

An Assessment of Women's Roles  
-- The Karnataka Sericulture Development Project

Institute of Social Studies Trust  
New Delhi

Prepared for The Ford Foundation

1982

## Contents

- I. The Enquiry and Methodology
  - II. The Karnataka Sericulture Project
    - Objectives
    - Employment
    - Functionaries
    - Training
  - III. Women's Place in the Industry and the Importance of Women Functionaries
    - Mulberry Cultivation/rearing
    - Reeling and Weaving
    - Sericulture Equipment
    - Women Functionaries as Facilitators
  - IV. Strategy for Enhancing Employment of Women Functionaries
  - V. General Inferences
- Appendices

## I The Enquiry

It is increasingly being recognised that women tend to receive unequally the streams of benefits ensuing from development. It is often suggested that one of the reasons for this unequal access is the unequal presence of women in extension network, whether in programme-design, administration, extension, evaluation or intervention.

The question that this paper attempts to answer is:

- how far the reach of a programme depends on the sex of its communicators. The reach would obviously have a class-economic target group-aspect apart from a sex aspect. The question would be to allocate/determine the mix of the two;
- if women communicators appear to be a critical input from the point of view of distributive justice how to overcome the known obstacles or inhibitions and ensure the absorption of an adequate number of women personnel at each level?

In trying to look for the answer to these questions the ongoing Sericulture Development Project of the Karnataka State Government aided by the World Bank was examined.

The examination first looks into the principal aims of the project, its employment potential and the nature of such employment. Second, at the type and number of functionaries that the Project intends to employ, their roles, pay scales, educational level, source of supply. It specifically identifies functions where the Project aims and needs could be better served by female functionaries, and third it attempts some general inferences which would lead to an improved understanding of the woman-power needs of various development projects.

### Methodology

Some elaboration of methodology seems necessary as special attempts have been made to carry the project administrators with the ideology behind the study. Studies or research which wants to reform policy, modify, intervene, require to follow a different path from research that wants to expose facts without necessarily guaranteeing that the exposure will be accepted.

This research was undertaken with the first goal namely to intervene within a climate where the intervention is understood, acceptable and absorbed. The attempt to use such methodology has necessarily meant a great deal of patience and time in getting down to quantification and analysis. Thus the phase of household survey, consultation with women "beneficiaries" as well as women protagonists was taken up only after some advance had been made with the first goal, that is trying to make the research an active tool for sensitizing the project to the issues and having them "accept" the rationale of the study.

Sensitizing started with a frank sharing with the authorities the main points of criticism of the sericulture project, namely:

- (1) A very heavy part of the project finance was going to build extension delivery system and very little would actually go to sericulture workers. This has been justified on the grounds that the programme basically was trying to introduce new techniques in sericulture production and therefore extension was the critical input.
- (2) That most of the extension staff were male while sericulture was an activity in which both males females participated. Hence the concern was raised whether over time women will not be pushed out of the sericulture industry as the new knowledge would be largely absorbed by the males.
- (3) The issue was also raised whether the programme would not tend to be more utilised by the "better farmers" namely the larger landholders and thereby intensify inequality in the rural areas. It was also found that certain (crafts) associated with traditional sericulture production such as the manufacture of cocoon rearing trays, "chandrikes" } traditionally done by forest based tribals (Medars) } would get into the commercial manufacturing sector in urban centres, thus possibly denying these tribals their income earning opportunities.
- (4) That there were health hazards associated with the sericulture process and this had not been taken care of.

In the first round, these comments were shared with the Deputy Director, Sericulture, who was friendly and interested enough to reply to each of the criticisms.

In the next round, the Chief Secretary, Karnataka was appraised of the issues and he readily saw that the Sericulture Project was largely a programme for women, that this would basically affect women and therefore we should have a look at it.

At his instance a field visit was arranged by the department, Directorate of Sericulture in which both the District Officer-Sericulture as well as the Director of Women and Child Welfare and the President of the most active voluntary agency in the district namely the Family Planning Association of India went as a team. The visit was to 10 sericulture villages in one of the most well established sericulture districts of Karnataka namely Kolar.

The District Sericulture Officer questioned the team's interest in finding out whether women had been given adequate attention in the project's implementation design. Firstly he said that women and men and children were intertwined in sericulture cultivation with no clear segregation of roles -

no forms of traditional task allocation charter. Hence, there was no need to see the project either as a women's project or a project in which unless women are reached there can be some negative consequences. He called it a household activity with no sericulture based demarcation of tasks.

Therefore he did not see any reason why the extension agents should be females or local information dissemination centres should be manned by women. If the household is reached, male or female, the project would be adequately looked after. He also argued that women would be inhibited in taking up jobs either in the chowk centres or in other forms of outside-house training or discussion activities and would prefer to send their men for such activities including marketing. Hence by and large their roles were housebound.

Some of these issues were tested out in the field visit:

Firstly it was found that the chopping of mulberry leaves and the continuous feeding were 3 hourly, was largely done by females and children as they were more house bound. Many of the women complained that after working the whole day at household



chores and child-rearing they could not sleep in the night because the worms had to be fed, and felt exhausted. They also felt that the house was created for the worms who dominated the space and left very little for themselves and for their children.

In village level meetings held with men and women, women volunteered to be the incharge of the chawki rearing centres and showed no inhibition or hesitation in taking such outside house extension tasks.

They felt that they would even like to take the product to the market as then they could have a control over the cash which otherwise came under the control of the men. They mentioned that men's use of cash have included non-food items and liquor which rob them of the full value of their work.

As a result of the visit both the Director of Women and Child Welfare and the former Director of Sericulture wrote notes to the Chief Secretary in which they expressed the view that there was need to look at the project again from the point of view of women's participation at all levels especially from the point of view of providing women workers sericulture inputs from the social welfare side such as child care centres,

health protection and so on. Consequently, the Chief Secretary decided to appoint a Task Force on Sericulture to go into all these issues. Due to changes in the administrators incharge of sericulture and its department namely industry the setting up of the task force was delayed by several months. The Task Force eventually came into existence on 4th February, 1982.

In the meantime the Ford Foundation also took another step and funded the induction of eight women extension workers in the Kanakapura Block - a traditional sericulture area. This gave an additional opportunity to see if having more women in the delivery system would have some special benefits both to the households as well as to the project.

Before going into the field it was also decided to consult other research organisations in Karnataka who had collected data on the sericulture project. The most rich stock being that of the Institute of Social and Economic Change (ISEC) where Dr. Rajpurohit was incharge of research programme and concurrent evaluation of the Sericulture Project.

Our tasks were then divided between two teams. One team looked at the arrangements for the training of functionaries. The other studied the extension services and conducted field

investigations at the household level in selected villages. Some 64 households in 30 villages in Kanakapura were covered of whom 15 were women-headed households and about one half that is 30 were below the poverty line. Sericultural practices included traditional varieties as well as M-5 and Bivoltine. The findings are embodied in different sections of the report at appropriate places. Appendix I gives a note on the coverage and characteristics of the household survey and facts and observations.

The results of the field survey were analysed and presented at group meetings of women sericulturists in some of the surveyed villages for a recheck and for learning some of their other problems and suggestions.

## II. The Karnataka Sericulture Project

### 1. Objectives

The objectives of the Karnataka Sericulture project\* are:

- 1) To increase the production of raw-silk in the next five years from the present level of 2,300 tonnes to 4,500 tonnes (of which 1,700 tonnes of bivoltine silk), by bringing 19,000 ha. irrigated area in the new districts under (M-5) mulberry cultivation, and by converting 24,000 ha. of existing irrigated mulberry area in the traditional districts from low-yielding mulberry cultivation to high-yielding (M-5) varieties, and by increasing production in rain-fed areas.
- 2) To provide employment mainly to weaker sections of the people.

For this purpose, and from a longer term point of view.

---

\* Sericulture Project, Karnataka, Joint Report, Government of India and Karnataka, 1979.

3) To strengthen research capability for evolving new races of silkworms and strains of mulberry, including improved methods of disease control and agronomic practices.

4) To strengthen the arrangements for producing breeders and foundation stock and egg production and the other associated infrastructure of technical services, marketing, reeling etc., in order to expand the area of new multivoltine, bivoltine and bivoltine hybrids in the traditional as well as new areas.

## 2. Employment

Sericulture is a labour intensive farm activity, combining intensive land cultivation with intensive silkworm rearing in the household.

The Project would generate a total of 1 million man-years during implementation and incremental employment of 0.25 million man-years per year thereafter. The assumption is that one hectare of land under irrigated mulberry is estimated to provide about 6 man-years of employment on the farm and 6.27 man-years in reeling and manufacturing.

The Project does not spell out how much of this employment would be for female workers. An attempt has been made here however to estimate women's share in the total anticipated employment in sericulture.

Sericulture is a family activity in the three main aspects: Mulberry cultivation, Silkworm rearing and reeling. Male and female members handle different stages and operations within these aspects, but some stages/operations are more female labour intensive. The existing pattern of male/female participation in different sericultural operations as gathered from other studies and knowledgeable sources is given in Table 1 (also see Tables 2, 3 and 4).

