidy for grainage building and sprays
- Requirement of cocoon market and cocoon bank.
- New technology subsidy to be provided for machine & technology

- Requirement of Quality vermi compost and Quality DFLs
- More Training on proper rearing. More rearing appliances (Nets)
- Requirement of materials
- Insurance scheme
- Better seeds

### **5.11 Major Improvements as observed by the CRCs & LSPs in the Quality of Seed:**

The major improvements reported by sericulture farmer include:

1. With the supply of new hybrid, the productivity/100 DFLs, and income has increased at commercial level.
2. Hatching percentage increased, Disease free, Cocoon yield/quality increased
3. Fecundity increased
4. Yield increased
5. Availability of DFLs in time, Rich Laying & More than 95% Chawki & more Average yield of cocoon
6. Quality and production improve
7. Fertility increased
8. Incubation

However, it was informed to the NPC study team that the Vulnerability of the worm to the climatic and external factors had increased overtime.

### **5.12 Sericulture activities undertaken by Farmer Beneficiaries**

About 65.6% respondents are undertaking rearing of seed cocoon, 31.1% respondents are carrying out rearing of commercial cocoon, about 3.3% respondents are carrying out both seed cocoon and commercial cocoon rearing.

### **5.13 Training of Sericulture Farmer Beneficiaries**

A total of 63.9% respondents are aware of the technical supervision/training provided by silkworm seed organizations in the area of seed management/ chawki rearing, 24.6% are not aware of the same and remaining 11.5% did not respond.

1. Farm Management - 26
2. Chawki Rearing – 20
3. Late-age Rearing - 14
4. Crop Protection - 11
5. Extension Education - 15
6. Others – 3

### **5.14 Quality Improvement observed by Farmer Beneficiaries**

A total of 67.2% respondents found present trainings and quality improvement exercises helpful in increasing their yield and/or income, whereas 6.6% respondents are not satisfied with the exercises and rest 26.2% did not respond.

65.6 % of the sericulture farmer beneficiaries reported improvement in the quality of DFLs being received in the last five years in term of quality, production, viability, hatching, however, 18.0% of the sericulture farmer beneficiaries were of the opinion that no major improvement in the quality of DFLs being received in the last five years in term of quality, production, viability, hatching, five year. 16.4% did not reply to the question.

About 62.3 % of the sericulture farmer beneficiaries did not faced any problems w.r.t the quality, production, viability, hatching, receipt, transportation of silkworm seed in the last five year however, 21.3% of the sericulture farmer beneficiaries did not faced any problems w.r.t the quality, production, viability, hatching, receipt, transportation of silkworm seed in the last five year. 16.4% did not reply to the question.

### **5.15 Adoption level of New Technologies by Sericulture Farmer Beneficiaries**

The adoption levels of new technologies among sericulture farmer beneficiaries are medium. About 14.8 % of the respondents informed that there was high level of utility for new technologies. About 63.9% of the Sericulture Farmer Beneficiaries informed that the adoption levels of new technologies were moderately useful. About 4.9% of the respondents told the technologies were less utilizable and about 16.4% of the respondents did not respond.

### **5.16 Major concerns and requirements of Sericulture Farmer Beneficiaries:**

The major concerns and requirements as disclosed by the sericulture farmer beneficiaries in the order of priority include:

- Requirement of cocoon market and cocoon bank.
- New technology subsidy to be provided for machine & technology
- Requirement of Quality vermi compost and Quality DFLs
- More Training on proper rearing. More rearing appliances (Nets)
- Requirement of materials
- Insurance scheme
- Better seeds

## CHAPTER VI

### FIELD SURVEY FINDINGS - HRD SCHEME

#### 6.1 Introduction

Human Resource Development, the process of equipping individuals with the understanding, skills and access to information, knowledge and training that enables them to perform effectively.

Organizational development, the elaboration of management structures, processes and procedures, not only within organizations but also the management of relationships between the different organizations and sectors (public, private and community).

Institutional and legal framework development, making legal and regulatory changes to enable organizations, institutions and agencies at all levels and in all sectors to enhance their capacities.

The functional arms for undertaking the activities of this component include Board's Secretariat, Regional Offices, Raw Material Banks and Certification Centers. The Board's Secretariat coordinates the technical activities of all its nested units in research, extension, basic seed production, publicity, price stabilization for vanya sector, market development etc. besides maintaining the overall administrative and financial apparatus of 300 units manned by 3993 employees (**Annexure 6.1**)

The Secretariat also acts as an interface between the various arms of Govt. of India, State Sericulture Departments, national and international agencies, private stakeholders starting from the poor farmers to high profile exporters and a slew of other agencies associated with sericulture and silk industry. Apart from the regular monitoring of research and technical on-going activities, the secretariat is also involved in conceiving, formulating, evaluating and monitoring various centrally sponsored schemes, christened as Catalytic Development Programme (CDP), implemented through the state sericulture departments.

Besides the above, bulk of the human resource requirement of all its employees are met exclusively at the HQs, administratively headed by Member Secretary supported by Research, Technical, Establishment, vigilance, Accounts, Audit, Bills, Stores, Law, Labour, Statistics, Corporate & Entrepreneurs Development, Publicity, Rajabhasha, protocol sections. It also houses the Office of the Chairman.

The Regional Offices (RO) of CSB work in various states for effective liaison of the activities of CSB in these states. The activities of all the States are also to be monitored through State Level Monitoring Committees, wherein the technical support and inputs from ROs are essential for organizing the meetings and to follow-up the decisions taken thereof. In order to eliminate the presence of middlemen who were exploiting the primary producers, CSB had established 3 Raw Material Banks (RMBs) for Tasar, Eri and Muga with a network of 8 sub-depots in different states.

## 6.2. Field Surveys of Stakeholders

Detailed interviews and personal discussions have been conducted with HRD incharge with of Human Resource Incharge with structured questionnaire (**Annexure 1.5**) at two centres such as CSB, BANGALORE and BTSSO (BILASPUR).

Besides, field surveys have also been conducted among the beneficiaries of various HRD programmes of CSB with structured questionnaires (**Annexure 1.6**). The feed back received from these interviews are analysed in the following sections.

### 6.2.1. Evaluation of Human Resource Management Initiatives at Organizational level

Based on the interviews of the HRD incharge of the CSB Banagalore and BTSSO Bilaspur, the following information have been elucidated. As far as the silk industry is concerned, the two major players are the CSB and State government departments. Quality Human Resource is one of the key factors/requirements for the success of these organizations; therefore the internal resources should be trained and regularly updated, refined and maintained in desired condition.

**Table 6.1: Details of training activities undertaken by the HR department of CSB Bangalore**

Year	Training Programmes		Outlay (Rs. Lakhs)		Reasons for Shortfall, if any
	Target(Nos)	Achievement (Nos)	Budget	Expenditure	
2007-08	8	7	9.70	25.70	Formal approval from GOL for XI plan proposals & funds were received only in Oct '07
2008-09	17	18	22.50	15.82	
2009-10	18	20	23.10	21.89	
2010-11	18	23	23.00	40.82	
2011-12	17	18	21.70	19.84	
<b>Total</b>	<b>78</b>	<b>86</b>	<b>100.00</b>	<b>124.07</b>	



**Table 6.2: Year wise details of Training undertaken during XIth Five year plan by CSB, Bangalore**

Year	Name of Training/course	Duration of the training	Category of employees	No of employees targeted to be trained	Actual no. of employees trained	Expenditure(Rs Lakhs)	Venue of training
2007-08	Resource Development Programme	2 Week	Officials from CSB & DOS	25	20	2.74	Bimetal (Uttarakhand)
	Competence Development Programme	3 Days	Technical officers & officials	25 per batch	53 in two batches	0.41	Bangalore
	Competence Enhancement Training Programme	6 Days	Ministerial Staffs	25	26	0.71	Jammu
	Management Development Programme	1 Week	Official from DOS, TN	20	20	0.70	Hosur
	Management Development Programme	1 Day	Officers	6(Nomination)	6	0.18	Bangahati
2008-09	Entrepreneur-ship Development Program	4 Weeks	Prospect. Entrepreneurs	25	21	1.76	Guwahati
	Resource Development Programme	2 Weeks	Officials from CSB & DOS	125	139 in 5 batches	2.68	Bilaspur Guwahati Patna Ranchi & Hamirpur
	National Trainer's Training programme	2 Weeks	Officers	20	20	1.08	Bangalore
	Ser-Research Management Programmers	10 Days	CSB Scientists	25	24	1.88	Bangalore
	Skill dev.Program	5 Days	SERIFED Kerala	50	65	1.05	Agali & Kollam
	Management Development Programme	1 week	Officers & officials from CSB	10(Nomination)	10	1.07	Missouri Hyderabad & New Delhi
	Technology Upgradation Programme	3 Days	Existing Entrepreneurs	50 per batch	450	0.60	Kancheepuram & Hindupur
2009-10	Entrepreneurship Development Programme	50 Days	Prospect entrepreneurs	25 per batch	75 in 3 batches	09.82	Sualkuchi
	Resource Development Programme	2 week	Technical officials	25 per batch	174 in 7 batches	11.99	Srinagar Palampur Patna Guwahati Bhubaneswar Ranchi & Bangalore
	Competence Enhancement Training	6 Days	Ministerial Staffs	25 per batch	245 in 7 batches	6.34	B' lore, Mysore Berhampore

							Giwahati Ranchi De dun Bilaspur
	Disciplinary Proceedings Training	3Days	Officers & officials	25 per batch	45 in two batches	0.39	Bangalore
	Technology Up- gradation programme	2 Days	Existing Entrepreneurs	50	60	0.03	Varanasi
2010- 11	Entrepreneurship Development Programme	50 Days	Prospect Entrepreneurs	25 per batch	25	03.58	Sualkuchi
	Resource Development Programme	2 Week	Officials from CSB & DOS	25 per batch	207 in 10 batches	20.52	Bangalore
	Disciplinary Proceedings Training	4 Days	Officers & officials	25per batch	200 in 8 batches	5.20	B' lore, Mysore Berhampore Giawahati Ranchi De dun Bilaspur
	Management Development Programme	1 week/2 week	Scientists	25-30 per batch	65 in two batches	7.43	Hyderabad
	Technology Up- gradation Programme	2 Days	Existing Entrepreneurs	50 per batch	250 in two batches	0.50	Ilakal (Kar) & Kargikota (CG)
2011- 12	Resource Development Programme	1 Week	Officials from CSB & DOS	25 per batch	235	24.21	Sualkuchi B'lore Simla Bidhan Nagar Jammu Srinagar Bilaspur
	Management Development Programme	4 Days	CSB Officials	25 per batch	56 in 2 batches	0.57	Bangalore
	Technology Up- gradation Programme	2 Days	Existing Entrepreneurs	50 per batch	260 in two batches	1.00	Varanasi & Guwahati

**Table 6.3: Level wise number of trainees trained during XIth Five year plan**

Year	Sr. Level	Middle Level	Jr. Level	Field Officers/Extensi on Officers	Others
2007-08	6	22	57	40	-
2008-09	12	57	4	471	185
2009-10	4	22	293	135	145
2010-11	41	176	70	175	285
2011-12	-	3	73	335	175
<b>Total</b>	<b>63</b>	<b>280</b>	<b>497</b>	<b>1156</b>	<b>790</b>

## 6.2.2 Methodology adopted for conducting training

1. Class room sessions, Audio visual aids, on field demonstration, exposure visit, practical exercises for grainages etc.
2. Training programme development starts once the proposal for a programme is approved by the competent authority. Development activity includes:
  - Deciding the schedule of the programme (Duration, Full time/Part time, Residential/ Non-Residential, tentative date, sequence of sessions, etc.)
  - Deciding of the course content (Technical, Behavioral, Manager) based on the concept of the “success triangle”)
  - Identification of faculties from a panel based of planned inputs & target group
  - Designing of the course material in apt language
  - Training mode, tools & techniques depending on group
  - Evaluation tools and modalities

## 6.2.3. Training Course Content and Duration Adequacy

All the Human Resource Management In-charge of Central Silk Board were of the opinion that the training course contains latest techniques & methods on the sericulture sector and 89.7 percent of the Central Silk Board employees/trainees find that the training course contains latest technology and methods

All the Human Resource Management In-charge of Central Silk Board are satisfied with the duration of training. In case of Central Silk Board employees/trainees, 87.2 percent of the respondents find duration of the training adequate, 2.6 percent respondents did not find it adequate and remaining 10.3 percent did not respond

**Table 6.4: Details of training activities undertaken by the HR department during last five years by BTSSO, Bilaspur**

Year	Training Programmes		Outlay (Rs. Lakhs)		Reasons for Shortfall, if any
	Target (Nos)	Achievement (Nos)	Budget	Expenditure	
2007-08	-	1177	NA	NA	
2008-09	-	593	NA	NA	
2009-10	-	386	NA	NA	
2010-11	218	218	NA	NA	
2011-12	579	559	NA	NA	Non Deputation of staff by DOSs

**Table 6.5: Year wise details of Training undertaken during XIth Five year plan by BTSSO, Bilaspur**

Year	Name of training/course	Duration of the training	Category of employees	No. of employees targeted to be trained	Actual no. of employees trained	Expenditure (Rs Lakhs)	Venue of training
2007-08	IPR	7 days	Scientists	9	9	-	CTR&TI, Ranchi
2008-09	RDP & Entrepreneurship Dev.	7 days	Scientists	26	26	Expenditure met & booked by training division CSB, Bangalore	Bilaspur
2009-10	RDP Administrative & RTI	7 days	Scientists	46	46		
2010-11	RDP technical	7 days	Technical assistants	24	24		
2011-12	RDP	7 days	Scientists	20	20		

**Table 6.6: Level wise number of trainees given training during the XIth Five year plan by BTSSO, Bilaspur**

Year	Sr. Level	Middle Level	Jr. Level	Field Officers/Extension Officers	Others	Remarks
2007-08	9					
2008-09	26					
2009-10	34					
2010-11				24		
2011-12	20					

#### 6.2.4. Feedback Review

66.7 percent of the respondents were of the opinion that feedbacks were taken from the employees trained while 33.3 percent of the respondents denied giving any feedbacks about the training undertaken.

#### 6.2.5 HRD intervention in terms of Training

50 percent of the respondents were of the view that only 1-25 percent of the employees are trained under the scheme to the total employees who are eligible for training, while 50 percent of the respondents says that 26-50 percent of the employees are trained under the scheme to the total employees who are eligible for training.

#### 6.2.6. Periodic audit of implementation of Government of India policies

33.3 percent of the Human Resource Management In-charge of Central Silk Board says that the periodic audit is undertaken annually for checking whether Government of India policies have been implemented and followed strictly.

**Table 6.7: Periodic audit of implementation of Government of India policies**

Particulars	Response (%)		
	Yes	No	Not Responded
<b>Is the periodic audit undertaken for checking whether the GOI policies have been implemented &amp; followed strictly?</b>	33.3	-	66.7
<b>Frequency of audit of Government of India policies</b>			
1. Weekly	-		66.7
2. Fortnight	-		
3. Monthly	-		
4. Quarterly	-		
5. Bi annual	-		
6. Annual	33.3		
7. Any Other	-		

### 6.3. Human Resource Development w.r.t HRD beneficiaries

Field surveys have been undertaken among various beneficiaries of the SO&HRD scheme with structured questionnaire (Annexure 1.6). Details regarding the spread the sample beneficiary categories are given in **Table 6.8**.

