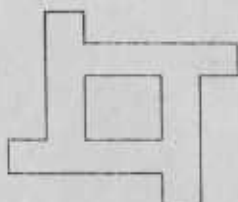




RURAL DEVELOPMENT PROGRAMME III

1993 - 95

PROJECT DOCUMENT



BRAC

66, Mohakhali Commercial Area, Dhaka-1212, Bangladesh

Tel: 884180-7, 600161-4, 600106-7

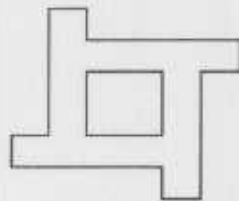
Fax: 880-2-883542, 863633

Tlx: 632327 BRAC BJ

RURAL DEVELOPMENT PROGRAMME III

1993 - 95

PROJECT DOCUMENT



BRAC

66, Mohakhali Commercial Area, Dhaka-1212, Bangladesh

Tel: 884180-7, 600161-4, 600106-7

Fax: 880-2-883542, 863633

Tlx: 632327 BRAC BJ

RDP III Project Document

<u>Contents</u>	<u>Page</u>
Acronyms	ii
Executive Summary	iii
Chapter 1 : History of BRAC	1
Chapter 2 : Background of RDP I and II	9
Chapter 3 : The Proposal	14
Chapter 4 : Institution Building	15
Chapter 5 : Income and Employment Generation	
Sectoral Programmes	22
Poultry	24
Livestock	34
Irrigation	41
Fisheries	46
Social Forestry and Vegetable Cultivation	52
Rural Enterprise Project	60
Sericulture	66
Chapter 6 : Credit	67
Chapter 7 : Non-Formal Primary Education	73
Chapter 8 : IGVD	81
Chapter 9 : Support Service Programmes	
Training	90
Management Development	114
Monitoring	119
Research and Evaluation	121
Health	123
Chapter 10 : Programme Management	
Management of RDP III	126
Head Office Facilities	127
Staff Housing Loans	128
Chapter 11 : Gender and Environment	
Gender	130
Environmental Impact	133
Chapter 12 : Budget	
Summary	134
Cost Recovery	135








ACRONYMS

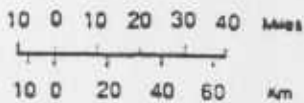
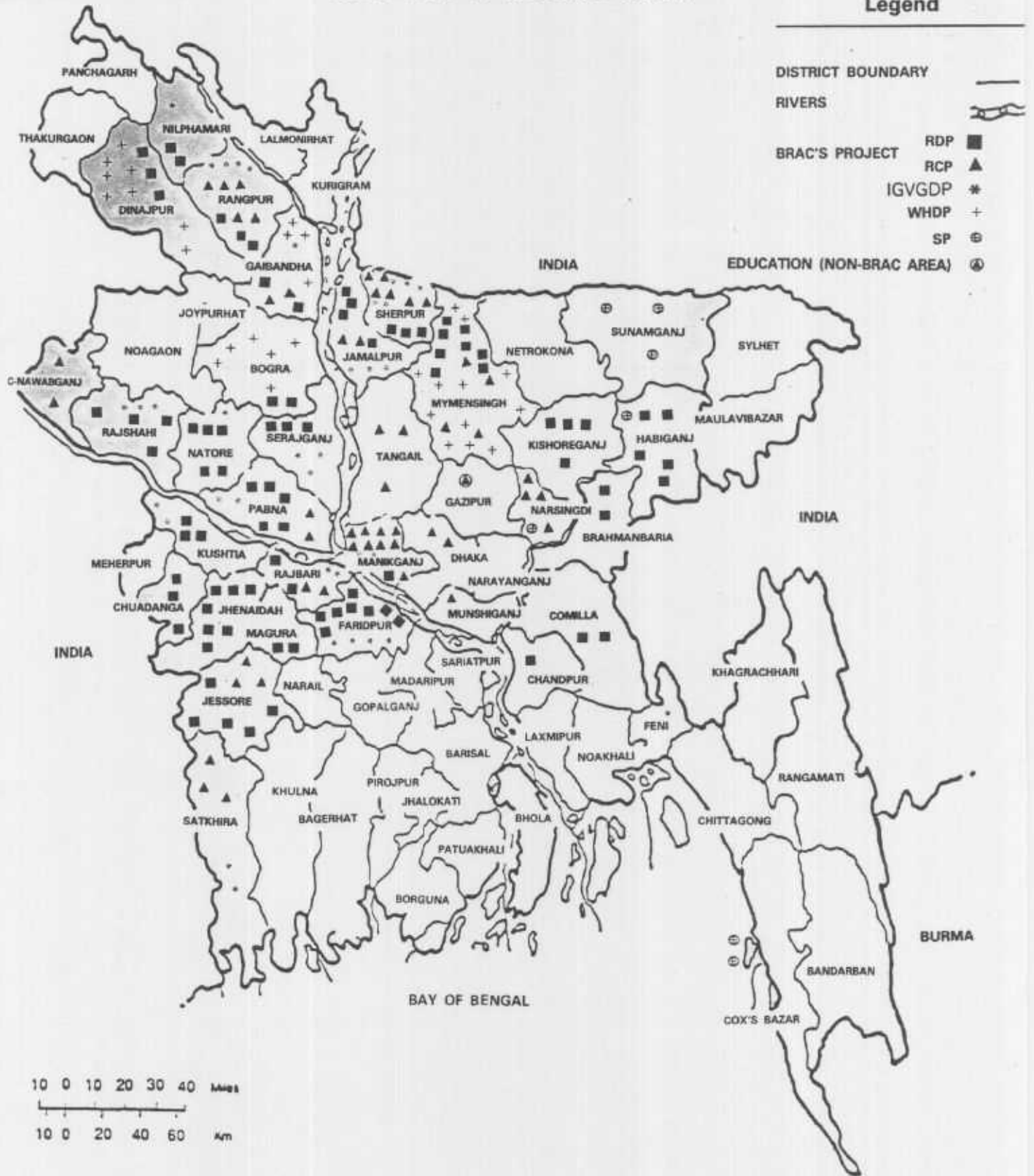
AI	=	Artificial Insemination
AM	=	Area Manager
AO	=	Area Office
BRAC	=	Bangladesh Rural Advancement Committee
CSP	=	Child Survival Programme
DTW	=	Deep Tubewell
DVM	=	Doctor of Veterinary Medicine
DRR	=	Directorate of Relief & Rehabilitation
DOL	=	Directorate of Livestock
FAPE	=	Facilitation Assistance for Primary Education
GM	=	Group Members
GS	=	Gram Shebok/Shebika (Village Workers)
HTW	=	Hand Tubewell
HW	=	Health Worker
HO	=	Head Office
IGVGD	=	Income Generation for Vulnerable Group Development
MDP	=	Management Development Programme
MND	=	Monitoring Department
MO	=	Medical Officer
NFPE	=	Non-Formal Primary Education
NGOs	=	Non-Governmental Organisations
PO	=	Programme Organiser
PT	=	Power Tiller
PLT	=	Para Legal Training
PEOC	=	Primary Education for Older Children
RED	=	Research and Evaluation Division
RDP	=	Rural Development Programme
RCP	=	Rural Credit Project
REP	=	Rural Enterprise Project
RO	=	Regional Office
STW	=	Shallow Tubewell
TOT	=	Training of Trainers
TARC	=	Training and Resource Centre
VO	=	Village Organisation
WHDP	=	Women's Health Development Programme
WFP	=	World Food Programme

MAP SHOWING THE R.D.P. R.C.P. IGVGDP

WHDP AND SP WORKING AREAS

Legend

- DISTRICT BOUNDARY ———
- RIVERS 
- BRAC'S PROJECT
 - RDP 
 - RCP 
 - IGVGDP 
 - WHDP 
 - SP 
 - EDUCATION (NON-BRAC AREA) 



EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

Bangladesh stands very disadvantaged in terms of most development indicators. This is particularly true in health literacy and incomes. The human development index for Bangladesh ranks 136th out of 160 countries (UNDP, Human Development Report, 1991). In spite of some significant efforts, a large portion of the rural poor still have little, if any, access to development services. Unorganized and powerless, their futures is uncertain, at best. Few public services reach this stratum. In contrast to this situation, there are avenues of hope. A few large Bangladeshi NGOs have gained a national and international reputation for success in providing effective development services to large numbers of rural poor. BRAC is one of these which over 20 years has evolved into a large, multi-dimensional organization. It combines a recognized knowledge of the dynamics of rural poverty and the practices of development programming. Now reaching about 600,000 rural poor, BRAC is one of the largest NGOs in Bangladesh with 4700 staff, and 5300 non-formal primary education teachers.

Given the unmet demands for access to development services, and its success to date, BRAC has little option but to continue to expand its operations. Today BRAC reaches about 6% of the rural poor; its longer term strategy is to reach 25% by the year 2000. The majority of beneficiaries will continue to be women. Achievement of these goals will include continued collaboration with public sector programmes. This proposal for the period of 1993 to 1995 of RDP III is set within these strategic goals.

Rural Development Programme (RDP) is BRAC's major integrated, multi-sectoral programme and the frontline activity for the implementation of BRAC's strategy. It plays a critical role in the development, implementation and expansion of BRAC's activities. The intervention of BRAC in the new areas is initiated by RDP. RDP operates for a period of 4 years in the newly intervened areas developing a viable, institutional environment necessary for

initiating subsequent credit activities without substantial BRAC support.

A BRAC Bank project, called the Rural Credit Project (RCP) takes over a branch only when it is capable of efficient credit operations, becoming a self-financed project, which provides landless groups with credit previously made available under RDP. This strategy simplifies administration and enables BRAC to move more rapidly into new areas. Thus, intervening in new areas and developing the existing areas as RCP are two important features of RDP activities. RDP II has been funded by a consortium of 8 NGO and donor agencies and includes support for Rural Credit Project (RCP). Total Donor consortium funding for both programmes is \$ US 49 million with approximately half for each one.

BRAC is successfully managing the expansion planned within RDP II. Over the first two years of its three year period, RDP II reached about 95% of its target of 250,000 new members, without jeopardizing the quality of the programming. BRAC has established an additional 40 RDP Area Offices and 30 self-financing RCP Offices on schedule. Each of these 70 offices serves about 6,000 village organization members. Credit operation within RDP and RCP maintain their projected disbursement and repayment rates. About 3,000 primary schools within RDP II have been opened as planned. Selection and training, both of members and staff, is progressing in line with the expansion. A management development programme has been established to support the process.

In the expansion process, BRAC has revised its operations to improve their sustainability and impact. These include: a reduction in the size of village organizations, more rigorous selection and training of members, improved methods of managing loan portfolios, and an increase in interest rates.

Both internal and external evaluation studies have shown significant positive impacts on incomes, health, literacy and village organization capabilities.

The donor consortium has established a Donor Liaison Office in Dhaka to coordinate communications between donors and with BRAC,

and to support external reviews and evaluations. This mechanism has proved effective, both for BRAC and the donors.

Rural Development Programme III - 1993 to 1995

The objectives and activities proposed in RDP III are similar to ones already established in RDP II. The same management structure and techniques will be used. The activities will expand by two to three times the output in RDP II, with the exception of sericulture, where a major expansion by a factor of ten is proposed.

It is proposed that 95 new RDP area offices be established in 1993-95 to support this expansion. Each of these will reach an additional 6,000 village members. During this period 60 self-financing RCP offices will evolve from RDP operations. In addition 9,000 new primary schools will be opened to serve 270,000 students, predominantly girls.

Similar to RDP II, additional training and management services are required to support the operations. These include:

- Six new Training and Resource Centres (half the size of a current TARC)
- Partial support to the Management Development Programme
- Monitoring, research and evaluation services
- A restructured rural enterprise project and a new marketing unit

Over 70% of the beneficiaries (almost 100% in some components) will be women.

The proposed budget for RDP III is US \$57.2 million over the three year period from 1993 to 1995. This budget represents an increase of 16% over donor consortium budget of us \$49 million for RDP II and RCP.

As noted above, RCP is now self-financing, and requires no further donor funding. Within RDP III, BRAC will continue to recover some of the programme costs, mainly through the interest

income from its RDP loan operations, service charges within the poultry, livestock, irrigation and sericulture components, and services to other organizations by the Management Development Programme. These, combined, comprise 9% of the overall budget.

The objectives and activities proposed in the III are similar to those already established in the II. The same management structure and techniques will be used. The activities will expand by one to three times the output in the III with the exception of sericulture, where a major expansion by a factor of ten is proposed.

It is proposed that in the III new activities be established in order to support this expansion. Such as there will be an additional 1,000 village centers. During this period 50 self-financing RDP villages will evolve from RDP operations. In addition, a new primary school will be opened to serve 170,000 students, approximately equal.

In addition to the III, additional training and management services are required to support the expansion. These include:

- * For new training and research centers (with the size of a current center)
- * Initial support to the Management Development Programme
- * Marketing, research and extension services
- * A constructed rural extension project and a new marketing unit

Over 75% of the personnel (about 1000 in some components) will be women.

The proposed budget for the III is of the order of 1.5 billion over the three year period from 1973 to 1975. This budget represents an increase of 10% over about equivalent output of 1.4 billion for the II and III.

As noted above, RDP is not self-financing, and requires an external loan. During the III, RDP will continue to receive some of the programme costs, mainly through the interest

CHAPTER 1
HISTORY OF BRAC

CHAPTER 1

HISTORY OF BRAC

Bangladesh : Some Development Indicators

Bangladesh achieved its independence in 1971. Despite various development plans, the socio-economic development of the country is yet to attain a desired level. Poverty, disease and malnutrition have become the way of life for the overwhelming majority of the people of Bangladesh.

The total population of the country is 110 million growing at a rate of 2.17% per year. Over 80% of its population live in the rural areas and 70% of the labour force are engaged in agriculture. Acute man-land ratio and skewed distribution of land is a critical problem for this low income-densely populated country. Less than 10% of the rural households own over 50% of total cultivable land. Sixty percent of the population have practically no land and 20% do not even own their household.

More than a million people are entering the work force every year. Agriculture cannot absorb the annual increased workforce which figures 44% to its total population making a 0.4 million workforce unemployed each year. Bangladesh with an average per capita GNP of US\$ 170, is one of the poorest countries in the world. Judged by the minimum per capita requirements of 2,122 calories per day, nearly 80% of the population live below the poverty line. Many of the rural poor are not lucky enough to obtain employment. Those who are, earn an average daily wage of Tk.30 (US \$0.75) or less which barely supports a family of six at the poverty threshold level of consumption.

Only 15% of the female and 31% of the male population are literate. The literacy rate is lower in the rural areas, and is still lower among the rural women. In Bangladesh, 70 to 80 percent of the children dropout from school before attaining meaningful learning. The health situation is staggering. Infant mortality is 110 per 1000 live births which is 10 times higher than in the developed countries. Sixty percent of children are malnourished and

50% are born underweight. Maternal mortality is about 250 times higher than in Norway or Sweden.

History of BRAC: Growth over time

The Bangladesh Rural Advancement Committee (BRAC) completed the twentieth year of its operation in February 1992. BRAC today is a complex development organisation. Over the years BRAC has designed and operated multifaceted development programmes involving mobilization of a vast multitude of people. BRAC started its activities with one relief and rehabilitation project in early 1972. Since then it revised its approaches on several occasions and ultimately evolved a new strategy targeted to socio-economic uplift of the poorest of poor—the landless, small farmers, artisans, and vulnerable women.

The 1970s - Experimentation*

In early 1972, when refugees from the War of Liberation were returning to newly-independent Bangladesh, BRAC's founder and Executive Director started a relief and rehabilitation project in northeast Bangladesh (in an area called Sulla). The project workers referred to themselves as the Bangladesh Rehabilitation Assistance Committee (hence the acronym BRAC). To help refugees resettle, BRAC arranged shipments of bamboo for housing and timber for boat-building, provided tools to artisans and equipment to farmers, and opened medical centres. By late 1972, BRAC workers decided that immediate rehabilitation efforts addressed only the short-term dislocation faced by the refugees but did not address their chronic development needs.

BRAC relief workers decided to transform themselves into development workers and to initiate a community development project in the Sulla area. In early 1973, they selected 200 villages (totalling about 120,000 people) as their project area and decided

* From "Final Appraisal Report on BRAC's Rural Development Programme", 1989.

to develop programmes in several sectors, both social (education, health, and family planning) and economic (agriculture and fisheries). They adopted many of the standard methodologies of the community development movement: adult education, vocational training, cooperative formation, and the construction of community centres as a base for activities. The name of the organisation was changed to Bangladesh Rural Advancement Committee (the acronym BRAC remained).

Within a short time, however, BRAC staff began to recognise certain weaknesses in the community development methodologies they had adopted. Firstly, the adult education materials they were using did not appear to be of interest or relevance to the villagers. A special unit was established to develop a functional education curriculum. Secondly, the doctors BRAC had hired could not cover the 200-village area. BRAC decided to develop a cadre of para-professionals to provide both health and family planning services. The doctors' role was redefined: they were to serve primarily as trainers and planners and only when needed as doctors. Thirdly, graduates of the vocational training programme (largely tailoring for women) found it difficult to translate their new skills into actual employment opportunities. BRAC decided to concentrate its support on the traditional economic activities in the area, agriculture and fishing (including drying fish and weaving fish nets, largely women's activities).

Despite these adjustments in its programme components, BRAC staff were still not satisfied with the programme results. Most of the benefits were going to households with relatively large landholdings. Community centres had been built but community associations had not. The health programme was absorbed primarily in delivering curative services to the neglect of preventive health education. BRAC staff recognised two basic errors they had made: the sectoral programmes were not integrated one with another and were not directed at the landless poor.

In 1975, BRAC took three significant decisions. One, to target all its programmes at the landless poor, with a special emphasis on

women. Two, to introduce all programmes through organised groups of the landless, thereby integrating the programmes. Three, to open new project areas where the lessons learned in Sulla could be further tested and redefined. Despite its rapid growth and continuing evolution over the past 15 years, the BRAC of today was significantly shaped by those decisions in 1975.

The new projects started in 1975 became, as BRAC had hoped, its "field laboratories" for testing new programmes and methodologies, particularly for Manikganj Project. In Manikganj, BRAC staff have field-tested and redefined all of the core programmes and methodologies of BRAC: the functional education curriculum, local institution building, the savings-and-credit system, the training of para-professionals, the health and nutrition programme, the non-formal primary education programme, plus the support services and management systems for a wide variety of economic schemes. On a smaller scale, the Jamalpur Women's Programme (also started in 1975) provided a laboratory for programmes targeted specifically to women and for training women staff.

From 1975-79, BRAC concentrated on its three field projects (Sulla, Manikganj, and Jamalpur) and developed various support programmes required by the field projects. To house the training activities of BRAC, whose trainers were being called upon to train not only BRAC staff but also the members of the village organisations being formed, BRAC established its first Training and Resource Centre (TARC) in Savar, a short distance from Dhaka and Manikganj. To revise its functional education programme and prepare materials as needed for its other programmes (notably, health), BRAC established a Materials Development Unit at its head office in Dhaka. To evaluate its own programmes and diagnose the constraints and dynamics of rural development, BRAC established a Research and Evaluation Department (RED). And, to market the craft and textiles produced by rural artisans (assisted both by BRAC and other NGOs), BRAC opened its first marketing outlet, called Aarong, in Dhaka.