Table 1: Women's Employment in Different Sericultural Operations

Operations	Total No. of Man- days required	Women Workers	
		Nos.	Percent Share
<u>1. Mulberry Cultivation</u> (one acre)			
Weeding	40	40	100%
Application of fertilisers and farm yard manure	30	20	66%
<u>2. Rearing</u>	500	300	60%
<u>3. Reeling</u>			
Reeling (300 kg. cocoons from one acre)	93	75	80%
Twisting (30 kgs.)	139	83	60%
<u>4. Weaving</u>	328	66	20%
<u>5. Printing, dyeing, etc.</u>	10	4	40%

Source: Constructed by this study based on other studies and interviews with knowledgeable persons.

Notes:

1. Rearing: Leaf is essentially harvested by women. Transportation of leaf during the later stages (last ten days) is done by men. Otherwise it is only by women. Silkworm rearing is conducted indoors. Women at home mainly attend to this work.
2. Mulberry Cultivation and Rearing: Thus in all commencing from mulberry cultivation till harvesting of cocoons about 360 women get employed in one year for every acre of mulberry.
3. Reeling: Women are mainly engaged in cocoon sorting, floss removal, cooking, reeling, re-reeling, turning, cleaning and skeining.
4. Weaving: Nearly 80% of the silk is used for weaving on handlooms and 20% in powerlooms.
5. Apart from the above activities the women are employed in silkworm egg production (nearly 60%), and in establishing the mulberry garden.

Table 2 - Female workers/Male workers Ratios in Rearing of Silkworms, Production of Cocoons and Raw Silk.

<u>Important Silk Producing States and Districts.</u>	<u>Female workers/Male Workers Ratio</u>
<u>States</u>	
- Bihar	0.1408
- West Bengal	1.4177
- Karnataka	1.1488
<u>Districts</u>	
- Kolar	0.7859
- Mysore	1.3135

Source: Census of India 1961, Vol. I, Part II-B (i), General Economic Tables, and Vol. XI Mysore, Part II-B (i) General Economic Tables, as quoted in a study of Employment and Income in Sericulture - A.H. Rajapurohit, K.V. Govinda Raju, Institute of Social and Economic Change, Bangalore, 1981.

Table 3 - Comparative Picture of Labour Absorption Ratios

<u>Crops</u>	<u>Female labour/Male labour Ratio</u>	
	<u>Rainfed</u>	<u>Irrigated</u>
Mulberry growing	0.25	0.44
Silkworm rearing	0.32	0.57
Total	0.44	0.54
Ragi	0.24	0.62

Source: A Study of Employment and Income in Sericulture, 1981.



Table 4 - Female Labour/Male Labour Ratios in Silkworm Rearing

Operation	Hired Labour/Own Labour Ratio		Female Labour/Male Labour Ratio	
	Rainfed	Irrigated	Rainfed	Irrigated*
Harvesting	1.03	0.60	1.42	0.56
Chopping	All own	0.31	0.10	0.09
Feeding	0.36	0.76	0.32	0.66
Cleaning	0.39	0.37	0.26	0.64
Others	0.67	0.93	0.69	0.66
<u>Total</u>	<u>0.46</u>	<u>0.68</u>	<u>0.52</u>	<u>0.57</u>

Source: A Study of Employment and Income in Sericulture, 1981.

While women's participation is marginal in mulberry cultivation it is substantial in cocoon production. But in both these there are noticeable variations across different areas, reasons for which are not easily identifiable. The variations exist between districts and between different talukas in a district as also between villages in the same taluka. See Table 5.

There is nothing in the project aims as such to suggest that any change is envisaged in this existing pattern of male/female participation. However, the technology proposed to be introduced by the project in various facets of sericulture could alter the proportion of male/female participation and indeed total employment - an issue to which we shall revert later.

Based on the existing pattern of male/female participation, we have estimated in column 2 of Table 6 the likely share of women in the total additional employment estimated by the Project:

Table 5 - Percentage of Female Days to Total Labour Days in  
Mulberry Cultivation and Cocoon Production

Districts/Talukas	Villages	% of Female Days In	
		Mulberry Cultivation	Cocoon Production
<b>I(a) Mysore Dist.</b>			
1 Kollegal Taluka	1 Hosamalangi	0.22	33.52
	2 Surapura	1.90	50.72
2 Chanagar Taluka	1 Maliyur	1.15	47.89
	2 Mangala	0.65	43.64
3 K R Nagar Taluka	1 Hebbal	4.34	49.81
	2 Melur	1.80	33.68
<b>II(a) Bangalore Dist.</b>			
1 Ramanagara Taluka	1 Ankanahalli	0.85	57.14
	2 Yerehalli	0.39	52.13
2 Doddaballapura Taluka	1 Rajaghatta	8.57	30.02
	2 Hosahalli	5.65	16.13
<b>(b) Mandya Dist.</b>			
1 Malavalli Taluka	1 Hittanahalli Koppal	1.55	46.39
	2 Talagavadi	1.57	46.42
<b>III(a) Kolar Dist</b>			
1 Kolar Taluka	1 Vokkaleri	1.76	25.91
	2 Madanahalli	2.83	20.94
2 Sidlaghatta Taluka	1 Mallur	8.78	33.70
	2 Gudihalli	7.73	16.87
<b>(b) Tumkur Dist.</b>			
1 Pavagada Taluka	1 Ponnasamudra	19.72	13.74
	2 Veeralagondi	11.98	9.68
<b>IV(a) Hassan Dist.</b>			
1 Channarayapatna Taluka	1 Baralu	1.03	52.28
	2 D.Kalenahalli	1.65	33.02
<b>(b) Chitradurga Dist.</b>			
1 Davanagere Taluka	1 Siddanur	0.98	47.58
	2 Gumnur	2.70	40.61
<b>(c) Bellary Dist.</b>			
1 Kudligi Taluka	1 Thimlapura	8.19	55.60
	2 Hulekere	13.94	47.70

(Continued)

Table 5 (contd)

Districts/Talukas	Villages	% of Female Days In	
		Mulberry Cultivation	Cocoon Production
<b>V (a) Raichur Dist.</b>			
1 Manvi Taluka	1 Kavithal	10.55	50.94
	2 Hathnur	11.95	36.04
<b>(b) Gulbarga Dist.</b>			
1 Jeevangi Taluka	1 Hipparga	1.78	54.52
	2 Kolekur	9.25	36.52
<b>(c) Bijapura Dist.</b>			
1 Mudhoi Taluka	1 Kesaragoppa	8.42	38.89
	2 Chinehakhandi	9.87	46.45

Source: A Study of Employment and Income in Sericulture, 1981.

Table 6 - Estimated Women's Employment in Karnataka Sericulture Project After Completion

	(1)	(2)	(3)
	Incremental Employment As Per Project Man Year (additional)	Women's Share Esti- mated by This Study Women Year	Women Percent Share in <sup>(1)</sup> Percent
<b>A</b> <u>Mulberry Cultivation and Rearing</u>			
New Areas converted from Sugarcane	75,360	37,600	(50)
<b>B</b> <u>Reeling</u>			
Processed by filatures	1,867		
Cottage Basins	<u>19,716</u>	15,700	(80)
	21,583		
Twisting	39,200	24,000	(60)
<b>C</b> <u>Weaving</u>			
Incremental production of raw silk			
80% of silk used by Handloom	87,000		
20% of silk used by powerloom	<u>5,400</u>		
	92,440	36,000	(40)
<b>D</b> <u>Printing, Dyeing, etc.</u>			
Incremental production of silk fabric			
80% of the fabric is dyed	2,800	1,400	(5)
<b>E</b> <u>Rearing Equipments</u>			
Bamboo trays	12,160		
Bamboo chandrikes	28,000		
Double stands	1,200		
Leaf baskets	1,000		
Bamboo baskets for picking			
ripe worms	500		
Chopping Board	100		
Chopping knife	<u>100</u>		
	43,060	34,500	(80)
<u>Grand Total</u>	245,736	149,200	<u>(60)</u>

Table 6 (contd.)Parameters:

1. For one hectare of Sugarcane Mandays for one year is 590.
2. For one hectare of other crops (Paddy, Cotton, Groundnut, Vegetables, Wheat, Maize) average Mandays for one year is 260.
3. For mulberry upto production of Cocoons, per hectare per annum 1,450 Mandays.
4. One manday for weaving 2 metres of fabric with 80 grams of silk on Handloom (5% process loss).
5. One manday for weaving 8 metres of fabric with 320 grams of silk on Powerloom (5% process loss).
6. For twisting 2.88 kgs. of silk 13 Mandays and 360 spindles are required.
7. One Manday is required to print, dye, etc. of 60 metres of fabrics.
8. Life span of the Equipments is 3 years. Hence  $\frac{1}{3}$  of total Mandays and man years is added to Grand Total.

### 3. Functionaries

Sericulture is not only labour-intensive but also technology-intensive. The industry needs silk farms and Grainages which produce the quality mulberry cutting and silkworm seeds on which depends the quantity and quality of silk output. These have to be extended from the labs to the field. The cultivation of high quality mulberry and rearing of silkworms by farmers and households requires intensive technical guidance on the spot. This requires a spatially well spread out extension organisation with technical personnel easily accessible to sericulture villages and households. Incidentally, most mulberry cultivators also rear silkworms.

The Karnataka sericulture project needs a large extension organisation because it aims to (a) develop sericulture in eight new districts which have little previous experience in sericulture, (b) introduce improved varieties of mulberry and silkworms in the traditional area and (c) raise productivity and quality of silk throughout.