**Table 6.8: Details of the Central Silk Board officials evaluated through direct field survey by NPC Study Team for the evaluation of HRD activities of the scheme**

SO & HRD 06		
Karnataka	2	NSSO
<b>Sub Total</b>	<b>2</b>	
Tamilnadu	1	ESSPC, Hosur, Tamilnadu
	1	DOS (Expansion activities and Cocoon Productions)
	1	NSSO
	1	Regional Office
<b>Sub total</b>	<b>4</b>	
Jammu & Kashmir	5	RSRS
	1	SCTH
<b>Sub total</b>	<b>6</b>	
Uttarakhand	2	SSPC
	1	ZSSO
	1	P2 BSF
<b>Sub total</b>	<b>4</b>	
Himachal Pradesh	1	REC, Palampur
<b>Sub total</b>	<b>1</b>	
Maharashtra	5	Regional office, CSB
<b>Sub total</b>	<b>5</b>	
Assam	1	SSPC, Kalibari, Kamrup
	1	E&TD, CMER&TI, Jorhat

	1	P3 Unit, MSSO
	5	Central Muga Eri Research and Training Institute
<b>Sub total</b>	<b>8</b>	
Meghalaya	1	REC Shillong
	2	MSSO (P4)
	1	MSSO (P3)
<b>Sub total</b>	<b>4</b>	
Manipur	1	RTRS, Imphal
<b>Sub total</b>	<b>1</b>	
Chattisgarh	1	BTSSO, Bilaspur
<b>Sub total</b>	<b>1</b>	
Jharkhand	4	BSM&TC
<b>Sub total</b>	<b>4</b>	
<b>Overall Total</b>	<b>40</b>	

### 6.3.1. General Information regarding CSB Employees/ Trainees interviewed

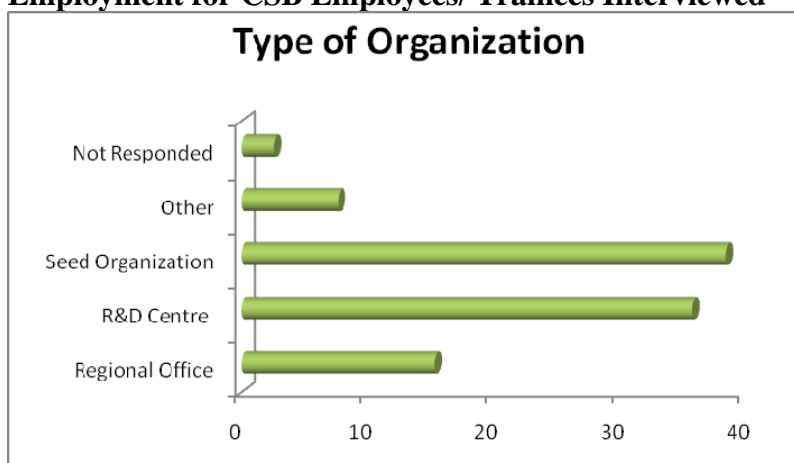
#### Type of Organization

As shown in **Table 6.9**, 38.5 percent of the respondents were working under Seed Organization, 35.9 percent of the respondents are working in R&D Centre, while 15.4 percent of the respondents are working in Regional Office.

**Table 6.9: Type of Organization**

Type of Organization	Response (%)
Regional Office	15.4
R&D Centre	35.9
Seed Organization	38.5
Other	7.7
Not Responded	2.6

**Fig. 6.1 Place of Employment for CSB Employees/ Trainees Interviewed**



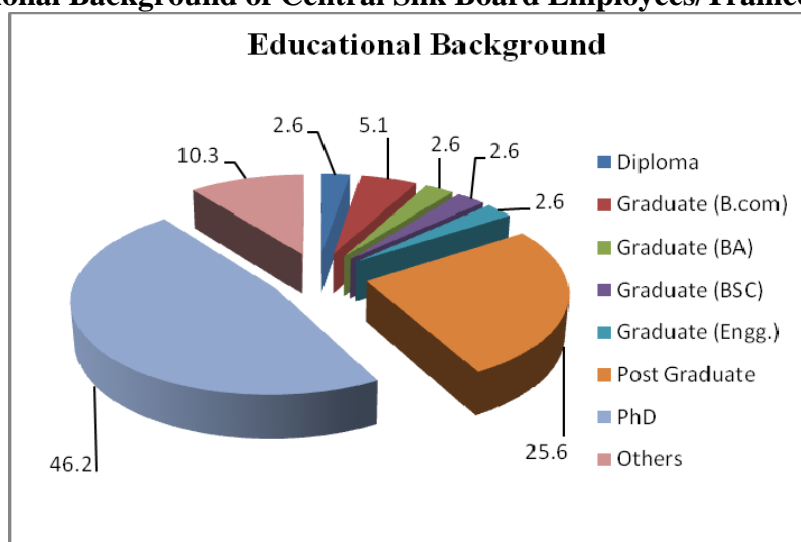
**Table 6.10** depicts the number of years of experience of Central Silk Board Employees/Trainees working in Regional offices, R&D centers, Seed Organization etc. 79.5 percent of the employees/trainees have more than 10 years of experience in working with Central Silk Board, while 7.7 percent of the employees/trainees have 2-5 years of experience and 5.1 percent of the employees/trainees have 5-10 years of experience.

**Table 6.10: Experience in CSB**

Particulars	Response (%)
Less than 2 years	-
2-5 years	7.7
5-10 years	5.1
10 years	-
More than 10 years	79.5
Not Responded	7.7

46.2 percent of the employees/trainees who are working with CSB are PhD, 25.6 percent of the employees/trainees are Post Graduates, whereas 5.1 percent are Graduate (B.Com) while 2.6 percent of them are Graduate (BA), Graduate (BSc), Graduate (Engg.), and Diploma. (See Fig 6.2)

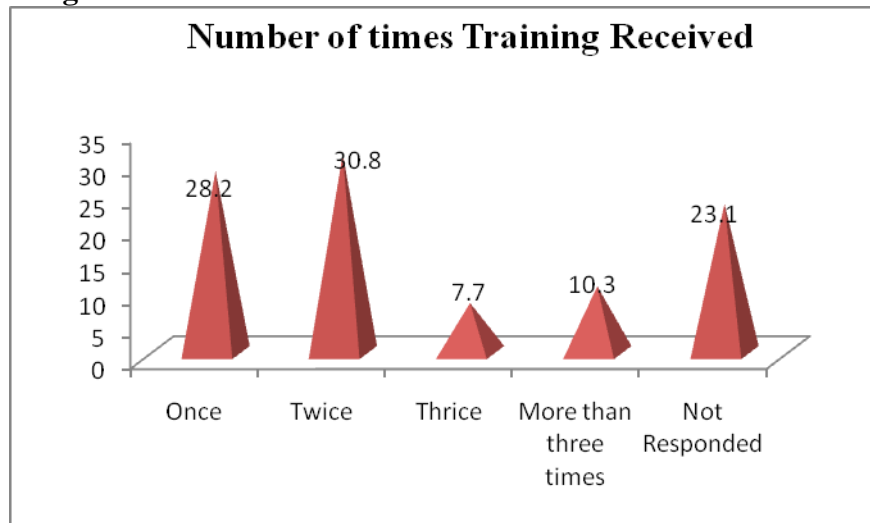
**Fig. 6.2 Educational Background of Central Silk Board Employees/Trainees Interviewed**



### 6.3.2 Training received

As shown in **Figure 6.3** during 2007-2008 to 2011 -2012, 30.8 percent of the employees/trainees have received training twice while 28.2 percent of the employees/trainees have received the training only once during this period. Further, 7.7 percent of the respondents have received the training thrice during this period and 10.3 percent of them have received training more than three times during the five years.

**Fig. 6.3 Frequency of Training received by Central Silk Board Employees/Trainees Interviewed during XI th Five Year Plan**

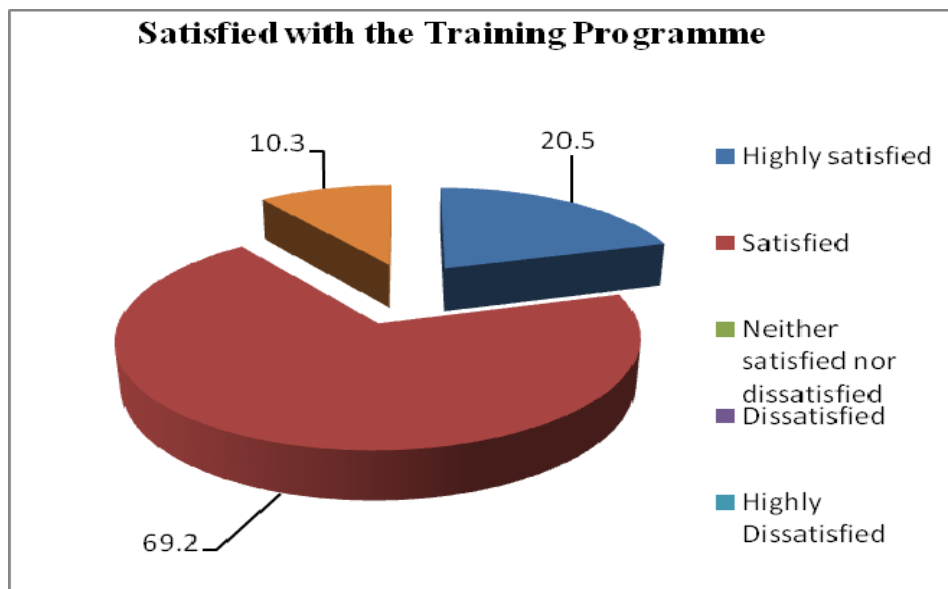


87.2 percent of the respondents have agreed that the training helped them to improve their subject knowledge whereas 12.8 percent of the respondents did not find the training helpful.

**6.3.3 Satisfaction level of CSB Employees/ Trainees with the training programme**

As witnessed in **Figure 6.4** 69.2 percent of the employees/trainees are satisfied with the training programme and 20.5 percent of them are highly satisfied.

**Fig. 6.4 Satisfaction level of CSB Employees/ Trainees with the training programme**





### 6.3.4 Suggestions & Improvements

- The analysis of organizational need necessitates organizing refresher courses/ seminars/ workshops for scientific community to discuss new innovations, technological breakthroughs, disseminating the new developments in science & other related fields to the field on a regular basis.
- Exposure to management thought is extremely poor, especially with changing world trade and liberalization scenario, changing paradigms of general management thoughts & techniques, extension concepts and tools and policy changes, it is pertinent for the scientific and technical personnel to understand and comprehend these changes taking place around them and get exposed to the new developments on a continuous basis.
- Also, the support service personnel require regular reinforcement and exposure to changes in rules and regulations, administrative and financial provisions and concepts and motivational interventions at desired intervals.

### 6.4 Steps that are being taken up for developing Human Resource in CSB

- i. Lecture series are planned on useful topics of common / specific interest to expose the in- house employee and industry stake holders
- ii. Deploy CSB scientists and other employees to useful and relevant training programmes/workshops conducted by other credible training agencies viz. National Productivity Council (NPC), Indian Society for Training and Development (ISTD), IISC, Bangalore, IIMs, All Indian Management Association (AIMA), National Academy for Agriculture Research Management (NAARM), National Institute for Micro, Small & Medium Enterprises (nimsme), Ministry of MSME, GOI, Hyderabad etc.
- iii. Separate HR dept. is required to concentrate on staff's requirement etc. Motivating staff members in day to day operation is required at least twice a year.
- iv. Based on the area of works/subject, training to be provided to the scientist/officers in the advance institute of educate about the advanced technology/process in his respective areas of work.
- v. Organising training classes to the farmers's family & farmers. Incentive based motivation in rural mass.
- vi. Conducting need based training for young scientist. Conduct of refresher courses on latest technical subjects.
- vii. Exposure trips of field workers to advance sericulture areas.
- viii. Posting of the scientist should be given according to their qualification and experience based on the requirement. For each Scientist, technical and field worker should be attached, so that he can transfer the recent and advance knowledge to the technical staff and field worker.

- ix. Time to time subject specific refresher training for scientific workers in proper esteemed institute/laboratory of the country may be fruitful for updating their skills.
- x. Human resource Development to be taken up based on the subject area background of the scientists. Exposure of the employees to new techniques by arranging training programmes on new technologies developed at a regular interval. Providing training and allocating scientific personnel on their specific area of expertise.
- xi. Increasing scope for promotion to higher grades as followed in other organizations like CSIR/ICAR/ICFR &E/ETC.
- xii. Conducting need based training for young Scientist.

### **6.5 Possible areas of improvements required in the HRD scheme during XII Five Year Plan**

- i. In View of the price escalation/inflation the XI plan units cost for each type/category of training programmes ought to be revised
- ii. Strengthening of zonal trainers group for conducting effective training programmes
- iii. Developing the quality, acumen & skill of existing CSB trainers by plugging them in various relevant training programmes conducted by outside agencies both in India and abroad.
- iv. Desired improvement in areas of post training tracking of participants

### **6.6 Improvement noticed**

- i. Information about RTI act and important points about project formulation
- ii. Quantity and quality of leafing cocoon production in new technology adopted
- iii. The training helped to organize a cluster project in the potential sericultural pockets effectively and also helped to monitor the different activities of a particular cluster
- iv. Better conceptualization of the research project, resource mobilization and management, effective target approach and accomplishment, Adding value to the proposed projects by highlighting the virtual benefits to the industry
- v. Improvement in maintaining accounts systematically and smoothness in executing administrative matters
- vi. Improvement noticed in dealing administrative matters
- vii. Improvement in taking prompt and timely decision based on knowledge imparted during training. Also gained knowledge about RTI and its implementation
- viii. Acquired knowledge on the responsibilities of seed officers and procedures to be followed during seed analysis, Learned how to evaluate a training and gained knowledge on RTI Act and actions to be taken when RTI applications are received
- ix. Improvement in working approach efficiency.
- x. Improvement in updation of knowledge confidence building through practical and exposures to field
- xi. Improvement in management skill improvement is skill for project formulation & monitoring

xii. Knowledge of designing silk sarees card punching

### **6.7 Reasons for satisfaction/dissatisfaction**

- i. The trainings provided practical knowledge and exposures to the new technologies and practices which helped us to be expertise in the subject area
- ii. Mulberry leaf quantity and quality increased and cocoon production increased farmers earned more income in the activities
- iii. The training helped to organize a cluster project in the potential sericulture pockets effectively and also helped to monitor the different activities of a particular cluster
- iv. Training gave cleanliness in thoughts, enhanced knowledge in respect of latest rules, regulations, procedures and their implementation in day today administrative matters
- v. Exposure to update technology & procedure & methodology
- vi. Better conceptualization of the research project, resource mobilization and management, effective target approach and accomplishment
- vii. Adding value to the proposed projects by highlighting the virtual benefits to the industry

### **6.8. Steps either taken up or are planning to take up in the subject area based on knowledge gained from the training**

- The knowledge gained is being utilized in project formulations, monitoring and also percolated to staff & farmer's community.
- The new technologies viz. double step preservation method of Mulberry silkworm seed (developed by SSTL, Bangalore) has been tried in Muga seed cocoon preservation through experimental trials under the approved research project.
- Improved methodology of Pebrine detection has been introduced in muga silkworm seed production.
- Dissemination for other officers. Training imparted to Seed Officers under CMERTI & TI (Muga and Eri).
- Maintenance of chawkie rearing with extreme care and latest techniques with the concept of making strong and healthy chawkie silkworm
- Increasing farmer income by tasar culture
- Strengthening the laboratories of the institute and developed a biotechnology lab in the institute with modern equipmentsDevelopment of New Research project.
- On the basis of the trainings undertaken two (2) R&D projects have been formulated and already sanctioned by DBT, New Delhi and DST, New Delhi, respectively.
- In the Training quality seed cocoon production in seed organisation , in the post cocoon sector the quality cocoon of silk production in reeling sector. In office, administration maintained the office ethically kind and administration.