The 1980s - Expansion'

1979 marked another turning-point in BRAC's history. By that time, BRAC managers felt confident that they could expand their area of operation and replicate programmes developed in the field projects. But BRAC staff could not agree which programmes to replicate. Some felt that BRAC should continue organising the poor into cohesive groups without providing them any economic assistance. They felt that the groups should mobilise their own resources, including their own savings, and focus on wage bargaining, pressuring government, and resisting exploitation. When economic assistance is provided, they argued, the focus on empowerment is diverted. Others felt that BRAC must provide credit to the poor, given the chronic shortages they face, while continuing to build local institutions of the poor. BRAC managers resolved the debate by expanding through two separate programmes.

The Outreach Programme was established to test the limits of what the landless could accomplish using only their own resources or whatever local and government resources they could tap. By December 1984, the Outreach Programme was operating out of 18 centres (in 11 upazilas) servicing 569 village organisations (VOs) (in 318 villages). Many of these village organisations had obtained government (khas) land for cultivation, bargained successively for higher wages, negotiated access to a range of government goods and services, including food-for-work, medical services, and poultry vaccines. Many had also created a group fund by mobilising individual savings which they used to make loans available to individual members for economic activities. However, staff feedback and an evaluation study showed that, one, the village organisations were not able to generate enough internal savings to meet the demand for loans and, two, the village organisations were often politicised and fictionalized by power brokers within their membership. BRAC concluded that, in the future, all village

* This section draws heavily on Korten 1989.

organisations should be provided credit and that political agitation should be undertaken only when individual Village Organisations are strong enough to avoid being politicised along village factional lines.

The Rural Credit and Training Programme was established to test whether credit services and self-employment activities, together with local organising, would enable the poor to become less dependent on local elites for loans, employment, and resolving local conflicts. Initially, credit was provided within a few months of organising a Village Organisation. But staff found the powerful lure of credit drove out real concern for group solidarity. The strategy was changed accordingly, so that new VOs become eligible to take credit only after a year of regular attendance at VO meetings, regular savings, and some collective activity. Furthermore, no individual could receive credit until he or she had completed BRAC's functional education course and accumulated savings equivalent to ten percent of the loan requested. By June 1983, 600 village organisations had been formed under RCTP with a membership of 31,543 persons.

BRAC had promoted the independent development of the RCTP and Outreach Programmes in order to test two alternative approaches, with the expectation that one or the other would subsequently be chosen as the basis for further expansion. But BRAC soon recognised that the two approaches complemented each other and were both equally essential. In 1986, therefore, the two programmes were merged into what BRAC called its Rural Development Programme (RDP). The Manikganj project was retained as a separately-administered area for testing new activities on a pilot basis before integrating them into RDP. The Sulla project was also retained as a separate project for a mix of historical and organisational reasons. But the Jamalpur Women's Programme was merged with RDP.

The Rural Development Programme (RDP) featured an institutional development component modelled on Outreach and a credit component modelled on RCTP. Village Organisations were generally encouraged to undertake savings programmes as one of

their initial activities. They became eligible for BRAC's credit programme only after they demonstrated an adequate level of social and financial discipline.

In early 1986, RDP inherited from the RCTP and Outreach Programmes a combined total of 96,000 landless organised into 1,800 VOs. By the end of 1988, RDP staff had organised an additional 54,000 members in an additional 2,800 VOs.

The 1990s - Significant Scale and Self-Financing

During 1989, in preparation for RDP II, each component of the programme (credit, enterprise development, and institution development) was systematically reviewed to streamline operational and reporting systems. The credit component was the first to be reviewed and new norms for credit operations were introduced in April 1989, which were designed to make the credit operations more standardized and efficient.

During RDP II (1990-1992), BRAC staff continued the basic strategies used during RDP I, as revised during 1989. As planned, each RDP II area office graduated to become a Rural Credit Project (RCP) Branch after four years. By the end of four years, the credit component should have generated a large enough loan portfolio to cover the costs of the Branch, and the local VOs should have matured to a stage when they can continue without intensive supervision and can be federated. BRAC staff did not see the transition of any given RDP Area Office into a RCP Branch as a major shift in terms of programme focus, field staff job descriptions, or field operations generally.

BRAC at present runs six categories of core programmes covering health, education, rural mobilization and institution building, credit, employment and income generation. These programmes have reached almost every part of the country. Some highly developed support services directed towards socio economic uplift of the rural poor have also been built up. The programmes and support services include:

- 1 The Rural Development Programme - a multisectoral programme

- designed for poverty alleviation, employment and income generation and mobilization of the landless poor
- 2 The Rural Credit Project - a self financed credit project
 - 3 The Women's Health and Development Programme particularly geared to the health issues concurrently women and health a project
 - 4 Non Formal Primary Education - a life oriented education programme for the children of poorer households who dropped out or have never been to school
 - 5 Handicrafts production and marketing (sericulture industry, Ayesha Abed Foundation and Aarong)
 - 6 Training, Monitoring, Research and Evaluation, Management Development Programme etc. - support services to core programmes and projects.

In addition, there are some commercial enterprises - printing press and cold storage - which generate income for BRAC.

CHAPTER 2
RDP I AND RDP II

CHAPTER 2
RDP I AND RDP II

In the 1980s BRAC had promoted the independent development of the RCTP and Outreach Programmes in order to test two alternative approaches, with the expectation that one or the other would subsequently be chosen as the basis for further expansion.

The **Outreach Programme** was established to test the limits of what the landless could accomplish using only their own resources or whatever local and government resources they could tap.

The **Rural Credit and Training Programme (RCTP)** was established to test whether credit services and self-employment activities, together with local organising, would enable the poor to become less dependent on local elites for loans, employment, and resolving local conflicts. Initially, credit was provided within a few months of organising a Village Organisation.

But BRAC soon recognised that the two approaches complemented each other and were both equally essential. In 1986, therefore, the two programs were merged into what BRAC called its **Rural Development Programme (RDP)**. The Manikganj Project was retained as a separately-administered area for testing new activities on a pilot basis before integrating them into RDP. The Sulla project was also retained as a separate project for a mix of historical and organisational reasons. But the Jamalpur Women's Programme (JWP) was merged with RDP.

The Rural Development Programme (RDP I, 1986-88) featured an institutional development component modelled on Outreach and a credit component modelled on RCTP. Village Organisations were generally encouraged to undertake savings programmes as one of their initial activities. They became eligible for BRAC's credit programme only after they demonstrated an adequate level of social and financial discipline.

In early 1986, RDP inherited from the RCTP and Outreach Programmes a combined total of 96,000 landless organised into 1,800 VOs. By the end of 1988, RDP staff had organised an additional 54,000 members in an additional 2,800 VOs.

Experience in implementing the 1986-88 Programme

Two aspects of 1986-88 Programme implementation had influenced preparation of the 1990-92 proposal: results achieved in the villages; and changes in the format of programme presentation introduced in 1986-88.

The impressive statistics on accomplishments at the village level were to a considerable extent a reflection of what happened in 1986-88. These accomplishments served to confirm the BRAC management view that the core Rural Development Programme, as it was now conceived and implemented, was ready for replication in a much wider area. Further, it was believed that most Area Offices, after about four years of operation, would have carried the conscientization and institution building processes to the point where the Village Organisations can continue without BRAC support. To provide an alternative source for credit, formerly made available by the BRAC Area Offices during their approximately four year period of operation, steps have been taken to develop a new and largely self-supporting credit system namely the Rural Credit Project.

In the 1986-88 programme the formerly separate programmes, Outreach (concerned with conscientization and institution building) and Rural Credit and Training (concerned with employment and income generation) were integrated. This move simplified administration and enabled BRAC to move more rapidly into new areas. The chances of success in alleviation of poverty were enhanced, also, when these two essential components of the process were implemented together. The integration was retained in the 1990-92 presentation and complemented by the addition of the Vulnerable Group Development Programme and the Management Development Programme.

RDP-II

During 1989, in preparation for RDP II, each component of the programme (credit, enterprise development, and institution development) was systematically reviewed to streamline operational and reporting systems. The credit component was the first to be

reviewed and new norms for credit operations were introduced in April 1989, which were designed to make the credit operations more standardized and efficient.

During RDP II (1990-1992), BRAC staff continued the basic strategies used during RDP I, as revised during 1989. As planned, RDP II area offices graduated to become RCP Branches after four years. By the end of four years, the credit component generated a large enough loan portfolio to cover the costs of the branch, and the local VOs matured to a stage when they could continue without intensive supervision and be federated. BRAC staff did not see the transition of any given RDP area office into a RCP Branch as a major shift in terms of programme focus, field staff job descriptions, or field operations generally. However, in order to ensure continuing inputs in terms of institutional building, two special RDP staff will be assigned to every ten Bank branches in order to ensure continuing technical inputs.

Under the plans for the RCP, 20 to 40 RDP II, Area Offices will be graduated into Bank branches until the year 2001. The actual expansion under RDP-I and the projected expansion under RDP-II are shown in Table 1. By the end of 1992, BRAC plans to have organised over 675,000 landless poor into 12,500 Village Organisations.

Table 1

RATE OF EXPANSION: RDP I AND RDP II

INSTITUTION BUILDING

	END-1985	1986 - 1988		1989	
	BASE-LINE	INCREASE PER YEAR	CUMULATIVE TOTAL	INCREASE	CUMULATIVE TOTAL
AREAS	40	7	60	20	80
VILLAGES	1,000	483	2,450	1,000	3,450
VO'S	1,800	950	4,650	2,000	6,650
VO MEMBERS	96,000	51,883	251,650	100,000	351,650

Growth in Area Offices (RDP II) and Branch Office (RCP)

Year	New RDP Areas	Total RDP Areas	New RCP Areas	Total RCP Branches	Total Offices
1990	20	90	10	10	100
1991	20	90	20	30	120
1992	20	90	20	50	140

Other Programmes in RDP II

BRAC has a number of other programmes which may, or may not, be undertaken in RDP areas. They will continue to require continued donor support, at least in the short term: they will not be financed by the RCP even if they are carried out in an area where RCP is operating.

Of these other programmes, there are three major sectoral programmes which address BRAC's second longterm operational

objective. This is to develop selected programmes on a sufficient scale, and through coordination with government, to convince the government and the NGO community alike that national level programmes can be effectively designed and implemented in the interests of the poor. The three programmes are: Non-Formal Primary Education (NFPE); Income Generation for Vulnerable Group Development (IGVGD); the Women's Health and Development Programme (WHDP). In addition to these three programmes, BRAC periodically undertakes emergency programmes in response to various contingencies: such as the 1988 floods, the 1989 drought and the 1991 cyclone.

RDP II (1990-92) : Achievements to Date (December 1991)

BRAC is successfully managing the expansion planned within RDP II. Over the two years of its three year period, RDP II has reached about 95% of its target of 237,000 new members, without jeopardizing the quality of the programming. BRAC has established an additional 40 RDP Area Offices, and 30 self financing RCP offices on schedule. Credit operations within RDP and RCP maintain their projected disbursement and repayment rates. The NFPE schools within RDP II have been opened as planned. Selection and training, both of members and staff, is progressing in line with the expansion.

In the expansion process, BRAC has revised its operations to improve their sustainability and impact. These include: a reduction in the size of village organizations, more rigorous selection of members, improved methods of managing loan portfolios, and an increase in interest rates. All these measures have been taken in order to promote a more equitable distribution of resources by a) limiting the number of group members per household to two persons, b) covering the bottom 30% of the population by stringent application of the criteria of selection c) improving lending operations to provide better service to borrowers and d) increasing the interest rate to 20% as it was found that with the previous interest rate of 16% BRAC could not hope to become self sustaining.

CHAPTER 3
THE PROPOSAL

CHAPTER 3
THE PROPOSAL

BRAC proposes to implement the Rural Development Programme III from 1993 to 1995, which will provide BRAC development services to a larger target group. The activities proposed in RDP III are similar to ones already established in RDP II. The same management structure and techniques will be used. The activities will expand by two to three times the output in RDP II, with the exception of sericulture, where a major expansion by a factor of ten is proposed.

It is proposed that 95 new RDP area offices be established in 1993-95 to support this expansion. Each of these will reach an additional 6,000 members. During this period 60 self-financing RCP offices will evolve from RDP operations. In addition 9,000 new primary schools will be opened to serve 270,000 students, predominantly girls.

Similar to RDP II, additional training and management services are required to support the operations. These include:

- Six new Training and Resource Centres with half the capacity of a current TARC
- Partial support to the Management Development Programme
- Monitoring, research and evaluation services
- A restructured rural enterprise project.

Over 70% of the beneficiaries (almost 100% in some components) will be women.

The proposed budget for RDP III is US \$57.2 million over the three year period. This budget represents an increase of 16% over donor consortium budget of US \$49 million for RDP II and RCP.

Within RDP III, BRAC will continue to recover some of the programme costs, mainly through the interest income from its RDP loan operations, service charges within the poultry, livestock, irrigation and sericulture components, and services to other organizations by the Management Development Programme. These, combined, comprise 9% of the overall budget.

Objectives of RDP

Long term

To bring about transformation in the quality of life of the poor in Bangladesh by empowering them socially, politically and economically so that they may effectively participate in the national development process.

Medium term

1. Alleviate poverty
2. Empower the poor

Short term

1. Create organisations of the landless poor through village based groups
2. Improve awareness level of the group members
3. Increase their capacity through training on human and skill development and their children through primary education
4. Increase both production and productivity in agriculture through infusion of new technology
5. Improve the environment by taking up relevant programmes
6. Take up and test activities for improving health, nutrition and housing conditions of the poor
7. Extend credit support to group members for productive employment and income generating activities in farm and off- farm sectors
8. Create the required conditions (in terms of group formation, training and credit disbursement) for transition to a self sustaining financial institution (proposed BRAC Bank).

CHAPTER 4
INSTITUTION BUILDING

CHAPTER 4

INSTITUTION BUILDING

Institution building is not only a fundamental task but also a key factor in successfully operating integrated, rural development programmes.

It is the base from which all other village activities grow. The process includes the formation of Area Office, formation of village organisation (VOs) separately for men and women, mobilization of savings and human development training. Institution development in RDP involves a number of stages and time for consolidation. The various stages of institution building are presented below.

Establishment of BRAC Area Offices

Establishment of an Area Office is currently BRAC's exclusive way to initiate field action. By 1995, 95 new Area Offices each serving 6000 village members are to be established. Under the new strategy, to be adopted in 1992, each Office will operate for approximately four years at which time BRAC lending, conscientization and training services will end and the Village Organization will be considered as having reached the stage of self-reliance. The criteria to be applied for new area offices include : degree of poverty and landlessness; ease of communication; availability of banking facilities; presence or absence of similar programmes operated by other NGO's or government; desirability of geographical spread; and the learning opportunity provided by operations in different environments.

Village Organization (VO)

The process of institution building starts with BRAC's intervention in new areas and identification of the target population (landless poor) eligible for membership through an informal survey. After that, group discussions take place between the people identified (who have expressed their interest in development) and BRAC's Programme Organisers.

Within a short period of one or two months, these group discussions attract 30 to 40 people on a regular basis. The time is now ripe for introducing rules, formalizing groups and forming VO. The minimum size of a VO is 45 and the maximum 55.

Each VO is subdivided into small groups comprising of 5 to 7 members. Each small group has a Secretary elected for a period of two years. Each VO is managed by a Management Committee (MC) consisting of 7-10 members which includes a Chairman, a Secretary and a Cashier. Members of the MC are chosen from amongst the Secretaries of the small groups. The leader of a small group cannot be on the MC for more than one year.

Beyond the VO level, there are Federation of VOs at the union to strengthen their efforts to obtain better access to government services and basic rights. Until recently there was no official BRAC policy on federations. From now on, Federation of VOs will be formed in each RDP/RCP union (for more information see: BRAC, Federating village level organizations, Dhaka Research and Evaluation Division, 1991).

Functional Education (FE) and Training

Once group formation is accomplished, group norms such as weekly meetings, regular savings habit and training of group members on human resource development and skills are established. Among the various means of group development process FE is considered the best tool to make group members aware of the existing flaws in society and their dormant potential as agents to create an environment of self help and mutual aid.

The Functional Education Course (FEC) comprises of 25 members (consisting of 5 small groups). The course consists of two parts viz., social awareness and literacy. The former is compulsory for all group members, while the latter is taken only by those genuinely interested. Besides FE, RDP also provides group members with other human and skill development training to develop human potential, leadership and managerial qualities and occupational skill - a pre condition of transforming a VO into an effective and

sustainable institution. Upto December 1991 a total of 241,243 group members have received FE training.

A few key persons from the community are trained to be able to impart FE to group members, to raise their critical awareness and to assist group mobilization. Approximately 40% of all BRAC group members have now taken this particular course.

Group Meetings

The group members meet once a week. At this meeting prospects, problems and issues which affect their lives are discussed with the major focus being on various aspects of financial transactions (loan realisation and collection of savings etc.). This meeting, however, should not be viewed as a tool of credit activities only. The norms and disciplines which are set for this meeting effectively promotes the institution building activities. Attending weekly meetings timely & regularly and actively participating in the decision making are important aspects of institution building process. Besides, a special meeting is organised once a month where a pre-planned socio-economic issue is discussed. This meeting which aims at improving the awareness of the group members, complements BRAC efforts of institution building of the organised poor.

A village-based meeting is held generally at the respective Area Office, four times a year with the leaders of small groups both men and women. This is organised by the PO. At the meeting various issues on organisational norms, rules and financial disciplines are discussed. These meetings play a significant role in the institutional building process.

Saving and Group Trust Fund

RDP group members are encouraged to start a savings programme through regular weekly savings. This aims at developing their saving habit and installing a financial resource base to reduce their vulnerability when a small amount of money is required in an emergency.

By December 1991, a total of Tk.109 million (men Tk.34 and women Tk.75 million) was saved by group members. Credit to invest in economic activity is available after the overall process has proceeded for about six months. Savings and Group Trust Fund together now stands at Tk.135,230,973 which equals to 18% of RDP's cumulative disbursement and 42% of outstanding. Savings is the starting point for activities that generate jobs and income.

Insurance

An insurance policy for VO members has been introduced from 15th June 1990. A group member needs to fulfill the following criteria to be eligible for the insurance policy.

Members who have been with the group for a period of one year, below 54 years and enrolled as a member of the insurance policy.

The insurance benefit has been fixed at Tk.5,000. The insurance money will be given to the nominee of the insured member after his/her death. No member needs to pay any premium. The fund is generated by the 1% compulsory deduction from loan disbursements. Till December 1991, 105,486 group members were covered by the insurance policy which is 27% of the total membership.

Paralegal Programme

The paralegal programme started as part of the institution building process in 1986 on an experimental basis with 60 group members being given legal awareness training which they informally disseminated among their fellow group members. The overwhelming success of this led to widespread demand for a more structured programme.

In 1989, the newly structured paralegal programme started with 4 topics being chosen. These were

- Family Law
- Law of Inheritance
- Constitutional Law
- Land Law

The objectives of the paralegal programme are

- legal empowerment of the rural poor; side by side with social and economic empowerment should come legal empowerment
- demystify esotericism of law through legal literacy classes
- information about law is one's legal right and poor should have access to it
- decrease incidences of litigation among the landless as it is both time and cost consuming, a circumstance which they can ill afford.

The paralegal programme started operations in 15 BRAC areas. From each area 10 persons, 5 women and 5 men, were chosen as paralegal sheboks (teachers) from among the group members for training. The selected persons complete 4 training courses to qualify as a fully fledged paralegal shebok.

Training is a vital facet of the paralegal programme. It forms the pivot around which the whole programme revolves. The paralegal sheboks have to go through a series of training before being assigned to a class. There are four training courses organised, each of six days duration with a month's gap in between. Each course consists of 25 participants.