The challenge it faces in the traditional areas, let alone non-traditional areas, is apparent from the following observations in the Project report:

Available evidence shows that recommended practices for application of fertiliser in the mulberry gardens, and for spacing and pruning of mulberry plants are not being strictly observed by sericulturists.

Technical advances, notwithstanding the average yield of cocoons per 100 dfls in the State under irrigation at 20 kgs. to 25 kgs. are much lower compared to Japan (56 to 66 kgs.). The average productivity in Japan per family is as high as 390 kgs. of cocoons compared to Karnataka's 168 kgs.

The relatively low yields are partly attributable to the quality of layings supplied by the private seed preparers.

The low yields are also due to the inability of the rearers to adopt fully the package of practices recommended by the Department, especially during the first two instars. The Sericulture Department has prescribed a package of practices for rearing young silkworms which are designed to ensure (i) adequate spacing for the hybrid/bivoltine silkworms in the rearing trays to avoid over-crowding, (ii) feeding silkworms with fresh nutritious and succulent leaves and taking measures to conserve the moisture in the leaves by maintaining humidity in the rearing bed during the first two instars of the silk worms, (iii) feeding of worms with fresh leaves and limiting the number of feedings to four and avoiding chopping of the leaves into small bits so that the bits do not dry up quickly.



There is a heavy mortality of young silkworms during the first two instars on account of rearing under unhygienic conditions which characterise dwelling houses of most of the sericulturists.

The Project has therefore planned to set up an extensive infrastructure of technical services (for details see Appendix II) which includes:

- 8 silk farms to demonstrate scientific methods of mulberry;
- 19 grainages to produce and supply quality seeds;
- 198 Technical Service Centres (TSC) at taluk level and under them;
- 2451 Chawki Rearing Centres (CRC) to reach out technical services to the remote villages in the project districts. Appendix II shows the location of CRCs district-wise.

Besides, the Project will establish training facilities for farmers and functionaries and for H&D. It will expand public sector units having filatures, automatic reelers, silk weaving, spun silk mill and twising factory. It will also set up 50 cocoon markets and upgrade the 22 existing markets.

All this extension and expansion will need the strengthening of the Directorate of Sericulture at the State level and its arms at the District, Taluk and Village-levels. Correspondingly, the number of functionaries will expand in various categories and pay levels. There will be a spurt both in technical and labour employment as also administrative jobs in government institutions.

The type and number of functionaries by activity, designations and with pay levels are shown in Tables 7 and 8.

There is no earmarking or emphasis in the Project Report on recruiting women as functionaries for any of these posts.

However, a scrutiny of the existing pattern of male/female employees by categories, qualifications and pay scale, in the Sericulture Directorate shows that Women's share throughout is insignificant particularly in the technical wing of the Directorate. (See Table 9).

Table 7 - Sericulture Project Karnataka

		Technical		
		Staff	Unit	Total
<b>(a) <u>Technical Employment Potential -</u></b>				
<b><u>by Activity</u></b>				
1	Silk Farms	10		80
2	Grainages	32		608
3	Technical Services			
	a) T.S. C.	9		1,782
	b) Model C. R. C.	3		60
	c) Training School			
	i) New	6		12
	ii) Strengthening			5
4	Cocoon Market			
	a) New			
	i) Class I	15		75
	ii) Class II	11		275
	b) Strengthening			133
5	Government Enterprises			
	a) Mini Filatures	7		56
	b) Silk Weaving Factory	2		2
	c) Twisting	29		203
	d) Workshop	6		6
6	Organisation & Management			69
7	Research			166
<b>Total</b>				<b>3,532</b>
<b>(b) <u>Labour Employment in Government</u></b>				
<b><u>Institutions - by Activity</u></b>				
		Labour		
		Per Unit		Total
1	Silk Farms	50		400
2	Grainages	75		1,425
3	Technical Services			
	a) C. R. C.	3		7,353
	b) T.S. C.	12		2,376
	c) Model C. R. C.	8		160
4	Cacoon Markets			
	a) New Markets			
	i) Class I	26		78
	ii) Class II	9		225
	b) Strengthening			252

(continued)

---

	<u>Labour Per Unit</u>	<u>Total</u>
5 Government Enterprises		
a) Mini Filature	99	715
b) Semi-automatic	22	770
c) Weaving Factory		171
d) Twisting	358	2,506
e) Spun Silk Mills	120	120
f) Workshop	21	21
Total		<u>16,572</u>

---

**Table 8 - Karnataka Sericulture Project - Technical and Administrative Jobs - by Designation and Pay Scale**

<u>Technical Posts</u>	<u>No. of Posts</u>	<u>Pay Scale</u>
Principal/Dy. Director of Sericulture	220	1,300-1,900
Lecturers/Asst. Director of Sericulture	25	750-1,525
Sericultural Demonstrators	2,108	340-800
Sericultural Inspectors	192	400-900
Sericultural Assistant	154	660-1,300
Sericultural Operators	372	300-700
Sub-total	<u>3,071</u>	
<u>Administrative Staff</u>		
Manager/Office Superintendent	22	500-1,120
P. A. /Stenographer	22	400-900
Typist	45	300-700
Clerk - I Division	262	400-900
Clerk - II Division	64	300-700
Attender	54	280-500
Driver	243	280-500
Cook and Attender	9	280-500
Peon	317	250-400
Watchmen	106	250-400
Labourer	195	250-400
Skilled Labourer	308	280-500

Table 9 - Statement Showing the Employment of Women in Sericulture (Government) Services

Designation	Total Working	Women Employees	Qualification Required	Pay Scale
<b>(a) Technical</b>				
1 Dy. Director of Sericulture	6	-	B.Sc.	1,300-1,900
2 Asst. Director of Sericulture	6	-	B.Sc.	750-1,525
3 Sericultural Assistant	45	2	B.Sc.	660-1,300
4 Sr. Sericultural Inspector	2	-	B.Sc.	500-1,120
5 Sericultural Inspector	25	1	B.Sc.	400-900
6 Sericultural Demonstrator	250	2	S.S.L.C.	340-800
7 Sericultural Operative	47	1	S.S.L.C.	300-700
8 Office Superintendent	12	-	Graduation	500-1,120
9 I Division Clerk	6	-	Graduation	400-900
10 II Division Clerk	6	2	S.S.L.C.	300-700
11 Stenographer	1	-	S.S.L.C. with typing & Shorthand	400-900
12 Typist	7	4	S.S.L.C. with typing	300-700
13 Attender	4	-	Literate	280-500
14 Peon	67	-	Literate	250-400
<b>(b) Administrative</b>				
1 Headquarters Assistant	1	1	Deputation from Revenue Deptt	900-1,750
2 Sericultural Assistant	1	1	B.Sc.	660-1,300
3 Audit Superintendents	3	1	2 years service in the cadre of Office Supdt.	600-1,240
4 I Division Clerk	13	3	For promotion serve 5 years must have passed Dept. Exam. prescribed for Recruitment Graduate	400-900
5 II Division Clerk	11	2	S.S.L.C.	300-700
6 Stenographers	10	6	Senior Shorthand & S.S.L.C.	400-900 + Spl. Pay
7 Typists	9	6	Senior typing & S.S.L.C.	300-700 + Spl. Pay
8 Peons	16	2	-	250-400
9 Skilled Labourers (on consolidated and daily wages)	41	14	Literate to degree	Daily wages Rs. 6/- consolidated from Rs. 150-300 range

Source: From Directorate of Sericulture.

As Table 9 shows, presently women have a presence only as stenographers/typists and skilled labour in the sericulture development organisation from the State headquarters to the village level. It can be assumed in this background that ordinarily most of the new functionary posts will ordinarily be filled up more or less in the existing proportion of male/female participation in the Sericulture Directorate.

It must be acknowledged however that the existing sericulture development organisation in Karnataka is predominantly male because it was built up over past several decades when there was little awareness/interest in promoting female employment. While there is no specific policy direction as yet for recruiting a higher proportion of women as functionaries, an experiment has been initiated by the Karnataka Government to have women functionaries in the Kanakapura Taluka.

A field survey was carried out in Kanakapura as a part of this study and its results are discussed in the next section alongwith the question whether the project would not better serve its aims by having a substantial number of female functionaries for selected functions; and if so, in what fields and why.

Table 10 : Recommended proportion of Women Functionaries

Function	Functionaries				Suggested No. of Female Functionaries	
	Title	Nos.	Pay Scale	Qualification Minimum	Nos.	As % of
A) Extension of improved Technical facilities in:	TSC/CRC					
1) Mulberry cultivation	Deputy Director	198	1300-1900	B.Sc.	89	50%
	Demonstrators	1584	340-800	S.S.L.C.	792	50%
2) Silkworm Rearing	Operative	40	300-700	S.S.L.C.	20	50%
B) Silk Farming	Assistant Inspectors	8	600-1300	B.Sc.		33%
	Demonstrators	32	340-800	S.S.L.C.	10	33%
	Operative	32	300-700	S.S.L.C.	10	33%
C) Grainages	Deputy Directors	19	1300-1900	B.Sc.	6	33%
	Asst. Directors	19	750-1525	B.Sc.	6	33%
	Assistants	95	660-1300	B.Sc.	31	33%
	Inspectors	95	400-900	B.Sc.	31	33%
	Demonstrators	190	340-800	S.S.L.C.	62	33%
	Operative	190	300-700	S.S.L.C.	62	33%
D) Cocoon Marketing	Assistants	40	600-1300	B.Sc.	20	50%
	Inspectors	66	400-900	B.Sc.	33	50%
	Demonstrators	237	340-800	S.S.L.C.	115	50%
	Operative	110	300-700	S.S.L.C.	55	50%
E) Training	Principals	3	1300-1900 )	B.Sc.	6	33%
	Lecturers	5	750-1525 )	B.Sc.		33%
	Inspectors	9	400-900 )	B.Sc.		33%



A word about the selection procedures.