- Strengthening of seed multiplication level, selection of traits, rearing of percentage, improvement in homogeneity of genetic characters of races, silkworm rearing management and diseases control. Batch selection for maintenance of race purity.
- Knowledge gained in the training is imparted to the farmers, executives and students.

#### **6.9. Suggestions for making the training programme more beneficial during the XII Five year plan**

- Training center should be established in each state to arrange training on all related sericultural operations adopted by DOS's as well as CSB units.
- Trainings should be given after seeking the requirements with reference to the areas/subjects to be uplifted.
- Every theoretical lecture should be followed by practical session strictly.
- The scientist should be deputed for training on latest technologies of their field. Provide training to the scientists in their field of specialization or on the project they are working.
- On field demonstration & training.
- Training programmes should be need based, i.e. on the problems faced on a particular species of sericulture at a particular locality.
- Training should be provided to persons on their specific area of expertise, interest of work, so that they can apply their knowledge at practical field after getting knowledge in the training programmes.
- Trainings on RTI should be given at least to all the scientist/officers.
- More and more in house opportunities should be created for training/refreshers course in different fields, i.e. sericulture, administration & accounts to the CSB staff
- Holding interactive session after training. Feedback, opinion and suggestions from participants. Implementation and Evaluation.
- Trainings need to be assessed for all the scientist/officers and accordingly he/she may be provided training in any advance institute.

## CHAPTER VII

### SUMMARY AND RECOMMENDATIONS

Central Silk Board, over the Plan periods, had invested much of its material and manpower to develop well organized and systematic “Seed Organizations”, separately for Mulberry, Tasar, Muga & Eri.

Each of these organizations have been provided with necessary functional freedom supported by adequate facilities to upkeep a three tier multiplication system for retaining the inherent genetical characteristics like, hybrid vigour and disease freeness and above all maintain and regulate high quality standards among all the stakeholders in the seed production scenario.

Seed Organisations have also been entrusted with the responsibilities of implementing the recently enacted “Seed Act” bring in quality standards in Seed production process.

Major seed organizations working in the area of mulberry sector is National Silk Worm Seed Organisation. The target for NSSO during 2011-12 was set at 315 lakh DFLs whereas the actual production was 321.54 lakh DFLs. Basic Tasar Silk Worm Seed Organisation is involved in Tasar seed development and distribution with a target of 32.59 lakh DFLs during 2011-12. Previous year the target was set at 32.10 lakh DFLs and the achievement was 31.19 lakh DFLs. Muga Silkworm Seed Organisation is involved in Muga seed development and distribution was set at 2.57 lakhs DFLs and the achievement was 2.74 lakh DFLs during 2010-11. Eri Silkworm Seed Organisation is involved in development & distribution of Eri Seed with a target of 2.50 lakh numbers with an achievement of 2.59 lakh numbers.

The major findings and recommendations derived from the evaluation study are as follows:

#### 7.1 Major Observations

CSB had invested much of its material and manpower to develop well organized and systematic “Seed Organizations”, separately for Mulberry, Tasar, Muga & Eri National Silk Worm Seed Organisation (NSSO) for mulberry sector, Basic Tasar Silk Worm Seed Organisation (BTSSO) is involved in Tasar seed development and distribution, Muga Silkworm Seed Organisation (MSSO) is involved in muga seed development and distribution and Eri Silkworm Seed Organisation (ESSO) is involved in development & distribution of Eri Seed. This institutional framework has been provided with necessary functional freedom supported by adequate structural facilities to keep a three tier multiplication system for retaining the inherent genetic characteristics such as hybrid vigour, disease freeness and above all maintains and regulates high quality standards among all the stakeholders in the seed production scenario. The ultimate aim of CSB in seed sector is to assume more as a regulating and facilitating authority by limiting its role in maintaining the nucleus seed source and producing some portion of basic seed, especially bivoltine and Vanya silk sector, transform 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.

Further the Human Resource Development scheme addresses the activities including Board's Secretariat, Regional Offices, Raw Material Banks and Certification Centers. The Board's Secretariat coordinates the technical activities of all its nested units in research, extension, basic seed production, publicity, price stabilization for Vanya sector, market development etc. besides maintaining the overall administrative and financial apparatus of 300 units manned by about 3900 employees.

## 7.2. Seed Organisations

Seed organizations have the mandate to implement the recently enacted Seed Act with a view to bring in quality standards in Seed production process. The Seed organizations have been playing a major role in sufficing the demand for seed at various levels. With the advent of high end technology and quality based pricing the basic support i.e. the seed supplied to the rearers need to be of very high standard. Up-gradation of infrastructure facilities at NSSO, BTSSO, MSSO and ESSO units are very much important.

### 7.2.1 National Silkworm Seed Organization (NSSO)

National Silkworm Seed Organization (NSSO) is a separate entity under Central Silk Board, established in 1975 to supplement the efforts of State Governments in supplying high quality Bivoltine and Multibivoltine silkworm seeds to the farmers. The measurable physical achievements under the category of the ongoing activities of NSSO are the DFL production

NSSO is the only organisation having the unique distinction of being ISO 9001:2008 certified. In spite of the stiff competition from other Seed producing agencies like Department of Sericulture and LSPs, considerable share of the country's seed requirement is met by the nineteen SSPCs of NSSO. During 2011-12, against a target of 315 lakh DFLs, 321.54 lakh DFLs were produced, which is a great achievement and the seed production crossed the 3.00 crore mark, after a considerable gap of 2-3 decades. A significant improvement in the quality and quantity of cocoons generated at the farms also was observed. An expenditure of Rs. 19.46 Crores was spent under the head Mulberry Seed Production for the XI Five Year Plan. The performance in terms of utilization of the funds has been found satisfactory. However, there is a requirement of strategic shift in terms of increasing the Bivoltine Seed Production instead of Crossbreed seed production for quality improvement.

### 7.2.2 Basic Tasar Silkworm Seed Organisation (BTSSO)

BTSSO undertakes the responsibility of producing the entire basic seed requirement of the Tasar sector, generated through a three tier multiplication system. The basic seed produced by the Basic Seed Multiplication Training Centre (BSMTCs) would be further multiplied by the State grainages and private grainers before reaching to the farmers.

BTSSO has been performing its seed production activities through 1 nucleus seed unit at Kargi Kota and 21 BSMTCs located in 9 tasar producing States. It is observed that State Pilot Project



Centres (PPCs) and private grainers are yet to achieve the productivity norms although there are signs of sporadic improvement due to the adoption of improved methods. These experiences lead to the conclusion that the technicians associated with the seed production would have to upgrade their technical and managerial skills besides maintaining a high level of hygienic atmosphere in the grainages. Hence, necessary skill up-gradation programmes are being undertaken by the BTSSO on a continuous basis. An expenditure of Rs. 15.50 Crores was spent under the head BTSSO during the XI Five Year Plan. The performance of the sector has been satisfactory and considering the gap between demand and supply of tasar seed it is imperative to promote private entrepreneurship for commercial seed production.

### **7.2.3 Muga Silkworm Seed Organisation (MSSO)**

Muga Silkworm Seed Organization (MSSO) is mandated to supply the entire basic seed (P4 & P3) required for the sector to the State farm cum grainages and private grainers for further multiplication as commercial seed. Eight P-4/P-3 units and one SSPC under Muga sector continued with maintenance of parental stocks for basic seed production and supply in addition to commercial seed production. An expenditure of Rs. 5.66 Crores was spent under the head MSSO for the XI Five Year Plan. During 2011-12, a total of 2.130 lakh gram Muga basic seed and 0.386 lakh gram commercial seed were produced with over all achievement of 100.56 %.

### **7.2.4. Eri Silkworm Seed Organisation (ESSO)**

Eri Silkworm Seed Organization (ESSO), have been established to meet the need of basic seed production and supply to Sericulture Departments of different State. Sericulture is a household activity practiced mainly for protein rich pupae, a delicacy for the tribals. Resultantly, the eri cocoons are open-mouthed and are spun. The silk is used indigenously for preparation of chaddars (wraps) for own use by these tribals. In India, this culture is practiced mainly in the north-eastern states and Assam. Later on the culture was also introduced in Andhra Pradesh due to high availability of food plants and the same has also been successful. It is also found in Bihar, West Bengal and Orissa. Under ESSO, ESSPCs against a target of 2.75 lakh dfls, a total of 3.179 lakh dfls were produced which included 0.377 lakh Eri basic and 2.801 lakh commercial seed, the over all achievement was 115.60% during 2011-12. An expenditure of Rs. 1.70 Crores was spent under the head ESSO during XI Five Year Plan. The performance in terms of utilization of the funds has been satisfactory.

Implementation of the provisions of Central Silk Board (Amendment) Act, 2006 has been an important milestone. The various Seed Organizations existing with Central Silk Board considers that creating awareness among the seed sector entrepreneurs and seed cocoon producers about the Central Seed Act is of prime importance. In this direction, awareness programmes, booklet preparation detailed information pertaining to the Act, registration of producers and training to stakeholders are regularly undertaken by Seed Organizations.

From the field survey undertaken by the NPC study team it was revealed that in majority of Chawkie Rearing Centres (CRCs), impact of Sericulture activity on beneficiaries' family income was seen to be positive. Most of the respondents from Licensed Seed Producers (LSPs)/Private Grainers category also informed that they have benefitted and there is an increase in their annual family income due to sericulture activities.

Some of the grey areas that need to be addressed as reported by CRCs, LSPs and Seed Rearers that they require vehicle/ van for transportation of chawki reared worms, stability of inconsistent cocoon rates in the market, requirement of increase in financial assistance for disinfestant garden maintenance and need for more rearing equipment, Additional provision for CRC irrigation facilities, requirement of Subsidy for grainage building and sprays, Requirement of cocoon market and cocoon bank, New technology subsidy to be provided for machine & technology, Requirement of Quality vermi- compost and Quality DFLs, more training on proper rearing and provision of more rearing appliances especially rearing nets, provision of Insurance scheme, etc.

Major Improvements as reported by the CRCs & LSPs and seed rearers in the Quality of Seed were that the increase in productivity/100 DFLs with new hybrids, increase in income, Hatching percentage increased, Disease free layings Cocoon yield/quality increased, Fecundity increased, further with better administration the Availability of DFLs was on time, Rich Laying & more than 95% Chawki & more Average yield of cocoon.

### **7.3. Human Resource Development**

Human Resource Development, the process of equipping individuals with the understanding, skills and access to information, knowledge and training that enables them to perform effectively. The functional arms for undertaking the activities of this component include Board's Secretariat, Regional Offices, Raw Material Banks and Certification Centers. The Secretariat also acts as an interface between the various arms of Govt. of India, State Sericulture Departments, national and international agencies, private stakeholders starting from the poor farmers to high profile exporters and a slew of other agencies associated with sericulture and silk industry. Apart from the regular monitoring of research and technical on-going activities, the secretariat is also involved in conceiving, formulating, evaluating and monitoring various centrally sponsored schemes, such as Catalytic Development Programme (CDP), implemented through the state sericulture departments.

Besides the above, bulk of the human resource requirement of all its departments are met exclusively by the HQs, administratively headed by Member Secretary supported by Research, Technical, Establishment, vigilance, Accounts, Audit, Bills, Stores, Law, Labour, Statistics, Corporate & Entrepreneurs Development, Publicity, Rajabhasha, protocol sections. It also houses the Office of the Chairman. The Regional Offices (RO) of CSB work in various states for effective liaison of the activities of CSB in these states. The activities of all the States are also to be monitored through State Level Monitoring Committees, wherein the technical support and inputs from ROs are essential for organizing the meetings and to follow-up the decisions taken thereof.

As far as the silk industry is concerned, the two major players are the CSB and State government departments. Quality Human Resource is one of the key factors/required for the success of these organizations; therefore the internal resources should be trained and regularly updated, refined and maintained in desired manpower condition. Regular training based on containing latest techniques & methods on the sericulture sector are organized by Central Silk Board. Further, the field survey reflected that periodic audit is undertaken annually for checking whether Government of India policies have been implemented and followed strictly.



Suggestions & Improvements for betterment of the HRD scheme include organizing refresher courses/ seminars/ workshops for scientific community to discuss new innovations, technological breakthroughs, disseminating the new developments in science & other related fields to the field on a regular basis. There is a requirement of Exposure to Management, especially with changing world trade and liberalization scenario, changing paradigms of general management thoughts & techniques, extension concepts and tools and policy changes, it is pertinent for the scientific and technical personnel to understand and comprehend these changes taking place around them and get exposed to the new developments on a continuous basis. The support service personnel require regular reinforcement and exposure to changes in rules and regulations, administrative and financial provisions and concepts and motivational interventions at desired intervals.

In order to eliminate the presence of middlemen who were exploiting the primary producers, CSB had established 3 Raw Material Banks (RMBs) for Tasar, Eri and Muga with a network of 8 sub-depots in different states.

The achievements of this sub-component are not measurable in physical terms except the progress of RMB. But this is a much-needed backward linkage to facilitate the nested units and stakeholders to achieve the mandated targets.

An expenditure of Rs. 36 Crores was spent under the head HRD-Coordination & Market Development during XI Five Year Plan.

#### **7.4. Overall Observations**

It has been found that the seed organization and HRD scheme has been quite successful in achieving the mandate to develop well organised and systematic “Seed Organizations separately for Mulberry, Tasar, Muga and Eri. These seed organizations played a critical role in the maintenance of the quality silkworm basic seeds and supply of commercial silkworm seeds, support of technical imports to Seri culturists/ private entrepreneurs. These seed organisations were quite successful in improving the production and productivity for quality cocoon yield during XI Five Year Plan. Considering overall health and survival of the sector for providing employment and livelihood to more than 75 lakh people mainly women and SC/ST people in the remote and tribal areas, quality seed is critical to maintain productivity hence the Govt. support through this scheme need to be continued during XII Five Year Plan as well especially in view of the recently enacted Seed Act.

HRD scheme contributed immensely to maintain and manage CSB Head Quarters and about 300 field officers spread across the breadth and length of the country. The scheme also helped in providing the necessary training to the manpower of about 3900 employees of CSB in areas of technology, management and administration. The scheme also helped in developing regional Raw material banks at (Chaibasa (Jharkhand) for Tasar and Sibsagar (Assam) for Muga cocoons).