Each of these paralegal sheboks are then given a group, composed of 25 members, to conduct legal literacy classes. It is interesting to note that these group members have to pay an entry fee for the full course. This amount is given to the paralegal sheboks as an honorarium.

The entire course takes 28 days to complete plus two extra days for review and closing. The timings are 2 hours each day, six days a week.

The paralegal team comprises of a Sector Specialist - a Lawyer who oversees the whole programme and a head office based Lawyer. There are 5 field based Programme Organisers (POs) with each PO covering 3 areas. They are supervised by a Field Officer.

Periodic workshops of the paralegal team are held at the field

where they view and review the programme, assess and analyse it, find out problem areas and exchange information. All efforts are concentrated on achieving the targets set and the POs exhorted to carry out mobilization work as well as closely monitor the teaching methodology of the paralegal sheboks, clearing up areas of confusion, where necessary.

Till December 1991, 25,203 group members have completed this legal literacy training. Of them 20,164 were women and 5,039 men.

The process of village institution building, and associated economic and social activity occurs over approximately a four year period with intensive and multi-sectoral BRAC assistance. After that period, a vo continues to be assisted, but with fewer BRAC inputs under the Rural Credit Project (RCP).

There is a definite strategy within RDP for the VOs to evolve towards self-sufficiency. Many village paraprofessionals learn to deliver services. Various fees for services and other incentives are built into the programming.

Proposed Activity in RDP III

In RDP III, the institution building activity will continue using similar methodologies. The increases proposed in RDP III will be supported with appropriate increases in staff, training and management activity. A higher proportion of group members will be trained in leadership skills.

The growth in area offices to support the new village organizations is shown in Table 4, alongwith the growth in RCP Branches which evolve from RDP Area Offices. By the end of 1995, a total of 235 Area and Branch offices will be established. Each office will serve about 6,000 members.

Training for group members will take place in Area Offices, or in the Training and Resource Centres. More than 60% of the group members trained in RDP III will be women.

GROWTH IN AREA OFFICES (RDP) AND BRANCH OFFICES (RCP)

YEAR	NEW RDP AREAS	TOTAL RDP AREAS	NEW RCP BRANCHES	TOTAL RCP BRANCHES	TOTAL OFFICES
1990	20	90	10	10	100
1991	20	90	20	30	120
1992	20	90	20	50	140
1993	25	95	20	70	165
1994	30	105	20	90	195
1995	40	125	20	110	235

In RDP phase III the paralegal programme will be expanded to 100 areas. In 1993, 60 areas will be covered, in 1994 coverage will total 80 and in 1995 coverage of 100 areas will be completed.

Each area will have 7 paralegal sheboks, 5 women and 2 men. Previously, one programme organiser (paralegal) looked after 3 areas, but from RDP III, one PO (paralegal) will look after 2 areas, so that the quality of the programme is maintained during the expansion and there is close follow up and supervision. It is expected that during RDP III, 50% of the women group members in the selected areas will be completing legal awareness classes. (See also chapter 11, Gender issues).

Institution building does not progress in a vacuum. It occurs as people seek to organize to achieve specific goals which are important to them. High on the list of priorities is gaining the income to cover a family's basic needs for food, clothing and shelter. If the possibility is offered to achieve some early results to this end, interest and participation can be maintained by building the institutional base to serve similar needs in the future.

CHAPTER 5

INCOME AND EMPLOYMENT GENERATION

CHAPTER 5

INCOME AND EMPLOYMENT GENERATION

The landless poor have traditionally depended mainly on jobs in agriculture to earn a living. With rapid population increase and changes in the structure of agriculture, employment opportunities do not match the number of new entrants into the labour force, to say nothing of the inadequacy of opportunities for present members. Projections by the World Bank indicate the situation will worsen in the decades ahead. Some 70% of the rural labour force will need to find jobs outside agriculture. Few of the landless poor have the education and skills required for industrial or productive services employment in the city. Opportunities outside agriculture, now available in the rural areas, are limited and mainly of subsistence sustaining nature. It is to creating opportunities in rural areas that this proposed programme is directed.

Employment and income generation play a significant role. These activities include training, technical and management support provided to members by the BRAC network of POs, GSSs, and workers (para professionals), in some cases in cooperation with government inputs. This major component of RDP is supported by the necessary credit operations; the rural enterprise and staff and VO member training. BRAC focusses on sectoral programmes which are described below.

Sectoral Programmes

BRAC's sectoral programmes which are concentrated in the areas of poultry and livestock, agriculture and horticulture are such that they are carried out to a greater or lesser degree in all the villages throughout Bangladesh. The technology involved herein is largely traditional and the number of persons engaged, less than would be possible if training, credit and associated input supply and technical support services were readily available. BRAC decided to take up these sectors which are traditional and low cost and encourage expansion of them through credit, training and inputs.

Other sectors which have been taken up by BRAC such as, sericulture, fisheries and installation of irrigation facilities, require resources or conditions that are not universally available in the villages. Certain of these, such as sericulture are traditional enterprises in some localities. Other areas where the food for the worms (mulberry trees or shrubs) can be produced need to be located and the technology introduced. Engaging in fish production requires a suitable body of water or plot of unused land where a water body can be dug, alongwith the introduction of technology and supply of fingerlings. Similarly, the possibility to engage in the installation of irrigation facilities and the sale of water to farmers does not exist in every village. Where the natural resource base exists, engaging in these kinds of enterprises/facilities can produce a more favourable income.

BRAC's sectoral programme provides training and technical support to poultry, livestock, irrigation, fisheries and sericulture. During RDP III, BRAC plans to expand its support programme in poultry, livestock, fisheries and sericulture. The sericulture programme has a significant "scaling up" during this period. The irrigation programme will be consolidated in RDP III following a rapid phase of expansion during RDP II. In addition, BRAC proposes to extend into two new sectors social forestry and vegetable cultivation.

BRAC's sectoral programmes were taken up in both traditional (poultry, livestock, fisheries) and non-traditional (sericulture, irrigation) sectors. They are central to its poverty alleviation objective by promoting higher level economic activities which aim to increase demand in rural areas. Continued growth and development of the sectoral programmes is particularly important in the context of BRAC's increasing emphasis on credit, given their role in promoting new, incremental income for the rural landless.

The sectors included in this chapter are:

- poultry
- livestock
- irrigation

- fisheries
- social forestry and vegetable cultivation
- rural enterprise project
- sericulture.

Each sector has a set of BRAC managers, POs, GSs and workers who focus on the technical and management aspects.

The objectives of these sectoral activities are similar:

- to build on and support the village organisation activities
- to increase incomes for those members producing direct outputs (eg. crops, fish, meat), and those providing support services (eg. service fees)
- to improve access for the rural poor to land and other productive assets
- to improve nutrition levels.

In most cases, the activities proposed in RDP III are an expansion of those in RDP II. Excluded from the descriptions below are some income generating activities, such as Rural Trading, which do not receive significant technical assistance from BRAC other than access to credit. Furthermore, sericulture, due to its large scale expansion in RDP III, merits a separate document.

5.1 Poultry Programme

Poultry and Livestock sector is an integral part of the farming system in Bangladesh and is a predominantly rural activity. It provides a source of protein to the people and also generates substantial cash income for the households engaged in this sector. There are an estimated 66 million chicken and about 12 million ducks in Bangladesh. The poultry is widely distributed among rural households with about 70% of landless household and over 85% of landed households owning some of them. More recently the importance of poultry as a source of income for the landless and marginal farmers is being more widely acknowledged. Most birds are kept in a scavenging system and are fed on household waste and crop

residues. The poultry breed in Bangladesh is mainly local. The productivity of the local hen is about 40-60 eggs per year. Some other exotic breed such as RIR, WLH, BPR, Australorps, Fyaumi are now available in the Government poultry farms. These exotic hatching eggs and day old chicks are now distributed to BRAC project areas to develop the local breed. At present there are 6 Government hatcheries in Bangladesh which produces 3 million day old chicks per year. There are some commercial farms in Bangladesh, where the production cost of eggs and meat are comparatively higher than the eggs and meat, produced in scavenging system.

The increase in the supply of poultry is much less than the increase in demand. The supply of animal protein has not kept pace with the population growth over the years. The growth rate in chicken population is only 2.6%. The per capita egg consumption is only 17 which should be 100 per year.

The existing disease of poultry in Bangladesh are newcastle, fowl pox, fowl cholera, fowl typhoid, coccidiosis, deficiency disease, worm infestation etc. The mortality rate of the poultry is high (35% to 40%) due to disease and predators. Although 4 types of major vaccine are produced in Bangladesh, due to lack of service delivery, the interior part of the rural areas is not covered.

Government institution responsible for the delivery of support services in the rural areas are not geared to assist this target group. There is, thus, a need to assist the landless people in their efforts to earn an income and to the extent possible, improve their long term sustainable agricultural potential. In remote areas where government services are not operative or inadequate, BRAC can collaborate with the government machinery to extend the service delivery system by developing local manpower.

There is little or no job opportunities for the landless, disadvantaged women in our country. Poultry is the only activity where large numbers of the landless group members can participate. Poultry rearing is suitable for widespread implementation; it is low cost; requires little skills; highly productive and can be incorporated into the household work. Through this programme rural,

poor women can actively participate in the rural economy both as buyers and sellers of goods and services. Moreover, the ownership of poultry is entirely in the hands of women. The opportunity to have a separate income of their own motivates them to participate in the poultry programme. The development model used by BRAC has been found to be culturally acceptable, technically and financially viable by those for whom the programme was designed. This programme can play an important role in poverty alleviation which is the main goal of BRAC. It is proved that homestead poultry raising is economically viable if inputs are made available, women are properly trained and the government machinery activated for delivery of services.

Background of BRAC's Poultry Programme

About 70% of the rural landless women are directly or indirectly involved in poultry rearing activities. They believe that poultry rearing is a good source of income for the poor if the birds are protected from disease and the production of local hens is increased. BRAC realised that: if the mortality of the poultry is checked, the local breed improved and some technical package for poultry rearing could be transmitted this could be a very effective economic programme for the poor landless women. Therefore, BRAC started the poultry programme in 1979 at its Manikganj project, on an experimental basis. Initially the programme was based on cockerel exchange programme and distribution of hatching eggs but it was not a success due to the mortality of HYV birds and in addition there was a tendency to sell the cock at the market for a high price. Besides this, livestock service delivery was inadequate due to lack of village level skilled manpower. BRAC realised that vaccination programme is a must to develop the poultry programme and started to train some women for vaccination. It was found that the vaccination programme reduced the mortality from 50% to 20%. It was learned that the following areas are important for the programme.

- a development of skilled manpower

- b training on poultry rearing and management
- c input supply (HYV chick, vaccine, medicine).

Thus BRAC designed a specific model for poultry development from the practical experience in 1983 and it was accepted by the government as a model for poultry development. The approach which started in 1983 was developed as a joint effort of the Government and BRAC and consists of an integrated package support to rural women, such as group formation, technical training, poultry vaccination, supply of improved birds, credit and marketing.

Strategy

BRAC selects the group members and provides different types of training on poultry rearing and management. For every 5-6 Area Office, there is one PO (Livestock) and one GS per area who looks after the programme. Poultry programme is implemented with assistance from the government and includes the following components:

- 1 Selection and training of village women poultry workers: One woman group member is selected from each village for 14 days long training on vaccination and treatment of poultry birds.
- 2 Regular vaccination: The worker charges Tk.0.25-0.50 per bird as a token fee.
- 3 Selection and training of village women key rearers: They are given 3 (three) days training on ideal methods of poultry rearing and developed as key rearers. Every key rearer must have one key hybrid cock and 10 (ten) hens (4-5 HYV) and good housing system.
- 4 Chick rearing units: The chick rearers are given 7 days training on chick rearing. They rear 200 day-old chicks up to two months and sell them to the key rearers.
- 5 Feed sale centres: One poultry feed sale centre in each area is established. With the spread of hybrid variety of birds, people are gradually getting habituated to buying balanced feed for their birds. Feed producers will receive 10 days training.

- 6 Egg collection: There is one egg collector for each Area who is responsible for buying the eggs from the group members and marketing them.

Credit

To ensure proper utilization of skill, credit is provided to all categories of rearers.

Present status of the programme is shown below:

Sl.No.	Subject	Upto Dec'91
1	Area	120
2	Poultry workers	5,000
3	Key rearers	95,000
4	Chick rearer	1,360
5	Feed sellers	52
6	Egg collectors	160

Proposed Activities in RDP III

The main component of the programme will remain the same in RDP III. The poultry programme will be expanded in all new RDP areas in RDP phase III in addition to the present programme in RDP and RCP. The programme monitoring and supervision will be the same in old and new areas. The duration of chick rearers training will be changed from 3 to 7 days. Following the success of almost five years of experience in developing technically and financially reliable models for scavenging poultry rearing at the village level, the opportunity now exist for expansion also in new areas. The programme will cover 161,640 women in 3 years. They will earn an average of Tk. 200-600 monthly from poultry programme.

Categorywise target are given below:

Sl No	Subject	RDP III			
		1993	1994	1995	Total
1	Areas	25	30	40	95
2	Poultry worker	1,250	1,500	2,000	4,750
3	Key rearer	42,500	50,000	62,500	155,000
4	Chick rearer	450	550	700	1,700
5	Feed sellers	25	30	40	95
6	Egg collector	25	30	40	95

This programme will make a significant contribution in raising the income level of disadvantaged women who would otherwise be left out of the work sector. They will be an active workforce and their income will help to augment the meagre earnings of the family as well as improving the quality of life. For many it can be sole source of income.

Cost price calculation and income analysis

Subject:

Chick Rearing Unit:

Unit capacity - 250

Duration - 2 months

No. of lot - 5 lots/year

1) Capital cost:

	Taka
i) House (polythene, bamboo 120 sq m @Tk.100)	1,200
ii) Equipment:	
a) Long feeder (bamboo 7m @Tk.10)	70
b) Drinker (Tk.6 x 5)	30
c) Bulb and wire etc.	100
iii) Land (12 sq.m @Tk.40)	480

	1,880

2) Paid cost:

i) Day old chick 250x7 =	1,750
ii) Transport cost 250x1	250
iii) Feed cost 1.5x8.5x250	3,187
iv) Veterinary cost @Tk.0.40/bird	100
v) Litter 2 bags @Tk.25x2	50
vi) Maintenance cost:	
a) House (5% of Tk.1200) ÷ 5	12
b) Equipment (5% of Tk.200) ÷ 5	2
c) Electricity	244
Average 15 days x 24 hrs x 2 bulbs x 200 W = 144,000 W = 144 unit @ Tk.1.7	

	5,595
	=====

3) Non paid cost:

i) Depreciation:

a) House: 20% of Tk.1,200	48
= 240/5	
b) Equipment: 50% of Tk.200	20
= 100/5	
ii) Interest: 20% of $\frac{(Tk.6,000+0)}{2} \div 5$	120
iii) Labour cost (2 hr/day @Tk.2.5 per hr x 60 days)	300
iv) Interest of land (20% of 480) $\div 2 = 48/5$	10

	498

4) Side Revenue:

Sale of manure 50

5) Net cost (2+3)-4 = (5,595+498)-50 6,043

6) Income from sales of chick:
Sale of chicks @ Tk.33 x 225
(10% mortality) 7,425

7) Net income for 2 months (6-5) 1,382

8) Family income Tk. 1,382 + labour cost Tk.300 1,682

9) Yearly income Tk.1,682 x 5 8,410

Key Rearer

No. of Birds - 11
Pullet - 10
Cock - 1

1) Capital cost:

	Taka
i) House (bamboo, iron sheet, wood 1 sq.m)	300
ii) Equipment:	
a) Feeder : 60 cm @Tk.10/100 cm	6
b) Drinker 1 pot @ Tk.10	10

	316
	=====

2)	Paid cost:		
	i) Birds		
	a) Hen (Local) 6x60	360	
	b) Pullet + Cockerel 6x35	210	
	ii) Feed cost 65gm/bird/day		
	65x365x12 = 284.7kg x Tk.3	854	
	iii) Veterinary cost 2x12	24	

		1,448	
3)	Non paid cost:		
	i) Depreciation:		
	a) House 25% of Tk.300	75	
	b) Equipment 50% Tk.16	8	
	ii) Interest (20% of Tk.1,000)	100	

		183	
4)	Total cost (2+3) = (1,448+183)		1,631
5)	Income		
	a) Sale of old bird Tk.55 x 11		605
	(10% of mortality)		
	b) Egg production 4 nos/day		
	4 x 30 x 12 = 1,440 nos. @Tk.2.25		3,240

	Total income a + b		3,845
6)	Net income (5-4)	Tk.	2,214
	Monthly net income 2,214/12 =		184

Subject:

Feed Seller:

Capacity - 550 kg per week.

1) **Capital cost:**

		Taka
i)	House rent	100
ii)	Weighing materials	300
iii)	Others (bag polythene)	100

		500

2)	Paid cost:		
i)	Purchase of raw materials		
	Wheat, wheat bran, rice polish		
	Til oil cake, oyster shell,		
	fish meal, vitamin etc.		
	@ Tk.8.00/kg for chicks		
	450 kg per week -		
	3,600 x 4 weeks	14,400	
	@ Tk.7.50/kg for adult		
	100 kgs x 7.5 x 4 weeks	3,000	
ii)	Rent of house	100	
		<u>17,500</u>	
3)	Non paid cost:		
i)	Depreciation:		
a)	Weighing materials		
	20% of 300/12	5	
	Bag and others		
	50% of 100/12	4.16	
ii)	Interest of Tk.5,000		
	@ 20% of $(\text{Tk.} \frac{5,000+0}{2}) \div 12$	42	
iii)	Labour cost (4 hours/day	300	
	@ Tk.2.5/hour x 30 days)		
		<u>351.16</u>	
4)	Net cost: (17,500+351.16)	17,851.16	
5)	Income: a) Sale of chick mash:		
	450 x 8.50x4	15,300	
	b) layer mash 100 kg		
	@Tk.8/kg x 4 wks	3,200	
		<u>18,500</u>	
6)	Net income (18,500-17,851)	649	
	Net family income: 649 + 300 per month	Tk. 949	
		<u>949</u>	

Egg Collector

Sale of egg = Twice weekly

	Taka
1) Capital cost:	
Egg collecting case	50
2) Paid cost:	
Purchase of egg 250 nos. @ 7.50/4 eggs 250x2=500 x 1.87x4	3,750
3) Non paid cost:	
Interest of (Tk.500 @20%) ÷ 2 for 1 month	4.00
Labour cost 5 days/week @ Tk.20/day x 5 days x 4 weeks	400.00
	----- 404.00
4) Total cost:	
(3,750 + 404)	4,154.00
5) Income from sale of egg	
500 x 4 x 2.25	4,500
6) Net income:	
(4,500 - 4,154)	346
7) Net family income (346+400)	746
(Labour per months).	-----

5.2 Livestock Programme

Introduction

In a predominantly agricultural economy like Bangladesh, livestock plays a critically important role. Traditionally, it provides necessary draft power for various agricultural operations and rural transportation. In addition, it is a substantial source of animal protein which is essential for the health of the population. Furthermore, cowdung forms a traditional source of energy and fertilizer. Therefore, this sector has the potential of

being turned into a viable economic programme capable of generating cash income. This sector contributes a GDP of about 6.5%. There are an estimated 22 million cattle and about 500,000 buffaloes and 9 million sheep and goats. Cattle are primarily fed on residues of crop production with rice straw providing approximately 50% of the diet. Limited quantities of rice polishings and wheat bran, oil cakes and molasses are also provided. Goats are kept on a scavenging system.