### Functionaries

The Sericulture Assistants are appointed through the Karnataka State Public Service. For the other posts - Sericulture Inspectors, Sericulture Demonstrators and Sericulture Operatives - the selection is made through the Recruitment Committee.

The selection is done through the usual Government procedure, with prescribed reservations for Scheduled Castes and Scheduled Tribes.

Previously merit plus interviews were the criteria for selection. Now it is merit and passing a Kannada language test. (This is only to test language, it is not a general knowledge test). There are no special considerations to take rural persons.

There is no policy of pre-interview training for demonstrators, operatives and sericulture inspectors. There is a 9 month training after selection at the Government Training School.

### Progressive Farmers

Each Chowki Rearing Centre is to have one progressive farmer and 2 labourers who are supervised by a demonstrator.

The progressive farmer usually needs to be literate and belong to the same village where the Chowki rearing centre is located. He is selected by the Chowki Rearing Committee of the village. Each Chowki Rearing Centre has a "Village Committee". No special criteria for selecting Village Committee members has been laid down except that they have to be sericulturists. Usually, they are "prominent" persons of the village. Since there are 5 or 6 villages under each Chowki Rearing Centre (CRC) they usually ensure that each village gets represented by at least one member.

The Project has started taking a few women as trainees under the provision for training of progressive farmers. This has been facilitated by women functionaries in Kanakapura (See next Section for details). Women may thus get considered for employment as Progressive Farmers attached to CRCs.

#### 4. Training

The project has recognised the inadequacy of the existing departmental facilities for training sericulturists and functionaries. It has therefore provided for:

- 1) Expansion of the existing training school;
- 2) Establishment of two new training schools; and
- 3) 4 mobile units to provide visual education.

These three training schools/centres will train sericulturists and functionaries in the theory and practice of sericulture techniques.

The training would be for one month for new farmers and a refresher course of one week for those already trained.

Discussions with the authorities brought out that there is no specific criteria for selection of farmers for the one month training except that they have to be sericulturists. Literates are preferred but it is not an essential condition. The opportunities are orally advertised by sericulture staff at the village level who "talk about the course and encourage them (farmers) to undertake the training".

Each school will have a capacity of 1200 farmers/staff per year, and about 100 persons per month.

Number of trainees trained each year depends on the selection made by the Sericulture Department Recruitment Committee. In the latest batch 47 Sericulture Assistants were taken of whom 7 were females. This year 272 vacancies for demonstrators have been advertised. 69 posts for sericulture assistants (interviews are currently going on). Duration of training and stipends are as follows:

	<u>Duration</u>	<u>Stipend Rs. per month</u>
Progressive Farmers	One month	100
<u>Sericulture</u>		
Demonstrators I	Nine months	100
Inspectors I	Nine months	100
Sericulture Inspectors	Nine months	150
Sericulture Assistants		Regular Salary Rs.660-750-1100

The Trainees are all day scholars. Farmers, by and large, have to make their own arrangements. There are no residential facilities offered during the training but all 3 schools propose to have them at a later date. Chamapatna

has already started building a hostel which is expected to be completed by the end of the year. It will be a Co-ed facility; there is some doubt whether girls will use it.

The Government arranged hostel facilities only for the boys, in Mysore. The girls stayed in a Convent (one was a day scholar) and had to make the stay arrangements on their own. There are thus no special facilities for girl trainees.

### III Women's Place in the Industry and the importance of women functionaries.

#### Mulberry Cultivation and Rearing

While sericulture is a family activity the foregoing review shows that the participation of women is quite significant. It also shows that the various operations which generally women workers handle whether in relation to mulberry cultivation or rearing of silkworms require technical knowledge and skill and have an important bearing upon sericultural productivity - both quantitatively and qualitatively. It is clear that for an assured accomplishment of the productivity goals of the project, the skill of the women workers would need to be developed adequately to the task.

The Project Report acknowledges, as referred to earlier, that the "Technical advances notwithstanding the average yield of cocoons in Karnataka are much lower compared to Japan." It also says that the average productivity per family in Karnataka is less than half that of a sericulture family in Japan. The focus of extension work therefore has to be on enhancing the capability of the "family" for raising productivity. Given the fact that women provide not only a substantial portion of labour

but perform technical functions in relation to mulberry cultivation, silkworm rearing and reeling, the up-grading of their skills has to be a specific and deliberate part of the Project endeavour and cannot be left to chance as appears to be the case presently.

For example, the Project Report has not seriously considered separately the need for training of selected new sericultural "farmers" for a period of one month in mulberry cultivation and silkworm rearing. This combined training in mulberry cultivation and silkworm rearing will benefit mostly male-workers who will get selected for training since they predominate numerically in mulberry cultivation.

Even if women "farmers" do get selected, they may find it difficult to stay far away for one month since only three training schools are planned for a vast area of 15 districts. Besides, the three training schools have no facilities for the lodging of women trainees. Thus the training and up-grading of skill of female labour, though essential for raising sericultural productivity will be neglected. The training programme will need to be reformulated (a) to train male and female farmers proportionately to their actual participation rate in different operations and (b) to make the location of training schools easily accessible to rural women by increasing the number of training schools for farmers.

Apart from the training of workers in formal training centers, the project also rightly envisages the provision of technical services and guidance on the spot to sericulture households through a large network of Chowki Rearing Centres (CRCs) at the village level under the supervision of Technical Services Centres (TSCs) at the Taluka level.

These centres - CRCs and TSCs - are to be manned by a large number of technical officers. Sericultural assistants, demonstrators and operatives who are expected to visit intensively the farms and the cottages of sericultural families to render technical assistance on the spot i.e., something like on-the-job training. (See Table 10 and Appendix II).

The technical personnel will observe and guide the various operations including those carried out by women e.g., weeding, harvesting, chopping in the farms and feeding, cleaning and care of the silkworms in their homes. This requires a very close contact and communication between the technical personnel and the men and women workers. It should not be



difficult to recognise that the effectiveness of contact and communication with the women workers would be considerably enhanced by having as many women as possible among these technical functionaries.

There are undoubtedly problems of housing and transportation of women technical functionaries to the villages. But these problems are nothing compared to the problem of having male functionaries who, though can be housed and transported relatively easily, are unable to communicate effectively with half the labour force i.e, women workers and provide them on-the-job training. In one case, the project may incur some extra costs on housing and transportation of women functionaries but in the other the project will suffer a substantial loss due to the failure of the male functionaries to accomplish the objective.

On an experimental basis the Karnataka Government has appointed a woman as incharge of a Technical Service Centre (TSC) in Kanakapura and (with special assistance from the Ford Foundation) about 8 women field functionaries (demonstrators) have been attached to this TSC. Since the experiment has been launched recently it is too early to make any conclusive comments about the impact and contribution of the women functionaries. But our field visits to the Kanakapura villages

showed that these functionaries have direct and easy access to female workers in the household and that male workers of the household are not inhibited from receiving advice from the female functionaries.

One of the difficulties in the traditional areas like Kanakapura however is that male members feel (and with some justification) that they already know enough about sericulture and that there is not much that they can learn from "these innocent little girls". The women field functionaries are, therefore, working against an in-built prejudice which makes it difficult to measure their contribution although in the household survey conducted as a part of this study in Kanakapura, women respondents have generally appreciated the role of women functionaries. But whether this appreciation is for the quality of their companionship and/or for the quality of technical guidance provided by them is too early to decipher. For this the experiment must run for a year or two and monitored systematically.

Perhaps a more clear advantage could be derived from the experiment even in a short interval were it to be tried in a non-traditional sericulture area i.e., where neither men and women have knowledge in sericulture and have both to be provided

on-the-job training and guidance. It is necessary, therefore, to launch a few experiments of this nature in some of the non-traditional areas where sericulture is being introduced for the first time and there is little existing knowledge among men or women. In the traditional areas too, a few more experimental projects with women functionaries will help to derive conclusive lessons.

Though necessary, it is not sufficient to lay stress on women functionaries. Our survey of households in Kanakapura shows that some priorities must be established for the female functionaries. Their attention must go first to female-headed households and second to poor households - poor in terms of assets and income.

The nature and number of functionaries which the Project expects to engage and the likely pay levels have been listed in Table 8. An analysis of this indent of functionaries shows that there are some positions where the productivity aim of the Project would be better served if women were inducted as functionaries for a better reach to female workers, as argued earlier. Table 10 estimates the proportion of women among the functionaries that may be aimed at for this purpose.

### Reeling and Weaving

From the point of view of women and the weaker sections whom the project is committed to serve mainly, there are some serious omissions in the project which deserve notice and call for remedial action.

Mulberry cultivation and the linked activity of silk-worm rearing are essentially for the land-owning class, be they large, medium or small. It is the next two operations (i) Reeling<sup>1/</sup> and (ii) Weaving, which hypothetically offer the best hope for the landless among the weaker sections.

Even presently the Reeling Industry in Karnataka is mainly in the hands of minorities (muslims) and the labour force is mainly the weaker sections (Scheduled Castes and Women).