## 7.5 Gist of Major Observations

### 7.5.1 Seed Organizations

- Central Silk Board, over the Plan periods, had invested much of its material and manpower to develop well organized and systematic “Seed Organizations”, separately for Mulberry, Tasar, Muga & Eri.
- The Seed organizations have been playing a major role in supplying quality seed to meet the demand for seed at various levels.
- Each of these organizations have been provided with necessary functional freedom supported by adequate facilities to upkeep a three tier multiplication system for retaining the inherent genetical characteristics like, hybrid vigour and disease freeness and above all maintain and regulate high quality standards among all the stakeholders in the seed production scenario.
- Seed Organisations have also been entrusted with the responsibilities of implementing the recently enacted “Seed Act” bring in quality standards in Seed production process.
- Major seed organizations working in the area of mulberry sector is National Silk Worm Seed Organisation. The target for NSSO during 2011-12 was set at 315 lakh DFLs whereas the actual production was 321.54 lakh DFLs.
- Basic Tasar Silk Worm Seed Organisation is involved in Tasar seed development and distribution with a target of 32.59 lakh DFLs during 2011-12 and the achievement was 34.76 lakh DFLs.
- Muga Silkworm Seed Organisation is involved in Muga seed development and distribution and the achievement was 2.52 lakh DFLs during 2011-12.
- Eri Silkworm Seed Organisation is involved in development and distribution and the achievement was 3.17 lakh DFLs during 2011-12.
- With the advent of high end technology and quality based pricing the basic support i.e. the seed supplied to the rearers need to be of very high quality with appropriate hatching, egg recovery, disease control, vigour.
- Quality and cost of production are the key factors for sustaining in the Post liberalization and free trade regime. Technology is critical, therefore modernization of the Seed organizations and up gradation of technology is imperative.
- During the field survey by NPC, it was observed that in some cases commercial cocoon was fetching better prices than the Seed cocoon

- Most of the seed organizations were of the view that the equipments and technologies available were not upgraded over the years.
- An effective recording of the seed based operations of all the seed organizations shall require the linking of all the units with the Information Technology network and data base of the stake holders,`
- Adoption of strict pruning schedule & application of inputs for some plants, field sanitation, cellular rearing following P-4 level production norms coupled with adherence to effective microscopic examination of silkworm larvae, pupae & moth following Fujiwara technique has immensely reduced the disease incidence besides improving quality and productivity in the unit.
- Officers and staff dealing with the seed production at the state level were relatively less aware of advanced techniques, usage of the computer/internet for regular feedback and online support mechanism.
- During the discussions with DOS official of Karnataka it was found that during the last few years the firmly established Licensed Seed Producers network in Karnataka is showing signs of weakness.
- Seed Zone receive lesser cooperation from DOS and the zones are considered to be the responsibility of CSB for improvement in the productivity and quality of Silkworm seed.
- The Assistance given for the construction of Rearing house and raising the plantation was not sufficient as discussed with most of the seed cocoon farmers. The adopted seed rears (ASRS) are given rearing bays & training under the ASR component.
- Provision of suitable transport facilities to seed organisations for the extension of field related sericulture activities of seed organizations at grass root level for various sericulture a activities need to be ensured.
- Other than producing nucleus and basic seeds at the CSB level, support may be extended to the states to strengthen seed production units and encourage private participation through different programmes. Seed is the vital link for the success of the sericulture industry.
- The cold storage facilities with CSB are very crucial for the storage of seed and the same require to be upgraded/operationalized with immediate effect for preventing wasteful utilization of Resources and immediate steps need to be undertaken in this regard.
- There was deficit of proper infrastructure for Grainage and pre cocoon operations in Non mulberry sector.
- Visits of Seed Officers and Seed Analysts to the field especially in the Non mulberry sector need to be ensured.

- Establishment of proper connectivity, basic amenities and infrastructure for the functionaries at the field level need to be provided for both Mulberry and Vanya Sectors.
- Eri seed production by the private Graineurs was not being undertaken in an organized manner.
- Private seed producers were of the opinion that better technical support, testing facilities and marketing of Mulberry, Tasar, Eri and Muga seed would be helpful in improving the quality of the seed produced.
- The rearers and the field level officers were of the opinion that demonstration training could improve the acceptability of new technologies and best rearing practices.
- Lesser availability and fixed head wise allocation of fund for training was also a major hinderance in organizing training programmes.
- Supply of disinfectants was a major boon to the Adopted Seed Rearers and it had reduced the disease incidence. Further, Adopted Seed Rearers also advocated the provision of Input support for standardised seed production.
- CRCs were of the view that incubation chambers could ensure uniform hatching and greater crop success.
- In North and East zones, due to lesser demand, seed cocoon aren't procured from all farmers times the seed cocoon producers are forced the seed cocoon in the open market for reeling purpose.
- During XII Plan, under the purview of seed act there was a requirement of establishment of suitable quarantines units setup for silkworm seed export/ import.
- During the field visit of NPC Study Team, it was observed many seed cocoon producers were not covered under insurance scheme that was offered under CDP.
- Chawkie reared worms and Seed cocoons had to be transported for seed production and multiplication, for the purpose there is a requirement of a vehicle (four wheeler).
- It was seen in the field the number of seed producers was going down drastically. It may be due to better avenues for the stakeholders in other areas.
- ISO certification of silkworm seed produced by LSPs and P1 grainages through ISO 9001:2008 shall ensure better, quality, monitoring and organized production.
- Multivoltine seed cocoon growers need to be supported through infrastructure, equipment and inputs to sustain and improve the cross breed seed production and cocoon productivity.

- There is a requirement of scientists / staff given the work load in view of ageing / retirements for the maintenance of units and their sustenance.

### 7.5.2. HRD Scheme

- The HRD component of the scheme includes project monitoring activities coming under Central Sector Schemes through 300 CSB units controlled by the Head office at Bangalore.
- The CDP Implementation and Monitoring Mechanism in the new format with Zonal Cells need induction of additional skilled manpower for effective functioning and operation. There are many important technical activities in CSB HQs and Regional Offices like Bivoltine development, Cluster development programmes, Ser-business enterprises development, Seed Act Implementation, Post Cocoon Affairs, Corporate and Entrepreneur Development, Product Design Development and Diversification, Vanya Silk Market Promotion, Parliament Affairs, Research Coordination, Capacity Building, price support system, Development of Community Based Organizations, Insurance support, Foreign Affairs, Women and Tribal affairs, Credit facilitation, etc., which needed focused attention and required to be manned by middle level Officers.
- These Middle Level Officers must have profound knowledge in sericulture besides expertise on project preparation, monitoring and reviewing, managerial concept on sericulture, sensitized on socio-economic aspects, good proficiency in language and computer literacy.
- At present, adequate Officer level staffs are not readily available to undertake these activities in a focused manner.
- Entry level of the Board Secretariat Technical Cadre need to be augmented on account of the vacancies arises as above and also due to increased work load in the Plan activities of CSB.
- The analysis of organizational need necessitates organizing refresher courses/ seminars/ workshops for scientific community to discuss innovations, technological breakthroughs, disseminating the new developments in science & other related fields to the field on a regular basis.
- There is a varied range of pricing prevalent in Vanya seed sector.
- During the field visit, it was revealed that Muga graineur & are not given exposure mulberry rearing and graineunins outside NE states since they are involved in Mga culture. Further most of muga rearing and muga grainage trainings was not considered much useful by the beneficiaries.
- Franchise Chawkie Rearing Centre and disinfection were considered as the boon to the sericulture farmers and were found to be of high utility and importance.

- Most of the stakeholder was not aware with the various aspects of Silkworm Seed Act and its implementation.
- Regular fund allocation for maintenance functions of SSPCs, BSMTCs & SSUs is essential for the continuous technological & infrastructure up gradation.
- During the field survey, it was observed that demonstration training programme practically were helpful in better acceptance of technology and good sericulture practise. Further, Trainings in local languages ensured better acceptability and understanding. Further, the periodicity of trainings ensured better follow-up and scheduling of activities.

## 7.6. RECOMMENDATIONS

### 7.6.1. Seed Organization Scheme

- The Seed organizations have been playing a major role in supplying quality seed to meet the demand for seed at various levels.
- It is recommended that the continuous up-gradation of infrastructure facilities in NSSO, BTSSO, MSSO and ESSO units may be taken up on urgent basis.
- Quality and cost of production are the key factors for sustaining in the Post liberalization and free trade regime. Technology is critical, therefore modernization of the Seed organizations and up gradation of technology is imperative. Both advanced as well as indigenous technology needs to be developed and integrated in the system. It is recommended that both advanced as well as indigenous technology needs to be developed and integrated in the system.
- The price rise seen in case of the commercial cocoon needs to be closely monitored and the price support at par for Mulberry silkworm seed crop rearers (Adopted Seed Rearers) for quality silkworm seed cocoon generation need to be ensured and followed by all the agencies involved in seed cocoon procurement and needs to be revised yearly.
- It is recommended that isolated testing facility may be established in accordance with the International Laboratory Accreditation Cooperation Certified laboratories standards with Central Seed Testing Laboratory.
- An effective recording comprising of MIS with the Information Technology network and data base of the stake holders needs to be created by CSB for all the Seed organizations including both mulberry and non mulberry sector.
- Officers and staff dealing with the seed production at the state level need to be trained in advanced techniques, refresher courses and advanced programmes/usage of the computer/internet for regular feedback and online support mechanism.

- During the discussions with DOS official of Karnataka it was found that during the last few years the firmly established Licensed Seed Producers network in Karnataka is showing signs of weakness. It is critically important to put into optimum use of the facilities already created.
- Seed zone should be declared by DOS & Central Silk Board in close coordination for improvement in the productivity and quality of Silkworm seed. Entrepreneurship Development aspects may be included in training curriculum (Seed Act).
- The Assistance given for the construction of Rearing house and raising the plantation should be revised upwardly as the same has become insufficient due to the high inflationary trend over the last five years.
- Provision of suitable transport facilities for the movement of field related sericulture activities of seed organizations at grass root level for Mobile disinfection work, Chawki rearing, procurement of seed cocoon and seed extension work need to be ensured and given priority.
- Other than producing nucleus and basic seeds at the CSB level, support may be extended to the states to strengthen seed production units and encourage private participation through different programmes. Seed is the vital link for the success of the silk industry.
- Operationalization/ upgradation of the cold storage facilities available with CSB is crucial for the storage of seed and the same needs to be taken up on priority basis.
- Proper infrastructure for Grainage and cocooning operations in Non mulberry sector may be established.
- Visits of Seed Officers and Seed Analysts to the field especially in the Non mulberry sector need to be ensured.
- Organizing small scale Eri seed producers to form Private seed producers' in PPP mode in NE states need to be visualized and operationalised during XII Plan.
- There is a requirement of Assisting Private seed producers in tool support, testing facilities and marketing of Mulberry, Tasar, Eri and Muga seed.
- Initiating flexible but effective periodic testing and certification mechanism for private seed production and adherence to the quality standards is an immediate requirement.
- Technology improvement is most essential to ensure Integrated Disease Identification and Management for the seed sector. The need based enhancement of knowledge of scientists in terms of new developments in their area of work both in terms of technology and experiential learning needs to be given top priority.



- More emphasis should be given on practical classes & exposure/field visit in order to provide a better understanding to the stakeholders. Model Farms may also be developed and Successful farmers incentivized through better coordination and monitoring.
- Unit cost of training may be increased by maintaining flexibility for utilization of fund under different heads within the unit cost by the implementing officer for better management of training programme
- In light of seed act, provisions may be made to improve / strengthen seed area and seed rearers for non-traditional states
- Rearing house subsidy and plantation subsidy should be raised in case of Adopted Seed Rearers for ensuring dedicated supply of seed.
- Free supply of disinfectants and Input support to the Adopted Seed Rearers may be provided for sustenance of quality seed production.
- Motivational incentives to the seed production units on annual basis based on the performance.
- CRCs may be provided with incubation facilities in mulberry sector for uniform hatching and greater crop success.
- Establishment of Seed Cocoon Procurement Centres in North and East zones are required.
- There is a requirement of Streamlining of quarantine for export / import of silkworm seeds during XII Plan.
- Health insurance cover for workers and staff of silkworm seed production units and Adopted Seed Rearers should be provided.
- Vehicular (2 wheeler) support to the staff working in extension units is required for effective implementation.
- Vehicle facility (4 wheeler) for transportation of Chawki Reared worms at field level and seed cocoons for SCPCs / SSPCs
- To ensure Retention / attraction for young generation for sericulture activity from rural areas, incentives and socio economic benefits need to be integrated in the scheme for Seed Rearers and Seed Producers.
- ISO certification of silkworm seed produced by LSPs and P1 grainages through ISO 9001:2008 need to be taken up.
- Multivoltine seed cocoon growers need to be supported through infrastructure, equipment and inputs to sustain and improve the cross breed seed production and cocoon



productivity. Improvement and popularization of new cross breed varieties in the field are required.

- There is a requirement of inducting new workforce vis a vis the work load in view of ageing / retirements, the maintenance of units and their sustenance.
- Performance linked new marketing strategies maybe worked out by introducing monetary benefits based on the sale of commercial dfls to improve the efficiency in seed production units of CSB.

**Based on the findings of the evaluation study, it is recommended that there is an utmost requirement of increasing the level of financial support to the seed sector of Sericulture to the tune of Rs.90 crores as seed is the basic and primary requirement for the growth and development of Sericulture. Considering the fact that the Seed Sector in Agriculture, Horticulture and Other Allied Sector are being supported by huge subsidies by the Government of India, Sericulture sector is also comparable under the given parameters of performance and it provides livelihood options to large segments of relatively poor and landless stakeholders based at rural and tribal areas dominated by women workforce.**

#### **7.6.2. HRD Scheme**

- Entry level of the Board Secretariat Technical Cadre need to be augmented on account of the vacancies arises as above and also due to increased work load in the Plan activities of CSB.
- It is recommended to strengthen the Project Management Division in CSB HQs and Regional Offices.
- There is a requirement of seminars/ workshops for CSB scientists to discuss innovations, technological breakthroughs, disseminating the new developments in science & other related fields to the field on a regular basis.
- There is a requirement of Price support system to protect the primary producers from exploitation by middlemen through Raw Material Banks in Vanya seed sector.
- Muga graineur & rearers should be provided field visit to mulberry rearing and grainage outside NE states
- Training of Franchise Chawkie Rearing Centre management and disinfection to use mobile disinfection units as envisaged under the Seed Act may be implemented at a larger level and in intensified manner.
- Practical muga rearing and muga grainage trainings should be given to the farmers regularly to ensure higher level of adoption and understanding

- An intensive training and exposure programme for CSB Scientists, Seed Officers and Seed Analysts is a must along with Regular Orientation and Refresher Trainings for CSB Scientists, Silkworm Seed Producers and Chawki Rearers with due consideration to the aspect of Silkworm Seed Act
- Regular fund allocation for maintenance functions of SSPCs, BSMTCs & SSUs is essential for the ground level development of the seed sector.
- The training programme should be arranged on all the sericultural/moricultural aspects for different cadres separately. The course material should be supplied in soft language.
- All trainings should be given practically and demonstrated properly to avoid confusions.
- Trainings should also be arranged for farmers/women workers at all levels in particular local languages and the course material/ possible literature should be made available in local languages. The Field Days / Vichar Goshtis should be arranged at proper intervals to take feedback at farmers' level.
- There is a requirement of orientation training of scientific/technical personnel involved in seed quarantine and monitoring programmes.
- In View of the price escalation/inflation the XI plan units cost for each type/category of training programmes ought to be revised.
- It is recommended that the Strengthening of zonal trainers group for conducting effective training programmes may be undertaken for developing the quality, acumen & skill of existing CSB trainers by plugging them in various relevant training programmes conducted by outside agencies both in India and abroad.

**The various activities under the HRD part of the scheme involving coordination, market development and Infrastructure development/Management may be continued as a separate scheme delinked from Seed Organisations scheme during XII Five Year Plan with a financial allocation of Rs.60 crores.**

## Annexure I.1

**SURVEY QUESTIONNAIRE: SILK WORM SEED ORGANIZATION & HRD  
(NSSO/BTSSO/MSSO/ESSO and zone-wise ZSSPOs/ SSPCs/  
Basic Seed Farms/Sericulture Service Centres / Seed Grainages)**

*National Productivity Council, an autonomous organization under Ministry of Commerce & Industry, Government of India, is carrying out a study on "Evaluation of Seed Organisation and Human Resource Development", sponsored by Central Silk Board, Ministry of Textiles, Government of India. The objective of this field survey is to find out the effectiveness of the Seed Organization & HRD scheme implementation during XI Five Year Plan. Findings of this study will be utilized by CSB to modify and improve the scheme implementation during XII Five Year Plan*

Please fill as per instructions given with each question.