BRAC's Livestock Programme: Within the framework of economic activities in the rural areas, livestock plays an important role to generate employment opportunities for the landless farmers. Development projects have touched them only to a very limited extent and the areas most directly benefiting is close to the upazila. From 1978 to 1982, BRAC disbursed some loan to the landless women for cattle rearing without giving training on livestock and other technical support. The result was not satisfactory as the mortality was high and the income from rearing local animals in traditional system was also less. The veterinary service delivery system in remote areas was not only unavailable but also inadequate with a limited number of government staff posted at upazila level. As a result, the services do not reach the villages. BRAC realised that if: livestock is protected from disease by developing village level skilled manpower (paravet), local breed is improved, and credit provided, this could be a good source of income for the landless. Therefore, BRAC started the livestock programme in 1983 at its Manikganj project on an experimental basis with one technical staff (DVM)*. The following areas were identified as important for the programme.

- 1 Development of skilled manpower
- 2 Training on livestock rearing and management
- 3 Input supply
- 4 Regular follow up.

* Doctor of Veterinary Medicine

BRAC designed a specific model for livestock development from the practical experience gained in 1983 and it was accepted by the government as a model for livestock development. The model comprises of paravets, vaccination, credit, artificial insemination and fodder extension services.

Programme Strategy

BRAC selects the different cadres from the group members for this programme and provides different types of training on livestock rearing and management. For every 5-6 area office, there is one PO (Livestock) and one GS to look after the programme.

The main objective of the programme is to improve the income level of disadvantaged and landless women through cattle and goat rearing.

The programme is implemented with assistance from the government and includes the following components:

- 1 Training of paravets: One woman group member is selected from 5-6 villages. The training of paravets is conducted in two phases, duration of each phase comprises 15 days.
- 2 Training of livestock rearers: Selected group members from each area, i.e. those who are interested in rearing are given a 4-day training on livestock (i.e., feeding, housing, primary prevention of diseases)
- 3 Regular vaccination: Paravets charge Taka 1.00 per cattle as a token fee.
- 4 Artificial insemination: To upgrade cross breeds, trained paravets are selected as artificial insemination workers who undergo a further 30 days training at the government institutions.
- 5 Fodder extension programme: To ensure the availability of fodder, selected group members from each area are responsible for fodder production
- 6 Cow fattening programme: Selected group members are given a 4 days training. They purchase ill and thin cattle for low price and provide proper feeding and treatment and then sell them for a profit.

- 7 Goat rearers: Selected group members who are interested in goat rearing, are given 4 days training on goat rearing.
- 8 Credit: To ensure proper utilisation of skills, credit is provided to all categories of rearers.

Livestock Position as of December 1991

Sl No	Subject	Upto Dec '91
1	Paravets	870
2	Cow rearers	53,312
3	Goat rearers	4,961
4	A.I. workers	58
5	Maize cultivation (in acres)	256

Proposed Activities in RDP III

BRAC's livestock programme is an example of a microlevel enterprise development which has created income earning opportunities for thousands of rural poor women. The livestock programme will be expanded in all new RDP areas in RDP III. Livestock sector will undergo a modest expansion of existing activities with the exception of goat rearing. Goat rearing is technically and financially viable for rural poor. Following the success of almost five years of experience in developing reliable models for livestock development at the village level, the opportunity now exists for expansion also in new areas. The programme will cover 33,765 women in 3 years. They will earn an average of Tk.2,000-4,000 yearly from livestock related activities.

Categorywise target are given below:

Sl No	Subject	RDP III			
		1993	1994	1995	Total
1	Areas	25	30	40	95
2	Paravets	325	275	350	950
3	Cow Rearers	4,250	5,000	6,250	15,550
4	Goat Rearers	3,000	3,500	4,250	10,750
5	A.I. Workers	25	30	40	95
6	Maize cultivation (acres)	250	300	350	900

The livestock programme in RDP III aims at expanding the application of a technical package for livestock that has been developed and proven over the past several years. This would provide income earning and employment opportunities for the landless, poor women on a sustainable basis.

Cost analysis for the various activities in this sector is presented below.

Cost Price Calculation and Income Analysis

Milch Cow Rearing for 1 year:

<u>Capital cost</u>	Taka	Taka
i) House	800	
ii) Equipment:		
a) Feeder	75	
b) Drinker	75	
iii) Cost of cow	5,000	
	-----	5,950

<u>Paid cost</u>		
i) Feed cost 1,500gm/day @Tk.5/kg, 1.5kg x Tk.5x365 days	2,737	
ii) Veterinary cost	100	
	-----	2,837

Operating cost
Non-paid cost

Depreciation:

i) House 20% of Tk.800	160	
ii) Equipment 50% of 150	75	
iii) Interest of (Tk.5,000 @20%) ÷ 2	500	
iv) Labour cost (2 hour/day @ Tk.3/hour x 365)	2,190	
	-----	2,925

Side Revenue

Cowdung	100	
	---	100

Net cost		5,662
----------	--	-------

Income

i) Total milk production 2.5 kg 240 days in a year (240x2.5) = 600 litres x Tk.12	7,200	
---	-------	--

ii) Sale of calf	1,500	
	-----	8,700

Net income (8,700 - 5,662) = 3,038

Net family income (3,038 + 2,190) = 5,228

Beef fattening

1 Cow for 3 months:

Capital cost

i) House	800	
ii) Equipment:		
a) Feeder	75	
b) Drinker	75	
	-----	950

Operating cost

Paid cost

i) Purchase of cattle	3,000	
ii) Feed cost Tk.7/day/90 days	630	
iii) Veterinary cost	50	
	-----	3,680

Non paid cost

Depreciation

i) House (20% of Tk.800 for 3 months)	40	
ii) Equipment (50% of Tk.150 for 3 months)	19	
iii) Interest (20% of Tk.3,000) ÷ 2 = 300 x 1/4	76	
iv) Labour cost 2 hr/day @Tk.3.5/day x 90 days	630	
	-----	765

Side Revenue

Cowdung	30	
	----	30
Net cost = (3,680 + 765) - 30		4,415

Income

Sale of beef		5,500
Net income = (5,500 - 4,415)		1,085
Net family income = (1,085 + Labour cost Tk.630)		<u>1,715</u>

Goat rearing

No. of goats - 2
Duration - 1 year.

Capital cost

i) House	250	
ii) Equipment:		
a) Feeder	25	
b) Drinker	25	
iii) Purchase of 2 goats @ Tk.700 =	1,400	
	-----	<u>1,700</u>

Operating cost

Paid cost:

i) Feed cost: 100gm/day x 2x365 days @ Tk.8/kg	584	
ii) Veterinary cost -	50	
iii) Maintenance cost -		
a) Goat rearing shed 5% of Taka 250	13	
b) Equipment - 10% of Tk.50	5	
	-----	652

Non paid cost:

i) Depreciation:

a) Goat rearing shed	
- 20% of Tk.250	50
b) Equipment - 20% of Tk. 50	10
c) Interest (Tk.2,000 @20%) ÷ 2	200
d) Labour cost 1 hour/day	
Tk.2.5/hr = 365x2.5	912

Total cost:

(652 + 1,172) = 1,824

Income:

i) Sales of 4 matured goat - 700x4	2,800	
ii) Sales of 4 immatured goat		
= 350 x 4	1,400	
	-----	4,200

Net income: (4,200 + 1,824) 2,376

Net family income : (2,376 + 912) 3,288

5.3 IRRIGATION

Introduction

Irrigation in Bangladesh was quite primitive until 1950s. In 1950-51 the Agricultural Directorate introduced power pump irrigation practices. This was confined to the baor areas of Mymensingh and Sylhet. The scheme was termed as Mechanized Cultivation and Power Pump irrigation. But irrigation in an organized way started in the early sixties. During 1960-61, 1,367 low lift pumps (LLP) were operated irrigating nearly 62,000 acres. Installation of LLPs accelerated over the years and by 1990 about 78,000 pumps were in operation. Installation of deep tubewells (DTWs) started in early sixties in Thakurgaon and Dinajpur districts. Installation of 365 DTWs were completed by mid sixties with a potential for providing irrigation facilities to 72,000 acres. In mid sixties a pilot project of low cost tubewell

installation was started in Comilla district under the guidance of Bangladesh Academy for Rural Development (BARD). The success of the pilot project led to a nationwide plan for well installation. The Bangladesh Agriculture Development Corporation (BADC) was entrusted with the responsibility of executing the project. The project started in a big way and by 1990, 28,000 wells were installed. Shallow tubewells (STWs) installation started in 1973. By 1989, 223,000 units were installed.

The economy of the rural areas of Bangladesh is agro-based and agriculture alone cannot absorb the rural labour force. There are few openings in the off farm sector and for the poor, employment/income generation opportunities are limited. Moreover, in an agricultural economy, land is a major capital asset of production. The other major capital asset is water or irrigation. But both are concentrated in the hands of the well off. Through the BADC the government of Bangladesh had made irrigation facilities available in the rural areas in the form of deep tubewells, shallow tubewells, etc. But the benefits of it reached the elite. The poor having neither land, money nor an organised institution could not avail of the benefits of these assets.

To give control to the landless poor over one of the vital assets of production, water or irrigation, the Bangladesh Rural Advancement Committee (BRAC) started an irrigation programme with LLP in its Manikganj project area in 1976. In 1979 BRAC's irrigation programme expanded to shallow tubewell schemes and after 1985 to deep tubewells in Narsingdi, Manikganj, Rangpur, Pabna and Jessore. Since then, the irrigation programme has really taken off and expanded to new areas in Rangpur, Nilphamari, Pabna, Jessore, Natore, Narsingdi, Mymensingh, Jamalpur, Sherpur, Tangail, Manikganj, Rajbari and Hobigonj districts.

Objectives of the Irrigation Programme

- 1 Increase the nation's agricultural production through intensification of cultivation
- 2 Ensure a more equitable distribution of resources

- 3 Generate income/employment opportunities for the rural landless through crop sharing system
- 4 Develop management skills of the landless poor and transmit modern technology to them
- 5 Enhance social and economic power and prestige of the rural disadvantaged.

Programme Strategy

BRAC has worked out a tubewell ownership method in which members (female members must be involved) of village organizations buy shares. Then the shareholders form an irrigation group with an elected operations committee which selects a manager, a driver (pump operator) and one or two water distributors who receive a salary during the irrigation season. BRAC provides training and technical support teams: Programme Organiser/PO (agriculture), PO (engineer), two mechanics and about 10 agriculture gram sheboks (village workers). Each team covers about 50 DTW schemes. Service charges are paid to BRAC. A general PO from BRAC Area/Branch Office is also a member of each DTW management committee. The irrigation group take two kinds of loans from RDP/RCP - capital loan to buy the tubewells and operating loan to pay for fuel and wages. They usually collect 25% to 33% of the crop as their share from the command area farmers. A good number of training courses are organised under the irrigation programme not only for concerned BRAC staff and group members but also for land owning farmers who obtain water from the landless group owned tubewells.

Present Position

Since its inception, the irrigation programme has expanded considerably. By the end of July 1991, the number of DTWs in operation increased to 305 from 112 in December 1990. Some 25,000 members of landless groups were the shareholders of the DTWs and total area covered by irrigation programme is 13,327 acres. Besides, 309 drivers and 600 drainmen were involved in operating these irrigation equipment.

Proposed Expansion

In the 1991-92 irrigation season it is planned to increase the number of DTWs to 642 from 305 (July 91) and in 1992-1993 an additional 125 DTW schemes will be added.

Rationale for Proposed Expansion

The government of Bangladesh plans to withdraw subsidies from DTW activities. So, BRAC has been offered substantial cuts in the prices of its last order of pumps from BADC. Given such prices, along with the improved management monitoring, BRAC has determined that the longer term outlook for these investment is positive, both on economic and social criteria. Group members also gain substantial experience in project management and in negotiating with local landlords or government officials.

Profitability of BRAC's DTW

A Capital Cost		Taka
1	Machine purchase (including land for pump house)	150,000
2	House For Driver	2,000
3	Drain Construction	15,000
4	Project Materials	4,000
	Total Capital Cost	171,000
B Operational Cost		
1	Spare parts for Engine/Motor and Pump servicing	2,000
2	Repayment and maintenance cost for Drainage	1,000
3	Fuel	
	Diesel/Electricity Bill	51,150
	Mobil/Grease -Gear Oil	4,000

		54,150

4	Salary		
	Manager (Tk. 750x6 months)	4,500	
	Driver (Tk. 900x5 months)	4,500	
	Lineman (Tk. 900x5 months)	4,500	

			13,500
5	Travelling and Transportation		3,000
6	Harvesting		*
7	Service Charge		4,500
8	Project Materials		1,000
9	Miscellaneous		1,500

	Total Operational Cost		80,650

C Revenue

1	Command Area	Acres	45
2	Payment method	Crop share	30%
3	Yield of Paddy	Maund/Area	45
4	Price of Paddy	Taka/Maund	236
5	Total Water charge Income	Taka	143,370
	Gross Revenue	Taka	62,720
6	Depreciation of Capital Cost		17,100
7	Interest on Capital Cost		17,100
8	Interest on Operational Cost		4,032
	Net Revenue	Taka	24,488

* harvesting cost not shown as:

- 1 Shareholders do the harvesting
- 2 Price of straw will be used as harvesting cost.

5.4 Fisheries Programme

Introduction

Bangladesh is endowed with vast areas of water resources of various types. Incidentally these water resources command high potential and prospect for production of fisheries products. Even the agroclimate condition also offers optimum growth environment almost around the year. But as a matter of fact, fisheries as a whole was one of the most neglected sectors until mid 1980s. and no attention was given by administrators and planners for its development.

The importance of fisheries in the agro-based economy of Bangladesh has further increased in recent years as it plays an important role in nutrition, income, employment, foreign exchange earning and other areas of the economy.

Fisheries is second to agriculture and contributes nearly 6% to GDP and more than 12% to export earnings of the country (FFYP 1990-95). Fisheries provide full-time employment for about 2 million people, about 1.4 million people are engaged in fishing and fish farming on full-time basis while the rest work in transportation, and processing. Approximately another 11 million people are involved in seasonal or part-time fishing or other ancillary activities. On an average 1.18 persons per rural household are involved in subsistence fishing.

Inland fisheries resources are generated from open waters (rivers, estuaries, flood plains, beels, haors and reservoir), inundated paddy fields and closed waters (ponds, ditches, road side canal, baors). Pond culture of fish is a potentials culture system in Bangladesh. There are an estimated 1.3 million ponds in the country covering an area of 147,000 hectares out of which nearly 46% are cultured, 30% is culturable and 24% derelict. If the large number of ponds which are presently unutilized or underutilized can be brought under fishculture, even at the present low rate of production, 1,350 kg/ha, an amount of 198,000 tons of fish can be produced from existing 147,000 ha of country's pond areas, an

increase of about 27% over the present fish production.

The population of Bangladesh has been projected to grow to 1.6 billion by the year 2005. Even to maintain the present low level of consumption (20.5 gm/capita/day), fish production would have to increase to 1.20 million tons by the year 2005, an increase of nearly 44% over the present day production. If the per capita fish supply were to reach the recommended level of 38g per person per day, the production would have to reach 1.9 million tons which is an increase to the tune of about 118% over the present production.

Fisheries Programme

BRAC started fish culture programme in 1976 with re-excavation of 16 ponds in Manikganj, Jamalpur and Sulla areas. Over the years, the programme has included many other activities and established linkages with several agencies such as, World Food Programme, DANIDA, Government's Fisheries Department and the Fisheries Research Institute. The objective of BRAC's Fisheries programme is to increase the productivity and availability of fish in order to improve the nutritional status of the rural population. A second and corollary objective is to develop infrastructure for the expansion of fisheries and fishery related activities.

BRAC's Rural Enterprise Project (REP) has initiated some action research projects on fish culture. Some of these have been feasible for replication and management by the BRAC group members and so were handed over to RDP for expansion.

BRAC chose this sectoral activity with the following objectives

- * To create employment opportunities for the poor especially women in the rural areas.
- * To increase the fish production and meet the protein requirements of the poor.
- * Help the poor in the conservation of resources for sustainable yield.

Programme Strategy

Branch Survey: BRAC area office makes a survey of all type of water bodies of its village organization (VO). The water bodies are then categorized on the basis of ownership and also culture pattern.

Categorises on the basis of culture patterns.

- a. Perennial water bodies - above 20 decimal are utilised for carp culture.
- b. Seasonal water bodies (3-9 month water available) - below 20 decimal for Sarputi/Nilotica culture.
- c. Seasonal/perennial water bodies 10-30 decimal for fish nursery.

Water bodies on the basis of ownership are categorized as:

- a. members owning mini ponds carry out sarputi and nilotica culture
- b. suitable water bodies are leased from their owners for varying periods e.g. 1 year, 3 years, 5 years etc.
- c. unutilized and derelict ponds are reexcavated and developed under food for work programme. The owners of these ponds release them for a period of 10 years after which ownership reverts back to them.

Farmer Selection and training

The content of training is directed towards building up self confidence, leadership, managerial capability and fish culture skill. So a wide variety of training is provided to different levels of selected farmers for fisheries programme.

The main training courses are:

- a Fish Nursery and Management
- b Carp Culture and Management.
- c Sarputi Culture and Management.
- d Small Hatchery Operation and Management.

Credit Support

To encourage fish farming activities in rural areas the

Table 5.4.2: Input and output (decimal/year)

Sl.	Items	Cost (Tk.)	Output
1	Pond rent	60.00	1 Fish Yield = 8 Kg/dec
2	Pond preparation and Fertilizer	40.00	2 Fish Value/ Kg=Tk.30.00
3	Fingerling	35.00	3 Total Return 30x8=Tk.240
4	Others	5.00	
Total		140.00	

2 Semi-intensive Sarputi culture: Sarputi species culture in mini-pond, ditches, road side seasonal canal by using simple rice bran and duck weed.

Table 5.4.3: Input and output (decimal/6 months)

Sl.	Items	Cost (Tk.)	Output
1	Pond Preparation	11.00	1 Fish Yield = 6 Kg/Dec/ 6 months
2	Fingerling	20.00	2 Fish Value/ Kg=Tk.30.00
3	Feed	54.00	3 Total Return 30x6=Tk.180
4	Other	5.00	
Total		90.00	

3 Fingerling production (Fish Nursery):

In this programme group member's rear 5-6 days old hatchling (spawn) to fry/fingerling for 8-9 weeks.

Table 5.4.4 : Input and Output (Decimal/session)

Sl.	Items	Cost			Output	
		1st Crop	2nd Crop		1st Crop	2nd Crop
		(Tk.)	(Tk.)			
1	Pond rent	60.00	-	Finger- ling Produced	1,500	1,200
2	Pond prepara- tion and Fertilizer	54.00	34.00		Nos.	Nos.
3	Feed	16.00	16.00	40% survival		
4	Spawn	80.00	60.00			
5	Materials (Net, Hora, Hapa)	90.00	20.00	Return	525 Tk.	360 Tk.
6.	Transporta- tion & Labour	40.00	40.00			
Total Cost=510.00		340.00	170.00	Total Return= 885.00		

4 Fish seed production (Small Hatchery)

Hatchery will meet the available supply of fingerling of desired species at village level to produce spawn.