The reeling skills in Karnataka have been developed through the hereditary process. The Government has done little

---

<sup>1/</sup> Reeling is a process by which the continuous silk filament is unwound from the cocoon and is wound on to a reel - i.e., producing the silk yarn.

There are about 10,000 Charkhas in Karnataka and they produce about 40 percent of silk yarn in Karnataka. Some 7500 cottage Basin produce another 50 percent of silk yarn. The Charkha costs about Rs.500 and the cottage basin about Rs.10,000.

to institutionalise training in reeling either on 'Charkha' or the improved contrivance called the 'Cottage Basins' - the two reeling appliances in vogue in the Cottage sector of the Sericulture Industry. Its role towards reeling in the Cottage Sector has been in encouraging the development of a model Charkha and in subsidizing the cost of the Charkha.

But more substantially, the Karnataka Government (historically) entered the reeling industry by installing filatures (the mechanised method of reeling) as State enterprises.

In the Sericulture Development Project, the State government has proposed to modernise its existing filatures and to set up 8 mini-filatures in the new (non-traditional) Sericulture districts. One mini-filature will use semi-automatic reels imported from Japan and a second such unit has been allowed to be imported and installed by a private entrepreneur and is expected to have a demonstration effect.

The Project provides for an investment of Rs.7.48 crores on mechanised reeling (filatures); and about Rs.2 crores for credit to Cottage Basins in the new areas. Only 1000 model Charkhas at 50% subsidy are to be introduced in the entire period of 5 years.

The rationale for this marked emphasis on mechanised reeling in the Project is that "the quality of cocoon and the reeling technique together determine the quality of yarn" and therefore the "spread of Bivoltine silk rearing must be complemented with the improved reeling techniques to effect the breakthrough in quality".

We may leave aside this issue of mechanisation for the moment and concentrate on the neglect by the project of reeling by Charkha and Cottage Basins which are providers of not only large employment but have a record of providing employment to women and weaker sections. There is no provision in the project for training in the reeling skills. No training centres have been proposed for training women in reeling. The extension organisation TSC and CRC also devoted to mulberry cultivation and silk-worm rearing. Reeling is not in its orbit. Even the women functionaries attached to the Kanakapura project (with the aid of the Ford Foundation) are concentrating mainly on mulberry cultivation and silkworm rearing.

Strangely the Project report has argued the case for setting up 8 mini-filatures in the new non-traditional districts on the ground that the introduction of reeling to new areas

through charkhas and cottage basins 'will take time'. It does not explain anywhere how much time it takes to train a woman in operating the charkha or a cottage basin. It truly takes time to train - the cost of training should be a social cost rather than a burden on the (hereditary process) poor households. The real reason for leaving the reeling skill to be developed by the hereditary process, seems to be that the Project does not intend to provide any significant stimulus for the expansion of charkha and cottage basins, except nominally. It sees the future in the filatures.

#### Sericulture Equipment

The silkworm rearing activity will require a variety of mainly handmade equipment in huge quantities.

<u>Items</u>	<u>In Million</u>
Bamboo trays	3.04
Bamboo Chandrikes	3.50
Double Stands	0.15
Leaf Baskets	0.25
Bamboo Basket for picking ripe worms	0.25

The employment potential for making these is 43,060 years or 32,000 women years (Table 6).

There is no programme or organisation to help the women engaged in this industry; nor is there any available study related to it. This is a serious gap.

Another aspect of the problem related to this equipment is peculiar to the poor sericulturists. The field survey revealed that the poor households do not own the equipment.

The women who make the equipment are generally the scheduled castes and the poor; and mainly women.

Both the producers and the users of the equipment need development assistance which is currently not on the Project agenda.

#### Women Functionaries Also to be Facilitators

Group meetings with women sericulturists in Kanakapura organised during the field survey brought out the need for a wider role by women functionaries. The women sericulturists high-lighted several social problems including lack of drinking water facilities.

The women functionaries in the sericultural villages would also need to act as facilitators helping the women and the weak to get access to the services expected to be provided to them by the minimum needs programme. They are invariably not aware of Government's rural development schemes.



They also listed problems relating to their sericultural operations where they need someone to help them with the authorities. For example, they cited the cash advances of Rs. 30 to Rs. 35 collected from them 12 to 18 months ago by the sericulture department to secure bank loans for them for wire-mesh to cover their doors and windows as a shield against Ugy fly. But there had been no further response from the department and some had meanwhile borrowed from private money-lenders.

Some had filed insurance claims for compensation against losses due to Ugy fly - but these had not been settled. They are not able to get irrigation or bank credit. Bank branches are also not near.

In the women-headed households, they are unable to go and collect the layings or to go to the cocoon market. There is little help from the community. They have always to look for someone "trustworthy" to help specially when it comes to the correct weightment of the cocoons.

These instances underscore the need for organising the women sericulturists into self-employed workers associations - another area where the women functionaries could play a crucial role.

IV. Strategy for Enhancing Employment of  
Women Functionaries

The first step of course would be to persuade the Project Authorities to accept the suggested proportion of female functionaries in the total number of functionaries to be employed. But even if the project authorities do get persuaded it is not likely that women will be able to fill these positions in the normal course.

To ensure women's actual employment in the suggested jobs and proportions it is essential to provide a minimum pre-interview training to women candidates. They must have necessary minimum knowledge about the job as well as confidence to compete successfully in the interview.

It will be too much to expect the project authorities to provide such pre-interview training. It is a fit case for induction of some socially motivated voluntary effort. The shape such a voluntary effort should take would include:

1. The setting up of an Association for the promotion of women's employment in general and as development functionaries.
2. The Association should take up the Karnataka Sericulture Project as its first challenge.
3. Its foremost task would be to give wide publicity to the nature of jobs required by the project, among women specially in the districts and talukas (See Appendix II) included in the project.
4. It should devise courses for pre-interview training for the various categories of functionaries, especially where the employment in terms of numbers is substantial.
5. It should set up or sponsor pre-interview training camps.
6. It should lobby with the authorities for a policy direction for appropriate technology for reeling and weaving and for recruitment of women as functionaries and assistance for pre-interview training programmes.
7. Monitor women's recruitment.
8. Keep in touch with the employed women to get a feedback for improving its pre-interview training.
9. Organise self-employed workers associations including rearers, reelers, weavers and sericultural equipment-makers and provide them encouragement and support.

The methodology likely to be employed in this instance and the experience will be invaluable in (i) analysing other development projects from the female functionaries angle and (ii) in initiating practical measures that would enhance women's employment in the identified jobs.

Such an input is the minimum necessary for obtaining significant results. The Association will need initial funding from philanthropic organisations sympathetic to women.

The induction of a socially aware and motivated voluntary association is also necessary for the wider objective of the project to reach weaker sections. It has to be recognised that apart from any bias of the extension organisation, the very approach of inducing an industry through "extension workers" has limitations in delivering the employment opportunities to the weaker sections if the experience of development programmes in general in the country is any guide. The selection of candidates for training as extension workers thus acquires a special significance to help the Project succeed as much as possible to deliver its benefits "mainly to weaker sections". The Association should itself concentrate its pre-interview training on girls/women from the most disadvantaged groups.

Indeed, in this context, the cost of pre-interview training for functionary jobs should be a part of the project cost. While initially the Association could start with the help of funding agencies, it should persuade the project authorities also to support its training programme.

Insofar as the higher technical jobs are concerned, the duration of training needed is long term and the required basic educational qualifications are higher. The mobility of the employees has also to be high since technical personnel is scarce and has to be moved around where needed. These jobs can go mainly to women who can satisfy the above requirements. And, most likely, girls from better placed families are likely to have greater access to such jobs. The association should therefore raise funds for providing scholarships/subsistence to girls (who have the prescribed educational qualifications) from relatively poorer families to enable them to enter training institutes for long-term courses.

There is also a provision in the Project for appointment of progressive farmers attached to each CRC. The Association should also run an orientation camp for progressive silkworm rearers to improve the prospects of their selection as progressive farmers. The progressive farmer has to help not only in the propagation of mulberry cultivation but also silk-

worm rearing practices which are technically sound.

The Project also offers large employment opportunities mainly for women in making chandrikes, bamboo trays etc., required by the Project in large numbers (Table 6). The Project itself does not envisage concerning itself organising their supply. But the proposed Association could usefully have a special wing and programme for this activity. Women already engaged in making such items need help in protecting their employment from substitutes, in raw material supply and credit. A detailed study of this activity should be made to start with.

#### V. General Inferences

Foremost lesson to be drawn from Karnataka Sericulture Project is that though necessary it is not sufficient to plan only for increase in out-put of goods and services or to estimate total resultant employment or to provide for general facilities for training or extension. It is equally necessary to analyse the composition of the labour force by sex-- males and females by major operations involved in the production process. This must be specially so in industry where (a) women constitute a significant proportion of the labour force; (b) tasks performed by women are of a technical nature requiring skill and knowledge on which depends the productivity and quality of the industry.

The present example shows that although women have a substantial share in the sericulture employment and are responsible for important processes - the fact (let alone its implications) does not get mentioned even once in an otherwise detailed meticulous and large report with 230 printed pages. As a result, the general provisions made in the project for formal training and on-the-job training

through a network of Technical Service Centres, are in their design and structure unsuited to women's special conditions and are most unlikely to reach female workers, the major segment of the labour force.