*Write codes/ values in the box provided at the right hand side)*

1.0		General Information	
1.1	<b>Region:</b> (1=North Western Himalayan Region, 2=North Eastern India, 3=Northern and Central India, 4=Eastern region, 5=Southern India)		
1.2	<b>State</b> (1=Andhra Pradesh, 2=Jammu & Kashmir, 3=Karnataka, 4=Tamil Nadu, 5=West Bengal, 6=Assam, 7=Chhattisgarh, 8=Himachal Pradesh, 9=Jharkhand, 10=Maharashtra, 11=Manipur, 12=Meghalaya, 13=Uttar Pradesh, 14=Uttarakhand)		
1.3	<b>Category of Seed Organization:</b> (1= NSSO, 2=BTSSO, 3=MSSO, 4=ESSO, 5= ZSSPOs, 6= SSPCs, 7=Basic Seed Farms, 8= Sericulture Service Centres, 9= Seed Grainages)		
1.4	<b>Name &amp; Address of the Organization</b>		
2.0		Present Status of Sericulture Seeds	
2.1	<b>Present Seed Genotypes and varieties available (please provide details)</b>		
2.2	<b>Genotypes and variety wise Production and Demand/ Sale of DFLs ('000s)</b>		
	Year	Genotype/ Variety	Production (in 000 DFLs)
	2007-08		
	2008-09		
	2009-10		
	2010-11		
	2011-2012		
2.3	<b>Infrastructure available with the organization (XI Five Year Plan )</b>		
	Year	Bought under CSB scheme	
	2007-08		
	2008-09		
	2009-10		
	2010-11		
	2011-2012		
2.4	<b>What are the quality parameters followed by your organization and output?</b>		
2.5	<b>Utilization of funds allocated under XI Five Year plan</b>		
	Year	Budget	Utilization

		(Rs. Lakhs)	(Rs. Lakhs)
	2007-08		
	2008-09		
	2009-10		
	2010-11		
	2011-2012		
<b>3.0</b>	<b>Quality Assurance, Delivery &amp; Utilization</b>		
<b>3.1</b>	<b>Whether any technique/ exercise/ procedure is undertaken to ensure the quality of seed produced / received / dispatched?</b> (1=Yes, 2=No)		
<b>3.2</b>	<b>If Yes, please provide the details:</b>		
	<b>During Receipt</b>	<b>During production/multiplication</b>	<b>At the time of Dispatch</b>
<b>3.3</b>	<b>Whether the supply of seed for multiplication is undertaken in a timely manner?</b> (1=Yes, 2=No)		
<b>3.4</b>	<b>If no, please provide the details:</b>		
<b>3.5</b>	<b>Have you faced any difficulties/issues with respect to the seeds/eggs received from Seed organizations/ LSPs/ Grainages in terms of quality or proper storage? Applicable for Basic Seed Farms?</b> (1=Yes, 2=No)		
<b>3.6</b>	<b>If yes, please specify</b>		
	<b>Parameters</b>	<b>Problems/constraints</b>	
	Quality		
	Storage		
	Infrastructure		

<b>3.7</b>	<b>Coverage of beneficiaries during XI plan (Applicable for SSPCS)</b>						
	The year-wise coverage of the beneficiaries.						
	Year	Total Number of Beneficiaries Sericulture Farmers					
		Sector	Institutions	SC	ST	others	Total
	2007-08						
	2008-09						
	2009-10						
2010-11							
2011-12							
<b>4.0</b>	<b>Trainings undertaken by the Seed Organization</b>						
<b>4.1</b>	<b>Training Programme for Stakeholders/Entrepreneurs/ Sericulture Farmers on seed management undertaken:</b>						
	Year	Training Programme				Stakeholders/Entrepreneurs/ Sericulture Farmers	
	2007-08						
	2008-09						
	2009-10						
	2010-11						
	2011-12						
<b>4.2</b>	<b>Training Programme for Staff Members</b>						
	Year	Topic				Number of Participants	
	2007-08						
	2008-09						
	2009-10						
	2010-11						
	2011-12						
<b>5.0</b>	<b>Trainings on Quality Improvement</b>						
<b>5.1</b>	<b>Training Programme for Licensed Seed Preparers (LSPs) and Chawkie Rearing Centers (CRCs) organized for quality improvement:</b>						
	Year	Training Programme	Participant Details		Duration	Venue	
	2007-08						
	2008-09						
	2009-10						
	2010-11						
	2011-12						
<b>5.2</b>	<b>Initiatives Planned under the scheme for XII Five year Plan</b>						
	Sr. No.	Name of the Initiative	Objectives/Targeted stake holders			Provisional Fund Requirements	

5.2	Suggestion for improving of the training programmes during XII Five Year plan.
-----	--

*Thank you*

Name of the Official/Investigator: \_\_\_\_\_

Signature : \_\_\_\_\_

Place of Survey : \_\_\_\_\_ Date: \_\_\_\_\_

## Annexure 1.2

## SURVEY QUESTIONNAIRE: SILK WORM SEED ORGANIZATION & HRD (Chawkie Rearing Centers)

*National Productivity Council, an autonomous organization under Ministry of Commerce & Industry, Government of India, is carrying out a study on "Evaluation of Seed Organisation and Human Resource Development", sponsored by Central Silk Board, Ministry of Textiles, Government of India. The objective of this field survey is to find out the effectiveness of the Seed Organization & HRD scheme implementation during XI Five Year Plan. Findings of this study will be utilized by CSB to modify and improve the scheme implementation during XII Five Year Plan*

Please fill as per instructions given. Write codes/ values in the box provided at the right hand side)

<b>1.0 General Information</b>						
<b>1.1</b>	<b>Region</b> (1=North, 2=Central, 3=East, 4=West, 5=South)					
<b>1.2</b>	<b>State</b> (1= Himachal Pradesh , 2 Uttarakhand, 3=Jammu & Kashmir,4= Uttar Pradesh, 5 =Andhra Pradesh ,6= Maharashtra 7= West Bengal ,8= Chhattisgarh ,9= Jharkhand, 10=Manipur ,11= Assam, 12= Meghalaya ,13=Karnataka, 14=Tamil Nadu)					
<b>1.3</b>	<b>District:</b>					
<b>1.4</b>	<b>Name of the Cluster:</b>					
<b>1.5</b>	<b>Name of the Chawki Rearer:</b> _____ <b>Address:</b> _____ <b>City/Town/Village:</b> _____ <b>Tehsil:</b> _____ <b>Pin:</b> _____ <b>Phone/Mobile No.:</b> _____ <b>E-mail, if any</b> _____					
<b>1.6</b>	<b>Age of the respondent (Farmer)(in yrs):</b>					
<b>1.7</b>	<b>Gender</b> (1=Male, 2=Female)					
<b>1.8</b>	<b>Caste</b> ( 1=SC, 2=ST, 3= Others)					
<b>1.9</b>	<b>Educational Level</b> (1=Illiterate, 2=Primary, 3=Secondary, 4=Graduate & above)					
<b>1.10</b>	<b>Experience in sericulture (in yrs):</b>					
<b>1.11</b>	<b>Sources of family income</b>					
	Sl.No.	Source of Income	Approximate Annual Income (Rs. In thousand)			
			2007-08	2008-09	2009-10	2010-11
	a)	Sericulture				
	f)	Income from other activities				
		Total:				
<b>1.12</b>	<b>Income Utilization</b>					
	Sl.No.	Income Utilization	Approximate Utilization (Rs. In thousand)			
			2007-08	2008-09	2009-10	2010-11
	a)	Sericulture				
	b)	Food and other expenses				
		Total:				
<b>1.13</b>	<b>Number of workers in the Chawkie rearing center</b>					

“

2.0 Source of Silkworm Seed									
2.1	Do you procure seeds from Private/Govt. agency /sector? (1=Yes, 2=No)								
2.2	Is the Private/Govt. agency registered as producer/dealer/supplier of Silkworm seed? (1=Yes, 2=No)								
2.3	If yes, please give details regarding quantity and organization/place from which silkworm seed procured during last five years								
	Sl.No.	Source of silkworm seed		Approximate Quantity (DFLs)					
				2007-08	2008-09	2009-10	2010-11	2011-12	
	a)	Private							
	b)	Govt agencies							
		Total:							
2.4	Have you faced any difficulties/issues in the seeds/eggs received from Private/Govt. agency /sector? (1=Yes, 2=No)								
2.5	If yes, please specify								
3.0 Productivity related information									
3.1	Productivity related information (Silkworms reared from seed):								
	Variety	No. of DFLs brushed per crop per year		Silkworm eggs hatched from DFLs (Nos.)		Chawkie reared worms supplied (Nos.)		Average Cocoon yield per 100 DFL (Kg)	
		BV	CB	BV	CB	BV	CB	BV	CB
	2007-08								
	2008-09								
	2009-10								
	2010-11								
	2011-12								
3.1.1	Reasons for low productivity, if any.								
3.2	Do you get subsidy on procurement of DFLs from Govt. seed organisation? (1= Yes 2= No)								
3.3	If yes the assistance received per DFL (in Rs)								
3.4	Have you faced any difficulties/issues in the DFLs (1=Yes, 2=No)								
3.5	If yes, please specify								



3.6	<b>Chawki Rearing :</b> 1=Type & size of Chawki Rearing house _____ 2=Method of brushing of young age silkworm _____ 3=Frequency of Bed cleaning & drying _____ 4=Spacing adopted in square feet _____ 5=Use of bed disinfectant & concentration _____ 6=Frequency of feeding _____ 7=Care during moulting(Maintenance of temperature& humidity) _____ 8= mulberry varieties/acerage _____																																		
3.7	<b>Technology related exposure:</b> <table border="1"> <thead> <tr> <th>Adaptation of transfer of Technology ( Conventional &amp; Improved)</th> <th>How long the Technology Has been used (Months)</th> <th>Impact &amp; Effectiveness of the Technology (1=Poor, 2=Average, 3=Good, 4=Very Good, 5=Excellent)</th> <th>Problems or constraints encountered in Adaptation of transfer of Technology (1=lack of awareness, 2=lack of proper training, 3=Communication gap, 4=due to financial problem for acquiring the technology)</th> </tr> </thead> <tbody> <tr> <td colspan="4"><b>Silkworm Seed Technology</b></td> </tr> <tr> <td>i)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>ii)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>iii)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>iv)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>v)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>vi)</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>			Adaptation of transfer of Technology ( Conventional & Improved)	How long the Technology Has been used (Months)	Impact & Effectiveness of the Technology (1=Poor, 2=Average, 3=Good, 4=Very Good, 5=Excellent)	Problems or constraints encountered in Adaptation of transfer of Technology (1=lack of awareness, 2=lack of proper training, 3=Communication gap, 4=due to financial problem for acquiring the technology)	<b>Silkworm Seed Technology</b>				i)				ii)				iii)				iv)				v)				vi)			
Adaptation of transfer of Technology ( Conventional & Improved)	How long the Technology Has been used (Months)	Impact & Effectiveness of the Technology (1=Poor, 2=Average, 3=Good, 4=Very Good, 5=Excellent)	Problems or constraints encountered in Adaptation of transfer of Technology (1=lack of awareness, 2=lack of proper training, 3=Communication gap, 4=due to financial problem for acquiring the technology)																																
<b>Silkworm Seed Technology</b>																																			
i)																																			
ii)																																			
iii)																																			
iv)																																			
v)																																			
vi)																																			
3.8	<b>What are the new Technology evolved by the Research Institutes have been extended to the Chawki rearer and its impact on improvement in quality?</b> <table border="1"> <thead> <tr> <th>Technology</th> <th>Impact</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table>			Technology	Impact																														
Technology	Impact																																		
3.9	<b>What are the problems in application/ utilization of technology provided to the farmers?</b>																																		
3.8	<b>Has there been any improvement in the quality of DFLs being received by you in the last five years in terms of quality, production, viability, hatching, etc.?</b> <b>(1=Yes, 2=No)</b>																																		
3.9	<b>If yes, then please provide the details</b> _____ _____ _____ _____																																		

<b>3.10</b>	<b>Have you faced any problems w.r.t the quality, production, viability, hatching, receipt, transportation of silkworm seed in the last five years? (1=Yes, 2=No)</b>		
<b>3.11</b>	<b>If yes, then please provide the details</b>   		
<b>4.0 Catalytic Development Programme</b>			
<b>4.1</b>	<b>Have you received assistance under Catalytic Development Programme during 2007-2012? (1= Yes 2= No)</b>		
<b>4.2</b>	<b>If yes, assistance received (Rs Lakhs)</b>		
	<b>What is the assistance provided under the Catalytic Development Programme</b>		
	<b>Sl.No.</b>	<b>Assistance (Rs. In thousand) during 2007-08 to 2011-12</b>	
	a)	Maintenance of Chawkie Garden	
	b)	Construction of Chawkie rearing center building	
	c)	Procurement of chawkie rearing equipments	
	d)	Subsidy on DFLs procurement or working capital	
	e)	Any other (Pls. specify)	
		Total	
<b>4.3</b>	<b>Have you faced any difficulty in receiving assistance under CDP? (1=Yes, 2=No)</b>		
<b>4.4</b>	<b>If yes, please explain</b>		
<b>5.0 Training &amp; Quality Improvement</b>			
<b>5.1</b>	<b>Are you aware of the training provided by Silkworm seed organizations in the area of seed management/chawki rearing. (1=Yes, 2=No)</b>		
<b>5.2</b>	<b>If yes, please give details of the training attended by you in terms of quality improvement:</b>		
	<b>Field in which trained</b>	<b>Duration (Days)</b>	
	Farm Management		
	Chawki Rearing		
	Crop Protection		
	Extension Education		
	Others		
<b>5.3</b>	<b>Have you received any training / workshop in with respect to latest technology, techniques/inputs etc. in the context of chawki rearing? (1=Yes, 2=No)</b>		

“

<b>5.4</b>	<b>If yes, please give details regarding the training/workshop on latest technology, techniques/inputs etc., during last five years</b>					
	Sl.No.	Training category	Number of Training received			
			2007-08	2008-09	2009-10	2010-11
	a)	Latest Technology				
b)	Techniques/inputs					
	Total:					
<b>5.5</b>	<b>Whether the present Trainings and quality improvement exercises being detailed to you are helpful in increasing yield and/or income?</b> <hr/> <hr/>					
<b>5.6</b>	<b>Suggestions for improvement of the scheme</b> <hr/> <hr/> <hr/>					

## Thank you

**Name of the Official/Investigator** : \_\_\_\_\_  
**Signature** : \_\_\_\_\_  
**Place** : \_\_\_\_\_ **Date:** \_\_\_\_\_

## Annexure 1.3

## SURVEY QUESTIONNAIRE: SILK WORM SEED ORGANIZATION & HRD (Licensed Seed Producers (LSPs)/Private Graineurs)

National Productivity Council, an autonomous organization under Ministry of Commerce & Industry, Government of India, is carrying out a study on “Evaluation of Seed Organisation and Human Resource Development”, sponsored by Central Silk Board, Ministry of Textiles, Government of India. The objective of this field survey is to find out the effectiveness of the Seed Organization & HRD scheme implementation during XI Five Year Plan. Findings of this study will be utilized by CSB to modify and improve the scheme implementation during XII Five Year Plan