Present Position (December 1991)

Activities	Position Dec. 1991	
	Ponds	
	Nos	Area Acre
Carp culture	1,275	453
Sarputi Culture	1,807	152
Nursery	279	88
Small Hatchery	55	--

Proposed expansion activities: RDP III

In RDP III BRAC proposes to expand existing activities as detailed below.

Carp culture: Carp culture ponds are more established components of BRAC's fisheries programme. In RDP III BRAC proposes to develop 7,000 farmers in carp culture with the expansion of 3,600 ponds covering about 950 acres of water bodies. The farmer of carp culture will receive 3 days training.

Thai Sarputi: Thai sarputi component went for large scale expansion in the later half of 1991. Based on the positive experiences to date with the species, a large expansion is proposed in RDP III. In RDP III about 33,000 ponds will be brought under culture with 24,000 farmers being trained for 2 days each.

Fish Nursery: Under the fisheries programme each participating area office will develop fingerling production programme i.e. fish nursery. At the end of RDP III fingerling production will reach about 43.5 million. To assure an adequate production of fingerling, 195 new fish nursery workers will be trained for 7 days.

Small Hatchery: BRAC's fisheries programme introduced small hatchery in each participating area office. The hatcheries will support the expansion of nurseries to produce fingerling. At the end of RDP II, 60 small hatcheries will have been established. In RDP III, 65 more small hatcheries will be established and the same number hatchery operators will be developed through a 13 days comprehensive training course.

In RDP III, BRAC will extend its fisheries programme in 100 RDP Area Offices. The total number of VO members supported by the fisheries programme will increase from 25,790 to 69,370 during the same period. BRAC will maintain close technical supervision, training and monitoring through the fisheries POs, and GS.

5.5 Social Forestry and Vegetable Cultivation Programme

Bangladesh has a very small forest area considering her large population of about 110 million people. Dependable statistics on forest areas of Bangladesh are rare. Forest cover estimates vary from 6.5 to 16 percent of the total land area of the country. Even if the figure of the upper limit (16%) is accepted as true, it may be considered ecologically critical for Bangladesh, because of her

high population growth and small forest area, as for balance ecological and economic setting 25% of a country's landmass should be under forests. In addition to forest land, there are some homestead forest, groves on privately owned lands covered with tree and/or bamboo crops of varying quality and density. Although these privately owned homesteads constitute only 12% of the forest land, they supply almost 80% of the total fuel wood, timber and bamboos consumed in the country. The homestead trees are major contributors to meeting the needs of rural communities and indications are that they are being overcut.

The loss of forest and vegetation have contributed to erosion, causing land degradation (7.4%) much faster than it could be replaced through natural process.

Bangladesh is predominantly rural as most of her people live in the rural communities having agriculture and related industries as their main source of living.

Food and most raw material for industry are produced in the rural areas. Yet millions of people in these areas do not have enough to eat nor decent houses and sufficient clothes and medicines. Dietary deficiency of vitamins and nutritional blindness is a major public health problem in Bangladesh. Food and nutrition both are contained in vegetables. Especially the rural poor are directly suffering from lack of nutrients. Average per capita vegetable consumption in Bangladesh is only 25 gm per day where recommended quantity is 175 gm per day.

Among other resources that could contribute much to the development of rural communities is social forestry and vegetable cultivation. It could be a source of food, income, employment and housing materials. Furthermore, it provides raw materials for industry and a wholesome atmosphere for better health.

Poverty and ecological imbalance are inseparable especially in the rural areas of Bangladesh because demographic pressure and rising number of the poor denude the natural resources to survive. As BRAC works with the rural poor, it feels that they should be made aware of the depleting natural resources and actively

participate in its conservation and preservation. One way of achieving this is through a social forestry programme. BRAC's social forestry programme has a two pronged approach in not only restoring ecological balance through afforestation but more importantly also has a socio-economic factor in that this programme provides an avenue for increased awareness for tree plantation and vegetable cultivation as well as generating income and employment opportunities and thus improving the rural standard of living. So far, forestry or afforestation had been the preserve of the government's Forest Department but BRAC wants to launch a more participatory social forestry programme.

Social Forestry Programme

The programme involves a series of activities - training to the beneficiaries, credit support, supply of seeds where necessary, extension work and marketing of seedlings. The social forestry programme is carried out by two methods.

- Nursery
- Plantation programme

Programme objectives

- I Self-sufficiency in food, fuel wood, fodder.
- II Generating income and stable employment opportunities for socio-economically disadvantaged rural population.
- III Increase awareness for planting trees among the rural community.
- IV Minimizing local ecological degradation, improving soil stability, water conservation and maintaining the production capacity of the site.

Programme Strategy

Nursery Programme

BRAC launched its nursery programme in early 1988, by involving group members in this activity as a potential income earner. BRAC developed about 360 small village nurseries and big

nurseries around their homestead and on leased land. Through these nurseries they produced more than 4,223,995 seedlings of different species in 1991.

Plantation programme: The plantation programme is carried out both at homestead and in roadsides. In homestead plantation, seedlings of various species are planted by the group members around their homestead. The members plant around 10-20 seedlings of fruit and fuel trees which are collected from group members' nurseries.

The roadside plantation programme was launched in 1980. Under this programme the beneficiaries plant trees along roadside and other public places for which the land is leased from the government on a renewable basis. BRAC group members have planted about 3.5 million of timber, fuel and fruit trees along roadside in rural Bangladesh.

Both the selected nursery workers and other beneficiaries are provided with intensive training at field locations by BRAC programme organisers (social forestry). Besides training, BRAC provides credit, inputs, technical and logistic support to implement the programme.

Regular supervision and follow-up is done by the programme organiser under the guidance of Area Managers. The programme has been implemented under the close supervision of BRAC field staff and frequent meetings are conducted to review the activities and progress of the programme. The Gram Sheboks (GS) are the front line grass root level workers.

Proposed Expansion/Activity in RDP III

In recent years small village nurseries and vegetable cultivation have become a common strategy to alleviate rural poverty. The impacts are improved incomes and nutrition, better supplies of fuel wood, building materials, reduced soil erosion and environmental effect. Therefore, BRAC plans to expand its nursery and vegetable cultivation programme along the following lines.

Nursery

In RDP-III, about 1,750 women will be selected for training in small village nurseries. The women will be given 7 days training for nursery preparation, raising seedling and care. BRAC will provide credit (around Tk.3,000 person) to the horticulture nursery worker for the purchase of inputs. Each caretaker will produce around 10-15,000 seedlings (fruits, timber, fuel and fodder tree) per year on 10 decimals of land.

Vegetable cultivation

About 26,750 persons, mainly women, will be selected and given training for vegetable cultivation. Each person will cultivate about 0.3 acre (33 decimal) - on commercial basis. Those who do not own land would lease land. Most of these will be selected as vegetable growers and about 6% will be selected as vegetable workers who will produce vegetable seedlings. The vegetable growers will be provided 3 days training while vegetable workers will receive 5 days training.

Every alternate month a short refresher course will be conducted by the programme organiser. BRAC will provide credit (around Tk.4,000) to the cultivators to lease land, to purchase : seeds, hand tubewells, fencing materials, fertilizer, insecticides etc.).

Both the nursery and vegetable cultivation programme will be implemented under close supervision of 120 GSs and 10 programme organisers.

BRAC has identified the issues to be addressed in implementing these activities in RDP-III. For example, the leasing of land allows the landless to participate; the members propagate some of their own seeds to assure a dependable supply. To assure a reliable supply of seeds and seedlings, BRAC will train 1,200 seed growers in RDP-III. Training requirements are shown in the Table 5.5.1.

TABLE 5.5.1: Training Requirements
(Vegetable Growers and Horticulture Caretaker)

Indicator	Target	RDP - II		RDP - III	
		Achieved Dec'91	To Date	Additional Requirement	
		#	% Women	#	% Women
Horticulture Nurserer or workers	1,260	360	85%	1,200	95
Vegetable growers	11,636	7,163	90%	26,750	90
G.Ss.	180	132	0	120	0
P.Os.	40	35	25%	10	0
Seed Growers	-	-	-	3,500	90%

The economy of the country is based on agriculture. The rural poor have no excess land. Therefore, maximum utilization of the available land by producing seedlings and vegetables can increase productivity and income of the family as well as the national economy. Moreover, the forest areas of Bangladesh are concentrated in the southern and eastern regions of the country. Therefore, supply of fuel and timber has to be transported over long distances which increases the cost of the wood. Especially for the poor, the price is prohibitive and they strip the scarce local trees for firewood which aggravates the ecological imbalance. Remedial measures have to be instituted immediately to halt this process.

Cost-benefit analysis

Through a one year cost benefit analysis, BRAC has come to know that this programme would be an essence of sustainable income

generating activities for the rural poor. The details are given below:-

For Nursery

Expected Cost

Items	Quantity	Amount
1 Polythene bag purchase @ Tk.47/pound	75 pounds	3,525.00
2 Fencing	-	100.00
3 Fertilizer		
a) Cow dung @ Tk.1 / 5 Kg.	500 Kg	100.00
b) Chemical @ Tk.5.50 / Kg.	18 Kg	99.00
4 Seeds		300.00
5 Insecticides		50.00
6 Miscellaneous		126.00
Total = Tk.		4,300.00

Expected Income

Items	Quantity	Amount
1 Sale of seedlings	15,000 Nos.	15,000.00
Total =		Tk. 15,000.00

Expected net income = Total income - Total cost

= Tk. 15,000.00 - Tk 4,300.00

= Tk. 10,700.00

For Vegetable Cultivation

Expected cost

Items	Quantity	Amount
1 Land lease for 1 year	33 decimal	1,000.00
2 Tubewells (Treadle pump)	1 Nos.	1,200.00
3 Fencing	-	500.00
4 Seeds (Different species) @ Tk.188 / Kg.	3.5 Kg.	658.00
5 Seedlings @ Tk.1 / 16 Nos.	7920 Nos.	495.00
6 Cow dung @ Tk.1 / 5 Kg.	3960 Kg.	792.00
7 Chemical fertilizer @ Tk.5.50 / Kg.	150 Kg.	825.00
8 Miscellaneous	-	430.00
Total =		Tk. 5,900.00

Expected Income

Items	Quantity	Amount
1. Different kinds of vegetables - @ Tk.3 / Kg.	6,600 Kg.	19,800.00
Total =		19,800.00

Expected net income = Total income - Total cost

= Tk. 19,800.00 - Tk 5,900.00

= Tk. 13,900.00

The expected annual net income from the 10 decimal Nursery is estimated at Tk.10,700.00 and the expected annual net income from the 33 decimal vegetable cultivation is estimated at Tk.13,900.00. This profit does not take into account cost of labour.

Growing seedlings and producing vegetables locally and supplying them to the community will be an excellent way of earning an income for the rural poor as well as increasing the food production of the country. Those who raise seedling, plant trees and produce vegetables do an invaluable service to maintain the ecological balance. If the rural community sees the benefit from this programme, they will be encouraged to take part in this programme and not only will they earn an income but also will take part in sustainable environmental development.

5.6 Rural Enterprise Project

Background

The rapid increase in landlessness in recent years and the slow growth in employment opportunities are some of the major causes of rural poverty specially among BRAC landless groups. It was very difficult and to some extent risky to bring changes in terms of diversity of enterprises, technology and management style into BRAC's regular credit function. This credit is made available on commercial terms to both landless individual and to groups of landless to invest in income generating activities. But, for many of the activities the returns was very low.

BRAC therefore, realised the need to complement its credit programme by making existing business more profitable and promoting new businesses among its landless constituency. As a result, BRAC created the Rural Enterprise Project (REP) in September 1985. It was funded by Ford Foundation for the first phase which ended in December 1989. Presently, the second phase is on going and is funded by a donor's consortium through RDP II.

Objective of this project are to:

- increase long term rural income generation prospect of landless
- explore opportunities in both farm and non-farm sectors.
- investigate, test, organize and demonstrate new and improved income earning activities to increase productivity
- train landless people to undertake successful activities

Strategy

Investigate, test and demonstrate new or improved business, providing training, technical and management support to groups organized by BRAC's RDP/RCP. To develop these, REP follows a methodology which is suitable for achieving the goal.

Initially, sector reviews are done to identify broad areas where REP may intervene. Based on these reviews new ideas are generated from different sources. Once ideas are identified extensive background work is done to assess potential problems keeping the target people in focus. Then, a thorough feasibility study is conducted which focuses on technology, finance, socio-economic and management aspects. If the idea is viable through feasibility study then plan is implemented which consists of action plan, budgets, staff requirement (technical and non-technical), outside expertise etc. A major part of the implementation plan is to monitor and control the mechanism required for proper implementation of the idea. Then the funding of the project is finalized. This fund is distributed according to categories of projects, such as (i) Experimental Projects and (ii) Pilot Projects. Experimental projects are the projects which are new to the country and to the RDP/RCP group members. Pilot projects are the improved version of the traditional activities. These projects are implemented, thoroughly monitored and supervised by REP's own staff members based on particular project site.

Present Status (upto Dec. 1991)

- successful projects handed over	=	13
- completed projects	=	03
- Failure Projects	=	13
- Suspended Projects	=	06
- On going Experimental Projects	=	11
- On going Pilot Project	=	07

Total	=	53

(See Table 5.6.1 for details)

Future Projection (RDP PHASE III)

Presently, the responsibility for ongoing research and development (R&D) within BRAC established sectors will be transferred to the sectoral programmes. An RDP base is in a better position to deal with the village-based management for these sectors.

The remaining functions of REP, to develop new target group enterprise opportunities, will be retained in REP.

REP will conduct R&D on new enterprises which if proven feasible can be included in future RDP or RCP activity. Special emphasis will be placed on new and non-traditional business for women. The following types of enterprise have been identified as possible candidates for investigation:

- * poultry feed mills
- * small poultry hatcheries
- * apiculture and honey processing
- * food processing
- * pearl culture
- * new trading opportunities.
- * others

Feasibility studies, including the technical, financial and management (software) aspects and experimentation, will be

conducted in pilot projects in RDP or RCP areas which are suitable for a particular enterprise. If proven feasible, the methodology for establishing the enterprises will be transferred to RDP and RCP for dissemination along with the humanware, training materials and extension profiles.

The present REP staff consists of 6 persons in the head office (manager, economists, management specialist, technical specialists) and 27 in the field. A core unit of 6 persons will be retained in the head office to manage REP. Additional staff to conduct the field research will be recruited, or temporarily assigned from other sections of BRAC as required.

Table 5.6.1

A REP's Successfully Handed Over Project												
Sl. No.	Name of the Project	During Experiment by REP				Extension Programme through RDP or RCP						
		No of Units Initiated	Initial Investment /Unit (Tk.)	Participation Pattern	No. of Share-holders	No. of Direct employee /worker	No. of Existing Units	No. of Participants		'91		
							Male	Female	Total Unit	Male	Female	
1	Nursery Ponds	35	4,127	group	3	1 person, two hours/day	162	491	101	279	398	99
2	Rice Mill	1	95,000	group	100	3 full time workers	1	141	125	1	141	125
3	Brick field	1	1,115,900	group (V.O.)	4,000	251 full time workers	2	939	3,931	2	939	3,931
4	Semi Intensive Nilotica Mono-sex culture	10	172	Individual	--	1 person, half an hour/day	282	-	-	149	45	104
5	Vegetable Production	499 growers	250	Individual	--	Seasonal labour 2 hours/day	551	348	203	2,300	30%	70%
6	Power Tiller	5	84,000	group (V.O.)	84	2 employees	126	4,761	5,601	-	-	-
7	Waste silk spinning	1	81,440	group	--	12 full time workers	1	--	--	1	-	-
8	Social forestry	REP conducted a survey and based on survey result RDP went for extension.					100	--	--	115,000	15%	85%
9	Fresh water, shrimp carp extension pond culture	9	6,700	Individual & Group	--	1 person, one hour/day	29	--	--	14	50	--
10	Thai-Sharputi	28	500	Individual	28	1 person, 1/2 hour/day	-	-	-	1,807	40%	60%
11	Fish Hatchery (Small Hatchery)	6	1,200	Individual	6	Seasonal whole time job 2 part-time	60	-	-	Presently REP is establishing more F.H. in different RDP Areas.		
12	Goat Fattening	6	733	Individual	6	1 person 3 hours/day	-	-	-	Not yet decided		
13	Integrated Poultry Fish Farming (Broiler)	1	7,500	Individual	1	1 person 2 hours/day	-	-	-	Not yet decided		

B COMPLETED PROJECTS:

- 1 Block Printing
- 2 Chawki rearing
- 3 Dye house

C ON GOING PROJECTS:
EXPERIMENTAL

<u>NO.</u>	<u>NAME</u>	<u>DURATION</u>	<u>AREA</u>
1	Galda Nursery development	1990-92	Jessore
2	Mechanical Work Shop	1989-93	Mirzapur, Sherpur, Paglapir
3	Pearl Culture	1989-93	Mymensingh
4	Power Tiller	1991-93	Natore, Jessore, Faridpur & Rangpur Region.
5	Female Operated Rural Restaurants	1991	Manikganj, Rangpur, Jessore & Natore, Faridpur Region.
6	Small Carp hatchery	1990-93	Mymensingh & Shatkhira
7	Silk yarn Weaving	1990-	Gorpara
8	Silk yarn selling	1991-	Chapainawabgonj
9	Bamboo bridge	1991-	Savar
10	Agro forestry	1990-95	Kamalpur, Nonni, Jhenaigati, Dhanshails & Bhayadanga.
11	Godown	1991-	Gorpara

PILOT

<u>NO.</u>	<u>NAME</u>	<u>DURATION</u>	<u>AREA</u>
1	Apiculture	1991-	Mymensingh, Jessore & Sherpur Region
2	Carp Poly Culture	1991-	Jessore
3	Dhurry Making	1988-	Nazirhat
4	HYV Sugarcane (Chewing variety)	1990-92	Jessore
5	Nilotica Culture	1990-92	Mymensingh
6	Thai Sharputi	1990-92	Mymensingh
7	Poultry Hatchery	1991-	Sherpur

* Only monitored by REP at present.

5.7 Sericulture in Bangladesh

Sericulture has been recognised all over the third world as a very good income generator for rural areas. It is a labour intensive industry and can give significant returns to the rearer.

In the past, Bangladesh used to have a vigorous sericulture industry. In 1856 the production of Rajshahi district alone was 186 tonnes. However, this declined to 10.5 tonnes in 1911 and by 1986 the production in all of Bangladesh was only 30 tonnes ! [Z. Bakht]

After partition most aspects of the sericulture industry fell inside India. Many of the skilled personnel migrated to India. Sericulture did not flourish under the policies of the Pakistani government. The absence of whole-hearted efforts, unavailability of scientific instruments and shortage of skilled personnel all hampered the development of the industry in this period. In addition to all these problems, the government issued liberal licenses for the import of raw silk further diminishing efforts to foster growth. [S.U.Ahmed,1988]

After the independence of Bangladesh, there was a lot of emphasis placed on developing cottage and village based industries as a vehicle for creating employment.

Silk was seen as an ideal industry in this regard and the government and various NGOs undertook development schemes in order to promote sericulture. One of the first things that was done was to impose restrictions on the import of silk yarn and fabrics.. The Bangladesh Sericulture Board (BSB) was formed in order to coordinate development efforts in the sericulture sector.