The value of the Project would have been enhanced had it differentiated between male/female labour, documented the special shortcomings and problems of the male and female workers and ensured structurally that its solutions and related institutions would in fact be able to reach and upgrade the women workers also. For example, the project has envisaged only three centres to train thousands of farmers from 15 districts - a huge area both in terms of geography and population. As a result, women from villages which are in close proximity to the three training centres alone would be able to avail of the two months training proposed. But most women, even if they live in proximity to the training facilities, cannot stay away at a stretch for one month. Had the Project looked at these aspects, it would have designed its training strategy suitably to ensure its reach to the women workers.

Therefore, it follows that at the very stage of planning of such projects be it the World Bank, Government of India or State Governments, the planning teams must include those



who could devote proper attention to the place and need of female labour by documenting their prevailing conditions, productivity, state of knowledge, training and other constraints on their making a better contribution to arrive at satisfactory solutions as an integral part of the project report itself. The likely employment opportunities for women arising from the project could also be identified at the planning stage itself in order to make room for measures and conditions to enable this potential to be realised through the induction of proper policies, women functionaries and other needed supports.

Another important influence is that there is need to avoid a mismatch between Project goals and implementation design. The Karnataka Project throws up two or three examples of inconsistencies between its aims and actions.

First, the Project aims at benefitting "mainly the weaker sections" but in its implementation it has made only a nominal provision for credit to farmers for switching over from other crops to mulberry or for switching over from traditional to high-yielding varieties of mulberry.

"Support from financing institutions by way of credit facilities might be needed by sericulturists for (a) undertaking fresh plantation of mulberry or replantation through M-5 variety; (b) purchase of equipment; and (c) construction of rearing houses. Past experience in the sericultural areas has shown that credit demand for replantation is not universal. To the extent there is demand in the traditional areas it would be met by the financing institutions with the ARDC support under the on-going schemes. In the new areas too, credit demand for this purpose as well as for equipment is unlikely to be large, since most farmers who will switch over to sericulture in part of their holdings are those having income-generating irrigated crops like sugarcane and paddy in the rest of their holdings."(Emphasis added).

The Project thus itself expects contrary to its aim (mainly weaker sections) that mulberry cultivation will be taken up by middle and large farmers who alone have risk-bearing capacity and resources and already growing other cash crops. As noted earlier, the households which grow mulberry also do rearing. Consequently, the weaker sections will mainly provide hired labour. Table 3 shows that there is considerable hired labour even today in the traditional sericulture areas. If the Project intended to change this pattern, it has not equipped itself to do so.

If the Project is relying on the banks to provide credit to the small and marginal farmers to make them the backbone of sericulture in the new areas, it is again in error.

There are several studies including the recent RBI Report on Rural and Agricultural Credit to show that ARDC and institutional finance does not flow to small and marginal farmers. In the traditional areas too, switching over to M-5 or Bivoltine would primarily be by the medium and large holdings; our field study shows that the menace of Ugy fly is already proving a deterrent for the poorer sericulturists.

Second, recall the reference made earlier to the neglect or reeling in the cottage sector, at the hands of the Project. If the focus on the weaker sections was firmly translated into the project implementation design, then activities like reeling and making of sericulture equipment which are of relevance to landless, would have secured a direct and positive development support in the Project's budget. The poor reelers and equipment makers have been in fact left to fend for themselves in

almost all respects. Neither is there a provision in the Project to assist poorer sericultural households to own their own equipment.

Third, a preliminary look suggests, subject to deeper study, that the technology choices made by the Project may in fact shrink employment opportunities and divert income opportunities to the relatively better off. It is likely that the pressure for making 'A' grade yarn for export would ensure large scale induction of filatures in the private, if not public sector. 'A' grade yarn in turn will stimulate weaving by powerlooms (to obtain export quality) and starve handlooms at the hands of private enterprise since government has hitherto failed to control mushrooming of illegal powerlooms in the country.

The most critical issue of general importance the Karnataka Project throws up, however, relates to the style of development. The Karnataka Project has good aims and despite some of its design weaknesses highlighted above, it is bound to add to employment/income of large numbers in Karnataka. But it is a 'top down' Project. Participation is not embodied in its style although 'participation' is today the principal issue in development nationally and internationally. Past three decades of development has established that a mass development project such as this cannot succeed in the measure it should,

given its substantial resources, without active involvement and participation of the people it intends to benefit at all stages in planning, implementation and monitoring.

It also reaffirms that government by itself cannot create sufficient conditions for 'participation' even if it is inclined towards it. The involvement of non-governmental voluntary bodies is essential to inform, organise and assist the people as well as the authorities to actualise participation and realise its promise.

A Note on the Household Survey

The objective and main questions set for the household survey in Kanakapura were:

Objective

If mulberry cultivation is to be extended to other (non-traditional) areas, in Karnataka, what are the lessons to be learnt from Kanakapura ?

Main Questions

- 1 What proportion of the land owned by farmers has been devoted to mulberry cultivation?
- 2 Which type of mulberry and cocoon they are cultivating and prefer

Mulberry	Traditional or M-5
Cocoon	Traditional or Bivoltine

The reasons for their preference?

Is it more income or less work or less chances of damage to crop and cocoons ?

- 3 What is the pattern of employment of different members of the family in relation to sericulture, growing other crops, milch cattle or any other income generating activity?
- 4 What is the nature of services/advice provided to them by the sericulture extension organisation?
- 5 What has been the impact of increased income on the family?

Methodology

- 1 A preliminary 'familiarisation' visit was paid to Kanakapura, along with extension workers and the ISST investigators, which included visits to some households and some chowki rearing centres.

- 2 Following the visit, a questionnaire was then prepared taking into account the main questions stated above and field conditions.
- 3 The selection of households was done with the help of the women functionaries of the sericulture extension organisation in Kanakapura. It was decided to include 50 households based on the knowledge of the functionaries who responded as much as possible to the following criteria:
- a) to include as many women-headed households as could be identified - upto one third;
  - b) at least half the households should be those who grow both mulberry and other food crops;
  - c) about 40 percent or 20 households should be those who have adopted bivoltine wholly or partly; and
  - d) about 20 percent or 10 households may be those who are landless but hire land for mulberry cultivation.
- 4 In order to capture as many of these characteristics as possible it was however agreed that the number of households could, if necessary, exceed 50. Similarly, no limit was set on the number of villages to be covered though it was estimated that about 15 villages may do. If any of the households was also found to be engaged in reeling, the employment pattern and particulars of that activity were also to be noted.
- 5 Although the number of households was extended to 66 and that of villages to 30, all the stipulated features could not be fully accommodated. Of the 66 households, only 64 responded. The broad classification of these is:

	<u>Nos</u>
a) Women-headed households	15
b) growing both mulberry and food crops:	
i) Mulberry only	8
ii) Mulberry with other crops	56
c) Those who have adopted improved technology	
i) M-5	60

	<u>Nos.</u>
ii) Bivoltine completely	9
iii) Bivoltine partially	19
d) Landless, hiring fields for mulberry or purchasing mulberry	1
e) Reeling also	None

- 6 Two teams of investigators were deployed. Each team consisted of a male and a female investigator. They attempted to gather information from both male and female members of the households.

### Facts and Observations

- 1 Some of the characteristics of the surveyed households were:

#### 1 Distribution of Households by land holding

Sl. No.	Size of Holding (in acres)	Total H. Holds (Nos.)	% to Total	(In acres)	
				Women headed Households No.	% to total
1	0.0 - 0.5	6	9.3	5	33.3
2	0.5 - 1.0	2	3.2	1	6.6
3	1.0 - 2.0	11	17.1	3	20.0
4	2.0 - 3.0	8	12.5	1	6.6
5	3.0 - 4.0	10	15.6	-	-
6	4.0 - 5.0	7	10.9	2	13.3
7	5.0 - 10.0	10	15.7	3	20.0
8	10.0 - Above	10	15.7	-	-
	<u>Total</u>	<u>64</u>	<u>100.0</u>	<u>15</u>	<u>100.00</u>

#### 2 Distribution of Households by Assets Other than Land

Sl. No.	Type of Asset	Total House Holds	% to Total	Women Headed Households	
				No.	% to total
1	Livestock only	24	37.5	5	33.4
2	Durable Assets only	2	3.2	-	-
3	Both 1 & 2	26	40.6	2	20.0
4	Nil	12	18.7	7	46.6
	<u>Total</u>	<u>64</u>	<u>100.0</u>	<u>15</u>	<u>100.0</u>



3 Distribution of Households by Income

Sl. No.	Income Group (in Rs)	From Sericulture				Other Sources				Total			
		No. of House Holds	% to Total	Women H. H.		No. of House Holds	% to Total	Women H. H.		No. of House Holds	% to Total	Women H. H.	
				W H. H.	% Total			W H. H.	% Total			W H. H.	% Total
1	Upto - 1,000	3	4.6	1	6.6	23	36.0	5	33.3	3	4.6	1	6.6
2	1,000 - 2,000	11	17.2	4	26.6	15	23.5	1	6.6	5	7.8	2	13.6
3	2,000 - 3,000	9	14.0	5	33.8	3	4.7	1	6.6	4	6.2	3	20.0
4	3,000 - 4,000	2	3.2	-	-	4	6.3	2	13.3	4	6.2	1	5.6
5	4,000 - 5,000	2	3.2	-	-	2	3.2	-	-	2	3.1	-	-
6	5,000 - 10,000	21	32.8	4	26.8	6	9.4	-	-	19	29.8	7	45.6
7	10,000 - 15,000	10	15.7	1	6.6	1	1.5	-	-	12	18.9	-	-
8	15,000 - Above	5	7.8	-	-	2	3.2	-	-	15	23.4	1	6.6
9	Nil	1	1.5	-	-	8	12.2	6	40.2	-	-	-	-
	<u>Total</u>	<u>64</u>	<u>100.0</u>	<u>15</u>	<u>100.0</u>	<u>64</u>	<u>100.0</u>	<u>15</u>	<u>100.0</u>	<u>64</u>	<u>100.0</u>	<u>15</u>	<u>100.0</u>