Please fill as per instructions given. Write codes/ values in the box provided at the right hand side)

<b>1.0 General Information</b>							
<b>1.1</b>	<b>Region</b> (1=North, 2=Central, 3=East, 4=West, 5=South)						
<b>1.2</b>	<b>State</b> (1= Himachal Pradesh , 2 Uttarakhand, 3=Jammu & Kashmir,4= Uttar Pradesh, 5 =Andhra Pradesh ,6= Maharashtra 7= West Bengal ,8= Chhattisgarh ,9= Jharkhand, 10=Manipur ,11= Assam, 12= Meghalaya ,13=Karnataka, 14=Tamil Nadu)						
<b>1.3</b>	<b>District</b>						
<b>1.4</b>	<b>Name of the Cluster</b>						
<b>1.5</b>	<b>Name of the Local Seed Producers (LSPs)/Private Graineurs:</b> _____ <b>Address:</b> _____ <b>City/Town/Village:</b> _____ <b>Tehsil:</b> _____ <b>Pin:</b> _____ <b>Phone/Mobile No.:</b> _____ <b>E-mail, if any</b> _____						
<b>1.6</b>	<b>Age of the respondent (in yrs):</b>						
<b>1.7</b>	<b>Gender</b> (1=Male, 2=Female)						
<b>1.8</b>	<b>Caste</b> ( 1=SC, 2=ST, 3= Others)						
<b>1.9</b>	<b>Educational Level</b> (1=Illiterate, 2=Primary, 3=Secondary, 4=Graduate & above)						
<b>1.10</b>	<b>Experience in sericulture (in yrs):</b>						
<b>1.11</b>	<b>Sericulture Activity</b> (1=Mulberry, 2=Tasar, 3=Eri, 4=Muga)						
<b>1.12</b>	<b>Sources of family income</b>						
	Sl.No.	Source of Income	Approximate Annual Income (Rs. In thousand)				
			2007-08	2008-09	2009-10	2010-11	2011-12
	a)	Sericulture					
	f)	Income from other activities					
		Total:					
<b>1.13</b>	<b>Income Utilization</b>						
	Sl.No.	Income Utilization	Approximate Utilization (Rs. In thousand)				
			2007-08	2008-09	2009-10	2010-11	2011-12
	a)	Sericulture					
	b)	Food and other expenses					
		Total:					

2.0 Source of Silkworm Seed and Production							
2.1	Do you procure seeds from LSPs/Grainages/Seed Organisations? (1=Yes, 2=No)						
2.2	Is the Private/Govt. agency registered as producer/dealer/supplier of Silkworm seed? (1=Yes, 2=No)						
2.3	Have you faced any difficulties/issues in the seeds/eggs received from Private/Govt. agency /sector? (1=Yes, 2=No)						
2.4	If yes, please specify						
2.5	<b>Production Details (2011-12)</b>						
	Production of Seeds	Numbers of seeds processed	Avg. production of DFLs* per batch (by no.)	Quantity of DFL production	Avg. Egg Recovery		
	Mulberry						
	Multivoltine						
	Multi- x Bivoltine						
	Bivoltine						
	Eri						
Tasar							
Muga							
*DFL: Disease Free Layings							
2.6	Do you procure breedable cocoon from cocoon markets/farmers? (1=Yes, 2=No)						
2.7	<b>If yes, please give details regarding quantity of cocoons procured during last five years</b>						
	Sl.No.	Category	Approximate Quantity (MT)				
			2007-08	2008-09	2009-10	2010-11	2011-12
	a)	Cocoon market					
b)	Sericulture farmers						
	Total:						
2.7	<b>Technology related exposure:</b>						
	Adaptation of transfer of Technology (Conventional & Improved)	How long the Technology Has been used (Months)	Impact & Effectiveness of the Technology (1=Poor, 2=Average, 3=Good, 4=Very Good, 5=Excellent)	Problems or constraints encountered in Adaptation of transfer of Technology (1=lack of awareness, 2=lack of proper training, 3=Communication gap, 4=due to financial problem for acquiring the technology)			
	<b>Silkworm Seed Technology</b>						
	i)						
	ii)						
	iii)						
	iv)						
v)							
vi)							
2.8	<b>What are the new Technology evolved by the Research Institutes have been extended to the Local Seed Producers (LSPs)/Private Graineurs and its impact on improvement in quality?</b>						
	Details of Technology			Impact			

2.9	<b>What are the problems in application/ utilization of technology provided to the farmers?</b>	
<b>3.0 Training &amp; Quality Improvement</b>		
3.1	<b>Are you aware of the training provided by Silkworm seed organizations in the area of seed management? (1=Yes, 2=No)</b>	
3.2	<b>If yes, please give details of the training attended by you in terms of quality improvement:</b>	
	<b>Field in which trained</b>	<b>Duration (Days)</b>
	Seed Production	
	Egg Handling	
	Crop Protection	
	Extension Education	
	Others	
3.3	<b>Have you received any training / workshop with respect to latest technology, techniques/inputs etc., in the context of seed management? (1=Yes, 2=No)</b>	
3.4	<b>If yes, please give details regarding quantity and organization/place from which seed cocoons procured during last five years</b>	
3.5	<b>Whether the present Trainings and quality improvement exercises being detailed to you are helpful in increasing yield and/or income?</b>	
	_____	
	_____	
	_____	
3.6	<b>Suggestions for improvement of the scheme during XII Five Year Plan</b>	
	_____	
	_____	
	_____	

--	--

# Thank you

Name of the Official/Investigator : \_\_\_\_\_  
Signature : \_\_\_\_\_  
Place of Survey : \_\_\_\_\_ Date: \_\_\_\_\_

## Annexure 1.4

## SURVEY QUESTIONNAIRE: SILK WORM SEED ORGANIZATION & HRD (Sericulture Farmer Beneficiaries)

National Productivity Council, an autonomous organization under Ministry of Commerce & Industry, Government of India, is carrying out a study on "Evaluation of Silkworm Seed Organisation and Human Resource Development", sponsored by Central Silk Board, Ministry of Textiles, Government of India. The objective of this field survey is to find out the effectiveness of the Seed Organization & HRD scheme implementation during XI Five Year Plan. Findings of this study will be utilized by CSB to modify and improve the scheme implementation during XII Five Year Plan

Please fill as per instructions given. Write codes/ values in the box provided at the right hand side)

<b>1.0 General Information</b>																																		
<b>1.1</b>	<b>Region</b> (1=North, 2=Central, 3=East, 4=West, 5=South)																																	
<b>1.2</b>	<b>State</b> (1= Himachal Pradesh , 2 Uttarakhand, 3=Jammu & Kashmir,4= Uttar Pradesh, 5 =Andhra Pradesh ,6= Maharashtra 7= West Bengal ,8= Chhattisgarh ,9= Jharkhand, 10=Manipur ,11= Assam, 12= Meghalaya ,13=Karnataka, 14=Tamil Nadu)																																	
<b>1.3</b>	<b>Name of the Cluster:</b>																																	
<b>1.4</b>	<b>Name of the Beneficiary:</b> _____ <b>Address:</b> _____ <b>City/Town/Village:</b> _____ <b>Tehsil:</b> _____ <b>Pin:</b> _____ <b>Phone/Mobile No.:</b> _____ <b>E-mail, if any</b> _____																																	
<b>1.5</b>	<b>Age of the respondent (Farmer)(in yrs):</b>																																	
<b>1.6</b>	<b>Gender</b> (1=Male, 2=Female)																																	
<b>1.7</b>	<b>Caste</b> ( 1=SC, 2=ST, 3= Others)																																	
<b>1.8</b>	<b>Educational Level</b> (1=Illiterate, 2=Primary, 3=Secondary, 4=Graduate & above)																																	
<b>1.9</b>	<b>Experience in sericulture (in yrs):</b>																																	
<b>1.10</b>	<b>Sericulture Activity</b> (1=Mulberry, 2=Tasar, 3=Eri, 4=Muga)																																	
<b>1.11</b>	<b>Which kind of rearing is carried out?</b> (1= Seed Cocoon      2= Commercial cocoon)																																	
<b>1.12</b>	<b>Sources of family income</b>																																	
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2" style="width: 5%;">Sl.No.</th> <th rowspan="2" style="width: 35%;">Source of Income</th> <th colspan="5" style="text-align: center;">Approximate Annual Income (Rs. In thousand)</th> </tr> <tr> <th style="width: 10%;">2007-08</th> <th style="width: 10%;">2008-09</th> <th style="width: 10%;">2009-10</th> <th style="width: 10%;">2010-11</th> <th style="width: 10%;">2011-12</th> </tr> </thead> <tbody> <tr> <td>a)</td> <td>Sericulture Development</td> <td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>b)</td> <td>Income from other activities</td> <td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td> <td>Total:</td> <td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table>	Sl.No.	Source of Income	Approximate Annual Income (Rs. In thousand)					2007-08	2008-09	2009-10	2010-11	2011-12	a)	Sericulture Development						b)	Income from other activities							Total:					
Sl.No.	Source of Income			Approximate Annual Income (Rs. In thousand)																														
		2007-08	2008-09	2009-10	2010-11	2011-12																												
a)	Sericulture Development																																	
b)	Income from other activities																																	
	Total:																																	
<b>1.13</b>	<b>Income Utilization</b>																																	
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2" style="width: 5%;">Sl.No.</th> <th rowspan="2" style="width: 35%;">Income Utilization</th> <th colspan="5" style="text-align: center;">Approximate Utilization (Rs. In thousand)</th> </tr> <tr> <th style="width: 10%;">2007-08</th> <th style="width: 10%;">2008-09</th> <th style="width: 10%;">2009-10</th> <th style="width: 10%;">2010-11</th> <th style="width: 10%;">2011-12</th> </tr> </thead> <tbody> <tr> <td>a)</td> <td>Sericulture</td> <td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>b)</td> <td>Food and other expenses</td> <td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td> <td>Total:</td> <td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table>	Sl.No.	Income Utilization	Approximate Utilization (Rs. In thousand)					2007-08	2008-09	2009-10	2010-11	2011-12	a)	Sericulture						b)	Food and other expenses							Total:					
Sl.No.	Income Utilization			Approximate Utilization (Rs. In thousand)																														
		2007-08	2008-09	2009-10	2010-11	2011-12																												
a)	Sericulture																																	
b)	Food and other expenses																																	
	Total:																																	
<b>2.0</b>	<b>Source of Silkworm Seed</b>																																	



<b>2.1</b>	<b>Do you procure seeds from Private/Govt. agency /sector? (1=Yes, 2=No)</b>					
<b>2.2</b>	<b>Is the Private/Govt. agency registered as producer/dealer/supplier of Silkworm seed? (1=Yes, 2=No)</b>					
<b>2.3</b>	<b>If yes, please give details regarding quantity and organization/place from which silkworm seed procured during last five years</b>					
	<b>Sl.No.</b>	<b>Source of silkworm seed</b>	<b>Approximate Quantity (DFLs)</b>			
			<b>2007-08</b>	<b>2008-09</b>	<b>2009-10</b>	<b>2010-11</b>
	a)	Private				
	b)	Govt agencies				
		Total:				
<b>2.4</b>	<b>Do you procure chawki reared worms from CRCs (only for mulberry) ? (1=Yes, 2=No)</b>					
<b>2.5</b>	<b>If yes, please give details regarding quantity and organization/place from which Chawki reared worms procured during last five years</b>					
	<b>Sl.No.</b>	<b>Source</b>	<b>Approximate Quantity</b>			
			<b>2007-08</b>	<b>2008-09</b>	<b>2009-10</b>	<b>2010-11</b>
	a)	Private				
	b)	Govt agencies				
		Total:				
<b>2.6</b>	<b>Have you faced any difficulties/issues in the seeds/eggs/ chawki reared worms received from Private/Govt. agency /sector? (1=Yes, 2=No)</b>					
<b>2.7</b>	<b>If yes, please specify</b>					
<b>2.8</b>	<b>Productivity related information (Silkworms reared from seed):</b>					
	<b>Variety</b>	<b>Type of Silkworm seed Reared ( No. of DFLs brushed per crop per year)</b>	<b>Cocoon yield per crop per year</b>	<b>Cocoon yield /100 DFLs</b>	<b>Cocoon yield per unit area (per Hectare)</b>	
	<b>2007-08</b>					
	<b>2008-09</b>					
	<b>2009-10</b>					
	<b>2010-11</b>					
	<b>2011-12</b>					
<b>2.9</b>	<b>Productivity related information (Chawki reared Silkworms):</b>					
	<b>Variety</b>	<b>Type of Silkworm seed Reared ( No. of chawki reared DFLs per crop per year)</b>	<b>Cocoon yield per crop</b>	<b>Cocoon yield /100 DFLs</b>	<b>Cocoon yield per unit area (per Hectare)</b>	
	<b>2007-08</b>					
	<b>2008-09</b>					
	<b>2009-10</b>					
	<b>2010-11</b>					
	<b>2011-12</b>					
<b>3.0</b>	<b>Training &amp; Quality Improvement</b>					
<b>3.1</b>	<b>Are you aware of the Technical supervision/training provided by Silkworm seed</b>					

	<b>organizations in the area of seed management?</b> (1=Yes, 2=No)	
<b>3.2</b>	<b>If yes, please give details of the training attended by you in terms of quality improvement:</b>	
	<b>Field in which trained</b>	<b>Duration (Days)</b>
	Farm Management	
	Chawki Rearing	
	Late-age Rearing	
	Crop Protection	
	Extension Education	
	Others	
<b>3.3</b>	<b>Seed production information ( for vanya)</b>	
	<b>2007-08</b>	
	<b>2008-09</b>	
	<b>2009-10</b>	
	<b>2010-11</b>	
	<b>2011-12</b>	
<b>3.4</b>	<b>Whether the present Trainings and quality improvement exercises being detailed to you are helpful in increasing yield and/or income?</b>	
<b>3.5</b>	<b>Give Details if any of training in seed production?</b>	
<b>3.6</b>	<b>What is the adoption level of new Technologies</b> (1=low, 2= medium, 3=high)	
<b>3.7</b>	<b>What are the new technologies/practice/appliances adopted?</b>	
	<b>S.No</b>	<b>Category</b>
	1	Host Tree Plantation
	2	Farm Management
	3	Young age Rearing
	4	Late age rearing
	5	Crop Protection/Disease Management
	6	Water conservation
	7	Any Other (Pls specify)
<b>3.8</b>	<b>Has there been any improvement in the quality of DFLs being received by you in the last five years in terms of quality, production, viability, hatching, etc.?</b> (1=Yes, 2=No)	

3.9	<p><b>If yes, then please provide the details</b></p> <hr/> <hr/> <hr/>
3.10	<p><b>Have you faced any problems w.r.t the quality, production, viability, hatching, receipt, transportation of silkworm seed in the last five years? (1=Yes, 2=No)</b></p>
3.11	<p><b>If yes, then please provide the details</b></p> <hr/> <hr/> <hr/>
3.12	<p><b>Suggestions for improvement of the scheme</b></p> <hr/> <hr/> <hr/>

**Thank you**

Name of the Official/Investigator : \_\_\_\_\_  
 Signature : \_\_\_\_\_  
 Place of Survey : \_\_\_\_\_ Date: \_\_\_\_\_