In spite of all these efforts the progress of the silk industry has been far from satisfactory. A study conducted by the Bangladesh Institute of Development Studies, at the request of the Swiss Development Corporation (SDC), examined the state of the silk industry in the mid 80's and found serious deficiencies in the sector. The expansion of mulberry plantation, output of seed and commercial cocoons, the production of silk yarn and fabrics,

employment generation and the export of silk products were far from encouraging. [Z. Bakht,1978]

Sericulture

The silkworm of the genus *Bombyx Mori* is a completely domesticated creature that is reared indoors. Silkworms go through four different forms in their life cycle. These are egg, larva, pupa and moth.

Rearing silkworms involves hatching the eggs and then feeding the worms mulberry leaves. The worms are kept in trays and have to be fed four to five times a day. Special care must be taken with the rearing of younger worms (called chawki) since their health at this stage will affect their performance when they are older. The life cycle of the worm is normally broken up into five stages. The worms grow progressively larger as they grow through each stage until the fifth age worms are ready to spin cocoons. The process of spinning the cocoons takes two to three days. In order to facilitate the formation of the cocoons, the worms are mounted on chandrakis or spinning trays. After the worms have spun their cocoons the pupa inside is killed by drying in the sun or by hot air drying or steam heating. The cocoons are then taken to reeling centres where the silk yarn is reeled from the cocoons. The reeling is accomplished by means of boiling the cocoon in water and then unwinding the filament from the cocoon by means of either charkas or reeling machines. Once the yarn is reeled it is then subjected to rereeling which means taking it from the reels and rereeling onto other reels. The yarn can then be degummed, doubled, twisted and made ready for weaving. The prepared yarn is then woven into silk fabric on hand looms or power looms.

BRAC's Sericulture Programme

BRAC's sericulture programme started in the Manikganj Integrated Project in the year 1976. Sericulture was viewed as profitable and women could be involved in the process because it could be carried out at home and could be combined out with other activities.

From the initial program in Manikganj the program has expanded into other areas under the Rural Development Program (RDP). The sericulture program is now being implemented in five zones, namely Manikganj, Pabna, Jessore, Rangpur and Jamalpur.

Nurseries have been built up in each area in order to supply mulberry saplings for plantations. Nursery workers have been selected from among BRAC group members (mostly women) and given a 5 day training in nursery preparation, plantation and care of saplings. They are given continuous assistance afterwards. There are refresher courses organised later in order to upgrade their skills.

Two types of mulberry plantations have been emphasized. These are homestead and roadside plantations. For homestead plantations, growers are selected among those who have some land near their homes. The women are given training in their village on appropriate planting techniques and they are then given saplings to plant. When they receive the saplings they are given a short orientation on planting, pruning and maintenance of the trees. BRAC provides follow up and technical assistance where needed. These women are later given training in rearing silkworms.

In the case of roadside plantations, landless women are selected to look after the trees. The roadside is leased from the Union or Upazila Parishads for a period of twenty years. The selected women are then given training on planting, pruning and maintaining the mulberry trees. Refresher courses are given later and there is continuous follow up by BRAC personnel. The women plant 500 trees each along the roadside and are responsible for planting, putting in stakes, applying manure and clearing the undergrowth around the base of the plants. They are supposed to guard the plants from cattle, goats and people, from dawn to dusk. They are given wheat as payment for their services. The amount they receive depends on the survival rate of the plants. [N.A. Chowdhury 1990]

After a year of looking after the plants the women are given training in rearing silkworms and start rearing using the leaves

that are available from the trees that have been cared for during the previous year. Another group of women are selected to guard those trees (and an additional 500 one year old trees). This group looks after the trees for a year after which they also become rearers. This process continues for one more year after which the trees can survive without guards. Since the leaf production of the trees is up to full capacity by this stage, the four rearers will have plenty of leaves in order to rear silkworms.

BRAC's rearing process is set up along two lines. There are designated rearers who are called chawki rearers. These rearers are given disease free layings (DFL) which they hatch and they rear worms up to the end of the second stage. At this point they keep some of the worms and sell the rest to other rearers in the area. The rearers have already gone through training in rearing. This training is given by both BRAC personnel and BSB trainers. BRAC personnel provide follow up support for the rearers and monitor the progress of the worms.

Once the cocoons are ripe for harvesting they are taken to BRAC reeling centres where they are bought by BRAC (although the rearers are free to sell to anyone they please). The cocoons are then stifled at the reeling centre and the silk yarn is reeled from the cocoon.

BRAC has reeling centres at Manikganj, Jamalpur, Monirampur, Natore, Pabna, Atghoria and Taraganj. The reeling equipment consists of cottage basins produced locally in Bangladesh.

The technical support that is needed for the process is provided by BRAC personnel who are specialists in sericulture. These are the sericulture Program Organisers (PO). The POs are assisted by Gram Sheboks and Gram Shebikas (GS). In addition, there is support provided by other BRAC staff in the field and head office.

Rationale for the Project

Bangladesh faces a seemingly ever increasing cycle of poverty and deprivation. There has to be a concerted effort in the rural

areas in order to fight the poverty inherent in the structure.

If we are to fight rural poverty, then we must search for ways and means to generate income using the resources that are available to us in the rural areas. The disposable income available to a small farmer is very little. Most of her income is going to go into basic necessities such as food shelter and clothing. In such a situation it is imperative that the farmer finds ways in which she gets real income for her efforts. Rearing silkworms and selling the cocoons is a very effective way to get such an income.

Mulberry is a very hardy crop that survives under very adverse conditions and this makes it good for use in marginal land. Silkworm rearing is a labour intensive activity. Rearing can be done at home. Silk is a high value low volume commodity. There is a worldwide demand for silk which is increasing each year. Silk is a luxury item and therefore is effective as a means of redistributing wealth from rich to poor.

Nursery

In order to establish good trees BRAC has set up a system of sapling nurseries. In September-October mulberry cuttings are planted in these nurseries and the saplings are harvested the following September-October and then planted along roadsides and in homesteads. A good system of nursery sapling plantations ensures that the crop will be vigorous and healthy. It also ensures that when the saplings are planted on the roadsides they are the right size so that they can withstand the browsing of cows and goats.

BRAC group members are presently cultivating 230 acres for the purpose of raising mulberry saplings. These nurseries are capable of supplying 3.5 million saplings per year. BRAC plans on keeping this level of sapling production over the next few years.

Through the nurseries BRAC can ensure that healthy mulberry plants of good species are distributed to the farmers. High yield variety cuttings will be obtained from the research institute and propagated through the nurseries.

The present system of sapling nurseries is established as

follows. A plot of land usually 2 or 3 bighas is taken on lease by the landless woman with the help of BRAC. She then plants mulberry cuttings supplied by BRAC and raises the saplings. In order to establish the sapling plantation she will have to incur some expenses and she is given a loan of Tk. 10,000 by BRAC to cover the costs of various items including the lease. Since she does not have any income for the year she is given wheat by BRAC (again with the assistance of the WFP wheat program). After a year sells the saplings that she has raised for Tk 1.25 each and she pays back the loan that BRAC has given her.

Mulberry Trees Along Roads

One of the features of BRAC's strategy is to plant mulberry trees along roads. The rationale for this strategy is based on using land that is not being used for other purposes so that marginal land is being made productive. The main problem associated with these plantations is that of survival of the plants once they have been planted. This problem is especially acute in the first year when the mulberry saplings are young and vulnerable to the hazards of being on the road. Someone has to look after these trees to make sure that they survive. BRAC employs landless women to look after these trees. These women are given wheat (obtained from the World Food Program) as payment for looking after the trees from dawn to dusk. The amount of wheat that they get depends upon how many plants survive. In the case of first year trees which have to be taken care of with extra care, a woman is assigned to look after 500 trees. In the case of second and third year trees each woman looks after one thousand trees. Any one woman looks after the trees for at most one year so that there is a continuous replacement of the caretakers. This system has been remarkable successful in establishing mulberry trees along the roads as any trip into the rural areas will ascertain.

The roadside is leased from the Union or Upazila Parishads for a period of 20 years. In Dr. Jolly's report there is a recommendation to work out a system of long term leasing with the

rearers who are going to use the leaves from the trees for rearing. BRAC plans on working a leasing agreement directly with the farmers so that the establishment cost of the tree is eventually covered through the charges on levied on use of the trees by the rearers.

BRAC planted 1.8 million trees along roads and homesteads in 1991. In 1992 BRAC will plant 2 million trees. BRAC plans to continue planting 2 million new trees each year along roads.

BRAC targets for the total number of trees including saplings planted are given below

Year	1992	1993	1994	1995
Saplings Planted (Millions)	3.0	3.5	4.0	4.5
Cumulative Number of Trees (Millions)	5.5	8.2	11.0	14.0

Bush Plantation

In practically all the countries in the world where sericulture is practised, mulberry plants are cultivated in bush form. In Bangladesh due to disruptions in the supply of seed, low prices of cocoons and other difficulties sericulture has been relegated to a completely subsidiary activity. Low quality eggs giving rise to low yielding and weak cocoons along with depressed cocoon prices have meant low economic returns for farmers. This has led to mulberry being driven off cultivable lands in most of Bangladesh except for a few isolated areas such as Bholahat.

The net result is that in most of Bangladesh sericulture is being practiced through the use of lands that are not used for any other activities such as roadsides. Along roadsides, mulberry bush is not suitable because of the problem of goats and cattle feeding off the lower branches. Road plantations have one big drawback and that is the amount of dirt that accumulates on the leaves leads to difficulties in rearing.

If BRAC is really serious about extending sericulture then it has to look at bush plantations. Bush cultivation maximises the return from the land and ensures leaves of uniform quality. In

order to get good returns there has to be sufficient input from BRAC in terms of skilled personnel who are familiar with bush cultivation, inputs of fertiliser and irrigation. The farmers who will cultivate the land will be given technical help from BRAC. BRAC will closely monitor these plantations so as to ensure that proper practices are followed and the return from the land is good. The cultivation will be carried out with the help of skilled labour i.e. farmers who have had previous experience with the mulberry plants. This plan calls for BRAC to start planting 750, 1000 and 1250 acres of bush plantation in each successive year.

There land available in the Jamalpur-Sherpur area which is not used for any other crop. It is at the foot of the hills, has good drainage and is suitable for mulberry cultivation. As more of such areas become available BRAC will start cultivating mulberry plants there.

Cultivation of high yield varieties of mulberry plants will be pursued with vigour. At present there are three high yielding varieties and one traditional variety that are being cultivated. The high yield varieties such as BSRM 5, BSRM 18, BSRM 19 are about twice as productive as the traditional varieties in terms of leaf yield. [S.U. Ahmed 1988]

In addition, cultivation of high yield varieties of mulberry plants will be pursued with vigour. At present there are three high yielding varieties and one traditional variety that are being cultivated. The high yield varieties such as BSRM 5, BSRM 18, BSRM 19 are about twice as productive as the traditional varieties in terms of leaf yield. [S.U. Ahmed 1988]

It is not clear how widespread these varieties are and how productive the field plants are at this moment. Plants will have to be obtained from Rajshahi and if necessary Mysore and West Bengal. Varieties such as Kanva2, S1 and S36 from Mysore may be suitable for cultivation in Bangladesh.

Silk Worm Egg Supply

Rearing Seasons

At present there are four rearing seasons in Bangladesh consisting of Jaistha (May-June), Bhaduri (August-September), Agrahayani (Oct-Nov) and Chaita (Feb-March). There is a higher incidence of disease during the Jaistha and Bhaduri bondhs than the other rearing seasons. The average cocoon yield goes down by 40-50% in these seasons (see A.C. Barman).

The yields in these seasons are very different. In general the yields from silkworm cultivation is low compared to Indian standards. The average yield for some BRAC growers have been on the order of 14-16 kgs per 100 DFL in the Jaistha and Bhaduri bondhs while the better seasons have seen yields of 21-25 kgs. This is far below the kind of yields that are obtained in India. There are several reasons for this type of yields. Many BRAC rearers are new and unskilled though even experienced rearers do not get much better yields. The quality of leaf may not have been too good and of course high humidity in the bad bondhs contribute to tremendous mortality among the silkworms. However undoubtedly the most critical factor in this production cycle is the quality of the eggs that are being supplied to the rearers. The sericulture board has been supplying mainly Nistari during all the seasons. This has led to low production from the eggs. Despite the quality of the eggs there is still a demand for eggs. In particular there is a great need to introduce cross breeds during the rearing seasons. The multi-bivoltine cross breeds really need to be introduced during the good seasons. The strategy will be to rear multi x bivoltine CBUs in Agrahani and Chaita and Multi x multi crosses in the other two rearing seasons.

We can compare the productivity with West Bengal which has very similar conditions to Bangladesh. Productivity over there average ranges from 25 kgs with multivoltines to a minimum of 40 kgs with multi x bivoltine crosses. These are the kind of figures that the rearers can aspire to get.

At the moment however given the conditions in which egg

multiplication is taking place there does not seem to be much hope for the situation to improve in the near future. Once BRAC is operational with its egg producing facilities then it can not only rear the type worms that it wants to rear but the can also determine the how many seasons there are going to be in the year.

Problems with Egg Supply

The eggs that are being supplied by the sericulture board are of inferior quality. Despite repeated requests for high yield variety silkworm eggs, during the cooler seasons, the supply of eggs has been mainly Nistari. In recent times the number of eggs per DFL has been as low as 200 instead of the expected 400. This combined with low hatching percentage and the spread of pebrine in stocks all over the country has made for disastrous crops. In order to get around this critical issue BRAC can do several things:

1. Help the sericulture board in any way that is possible so as to upgrade the quality of the eggs that are being supplied.
2. Obtain eggs from India in particular from West Bengal.
3. Build its own grainage.

BRAC will continue to be dependent on BSB for its eggs for sometime. If BSB needs to have some help, for instance if it needs to charge more for making good quality eggs then it is imperative that BRAC help in this regard. In fact BRAC is willing to pay higher prices for the eggs provided that the quality of the eggs is improved.

The second option of obtaining eggs from India can serve as a short term strategy in order to tide over the problems of shortage of eggs inside the country. However it is necessary to ensure that the breeds that are brought in are of the right kind. In establishing links with grainages in India one of the main problems that will be faced is to get the eggs into the rural areas quickly before hatching takes place. The government has to give permission to allow the import of eggs under conditions of scarcity.

The best option is of course to build grainages inside the country and BRAC is planning to build grainages.

Grainage

The seed supply is to be organised along the P3, P2 and P1 system that is prevalent in India. In this system there would be three separate levels that would be used for multiplication of the seed.

At the first level there is the P3 farms that produce the silkworm races that are released by the research institutes. These maintain the pure silkworm races. The silkworms are reared under the strictest conditions of hygiene and controlled conditions. The technical level of the staff is very high in these farms. These farms have to give the cocoons to the P2 farms for multiplication.

The P3 farm is small in size. The P3 farms have two functions they are supposed to maintain the parent stocks of silkworm races and they have to periodically release cocoons for multiplication in two generations for industrial production. In the BRAC plan as advised by Dr. Jolly there are two farms of one acre each for the maintenance of the parental stocks (bivoltine and multi-voltine). The silkworm strains for these farms will come from the research institute at Rajshahi. Each farm will have two rearing houses and a chawki rearing house and a small grainage. In these farms the silkworms are bred so that the characteristics of the race are kept going. The vigour of the parent stocks are maintained through careful selection and breeding. The help of experts from Rajshahi will be actively sought in order to establish these farms and the grainages associated with this farm. BRAC also intends to seek the help of experts from India in order to set up the various facilities that will be associated with this grainage.

Each level of farm will be completely self sufficient in that there will be rearing houses and dormitories for the workers. Each farm will have a supervisor who will be in charge of the production. Labour for rearing and plantation will also be a part of the farm.

The P2 farms are larger than the P3 farms and here the stock that comes from the P3 farms will be expanded through rearing and mating of the moths. The size of the P2 farms will be 5 acres and there will be rearing houses and living quarters associated with this farm.

The next level is the P1 grainage involving a total area of 35 acres. The P1 farms will supply the seed cocoons to the grainage.

The production of commercial seed will take place in a separate grainage building and here the supply of between 1-2.5 million DFLUs will be produced. The grainage building will be 6000 sq ft. It will have sufficient equipment for multiplication of seed and for examination of seed for disease. The job of the grainage officer will be to ensure that the production of disease free silkworm eggs goes smoothly.

The grainage will have adequate cold storage facilities for the preservation of the eggs and moths. Since there is the need to preserve bivoltine eggs through the rainy season there must be good cold storage facilities. Electric supply must be assured to the grainage, therefore it will have a back up generator.

The first grainage that BRAC will build will be completely self sufficient along the lines described above. However this grainage will not be sufficient to supply BRACUs needs which are estimated to be over 7 million DFLs in 1995. In order to fill in this gap BRAC plans to build another grainage in 1994 but this time relying on contract growers to multiply the seed at the P1 level.

Personnel will be sent to Rajshahi and Mysore to be trained in seed technology.

Rearing

It takes more skill to rear worms when they are young. The practice of community or chawki rearing for young worms has proved to be beneficial for crops. BRAC has adapted the system of chawki rearing for its sericulture program.

Under BRAC there are two types of rearers, chawki rearers and adult age rearers. The chawki rearers are given eggs, which they

hatch and when the worms are at second stage they sell some of them to the adult age rearers. They rear the remaining worms to the cocoon stage. Adult age rearers only get the worms in the second stage. They do not get the eggs to hatch. Only the chawki rearers get the eggs.

Experienced rearers with good results in rearing are chosen to be chawki rearers.

Rearing in the field takes place under fairly unhygienic conditions. The resources of the farmer is so limited, that there is little or no incentive to improve the conditions under which rearing is taking place.

Improvement of the conditions of rearing requires that BRAC addresses the following issues

1. Separate Rearing House: Many rearers do not rear separately from where they live. This results in unhygienic rearing conditions. The rearers need to have separate rearing houses that are used exclusively for rearing. In the newer areas such as Jamalpur many rearers do have separate rearing houses. However BRAC must encourage all rearers to rear in a separate rearing house. The rearing house must be large enough to allow the rearing of 50-100 DFLs at a time. A structure of size 18U x 12U is recommended. The building of such a house will in many cases mean the outlay of as much as Tk 5000. BRAC can then extend a loan to the rearer for the specific purpose of building a rearing house.

2. Proper Equipment for Rearing: Rearer need to have sufficient equipment to rear the number of DFLs that they have procured. Many rearers do not have sufficient number of rearing or spinning trays. The problem is especially acute in the case of spinning trays. Rearers seem to feel that they need many rearing trays but they can get away with a small number of spinning trays. When the worms start spinning the cocoons they run out of space on the chandrakis and have to wither overcrowd the worms on the chandrakis or let them spin the cocoons on other surfaces. Some use leaves

others the rearing trays. The reasons for this happening are two-fold. On the part of inexperienced workers there may be ignorance as to the need for sufficient chandrakis. Another reason is that chandrakis are twice as expensive as dalas. In this matter BRAC can also extend credit to the rearers to help them get the equipment. Besides dalas and chandrakis rearers also need cleaning nets and chopsticks for handling chawki worms. These are not at all prevalent among the rearers. Many rearing stands do not have ant wells at the base of the stand. Disinfection is widely practiced but there is rarely netting on windows. The Uzi fly has not yet made its appearance in regions outside the Rajshahi area.

3. Access to Sufficient Number of Trees: Most of the rearers in the BRAC program are rearing using the leaves of the roadside trees. Care will be taken to ensure that rearers have access to leaves from a sufficient number of trees. The best system as suggested by Dr Jolly would be to work out a system of leasing the trees. This will result in the trees being looked after by the rearer and it will provide the rearer with sufficient leaves. Ideally the rearers should be able to rear a minimum of 400 DFLs per year and this means that they should have access to 250 mature trees. If the trees in the area are not mature then rearers will have access to more trees.