Note: W stands for women

4 Distribution of Households by Cropping Pattern

Sl. No.	Crops	No. of House Holds	% to Total	Women Households	
				No. of H. H.	% to Total
1	Sericulture only	8	12.5	6	40.0
2	Sericulture with paddy, jawar and ragi crops	56	87.5	9	50.0
	<u>Total</u>	<u>64</u>	<u>100.0</u>	<u>15</u>	<u>100.0</u>

5 Distribution of Households by Indebtedness

Sl. No.	Class Interval (in Rs.)	No. of House Holds	% to Total	Women Households	
				No. of H. H.	% to Total
1	Upto 500	2	3.1	2	13.3
2	500 - 1,000	2	3.1	2	13.3
3	1,000 - 2,000	5	9.6	-	-
4	2,000 - 3,000	5	7.8	1	6.7
5	3,000 - 4,000	8	12.5	2	13.3
6	4,000 - 5,000	4	6.2	1	6.7
7	5,000 - 10,000	8	12.5	1	6.7
8	10,000 - Above	4	6.2	-	-
9	Nil	25	39.0	6	40.0
	<u>Total</u>	<u>64</u>	<u>100.0</u>	<u>15</u>	<u>100.0</u>

6 Distribution of Households by Consumption Pattern

Sl. No.	Class Interval (in Rs.)	No. of House Holds	% to Total	Women Households	
				No. of H. H.	% to Total
1	Upto 5,000	12	18.8	6	40.0
2	5,000 - 10,000	33	51.5	8	53.4
3	10,000 - Above	19	29.7	1	6.6
	<u>Total</u>	<u>64</u>	<u>100.0</u>	<u>15</u>	<u>100.0</u>

7 Distribution of Family Size

Sl. No.	Group size Family (In No.)	No. of House Holds		Women Households	
			% to Total	No. of H. H.	% to Total
1	Upto 5	39	46.8	10	66.7
2	5 - 10	28	43.7	5	33.3
3	10 - 15	6	9.5	-	-
4	15 - Above	-	-	-	-
	<u>Total</u>	<u>64</u>	<u>100.0</u>	<u>15</u>	<u>100.0</u>

8 Some comparative Features of Households Below 2 acres and those above 5 acres

Item Description		Household Below 2 Acres	Household Above 5 Acres
1	Total No. of Households	19	20
2	No. of Households having 'irrigation' facilities	15	18
3	No. of households having live-stock	11	20
4	No. of Households having other durable assets	4	8
5	No. of Households having all the above 3 facilities	2	8

Women Headed Households

1	Total No. of women headed households (WHH) are	9	3
2	No. of W.H. Households having irrigation facilities are	7	3
3	No. of women H. Households having livestock	3	3
4	No. of W. H. H. having other assets are	1	1
5	No. of women headed households having all the above 3 facilities	1	1

(continued)

		<u>Household</u> <u>Below 2</u> <u>Acres</u>	<u>Household</u> <u>Above 5</u> <u>Acres</u>
<u>Workers</u>			
1	Total population (including children)	96	155
	Males	50	87
	Females	46	68
2	Total No. of workers(including women)	57	100
	Percentage of workers to population	59	64
3	Total No. of women workers	26	49
	Percentage to total workers	46	49
4	No. of workers involved in Cocoon work alone	20	14
5	No. of workers involved in Agriculture-cum-cocoon work	29	38
6	No. of workers involved in wage work	4	2
<u>Literacy</u>			
1	Total illiterates	69	75
	Males	33	37
	Females	36	38
2	Total upto elementary (1st to 5th)	19	38
	Males	11	18
	Females	8	20
3	Total (6th to SSLC Standard)	8	37
	Males	6	27
	Females	2	10
4	Total Higher education(above SSLC)	Nil	5
	Males	-	5
	Females	-	-
5	Overall literates as % of population	28	51
	Males	34	57
	Females	21	44

- 2 Considerable time was lost in allaying apprehensions that the investigators were not representing "land reforms/ revenue departments" or "income tax department". Despite this, the possibility that those with larger holdings understated their land holdings and income cannot be ruled out. Information on indebtedness was also not fully forthcoming especially from the poorer sericulturists. One evidence is that in both cases (large holdings and the poor) consumption expenditure was reported higher than income including borrowings. To an extent, consumption may have been overstated.
- 3 The questions relating to the services rendered by extension organisations were affected by a fairly wide-spread resentment about advances taken by the sericulture department for getting their wire-mesh loans from banks which had not materialised. Women extension workers were generally "praised" by women and males generally described them as "superfluous". These opinions have to be interpreted with due moderation.
4. Out of the 60 households, which had adopted M-5 variety - only 9 households had completely switched to Bivoltine type of silk worm cocoon; 19 had partially adopted them while 32 of them preferred to carry on with the traditional CB type. In many cases, due to disease, the entire crop of Bivoltine growers were wary of this type.
- 5 Most households have mixed crops - mulberry plus cereals. Some also have other cash crops. Only a small number of the households have mulberry as the exclusive crop. The latter category is confined to the very small land holders. They depend on purchases for food grain (ragi, jowar, paddy) required for their consumption.
- 6 The majority of women-headed households belong to the poorer category. They are not only poor in almost all respects; land, other assets, income, literacy but are poorer than other households. In the 15 women - headed households to have a husband, but for one reason or another, the women in the households were found to be the 'effective' head of the household.

- 7 Women headed households more pronouncedly than other poor households need some one reliable to bring the layings and take the cocoons to the market, and want to own the sericulture equipment.
- 8 Those women who are among the poorest prefer to stick to traditional variety of silk worm. Fear of loss on account of damage is the single biggest factor.
9. Universal suggestions for improvement seem to be:
- a) need for good quality of eggs;
  - b) need for better (more assured) irrigation facilities;
  - c) Need for wire-mesh and/or curtains (mosquito nets) to keep away usy flies; and
  - d) easier access to medicines for saving the diseased cacoons.
- 10 Some suggestions made by the higher land-holding group are:
- a) Easy terms for bank loan.
  - b) Insurance against crop failure.
- 11 Most silk growers report that it had improved their financial position and over the last few years they have been increasing their output.

#### The Last Step

The results of the field survey were taken back to some of the surveyed villages where they were presented to women sericulturists at group meetings for a re-check.

At these meetings the new points raised by the women were their needs in relation to services other than sericulture such as drinking water, information on government development schemes etc. The point was generally made that women sericulture functionaries should also take up other problems faced by women.

Sericulture Project Karnataka  
Technical Services

Introduction:

5.1 GOK's proposals for providing technical assistance to sericulturists in the traditional as well as in the new areas have been comprehensively designed to provide the required support for introducing over a large area the genetically superior bivoltine hybrid silkworm races and for encouraging the sericulturists to adopt techniques of rearing the new races of silkworms. It is an account of technical difficulties the rearing of the genetically superior silkworm races involved on the sericulturists for which neither the sericulturists nor the Department have been adequately geared at present, that there is a general hesitation to switch over to bivoltine races both in the traditional as well as in the new areas.

5.2 Each member has a pass book which records the use of layings, production and involved prices, the entries in the pass book, required to be maintained by each rearer. Visits to the farm and discussions with the rearer enable the sericultural demonstrator/assistant to identify the deficiencies in the rearing and mulberry growing. The deficiencies might be in any one or more of the areas, viz., maintenance of the mulberry garden (e.g. application of fertilizers, irrigation or plant protection measures), harvesting, transportation and preservation of the leaves, source of supply of dfls, spacing of silkworms during each instar, quality of leaves used for feeding, spacing given at the time of mounting silkworms, etc. It is the Sericulture Department's technical personnels job to help the rearer in identifying the deficiencies and adopt corrective measures. For this purpose, he is required to visit the farmer once a week during the rearing cycle.

5.3 Apart from advocating measures for improving the productivity per 100 dfls. prevention of diseases is an important aspect of his work. The occurrence of diseases, such as flacherie and grasserie is so sudden that, if neglected, the entire crop is destroyed. There are numerous instances when worms have not shown any symptoms of disease till 23rd day, but suddenly develop flacherie on the 24th or 25th day, leading to complete crop failure. A technical assistant is able to identify the causes for infection, whether it is due to defective quality of leaves and improper handling of the leaves, over-crowding in the bed, unhygienic condition in the rearing houses, lack of air or/light etc. It is this aspect of continued attention that a sericulture Technical assistant has to give to sericulturists that distinguishes the role of a sericultural technical assistant from that of a regular extension worker.

5.4 At the lowest level the technical assistant viz., the demonstrator is expected to visit the rearer once in four days, and a Sericultural Assistant once in a week. Their work is supervised by an Assistant Director, located at the Divisional office.