**Annexure 1.5**

**SURVEY QUESTIONNAIRE: SILKWORM SEED ORGANIZATION & HRD  
(Human Resource Management In charge of Central Silk Board)**

National Productivity Council, an autonomous organization under Ministry of Commerce & Industry, Government of India, is carrying out a study on "Evaluation of Seed Organisation and Human Resource Development", sponsored by Central Silk Board, Ministry of Textiles, Government of India. The objective of this field survey is to find out the effectiveness of the Seed Organization & HRD scheme implementation during XI Five Year Plan. Findings of this study will be utilized by CSB to modify and improve the scheme implementation during XII Five Year Plan

(Please fill as per instructions given with each question.  
**Write codes/ values in the box provided at the right hand side)**

<b>1</b>	<b>Name of the In charge:</b>  <b>Designation</b> <b>Address:</b> _____ <b>Phone/Mobile No.:</b> _____ <b>E-Mail:</b> _____							
<b>2</b>	<b>Experience in CSB (yrs)</b>							
<b>3</b>	How long you are managing the HRD activities of CSB? (years)							
<b>4</b>	Initiatives targeted and achieved for Human Resource Development during XI Five Year Plan under Silk Worm Seed Organization & HRD Co-ordination and Market Development Scheme?							
	<b>Year</b>	<b>Training Programmes</b>		<b>Outlay (Rs. Lakhs)</b>		<b>Reasons for Shortfall, if any</b>		
		<b>Target (Nos)</b>	<b>Achievement (Nos)</b>	<b>Budget</b>	<b>Expenditure</b>			
	<b>2007-08</b>							
	<b>2008-09</b>							
	<b>2009-10</b>							
	<b>2010-11</b>							
	<b>2011-12</b>							
	<b>Please use Additional Sheets, if required</b>							
<b>5</b>	<b>Details of training provided to employees of CSB</b>							
	<b>Year</b>	<b>Name of training/course</b>	<b>Duration of the training</b>	<b>Category of employees</b>	<b>No. of employees targeted to be trained</b>	<b>Actual no. of employees trained</b>	<b>Expenditure (Rs Lakhs)</b>	<b>Venue of training</b>
	2007-08							
	2008-09							
	2009-10							
	2010-11							
	2011-12							
	<b>Please use Additional Sheets if required</b>							
<b>6</b>	<b>Please explain the selection criteria for the participants of training programme?</b>							

7	Number of Employees received training during the last five years – Category wise						
	Year	Sr. Level	Middle Level	Jr. Level	Field Officers/Extension Officers	Others	Remarks
	2007-08						
	2008-09						
	2009-10						
	2010-11						
	2011-12						
8	What is the procedure adopted for conducting training and how the content of the training is decided and faculty?						
9.1	Does the training course contain latest techniques and methods on the sericulture sector? (1= Yes 2= No)						
9.2	If No, Please explain						
9.3	Is the duration of the training adequate? (1= Yes 2= No)						
9.4	If No, Please explain						
10	Whether the feedback taken from the employees trained? (1= Yes 2=No)						
10.1	If yes, Please provide some sample copies of filled feedback forms?						
11	Percentage range of the employees trained under the scheme to the total employees who are eligible for training? (1= 1-25% 2= 26-50% 3=51-75% 4= 76% and above						
12	What are the initiatives taken up for implementation of Government of India policies in Headquarters and other Regional Offices and various R&D centres/Seed Organisation etc.?						
13	Is the periodic audit undertaken for checking whether the Government of India policies have been implemented and followed strictly? (1= Yes 2= No)						
14	Frequency of Audit of Government of India policies (1= Weekly 2= Fortnight 3= Monthly 4= Quarterly 5= Bi annual 6= Annual 7 = Others (Pl specify)						
15	What are the other steps that are being taken up for developing Human Resource in CSB?						
16	What are the possible areas where improvements are required in the scheme during XII Five Year Plan?						

*(If the space provided is insufficient, kindly use additional sheets)*

**THANK YOU**

Name of the Official/Investigator : \_\_\_\_\_  
 Signature : \_\_\_\_\_  
 Place of Survey : \_\_\_\_\_ Date: \_\_\_\_\_

## Annexure 1.6

## SURVEY QUESTIONNAIRE: SILKWORM SEED ORGANIZATION & HRD (Central Silk Board Employees/ Trainees)

*National Productivity Council, an autonomous organization under Ministry of Commerce & Industry, Government of India, is carrying out a study on "Evaluation of Seed Organisation and Human Resource Development", sponsored by Central Silk Board, Ministry of Textiles, Government of India. The objective of this field survey is to find out the effectiveness of the Seed Organization & HRD scheme implementation during XI Five Year Plan. Findings of this study will be utilized by CSB to modify and improve the scheme implementation during XII Five Year Plan*

(Please fill as per instructions given with each question.)

**Write codes/ values in the box provided at the right hand side)**

<b>1</b>	<b>State</b> (1= Himachal Pradesh , 2 Uttarakhand, 3= Manipur ,4= Assam, 5= Meghalaya ,6= Andhra Pradesh, 7=Jammu & Kashmir,8= Uttar Pradesh, 9= West Bengal 10= Chhattisgarh ,11= Jharkhand,12= Maharashtra,13=Karnataka, 14=Tamil Nadu)																													
<b>2</b>	<b>Type of Organisation</b> (1= Regional Office 2= R&D centre 3= Seed Organisation 4= Other (Please specify))																													
<b>3</b>	<b>Name of the Respondent:</b> <b>Designation:</b> _____ <b>Address:</b> _____ <b>Phone/Mobile No:</b> _____ <b>E-Mail:</b> _____																													
<b>4</b>	Experience in CSB (1= Less than 2 yrs, 2= 2-5 years 3= 5-10 yrs 4= 10 yrs 5= More than 10 yrs)																													
<b>5</b>	What is your Educational Background? (1= Diploma 2= Graduate (B.com) 3= Graduate (BA), 4=Graduate (BSc) 5= Graduate (Engg.) 6= Post Graduate 7= PhD 8= Others)																													
<b>6</b>	How many times you have received training during 2007-08 to 2011-2012? (1= Once 2= Twice 3= Thrice 4= More than three times)																													
<b>7</b>	In which area(s) training was received please tick the applicable ones. <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th style="width: 30%;">Areas of Training</th> <th style="width: 15%;">Put (√) mark</th> <th style="width: 35%;">Objective of the training</th> <th style="width: 20%;">Venue of the training</th> </tr> </thead> <tbody> <tr> <td colspan="4"><b>Sericulture Technologies in</b></td> </tr> <tr> <td>Seed Sector</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Cocoon Sector</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Post Cocoon Sector</td> <td></td> <td></td> <td></td> </tr> <tr> <td><b>Accounts &amp; computerization</b></td> <td></td> <td></td> <td></td> </tr> <tr> <td><b>General Administration</b></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Areas of Training	Put (√) mark	Objective of the training	Venue of the training	<b>Sericulture Technologies in</b>				Seed Sector				Cocoon Sector				Post Cocoon Sector				<b>Accounts &amp; computerization</b>				<b>General Administration</b>				
Areas of Training	Put (√) mark	Objective of the training	Venue of the training																											
<b>Sericulture Technologies in</b>																														
Seed Sector																														
Cocoon Sector																														
Post Cocoon Sector																														
<b>Accounts &amp; computerization</b>																														
<b>General Administration</b>																														
<b>8</b>	What was the methodology adopted for conducting training (for e.g. Class room sessions, Audio visual aids, On Field demonstration, etc.)?																													
<b>9</b>	Did the training course contain latest technology and methods? (1= Yes 2= No)																													
<b>9.1</b>	If no, what are the drawbacks?																													
<b>10</b>	Was the duration of the training adequate? (1= Yes 2= No)																													
<b>10.1</b>	If no, Please explain																													
<b>11</b>	Whether training helped to improve your subject knowledge? (1= Yes 2= No)																													
<b>12</b>	Briefly explain, what kind of improvement noticed?																													
<b>13</b>	Are you satisfied with the training programme? (1= Highly satisfied 2= Satisfied 3= Neither satisfied nor dissatisfied 4= Dissatisfied 5= Highly dissatisfied)																													

“

14	Reasons for satisfaction/dissatisfaction	
15	Have you taken steps for promoting/implementing/further research on the subject knowledge gained during training? (1= Yes 2 = No 3= Planning 4= Others)	
16	Briefly explain the steps you have either taken up or are planning to take up in the subject area based on knowledge gained from the training.	
17	What are the other steps that can be taken up for developing Human Resource in CSB?	
18	What are your suggestions to make the training programme more beneficial during the XII Five Year Plan?	

*(If the space provided is insufficient, kindly use additional sheets)*

**THANK YOU**

**Name of the Official/Investigator** : \_\_\_\_\_  
**Signature** : \_\_\_\_\_  
**Place of Survey** : \_\_\_\_\_ **Date:** \_\_\_\_\_

## Annexure 1.7

## Component wise Outlay / Expenditure of Seed Organization, HRD &amp; Market Development Scheme during XI Plan

									[ ` In Crores ]	
#	Scheme / Components	XI Plan Outlay	XI Plan Outlay [ Revised ]	2007-08 Actuals	2008-09 Actuals	2009-10 Actuals	2010-11 Actuals	2011-12 Actuals	TOTAL EXPENDITURE FOR XI PLAN	
1	2	3	4	5	6	7	8	9	10	
II	Seed Organization, HRD & Market Development :									
a.	SEED ORGANIZATION									
A	Components under Mulberry Sector									
1	On-going activities of NSSO and nested units	0.00	9.07	1.76	3.20	1.60	2.59	3.79	12.94	
2	Support to Mulberry Seed Crop Rearers - (Adopted Seed Rearers) for quality seed cocoon generation (100% support)	1.20	0.73	0.15	0.15	0.42	0.01		0.73	
3	Empowerment of LSPs by skill development (100% support)	0.10	0.06	0.01	0.01	0.01	0.00	0.03	0.06	
4	Franchise Support System	0.63	0.46	0.06	0.06	0.18	0.08	0.08	0.46	
5	Infrastructure improvement in Basic Seed Farms (BSFs) and Silkworm Seed Production Centre (SSPCs) of NSSO including establishment of a	4.55	4.64	0.82	0.81	0.53	2.36	0.12	4.64	



	fourth Cold Storage Plant in Bangalore (100% support)								
6	Infrastructure for implementation of provisions of the CSB (Amendment) Act, 2006 (100% support)	0.50	0.15	0.00	0.00	0.00	0.00	0.15	0.15
7	Publicity for Quality Silkworm Seed Production by LSPs (100% support)	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	Hiring of experts / professionals / subject matter Specialists for implementation of various Schemes formulated under Mulberry Seed Sector (100% support)	0.10	0.03	0.00	0.00	0.01	0.01	0.01	0.03
9	Hiring of experts for the implementation of various provisions and regulations enacted in Central Silk Board (Amendment) Act, 2006 (100% support)	0.30	0.00	0.00	0.00	0.00	0.00		0.00
10	Training of Staff for Quarantine Testing of Silkworm eggs under Mulberry and Non-Mulberry Sector (100% support)	0.07	0.08	0.03	0.03	0.02	0.00		0.08

11	Training of Seed Officers (100% support)	0.17	0.20	0.09	0.08	0.00	0.01	0.02	0.20
12	Support for up-grading skills of seed farmers in non-traditional States under Mulberry Sector (100% support)	0.07	0.11	0.01	0.00	0.09	0.00	0.01	0.11
13	Support for Disease Monitoring in existing Seed Production network across the Country (100% support)	0.12	0.07	0.03	0.04	0.00	0.00		0.07
<b>Sub Total Mulberry</b>		<b>7.86</b>	<b>15.59</b>	<b>2.96</b>	<b>4.38</b>	<b>2.85</b>	<b>5.06</b>	<b>4.21</b>	<b>19.46</b>
<b>B</b>	<b>Components under Non - Mulberry Sector</b>								
<b>i</b>	<b>Components of BTSSO</b>								
1	Support for on going plan activities- Procurement of seed cocoons, skill enhancement training programme and contingent expenditure	1.07	13.23	1.04	2.23	1.68	2.08	6.20	13.23
2	Raising and Maintenance of plantation in BSM&TCs and other nested units	0.92	0.66	0.14	0.10	0.12	0.14	0.16	0.66
3	Renovation of existing buildings in BSM&TCs and other nested units	0.60	0.23	0.00	0.00	0.20	0.03		0.23

4	Development of Infrastructure at BSM&TCs and nested units-Grainage houses, office building, oviposition/moth examination room, borewell, submersible pump and overhead tank	2.30	1.20	1.00	0.00	0.11	0.09		1.20
5	Procurement of grainage and rearing equipments for BSM&TCs and other nested units	0.35	0.18	0.00	0.00	0.13	0.05		0.18
<b>Total for BTSSO</b>		<b>5.24</b>	<b>15.50</b>	<b>2.18</b>	<b>2.33</b>	<b>2.24</b>	<b>2.39</b>	<b>6.36</b>	<b>15.50</b>
<b>ii Muga Silkworm Seed Organization (Muga)</b>									
1	Support for on going plan activities- Procurement of seed cocoons, skill enhancement training programme and contingent expenditure	0.64	2.64	0.40	1.35	0.18	0.18	0.53	2.64
2	Assistance to Adopted Seed Rearers and maintenance of farm and grainages	0.36	0.13	0.00	0.00	0.07	0.02	0.04	0.13
3	Assistance to Private Graineurs	0.26	0.12	0.00	0.00	0.08	0.04	0.00	0.12
4	Extension activities, engagement of contractual manpower, publicity, project monitoring and award to best performer	0.22	0.10	0.00	0.00	0.07	0.02	0.01	0.10
5	Strengthening of P4/P3 units- Construction of Office cum laboratory and training building, grainage cum cocoonage building, renovation of existing building equipment support.	1.16	2.67	0.00	0.00	0.08	0.71	1.88	2.67
<b>Total for MSSO</b>		<b>2.64</b>	<b>5.66</b>	<b>0.40</b>	<b>1.35</b>	<b>0.48</b>	<b>0.97</b>	<b>2.46</b>	<b>5.66</b>
<b>iii Eri Silkworm Seed Organization - (ESSO)</b>									
		0.76	1.70	0.00	0.57	0.23	0.56	0.34	1.70
<b>Total Seed Organization</b>		<b>16.50</b>	<b>38.45</b>	<b>5.54</b>	<b>8.63</b>	<b>5.80</b>	<b>8.98</b>	<b>13.37</b>	<b>42.32</b>
<b>Non-Recurring</b>		<b>6.78</b>	<b>20.06</b>	<b>1.98</b>	<b>2.99</b>	<b>2.42</b>	<b>4.46</b>	<b>8.21</b>	<b>20.06</b>
<b>Recurring</b>		<b>9.72</b>	<b>18.39</b>	<b>3.56</b>	<b>5.64</b>	<b>3.38</b>	<b>4.52</b>	<b>5.16</b>	<b>22.26</b>

b	<b>HRD-COORDINATION AND MARKET DEVELOPMENT</b>								
1	<b>Board Secretariat</b>								
a	Ongoing regular activities	<b>14.24</b>	27.66	<b>4.54</b>	<b>4.31</b>	<b>4.30</b>	<b>4.79</b>	<b>6.25</b>	24.19
b	Renovation of Qtrs and CSTRl, Hostel at Bangalore	<b>0.00</b>	0.00	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	0.00
c	Token provision for a building complex of auditorium, museum, conference hall at Bangalore	<b>0.00</b>	0.00	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	0.00
e	Renovation of CSB Guest houses	<b>0.00</b>	0.00	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	0.00
f	Fencing of CSB land at Bangalore	<b>0.00</b>	0.00	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	0.00
g	Publicity activities	<b>0.00</b>	0.00	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	0.00
	<b>Total</b>	<b>14.24</b>	<b>27.66</b>	<b>4.54</b>	<b>4.31</b>	<b>4.30</b>	<b>4.79</b>	<b>6.25</b>	<b>24.19</b>
2	<b>RO/RDOs(ongoing activities)</b>	<b>11.61</b>	7.90	<b>1.15</b>	<b>1.28</b>	<b>1.37</b>	<b>2.23</b>	<b>1.87</b>	7.90
a	Construction of office building for RDO, Guwahati	<b>0.00</b>	0.00	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	0.00
b	Repairing of RDO Lucknow building	<b>0.00</b>	0.00	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	0.00
3	<b>Certification Centres</b>	<b>0.13</b>	0.09	<b>0.03</b>	<b>0.04</b>	<b>0.00</b>	<b>0.00</b>	<b>0.02</b>	0.09
4	<b>RMBs/MRMBs</b>	<b>4.02</b>	3.82	<b>0.04</b>	<b>1.95</b>	<b>1.36</b>	<b>0.15</b>	<b>0.32</b>	3.82
	<b>Total</b>	<b>30.00</b>	<b>39.47</b>	<b>5.76</b>	<b>7.58</b>	<b>7.03</b>	<b>7.17</b>	<b>8.46</b>	<b>36.00</b>
	<b>Non-Recurring</b>	12.00	6.58	1.16	1.22	1.77	0.93	1.50	<b>6.58</b>
	<b>Recurring</b>	18.00	32.89	4.60	6.36	5.26	6.24	6.96	<b>29.42</b>
	<b>TOTAL FOR SEED &amp;HRD</b>	<b>46.50</b>	<b>77.92</b>	<b>11.30</b>	<b>16.21</b>	<b>12.83</b>	<b>16.15</b>	<b>21.83</b>	<b>78.32</b>
	<b>Non-Recurring</b>	18.78	26.64	3.14	4.21	4.19	5.39	9.71	26.64
	<b>Recurring</b>	27.72	51.28	8.16	12.00	8.64	10.76	12.12	51.68