4. Training of Rearers: Rearers are given training by BRAC personnel. For most rearers the introductory training merely consists of three days of theory taught at the area offices. BRAC is now giving the rearers five days of training. The chawki rearer will be given training for ten days so that they can see the chawki cycle for themselves. The real training takes place when the rearers start rearing and BRAC personnel assist them in their efforts. Videos are being shown in order for the farmers to realise how sericulture can be carried out with scientific techniques. Training is being improved with the help of visual aids, training materials and practical demonstrations.

Progressive farmers i.e. those farmers that have shown particular interest and ability in sericulture will be singled out for intensive training and support. These farmers will be trained in TCDCs where the training period will extend over 40 days. These farmers will also be taken on tours in India to see the practices at the field level over there.

All this will facilitate the dissemination of information. The farmers will themselves pass on the knowledge to others once they have been exposed to the advanced sericulture techniques.

5. Extension of Credit: Farmers will need money to pay for the construction of rearing of rearing houses and buying rearing equipment. BRAC plans making many more loans for rearing. Farmers having access to credit will be motivated to improve the conditions under which they rear. Hand in hand with extension of credit is the aim of ensuring that the financial returns to the rearers is large enough to ensure that they have an incentive to engage in sericulture.

This program aims to raise the cocoon yield per 100 DFL. This will be accomplished through the introduction of better quality silkworm species combined with scientific tropical sericulture practices. However, HYV worms are more susceptible to diseases than the indigenous variety therefore unless there is a corresponding improvement in rearing conditions the anticipated increase in productivity will not be realised.

Chawki Rearing Centres

In addition to all the facilities mentioned above BRAC will also construct its own chawki rearing centres. In these centres the chawki worms will be reared under good hygienic conditions with proper scientific rearing methods. Since the structure will be a pukka house it will be much easier to keep it clean and disinfect it. All the necessary equipment such as trays, chandrikas, nets, chopsticks, leaf containers and disinfection equipment will be available. Skilled personnel will operate these chawki centres and

provide worms in the second moult to rearers who have been identified as skilled. Chawki centres will be self contained so that there will be enough land for the centres to produce the leaf necessary for the chawki worms.

Sale of Cocoons

There are numerous problems in the sale of cocoons. The price of cocoons is fixed by BSB. This leads to problems with quality. If the price is not sufficiently high then rearers have no incentive to improve their product especially if the improvement means that additional investment is necessary. BRAC will encourage rearers to sell their cocoons in the open market as much as possible. The market for bivoltine cocoons is much more vigorous than that for the local variety. BRAC will pay competitive prices for good quality cocoons.

Cocoon Markets: The Karnataka Example

Bangladesh can learn a lot from the institutional setup in Karnataka, India. One of the things that is remarkable about the Karnataka sericulture system is the existence of vigorous cocoon markets. The cocoon markets provide places that the farmers can come to with their cocoons and sell these cocoons at an open auction. This has ensured that the price of cocoons is the open market price and so the farmers are not exploited by the middlemen in the process of selling the cocoons. The government in general does not interfere with the price of the cocoons unless there is a need to support the prices if they fall too low. Therefore there is in general a vigorous auction for the cocoons.

Possibility of Establishing Cocoon Markets In Bangladesh

The problem at the moment in establishing a cocoon market in Bangladesh lies in the absence of enough reelers to make the auction really competitive. In many areas BRAC may be the only establishment that is reeling cocoons and therefore the idea of an open market is purely hypothetical. There are several lines of action that can be carried out.

- 1) In areas such as Manikganj where there are several organisations that are engaged in reeling activities there can be an establishment of a sort of cocoon market where the various reeling establishment can come in bid for the cocoons. This is already happening in the Manikganj with Proshika and BRAC bidding for cocoons. In Jessore in a small area where Saptagram is active there is also bidding for the cocoons. This will be encouraged in the future.
- 2) In the absence of a truly open market in many areas BRAC will bid aggressively for the cocoons. BRAC will not be tied to the BSB price. In fact BRAC should treat the BSB price as a floor price rather than as a ceiling price which seems to have become the practice all over the country.
- 3) The most important thing that BRAC can do is to promote reeling by group members so that there are enough reelers in the area for a truly open market to come into existence.

In this context it should be pointed out that the market for HVV variety cocoons is much more vigorous than that for the local variety so that the local market has already recognised the effects of having better variety cocoons. However the prices are still not at the levels that they would be compared to the situation across the border for instance.

Reeling

When the sericulture program started in BRAC there was very little reeling that was done. The cocoons that were produced had to be transported over long distances to reeling establishments in Rajshahi and the reeling of the yarn was accomplished over there. As the program expanded reeling establishments became necessary. Rearers had to have access to local reeling facilities and this led to the establishment of reeling facilities in Manikganj, Jamalpur, Monirampur, Natore, Pabna, Atghoria and Taraganj. The Manikganj facility is the oldest as well as largest. There are eight basins in Manikganj each basin having ten ends which makes for a total of

eighty ends in Manikganj. These basins are made by Bangladesh Enterprise. The basins have jetteboutes, croissance guides and porcelain buttons for denier control. The multiend basins are powered by electricity and they the one in Manikganj can be operated at variable speeds. However, the basins do not have individual reel brake motion and therefore the if one the yarn from one thread is broken then the entire basin must be stopped. This leads to inefficiency in the reeling of the silk.

In order to enhance the production capacity of the reeling establishment BRAC will obtain machinery from outside the country. CSTRI, Bangalore has developed a multi-end reeling machine that has the individual reel brake mechanism. This kind of machine will improve the productivity of the reeling centres. Simultaneously BRAC will ask Bangladesh Enterprise to improve the design of its reeling machines. The present rate of recovery of silk in Manikganj amounts to 0.3 kgs per day per basin while it is claimed that the CSTRI machine can give 1 kg per basin.

Practically all the workers at the reeling establishment are women. There are reeling POs who look after the reeling units and are responsible for ensuring the proper quality of the work that is being carried out in these institutions. The reeling POs will be given training in post cocoon technology both in Rajshahi and at the institute in Bangalore.

BRAC has already instituted measures for quality control for the yarn that is produced. Reelers are paid on the basis of the type of yarn that they are producing. There are incentives to keep the denier even. At the end of the production the supervisor measures the denier and absolute difference of the lowest and highest readings. These results form the basis of the pay that the reelers get.

BRAC will build up private reeling establishments by extending loans to group members and helping them buy machines and set up the working capital for these establishments. Already some reeling machines have been given to group members. This in tune with the philosophy of opening up the cocoon market which can only be done

if there are enough private reelers operating independently of BRAC. Some of the problems that these establishments will face will be a lack of capital if there are insufficient cocoons coming into the market. The reeling machines that will be suitable for these establishments will have to be cheap so that the reelers do not have to take out huge loans in order to setup. At the same time it may be unproductive in the long run to rely on katghais to do the reeling. There are some advantages to the katghai or charkas. There is less wastage of silk and reeling rate tends to be higher (S. Sinha). However the quality of silk produced in katghais tends to be much inferior to the silk produced in filatures. In India reeling is a high risk high gain activity. Preliminary calculations seem to suggest that reeling can be very profitable for the small farmer in Bangladesh. This may be due to the depressed prices of cocoons. As prices of cocoons rise the margin of error for the reelers will decrease and the risk in this activity will correspondingly increase.

BRAC targets for the production of silk yarn are given below

Year	1992	1993	1994	1995
Silk Prod (Tonnes)	9	23	45	90

Weaving

BRAC does not have very extensive weaving facilities. Most of the silk that is being produced in BRAC reeling centres are being sold to outside weavers. The sericulture plan makes provision for this to continue. BRAC does not intend to weave all the silk that it produces. It does want outside weavers to develop on their own. The eventual aim is to develop group members into weavers so that they can also produce the silk fabric and sell it.

At the moment BRAC has a silk weaving centre in Gorpara. There is a master weaver over there who has been brought from Rajshahi to give training to the women who are working in the weaving centre. There are ten looms being used for silk weaving. The looms are of the pit type. Each has two harness and nylon

heddles.

There are plans to use Chittaranjan semi-automatic looms. These type of looms are used at BRAC for weaving cotton. The looms at BRAC also usually have only two harness and nylon heddles. These looms are of the counterbalance type.

In Bangladesh usually many of the fabrics are woven by means of putting Chinese, Vietnamese or Indian yarn for the warp and Bangladeshi yarn for the weft. The reason for this is the inferior quality of the Bangladeshi yarn which breaks more easily and causes problems in productivity. There are fabrics that use Bangladeshi yarn for both, however the superior quality of the imported silk yarn make for a better fabric.

Marketing

The markets that are to be explored include India, Middle East, Europe and USA.

Subcontinent

The Indian market has always been of tremendous significance to the Bangladesh producers. No description of the internal Bangladesh market would be complete without reference to the Indian market especially West Bengal. The Indian economy is a large consumer of raw silk as well as silk fabrics and saris. There has always been a vigorous underground economy that has traded freely between Bangladesh and West Bengal. In the light of the new liberal policies of the Indian government it will be much easier to sell silk in the Indian market legally.

There are several problems in entering this market however. India itself is producing a lot of silk yarn and silk fabrics and is a much more advanced country in terms of sericulture. The variety of designs available in India is truly impressive. Silk fabrics from Bangladesh would have to offer something special for the Indian consumer to be interested.

At the same time there is a demand in West Bengal and elsewhere for Jamdani designs and for Tangail silk designs and

therefore the traditional designs have a market in India. It seems that the Indian market has not yet been properly explored.

Pakistan is another market that has a lot of potential. There is substantial buying power in this market and there is interest in silk from Bangladesh. Silk kurtas, kameez, and saris would sell in this market.

The market inside Bangladesh can absorb more silk. At the moment the production of silk yarn is not keeping up with the demand. A number of silk weavers in Tangail and Rajshahi feel that the country can absorb 100 tonnes of silk yarn at this very moment. The production inside the country is 30 tonnes with another 20-30 tonnes coming in from outside. There will continue to be a demand for imported silk especially from China because of the finer quality of this silk but there is a shortfall in the market which has become especially acute in the light of the pebrine crisis that has hit rearing.

In India only 10-15% of the production is exported (ITC report). Bangladesh should probably strive to export 25-30% of its production. In Bangladesh, India, Pakistan and Sri Lanka, silk is used mainly for saris. Silk saris are purchased by expatriates from the subcontinent living in the Middle East, United Kingdom and the United States.

World

(The following section on the silk market in France, Germany, Italy, Nordic Countries, Switzerland, United Kingdom, Japan and the United States, is a summary of the findings of the International Trade Centre survey, of the international silk market, published in 1989).

1. France

France imported 750 tonnes of raw silk in 1985. It is also an exporter of silk fabrics. It would be inappropriate for Bangladesh to try and sell silk yarn to the French because the French are interested in weaving high quality silk fabric that is

woven on power loom which use high quality silk yarn imported mainly from China. However the market that Bangladesh can look at is the domestic market for finished silk products. In 1986 France imported 700 tonnes of silk fabrics of which half was from China and the rest from Italy. Blouses, dresses, pullovers, scarves and lingerie are the popular silk items. (ITC Report)

There is an opportunity for Bangladesh to market finished silk products in France. West Bengal has been exporting scarves to France.

2. Germany

This market is more conservative than the US. The domestic market favours women's dresses, blouses, ties and scarves. Many readymade garments are made from woven silk fabrics. Almost all silk goods are imported. Stores and mail order houses selling silk goods include Kaufhof, Hertie, and Karstadt, Otto Versand and C&A.

In the late 80s large amounts of silk cushion covers were imported from India and Thailand. Curtain fabrics, wall coverings, bedspreads and other decorative items made of silk also have a domestic market. There are two types of products in the silk market the first comprising expensive high fashion items and the other consisting of less costly mass produced items.

Importers believe that there is still a market for hand loom fabrics with traditional designs and colours.

ITC reports that this is a highly competitive but lucrative market.

3. Italy

This is one of the largest importer and exporters of silk products. It imports yarn mainly from China and exports finished silk products mainly to the US. (ITC Silk Report)

India exported 0.87 million sq metres of silk fabric worth 233 million rupees to Italy in the period between April and December 1991 (Indian Silk Feb 1992).

4. Nordic Countries

Denmark, Finland, Norway and Sweden have substantial purchasing power. In 1986 total imports amounted to 70 tonnes of silk fabrics and garments valued at \$5.5 million. Silk consumption in the Nordic countries is increasing and Bangladesh should regard it as a potential market for finished silk garments. ITC reports that the leading Nordic stores (Magasin du Nord, NK, Stockmann and Steen and Strøms) cooperate in their purchasing activities and therefore their combined order would be substantial.

5. Switzerland

In 1987, Switzerland imported 178 tons of raw silk, mostly from China and some from Brazil. Imports of silk fabrics was 272 tons of which half came from China and the rest from Italy, Germany, France and other countries. Women's dresses and blouses, knitted outer garments and scarves are popular in the domestic market.

Finished silk products from developing countries may find a market provided that the colours suit local tastes. The Swiss find many fabrics produced in developing countries too exotic. (ITC Silk Report).

There may be an opportunity here to use vegetable dyes which give more muted colours rather than the chemical dyes which give very brilliant colours on silk.

United Kingdom

Domestic consumption of silk was 1523 tons in 1987 as opposed to 961 tons in 1986 making it the fastest growing market for silk in Europe. Fabrics are imported from China, India and Italy. Many saris are imported from India since there is a substantial market consisting of residents from India, Sri Lanka, Bangladesh.

Since 1986 the bulk of the silk products on retail were womens blouses, dresses and scarves. Over the two years to 1988, silk lingerie has been retailing particularly well. More than 70% of all

silk goods retailed in the country are sold in the Greater London area.

Harrods has promoted silk. Marks and Spencer Ltd launched a new line of silk garments for women in the late 80s. Austin Reed decided in 1986 to switch from polyester ties to silk ties and woollen ties. It also introduced a line of silk garments for women as well as silk t-shirts.

The care of silk products has caused some problems in the market. In particular many laundry services perceive ironing as a problem and are therefore reluctant to accept silk garments for cleaning.

Interior decoration is a growth sector for silk fabrics. However the market is small at the moment and the growth is going to be gradual.

The potential for producers from developing countries and the potential for growth in interior decoration and lingerie makes this an attractive market for developing countries. (ITC Silk Report)

7. Japan

The Japanese market has not yet reached its full potential due to the high price of silk goods at the consumer level. The following products have potential : easy care dress shirts, knit wear, underwear, t-shirts, curtains, bed covers, cushion covers, upholstery and wall hangings

The Japanese are very conscious of quality and since very good silk is produced internally so that goods from developing countries that do not have the same kind of finish as their goods would be difficult to market. Ethnic products have a limited appeal in this market. Producers from Bangladesh would do well to seek the assistance of Japanese traders on matters such as colour, design and technology before attempting to enter the market.

Imports of silk fabrics in 1985-1986 was around 2600 tons in both years. Pure silk fabrics of widths less than 45 cm dominate the market. The main suppliers of this type of fabric are China and the Republic of South Korea. Other suppliers include

Hong Kong, Taiwan, Thailand and Singapore.

The suppliers of dyed and printed silk fabrics of widths exceeding 45 cm are largely the industrialised countries. India is among the developing country suppliers of this type of fabric. India also supplies shawls and scarves to Japan. (ITC Silk Report)

8. United States

The United States is the world's largest importer of silk fabrics and finished products. In 1985, total imports were valued at \$850 million.

The sheer size of the US economy ensures that it is going a substantial market for silk. The suppliers of the US include China, Hong Kong, India, United Kingdom, Italy and South Korea.

Of the \$850 million silk goods imported in 1985 the category of products was as follows: silk fabrics \$156 million, women's blouses \$133 million, silk pullovers \$125 million, women's dresses \$93 million, other apparel \$115 million and neckties \$30 million. (ITC Silk Report)

In 1987 the US imported \$192 million worth of silk fabrics mainly from Italy, China and Japan.

The domestic market for silk apparel has a high and low end. In the high end there are women's dresses selling at \$1500-\$2000 per piece in the low end market items sell for \$35 to \$50 a piece. The items that are popular include blouses, dresses, scarves, neckties, knitwear, trousers, t-shirts, stockings, socks, underpants, thermal underwear, hoods for skiing and pullovers.

Sales of thermal underwear are doing particularly well reaching \$10 million in 1986. Skiers and mountaineers use this underwear which are sold mainly through specialist outlets.

Mail order houses specialising in silk garments use video catalogs to display their fashions. Suppliers of these mail order places include China, Hong Kong, India and the Republic of Korea.

Silk fabrics for tailoring have a good market, especially in small cities. Retail chains that specialise in selling silk fabrics include the House of Fabrics with 600 outlets, Cloth World

with 300 stores, and Minnesota Fabrics.

Silk fabrics are also becoming popular for interior decoration purposes.

Obviously the US market has an enormous potential for Bangladesh but at the same time the sheer volume of orders may be difficult to deliver. (ITC Silk Report)

BRACs Marketing Unit

One of the most important components of the BRAC plan is to market the product both inside and outside Bangladesh. The industry cannot hope to grow if it is unable to market its goods.

Towards this end BRAC will set up a marketing division to sell its silk products and identify the demands and needs of the consumers.

BRAC will set up a design unit in order to ensure that the production of fabric designs is consistent with the tastes of the external markets.

BRAC's marketing outlet Aarong sells handicrafts, fabrics, garments and other goods. Aarong has three shops in Dhaka as well as a shop in Chittagong and another in Sylhet. Aarong also exports goods and is therefore a readymade platform to engage in export of silk goods. In addition there are other outlets in Dhaka and Bangladesh that are engaged in producing and selling silk fabric. These outlets will be customers of the silk produced by the farmers. In addition to these shops BRAC will set up units to sell silk both inside and outside the country. The establishment of agents in the United State is of paramount importance to establishing a foothold in the US market which is the largest market in the world. In order to do this it is first necessary to get the help of consultants from the US and the UK who will identify the kind of products that will sell in these markets. The kind of products that Bangladesh can produce is of a certain type and it will have to be seen whether the markets will be interested in these products.

BRAC will hire market researchers to advise on what designs and products will sell. BRAC will be setting up a information

exchange with buyers outside where we show them our products and they in turn tell us about their preferences.

The strategy for selling silk will be to concentrate on selling finished fabrics. The yarn that is produced in the country will be difficult to sell outside, as the quality is not very good by international standards. West Bengal is a possible market, provided that the silk yarn is priced competitively.

However fabrics are a different matter altogether. The fabrics should be produced on hand looms because the silk that is being produced is not good enough to be woven cost effectively on power looms. Since the quality of the cloth produced will be low the designs will be important selling points for the fabric. One of the complaints of silk consumers in Bangladesh is that the designs are hackneyed and overused. There has to be fresh input from overseas and neighboring countries as to what designs will have appeal in the international market.

BRAC has a two year margin in which to set up the marketing in the international sector. The sooner this is done the better. In the next two years the production of BRAC growers will be absorbed by the internal market. Silk industry people estimate that the internal market right now needs 100 tons of silk. Roughly 30 tons are being produced and another 30 tons are being smuggled or imported into the country.

BRAC reeling establishments cannot supply the necessary yarn to consumers at the moment. The crisis in egg supply has meant a further reduction in the quality and quantity of silk available in the market.