5.5. Although most sericulturists are also agriculturists, the sericulturists' special needs in relation to mulberry and silkworm rearing have been catered to over the years by the Sericulture Department. The entire mulberry area in the traditional districts, excluding the seed area has been divided into 200 ranges each range having between 4000 to 6000 ha. to supervise.

5.6 The fact that in the traditional districts the mulberry areas are contiguous did not help the provision of adequate technical services on account of the inadequate staff strength. This is also reflected in the generally low yield of cocoons.

5.7 In the new areas, on the other hand, where silkworm rearing is still incipient and is scattered, the task of providing technical services would be even more difficult. In the context of GOK's strategy to extend the area under M.5 mulberry and introduce the new multi-voltine x bivoltine hybrids and bivoltine hybrids with the associated techniques in mulberry cultivation and silkworm rearing, provision of the technical assistance, for ensuring success of the programme becomes an even more specialised and intensive effort of the Department.

5.8 Karnataka has already adopted the T&V system of extension in the context of the National Extension Project. In view of the special characteristics of the technical assistance to be provided to sericulturists, which is a part of the overall responsibility of the Sericulture Department for enforcement of the regulatory measures under the enactments, the T & V system would be taken advantage of to make use of the regular extension worker, properly trained in Sericulture, for conveying important messages relating to mulberry cultivation and silkworm rearing to sericulturists.

#### Chawki Rearing:

5.9 Given adequate availability of bivoltine hybrid layings from the new grainages, the focus of GOK's strategy is to organise its technical services in such a way that (a) rearing of young silkworms for which maximum skill and attention are needed and sericulturists are least equipped is done under the supervision of the sericultural technical hands on a community basis and (b) Department's overall responsibility for technical assistance gets fulfilled through well organised centres evenly distributed over the areas.

5.10 High mortality and low vitality of silkworms under typical village rearing conditions are important factors in the low productivity of Karnataka sericulture. On average, only about 70% of the hatched eggs reach the cocooning stage. During their first ten days, silkworms require more intensive care and it is during the initial days that most losses occur. The above mortality rate refers to the rearing of traditional multi voltine varieties. High yielding bivoltine varieties are even more susceptible to diseases and therefore, typical village rearing conditions pose a formidable constraint to the switching over from multi-voltine to bivoltine varieties of silkworms.



5.9 Japanese experience has shown that the system of chawki rearing of the young silkworm (see Appendix for the comments of Dr. Y. Tazima, Director of the National Institute of Genetics, Japan) has been a great success and has helped to bring down the mortality of the worms by nearly 30". Inspired by this example 275 chawki rearing centres and 36 extension centres have been established in 16 taluks of 4 traditional districts in the State during 1977-78. Each chawki rearing centre (for irrigated area of 80 ha.) is suitably equipped with wooden chawki rearing boxes, paraffin paper, foam, hygrometers, air-coolers and other amenities to rear the young silkworms under ideal conditions. Each centre has been provided with two trained labourers for feeding the silkworms according to the prescribed timings. A committee consisting of progressive farmers selects well maintained mulberry gardens for harvesting the leaves to feed the silkworms received in the centre. It is ensured that the garden is maintained according to the prescribed practices. 7-8 chawki rearing centres are controlled and supervised by one extension centre, which is managed by a Sericulture Assistant, 2 Sericulture Inspectors and 6 Sericulture Demonstrators and is also provided with a vehicle. Each demonstrator has one chawki rearing centre to look after. Besides this, he provides guidance to the owners of gardens selected for harvesting of leaves for their proper maintenance, undertaking mass disinfection, etc. He is trained in the latest techniques of rearing of young silk-worms, control of diseases, improved methods of maintenance of gardens, etc.

5.10 Demonstrators as well as Sericulture Inspectors under the guidance of the Sericultural Assistant conduct field days, film shows, etc, for the purpose of transferring technical know-how to the rearers in the rearing of silkworms, control of diseases, maintenance of mulberry gardens, as recommended by the Research Institute. In the new areas also some 25 extension-cum-chawki rearing centres have been established during 1978 each of which has one inspector and 2 demonstrators. Studies have shown that on account of chawki rearing of young silkworms at the centres the yield of cocoons for 100 layings in the irrigated areas has increased by as much as 20% and in rainfed areas by 16% (see Table 1).

5.11 The organisational structure of the chawki rearing centre provides for a village committee consisting of progressive silk rearers who provide the leadership and ensure involvement of the silk rearers in the effective operation of the centres. Each centre will have a progressive farmer who, with the help of 2 trained labourers, (all 3 receive one months training in the Government Silk Farms), will undertake the brushing of the layings and rearings of silk worms in the first 10 days. However, the technical support for this unit on a daily basis is available from the 'extension' centre headed by the sericulture assistant supported by appropriate number of sericulture demonstrators. This nucleus staff covering, on an average an area of 360 ha. of irrigated land or 1080 ha. of rainfed land would constitute the infra-structure of technical support for the programme.

#### Chawki Rearing Centres:

5.12 The GOK proposes to establish 2451 chawki rearing centres throughout the State. Each Centre will be equipped with sufficient number of rearing trays (one for 30 layings) and other equipment necessary for scientific rearing upto the 10th day. It is expected to rear some 1,00,000 layings per year. Of the total number of centres 703 will be set up in the new areas and the rest in the traditional sericulture areas according to a phased programme. A progressive farmer assisted by 2 labourers (all trained) will undertake the rearing under the supervision of the demonstrators from the technical service centres. The non-recurring and recurring expenditure in each centre will be Rs. 0.009 million and Rs. 0.010 million respectively (see Table 2, 2(a) and 2(b)).

#### Technical Service Centre:

5.13 To supervise the work of 12 to 13 centres and to provide technical support to the sericulturists through visits to mulberry gardens and rearing houses during the rearing of silkworms in the grown up stages, a Technical service Centre will be set up which will have a staff complement of a Sericultural Assistant and 8 Sericulture Demonstrators. The mobile staff of these centres will also undertake work of moth examination and disinfection at the chawki rearing centres/individual rearing houses and help, among others, in silkworm rearing and mulberry cultivation and marketing of cocoon, in their jurisdiction. Each Technical Service centre would involve a non-recurring and recurring expenditure of Rs. 0.064 millions and Rs. 0.127 millions respectively. These will be set up according to a phased programme according to the area under mulberry in different areas (see Table 3, 3(a), 3(b)).

5.14 GOK proposals relating to technical services include three complementary proposals, viz., (i) setting up of 20 model chawki rearing centres, (ii) setting up of four mobile demonstration units, (iii) strengthening/setting up of three training schools.

#### Model C.R.C.:

5.15 The purpose of model chawki rearing centre is to demonstrate to sericulturists that under ideal conditions of chawki rearing, the yield of cocoons would be far higher, so that they are motivated to construct through joint efforts, their own buildings eventually for running 2451 chawki rearing centres proposed under the project. The model chawki rearing centres will be located in buildings constructed by the Department itself and will be equipped with wooden rearing trays, incubators, microscopes, sprayers, leaf preservation boxes, etc. The centres houses will be airconditioned to regulate and maintain the required temperature and humidity on the Japanese model.

Each model chawki rearing centre will have one sericultural demonstrator and two operators. The non-recurring and recurring cost per unit would be Rs. 0.520 millions and Rs 0.054 millions respectively (see Table 4 for details). During the project period some 20 centres are proposed to be established in a phased manner (see Table 4(a)).

#### Mobile Units:

5.16 Even as the departmental technical staff educate and train the sericulturists on the correct methods of mulberry cultivation and rearing of silkworms through regular contacts, the need for visual education has been recognised in the context of introducing new races of hybrid silkworms and the associated rearing practices. The mobile units will supplement the educational institutions efforts undertaken through other measures, including literature, exhibitions, etc. The non-recurring and recurring expenditure is modest for each unit at Rs 0.19 million and Rs 0.017 million respectively. (See Table 5). During the project period 4 units are proposed with an expenditure of Rs. 1.07 million (See Table 5(a)).

#### Training:

5.17 It has been recognised that one of the serious deficiencies in the sericulture programme is inadequate training of sericulturists as a result of which the yield of cocoons continue to be low. The existing as well as proposed Silk Farms are expected to have facilities for training sericulturists and staff. Under the project it is proposed to strengthen the training school at Channapatna and set up 2 more training schools for training of sericulturists and Department staff in the theory and practice of sericulture techniques. The training would be for one month to new farmers and for a week for the old farmers. Each training school is expected to train in a year some 4260 farmers. The outlay for each training school would include cost of buildings, hostels, library, training facilities, microscopes and projectors. A non-recurring expenditure of Rs. 0.540 million and recurring expenditure of Rs. 0.265 million has been estimated. (See Table 6, 6(a), 6(b), 6(c) for details).

5.18. The total outlay under the component 'technical services' would be of the order of Rs. 166.882 millions by way of non-recurring and Rs. 47.251 millions by way of recurring expenses. (See Table 7).

5.19. Under the project the operational costs of the production infrastructure operated by the Department (comprising silk farms, grainages, technical services centres, chowki-rearing centres and markets) would be recovered by levying service charges on silk rearers and collection of fees from silk reelers. At present, the Department collects 1% commission from the reelers in the notified markets on the sale of cocoons and a charge of Rs. 25 per 100 layings is collected from rearers by grainages. The Government of Karnataka consider suitably increasing these rates in a phased manner to make the production infrastructure self-financing.