UNITS OF CENTRAL SILK BOARD, BANGALORE AS ON 16.06.2011

Annexure 6.1

CSR & TI MYSORE (41)	CSR&TI PAMPPORE (23)	CTR & TI RANCHI (26)	NSSO, BANGALORE(81)				CSTRI BANGALORE (23)	MSSO, GUWAHATI (15)	ABSTRACT
			KARNATAKA	TAMIL NADU	ZSSO, Malda WEST BENGAL	ZSSO, Dehradun UTTARANCHAL			
RSRS Bangalore RSRS Chamaranjanagar RSRS Salem RSRS Ananthpur SSBS,Coonor  REC Madivala REC Bidaraguppe REC Chitradurga REC Rayachoty REC Vikarabad REC Krishnagiri REC Samayanallur REC Parbhani REC, Baramati REC, Madakisra REC, Venkatagirikota REC, Udumalpet REC, Eluru REC, Hosur REC, G. palayam REC, Amaravathi REC, Hoshangabad REC, Palakkad  S-Unit, Aurangabad S-Unit, Kanakapura S-Unit, Bidar S-Unit, Koppal S-Unit, Kinkanaahally S-Unit, Penukonda S-Unit, Shimoga S-Unit, Maddur S-Unit, Srivilliputhur S-Unit, Vaniamadi S-Unit, Kalpatta(Wayand)  CPC, Kalyanidurgam CPC, Hindupur CDC, Palamner CDC, Harohally CDC, Hosakote  P4 Hassan  RSRSs = 4 SSBS, Coonoor= 1 RECs = 18 CDC = 3 S-Unit = 11 Farm = 1 CPC = 2 <b>Total = 40</b>	RSRS Jammu RSRS Sahasapur (UTR) REC Sujampur (PUNJ) REC Barnoti (J & k) REC Gondra (U.P.) REC, Fatehnagar REC, Y.K.Pora(J&K) REC, Nowshera (J&K) REC, Gorakhpur(UP) REC, Chutmalur(UP) REC, Bageswar (UTR) REC, Una (HP) REC, Udhamsinghnagar REC, Duttanagar S-unit Tikri(J&K) S-unit Bandipora(J&K) S-Unit, Panchkula(Har) S-Unit, Bhadrasi(UP) STS, Fatehnagar P4 Manasbal (BV) CDC, Kalsi  RSRSs = 2 RECs = 12 CDC = 1 S-Unit = 5 STS = 1 Farm = 1 <b>Total = 22</b>	RTRS Jagadapur (CHHA) RTRS Dumka (JHA) RTRS Baripada (ORISSA) RTRS Warrangal (A.P) RTRS Bhandara (MAH) RTRS Bhimtal (UTR) RTRS Batote (J&K) RTRS Imphal (MANIPUR)  REC, Nasik (MAH) REC Palampur (H.P) REC Hatgaria (JHA) REC Katghora (CHHA) REC Bangriposi (ORISSA) REC Robertsganj (U.P) REC, Bhadrachalam (AP) REC Purulia (W.B) REC, Gopeshwar (UTR) REC Umranagu (ASSAM) REC Kikrma (NAGALAND) REC Yaikongpao(MANIPUR) REC, Jhansi (UP) CPC, Pallahara (Orissa) P4 Station, Kargikota(CHHA) P4 Station, Chakradharpur(JHA) P4 Station, Dumka RTRSs = 8 P4 Station= 3 RECs = 13 CPP = 1 <b>Total = 25</b>	<b>BTSSO, BILASPUR(CHHA) (24)</b> CTSSS, Kargi Kota(CHHA) BSMTC Chinnoor (A.P) BSMTC Narasapur (A.P) BSMTC Rampachodavaram(AP) BSMTC Kharswan (JHA) BSMTC Kathikund (JHA) BSMTC Madhupur (JHA) BSMTC Deoghar (JHA) BSMTC Ambikapur (CHHA) BSMTC Pali (CHHA) BSMTC Bastar (CHHA) BSMTC Balaghat (M.P) BSMTC Boirdadar (CHHA) BSMTC Bhandara (MAH) BSMTC Nowrangpur (ORISSA) BSMTC Sundargarh (ORISSA) BSMTC Patelnagar (W.B) BSMTC Dudhi (U.P) BSMTC Bhagalpur (Bihar) BSM&TC Bilaspur (CHHA) BSM&TC Baripada (ORI) BSM&TC Kendujhar(ORI) Field Unit, Pallahara (ORI)  BSM&TCs = 21 Field Uni = 1 CTSSS = 1 <b>Total = 23</b>	SCPC Kunigal SCPC, K.R. Pet  P3 Mysore P3 Nagamangala P2 Dharmapura (BV) P2 Gavimata (BV) P2 Nagenahalli(MV)  SSPC Bangalore SSPC Mysore SSPC Ramanagaram SSPC Vijayapura SSPC Chintamani SSPC K.R. Nagar SSPC Malavalli  Grainage/P1, Chikka malavadi  SSC K.R. Pet SSC C.R. Patna SSC Ch. nagar SSC K.P. Doddi SSC C.B. Pur SSC Gowribidanur SSC Srinivasapura SSC K.M. Doddi SSC Belgaum SSC Mudalgi SSC Vijayawada SSC Palamaner SSC Molakalacheruvu SSC Madakasira  <b>SSTL Kodathi</b> BSF, Yedyur  <b>KERALA</b>  SSPC Palakkad P2 Palakkad  <b>CGSRC, Hosur</b> <b>SBRL, BANGALORE RO's (10)</b> RO, Hyderabad RO, Chennai CDC, Hamirpur SMOI, Coimbatore RO, Bhubaneswar RO, Guwahati RO, Mumbai RO, Lucknow RO, Patna  BTSSO - Basic Tasar Silkworm Seed Organization CC - Certification Centre CSR & TI - Central Sericultural Research & Trg. Institute CSTRI - Central Silk Technological Research Institute CTR & TI - Central Tasar Reasearch & Training Instittute CSGRC - Central Sericultural Germplasm Res. Centre CTSSS - Central Tasar Silkworm Seed Station DCTSC - Demonstration cum Technical Service Centre TTL - Textile Testing Laboratory	P3 A.falkatta(MV) P2 Karnasubarna(BV) P2 Banguria (MV) P2 Dhubulia (MV)  SSPC Berhampore SSPC D.B Pur SSPC Koliha SSPC Raiganj  SSC Hemtabad SSC Bhadrapur SSC Sainthia SSC Alinagar SSC Amrity SSC Sujapur SSC Mothabari SSC Panchagram SSC Kaliachak SSC Kaliatala  <b>BIHAR</b> P2 Purnea  <b>ORISSA</b> CSD, Ramgiri  <b>CERTIFICATION CENTRES (4)</b> CC, Varanasi CC, Bangalore CC, Srinagar	Text. Testing Lab, Varanasi SC&TH Bangalore SC&TH Dharmavaram SC&TH Kancheepuram SC&TH/ECO Lab Jammu SC&TH Srinagar SC&TH Malda Zonal Office, Bilaspur CTC, Coimbatore CTC, Ramanagaram RSTRS, Guwahati RSTC, Sidlaghatta RSTC, Kollegal  DCTSC, Rayapura(Kar) DCTSC, Hindupur(AP) DCTSC, Dharmapuri(TN) DCTSC, Bhandara(Mah) DCTSC, Cuttack(Or) DCTSC, Dehradun(U'khand) DCTSC, Jammu(J&K) DCTSC, Bhagalpur(Bihar) DCTSC, Suri(WB)  RSTRS, Guwahati = 1 TTL = 1 SC&THs = 6 DCTSCs = 9 Zonal Office, Bilaspur = 1 RSTCs = 2 CTCs = 2 <b>Total = 22</b>  <b>CO, Bangalore</b> SMOI, Coimbatore SMOI, Hyderabad PO, Kishanganj CRC, Chengannur CDC, Nilambur CDC, Saharsa CDC, Agali RMB, Chaibasa (Jha) RMB SD, Bhagalpur(Bihar) RMB SD, Raigarh (Chha) RMB SD, Warangal RMB SD, Bhandara MRMB, Sivasagar MRMB SD, Sulakuchi	P4 Nongpah (MEGH) P4 Tura (MEGH) P3 Rompara (MEGH) P3 Adokgiri (MEGH) P3 Jia (ARUNACHAL) P3 Hahim (ASSAM) P3 Mendipathar (MEGH) P3, Naryanapur MUGA-SSPC Kaliabari  Eri SSPC, Azara ERISSPC, Peddapuram ERISSPC, Fatehpur ERISSPC, Hosur Eri SSPC, Sujampur  Farms = 8 M-SSPC = 1 E-SSPC = 5 <b>Total = 14</b>  <b>CMER&amp;TI LADOIGARH (14)</b> RERS, Mendipathar(MEG) RERS, Shadnagar  REC Lakhimpur (ASSAM) REC, Mongoldai(Assam) REC, Navasari  ERI REC Diphu (ASSAM) ERI REC, Fatehpur (UP)  PDC, Himmatnagar Field Lab, Titabar RMRS Boko (ASSAM) REC Coochbehar (W.B.) REC Tura (MEGH) S-unit, Kokrajhar  RMRS = 1 PDC = 1 RERS = 2 M-REC = 3 RECs = 2 E-REC = 2 S-unit = 1 Field lab= 1 <b>Total = 13</b>	CSB - HQ -> 1 CSR&TI -> 3 CTR&TI -> 1 CSTRI -> 1 NSSO -> 1 MSSO -> 1 CMERTI -> 1 RERS -> 2 CSGRC -> 1 SERI-BIO-TECH LAB. -> 1 SSTL -> 1 Ros/CCs -> 13 SMOI -> 4 PO, Kishanganj -> 1 TTL, Varanasi -> 1 RSTRS, Guwahati -> 1 RSRS (Mulb) -> 10 SSBS, Coonor -> 1 RMRS (Muga) -> 1 RTRS (Tasar) -> 8 REC (Mulb) -> 44 REC (Tasar) -> 13 REC (Muga) -> 3 REC (Eri) -> 2 S-unit (Mulb) -> 18 S-unit, (Muga) -> 1 RMB (Tasar) -> 1 RMB-SD (Tasar) -> 4 MRMB (Muga) -> 1 MRMB-SD -> 1 SC&TH -> 6 Zonal Off. Bilaspur -> 1 DCTSCs -> 9 CTCs/CPP -> 3 RSTCs -> 2 BTSSO Bilaspur -> 1 CTSSS Kargi Kota -> 1 BSM&TC (Tasar) -> 21 Field Unit, Pallahara -> 1 ZSSO (Mulb) -> 2 SCPC (Mulb) -> 3 BSFs (Mulb) -> 23 BSFs (MSDP) -> 8 SSPC (Mulb) -> 21 SSPC (Muga) -> 1 SSCs (Mulb) -> 32 STS/SSU -> 2 ERISSPC -> 5 CDCs/CRC/CPC/PDC -> 12 P4 Stations -> 3 Field Lab, Titabar -> 1 <b>Total = 300</b>	
			RSRSs = 4 RECs = 12 Farm = 1 S-Unit = 2 <b>Total = 19</b>	<b>Total = 23</b>			RMRS - Regional Muga Research Station RO - Regional office RERS - Regional Eri Research Station RTRS - Regional Tasar Research Station SC&TH - Silk Conditioning & Testing House SCPC - Seed Cocoon Procurement Centre S-UNIT - Sub unit attached to Research Extension Centre SSPC - Silkworm Seed Production Centre CTC - Cocoon Testing Centre		

## STUDY TEAM

<b>Project Advisor</b>	<b>Dr. S K.Chakravorty</b> Deputy Director General
<b>Team Leader</b>	<b>Dr.K.P.Sunny</b> Group Head (ES & SS)
<b>Study Team</b>	<b>Shri Rajesh Sund</b> Deputy Director (ES)
	<b>Dr. Rajat Sharma</b> Deputy Director (ES)
	<b>Shri Deepak Gupta</b> Assistant Director (ES)
	<b>Smt. Sweta Kumari</b> Assistant Director (ES)
	<b>Dr. Arundhati Chattopadhyay,</b> Deputy Director (ES), RPMG Mumbai
	<b>Shri Rishabh Aggarwal,</b> Assistant Director
	<b>Shri Ananad Verma,</b> Assistant Director, RPMG Kanpur
	<b>RPMG Kanpur</b>
	<b>RPMG Kolkata</b>
	<b>RPMG Bangalore</b>
	<b>RPMG Chennai</b>
<b>Research Associates &amp; Data Entry Operators</b>	<b>Ms. Asmita Raj</b>
	<b>Ms. Prishita Sareen</b>
	<b>Shri Subhra Seal</b>
	<b>Shri Tarun Kumar</b>
	<b>Shri Rohit</b>
<b>Field Survey Investigators/Agencies</b>	<b>Shri Anil Kumar</b>
	<b>M/s. Bureau of Research on industry &amp; Economic Fundamentals (BRIEF)</b>
	<b>M/s Samaj Seva Samithi, Bangalore</b>
	<b>Shri Shri Prasad</b>
	<b>Shri Gyan Chand Sharma</b>
	<b>Shri Jagdish Chand Sharma</b>
	<b>Shri Siddhartha Bose</b>
<b>Shri Mahabir Prasad Mandiwal</b>	