The kinds of things that should be supplied are saris. This is an obvious market that is very vigorous. There are a large number of consumers in the West with substantial buying power and the supply of saris to these consumers would be very lucrative. Other items that can be produced are silk scarves, neckties, t-shirts, cushion covers, bedspreads, curtains and other interior decoration items.

Quality Control

The main goal of silk production over the next five years will be on the upgrading of quality. This will apply at all levels, starting with types of plants, the eggs used, rearing practices, cocoon size quality, reeling facilities, etc. This means that the people involved in the production process must be able to do quality work.

In order to accomplish this, rearers will be given a set of scientific practices to follow. Feedback at all levels will be encouraged so that there is awareness as to what works and what doesn't. BRAC workers will monitor the quality of the work being done and will aid the farmers and rearers so that they can do high quality work.

A system of quality targets will be worked out so that there are clear goals to strive towards. BRAC will set up a facility to test its silk production. Testing of denier is already taking place in the reeling facilities. In addition BRAC will test for tenacity, winding and quality on the basis of appearance.

Management of Sericulture Programme

Sericulture a sector program of RDP. The head office is responsible for coordinating activities in the field. The sector programs are coordinated by the Director Sector Programs (DSP). The Director of Field Operations (DFO) is in charge of the extension activities done by the RDP/RCP offices in the field.

The planning and coordination for sericulture is the responsibility of the Operations Research Specialist who regularly meets with both the DSP and the DFO in order to ensure that the direction of the programme matches the capabilities of BRAC operations.

Most of the administrative activities of the sericulture operation is carried out by the Sericulture Sector Specialist. He also coordinates the activities of the technical staff in the field and problems that cannot be solved in the field are referred to him. If sericulture staff cannot produce DFLs, cuttings etc. then the

Sector Specialist makes arrangements for these supplies to be obtained from other areas. He is in constant contact with the sericulture staff in order to ensure that the programme runs smoothly.

Structure of Management of Sericulture Extension

1. Each person involved with the programme must have a clear idea about the programme rationale and the steps needed for implementation.
2. One of the primary tasks is the selection of roads and villages for the mulberry tree and bush cultivation.
3. The training of nursery workers, mulberry farmers, chawki rearers, rearers and reelers.
4. Coordinating the logistical operation associated with the sericulture operation (such as supply and collection of cuttings, DFLUs and saplings, rearing equipment, cocoons and yarn).
5. Ensuring that delegation of responsibilities takes place in appropriate activities. (For instance the regional managers will delegate the responsibility of technical support and monitoring to the POs who in turn will delegate some of the logistical operations to the GSs).
6. The Setting up production goals in the areas of saplings, tree plantations and cocoon production.
7. Ensuring that survival rate of plantations is at the 90% level. Within three years of plantation, rearer/progressive rearer yearly income should be Tk 4000/ Tk 8000.
8. Coordination and liaison with technical personnel both in house and outside. Organisation of records for the programme and organisation of timely reports to the head office.

Sericulture Program Organisers

At the next level after the zonal sector specialists are the sericulture POs. The POs form the technical core of the extension service program. The responsibilities of the PO sericulture, fall

into the following categories

1. Mulberry Plantations: POs are responsible for selecting the villages for expansion of mulberry cultivation. They are responsible for ensuring that the farmers are supplied with mulberry saplings. They train the women in planting the trees and supervise the plantation process. They make periodic visits to the area to ensure that the plantation process is proceeding smoothly and to give any assistance that they can to the caretakers.

2. Rearing: POs select chawki rearers and adult age rearers, in conjunction with the recommendation of the GSSs. They organise training courses for the rearers and then help in any way that they can during the rearing process. They ensure that the rearers get the eggs and are responsible for determining the amount of eggs that will be needed in their area. They assist in helping the rearers realise a good cocoon crop.

3. Reeling and Weaving: There are POs who oversee the reeling and weaving operations in the area. They organise reeling and weaving centres and are responsible for ensuring that all the cocoons produced in their area are sold to the reeling facilities in that area.

4. Training: The POs organise training courses on mulberry cultivation, chawki rearing and adult age rearing for the farmers. They organise training courses for the reelers and weavers. They also train the GSSs in sericulture techniques. They help the farmers and BRAC staff with various technical problems that may arise in the process of sericulture.

5. Logistics: In their area the POs coordinate the supply of cuttings, saplings and silkworm eggs. They keep an account of how much cuttings, saplings and eggs are needed in the area. They help the GSSs in supplying the eggs to the farmers and they are

responsible for ensuring that the supply of cuttings eggs and DFLs reach the farmers in time. They also assist the rearers in their efforts to get the correct equipment.

6. Monitoring and Reporting: The POs report to the regional managers and coordinate their activities with the area managers. Any problems in the area that cannot be solved by the area manager must be reported to the regional manager. They keep a register of the rearers in the area and keep records of how much they have produced. They keep a report on the training that is being carried out in their area. They periodically report to the head office on the progress of sericulture activities.

7. Administration: The POs are responsible for selecting and preparing the WFP schemes. They select the beneficiaries under this programme and are responsible for training these beneficiaries. They prepare the target on different aspects of the production process. They supervise the activities of the GS.

Gram Sheboks

The responsibilities of the GSs fall into the following categories:

1. Nurseries: The GSs help select land for mulberry sapling nurseries. They assist in the collection of cuttings and oversee the land preparation, plantation and intercultural operations. They keep a record of expenditure associated with these activities. They keep records of sapling uprooting and distribution.

2. Mulberry Cultivation: GSs help the POs in selecting roads for mulberry plantations. They keep records of the beneficiaries under the program. They arrange the plantation of saplings and procure stakes for the trees and fencing for the mulberry plots. They keep a record of attendance of the caretakers. They arrange for the distribution of wheat to the caretaker. They supervise the pruning and maintenance of the trees after the end of a rearing season.

3. Silkworm rearing: GS select chawki and adult age silkworm rearer. They calculate the requirements for eggs based on the rearing house and the equipment that the rearers have. They ensure that the chawki worms that are distributed are healthy and they coordinate the distribution of chawki worms. They give technical assistance to chawki and adult age rearers and help with selling the cocoons.

4. Training: They identify the women who should be given training for mulberry cultivation and silkworm rearing. After the trainees have undergone the course, the GS follows up to ensure that the knowledge remains fresh in their minds. They enroll themselves in refresher courses in sericulture.

5. Administration: They prepare work schedules for themselves and get these authorised by the area managers. They meet regularly with POs and area managers and present progress reports at regular intervals. They assist in the preparation of reports required from the head office. These include things such as wheat requirements, eggs needed, cocoons produced, information on rearers etc.

Training

BRAC will be sending people to be trained at Rajshahi, India and China. There is need for specialists in silkworm egg production, chawki rearing, reeling and testing of yarn. There will also be training of personnel in general sericulture so that they are familiar with the entire production process.

Training of Sericulture Programme Organisers

The POs form the technical core of the sericulture personnel. Therefore it is of utmost importance that they get rigorous training in sericulture. There will be tremendous emphasis placed on upgrading the skills and the knowledge base of the P.O.Us, so that they can offer quality advice to the farmers. Even if they have had considerable experience in the field they should have good command over the latest tropical sericulture techniques. It is important that they be exposed to the practice of sericulture under

scientific conditions. They can then pass on this knowledge to the people that they train and supervise. In order to upgrade the skills of the staff one of the first priorities will be to train them extensively.

The POs will be sent to the following institutions to be trained.

1. Bangladesh Sericulture Research & Training Institute, Rajshahi

The research institute at Rajshahi has a short training course in general sericulture lasting for a period of 4-6 weeks. The course is set up so that the trainees can go through one full rearing cycle. Many of the P.O.Us have already taken this course. BRAC has requested the institute to start a course lasting three months which would give more time to the teachers and trainees to really learn the material.

2. Central Sericulture Research and Training Institute and International Centre for Training in Tropical Sericulture at Mysore

The International Training Centre has a course called Diploma in Tropical Sericulture which is a course lasting 6 months. This program gives intensive training in sericulture in bush plantation, chawki rearing, adult age rearing and reeling. Since the course lasts for 6 months, the trainees can rear two cycles of silkworm crops. The centre is a very good place for training sericulture staff and people come from all over the world to get training in this centre. Field trips to rearers in the area as well as facilities such as the grainages, cocoon markets, chawki rearing centres are also part of the training.

3. Central Silk Technological Research Institute, Bangalore

This is a very good place for post cocoon processing. Sericulture POs who will be specialising in reeling can be sent to this centre to be trained in reeling techniques. The centre has developed many reeling machines and is very active in promoting more efficient methods for reeling.

4. Central Sericulture Research and Training Institute, Behrampore

CSRTI at Behrampore in West Bengal also offers 6 monthly courses specifically geared towards the needs of NGOs in this sector. One of the advantages of going to Behrampore is that the conditions in West Bengal climatically and institutionally are almost duplicate of what we have here.

(Although the climatic conditions in Karnataka are different from what we have here, the institutional support that is given to the farmers is very helpful for the industry. It would be immensely beneficial to the sericulture program if the technical people were exposed to the system in Karnataka.)

Besides these places sericulture people will also be sent for training to China, Japan and other advanced sericulture countries.

Training of Gram Sheboks:

The GS's get an initial training of one week at the Konabari facility of the BSB. In addition to this the GS's skills are being upgraded by the POs. Now that BRAC is planning to build training cum demonstration centres the GS's can be given training over there as well. It is important that there is an entire cycle of rearing that is done for people who are going to this training centre. Then they can see the results of doing the training for the benefit of the entire life cycle of the silkworm.

Farmer Training

Farmers are now given an orientation on planting and rearing. There is continuous follow up by BRAC personnel in order to ensure that the rearers are familiar with the scientific techniques that are so beneficial in getting good quality cocoons.

The farmers will be given training at several levels. First there is the initial training that the farmers will be given when they are introduced to sericulture. This training is given by the POs and it consists of informing them about the methodology involved in raising silkworms. These courses are usually conducted

at the area office of RDP/RCP that happens to be close to where the farmer is living. After the initial course which is really just an introduction the farmers are given silkworms to rear. Once the rearers have started rearing they are constantly being visited by the GS's and the POs. At that stage BRAC personnel can inform them about the techniques that are necessary in order to raise a good crop of cocoons.

Progressive Farmers

Progressive farmers are those farmers who have shown particular interest in rearing or have shown good rearing technique. Usually chawki rearers will be chosen among the progressive farmers. These farmers will be given special attention by BRAC. BRAC will train them at the Training and Demonstration Centres so that they can see the results for themselves at these centres. There will be trips organised to India to expose these farmers to the practice of sericulture under more advanced conditions. They will then be able to meet their counterparts and discuss problems that they may face.

Training will be carried out at all levels. The present system of training will be re-evaluated in order to discover the weaknesses and the gaps will then be filled. There will be demonstration centres set up in order to show rearers and farmers how to practice sericulture with the help of scientific techniques.

Presently there are refresher courses held just before the activity that will be commencing in the cycle of silkworm rearing. These courses may be on planting, rearing etc. This system will be carried on and improved.

Training and Demonstration Centres

BRAC has just started three training cum demonstration centres in Jamalpur, Rajshahi and Jessore. The centres also include an office for the zonal sector specialists in sericulture. Each centre has a trainer designated to run the training program. These are drawn from the sericulture POs who have been trained at the BSRTI

and AIRD. BSRTI itself will help these training centres wherever possible. The facilities can house 20 trainees at a time.

The trainees will go through a full cycle of rearing. They will be taught bush cultivation and reeling techniques. They will pay a token fee for the training but some of the money for their training will be raised from the sale of the cocoons and silk yarn that they produce.

In future these training and demonstration centres will be full fledged units complete with dormitories, rearing houses and land for bush plantation.

Major Challenges and Risks

Let us take a look at the problems that confront the sericulture operations in Bangladesh. These are

1. Depressed prices at all levels in sericulture.
2. Low quality of products.
3. Unavailability of eggs.
4. Lack of proper support for sericulture activities.

The depressed state of the sericulture industry has led to the products being of low quality. The egg supply has been sporadic and of low quality. The support provided by various institutions has not been sustained. All this has led to a general depression in this sector.

BRAC's plans must take these realities into account if there is to be sustainable growth. In terms of prices one of the first things that BRAC will have to tackle is the problem of pricing. It must start at the cocoon level. If the rearers are not paid a proper amount for their produce there is obviously not much incentive for them to keep on rearing cocoons. The best thing would be to have an open system of cocoon auctioning modelled along the lines of the Karnataka cocoon market system. Since this is not feasible in the short run, BRAC may have to aggressive bid for cocoons so that rearers get a good price for their produce. The support that BRAC can provide as an institution is to set up

grainages in order to ensure silkworm egg supply and to give support through training and give credit where needed.

The issue of silkworm egg supply is critical. BRAC will deal with this problem by setting up an egg production system. The grainages will be run on a commercial basis so that they can pay for themselves.

Training of progressive farmers in the training centres will ensure that they have access to the modern techniques of sericulture and therefore will be using more advanced rearing techniques to get better yields.

Growth of the sector can only be accomplished through aggressive marketing of silk yarn and fabric and BRAC will undertake the marketing of silk goods through its marketing division.

Research

BRAC will maintain a good library of sericulture books not only in the head office but also at the field level. There are many improvements that can be made in the literature that is available for the sericulture P.O.'s in the field.

Every effort will be made in order to ensure that the latest literature is represented in the collections that will be built up. BRAC will strengthen its communication with various institutions that are associated with the field of sericulture. These include institutions such as the Rajshahi Sericulture Institute, the Mysore Sericulture Institute and Chinese Institutions that are engaged in research in sericulture. In addition BRAC will keep in contact with research institutions like BIDS where the economic aspects of sericulture have been studied. Other educational institutions such as BUET can help in evaluating the kind of technology that may be needed for improving the productivity of sericulture enterprises.

BRAC's Production Levels

From 1989 to 1991 BRAC has gone from a production level of 20,000 kg of cocoons to 50,000 kg cocoons. BRAC reeling facilities

have produced about 0.5 tonnes of silk in 1990 and 1.5 tonnes in 1991. The number of trees planted in roadsides and homesteads has increased from approximately 14 lakhs to 26 lakhs. The number of rearers now stands at about 2000 and the number of caretakers is now 4000.

Feasibility

One of the themes that runs through this plan is the duplication of efforts that have taken place in India. This is deliberate. There is a lot that we can learn from the Indian sericulture scene. India has managed to overcome many of the constraints that tropical sericulture faces in terms of low cocoon yield and quality of silk yarn produced. It is the second largest silk producing country in the world after China and the climatic conditions in parts of India are very similar to Bangladesh. On top of that the institutional arrangements in India are very similar to Bangladesh. Therefore when we talk about feasibility of the project we can look at Indian successes and failures in sericulture.

The Bangladesh is much weaker than India therefore the internal market will not be able to absorb the kind of production that is being envisaged under the BRAC plan. Bangladesh will have to look to export markets to absorb the increased silk production. The depth of technical expertise is much more limited in Bangladesh. There are some very well trained people working in the Rajshahi Institute and others scattered in various organisations around the country but the general level of technical services, especially in extension, is far below that of India. However we should keep in mind that India in the 50s did not have this kind of impressive sericulture infrastructure that it now has and yet it still managed to register impressive growth in silk production.

The BRAC plan is essentially a call for reviving sericulture in Bangladesh. The present production in Bangladesh is miniscule, a mere 30 tons, where West Bengal alone produces 900 tons and the production of Karnataka is on the order of 4000-5000 tons! For

various institutional reasons sericulture has been relegated to subsidiary activity in the rural areas where it should have been one of the prime activities for income generation.

If we follow the practices that have been established in India both in the field of actual sericulture practices and institutional support and policies there is no reason that Bangladesh cannot have a thriving sericulture industry.

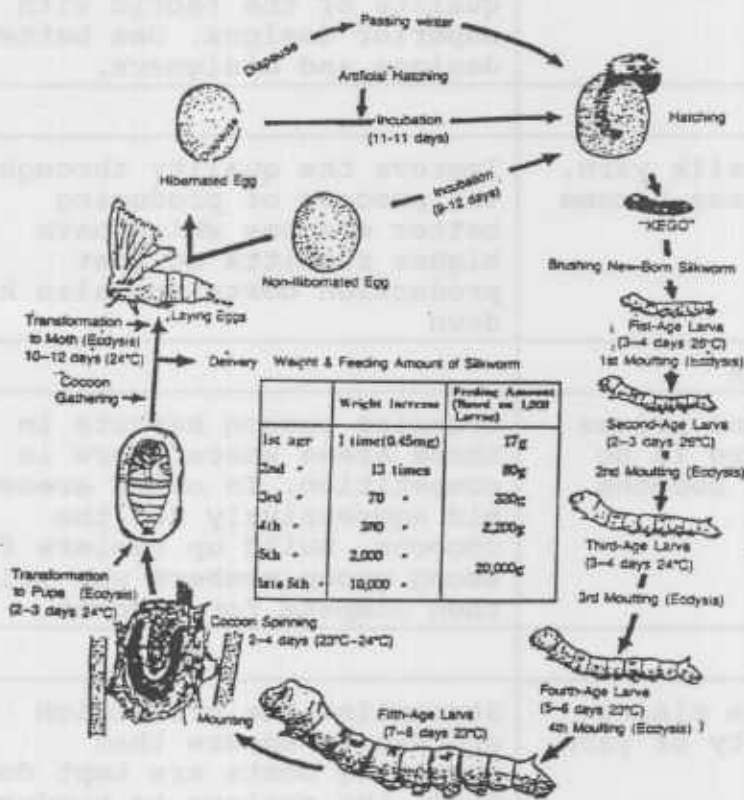


Fig. 1. The life cycle of silkworm

Major Risks and BRAC Strategies

Risk	Strategies
Egg Supply	
DFLs are low quality and insufficient in number	Build grainage. Import eggs if emergency arises. Help BSB to produce better eggs.
Marketing of Fabric	
Fabric produced may not have any market inside or outside the country	Seek help of marketing experts to market the silk inside and outside the country. Plan on compensating for the low quality of the fabric with superior designs. Use better designs and designers.
Silk Yarn	
Low quality of the silk yarn. Production of yarn may become too expensive	Improve the quality through the process of producing better cocoons which have higher renditta so that production costs are also kept down
Marketing of Cocoons	
In most areas cocoons prices are low because there is no free market for the cocoons	Organise cocoon markets in those areas where there is competition. In other areas bid aggressively for the cocoons. Build up reelers from among group members who will then compete for cocoons.
Reeling	
Production costs are rising. Wide range in quality of yarn produced	Streamline the production process to ensure that operating costs are kept down. Train the reelers to produce yarn of a better quality. Ensure that good cocoons are reared so that reeling becomes easier.

Quality of Products	
Cocoons, silk yarn and fabric are of low quality	Improve the quality of the silkworms reared so that better cocoons are produced which in turn lead to better yarn and better fabric. Train rearers, reelers and weavers to improve their products.
Rearing	
The yield per 100 DFL of cocoons is very low. The renditta of the cocoons is high	Provide rearers with good quality silk worms. Train the rearers in scientific tropical sericulture techniques. Ensure that rearers have sufficient rearing house. Ensure that rearers have access to sufficient number of trees. Provide credit and technical support for the rearers wherever needed.
Training	
Rearers and reelers and extension staff have lack of sufficient experience and expertise in sericulture activities	Train the rearers, chawki rearers and provide them with technical advice. Train progressive farmers in training and demonstration centres. Send sericulture POs to be trained in Institute in Bangladesh and abroad.

Economic Analysis

The analysis was carried out over a 20 year time period starting in 1993. In order to avoid the problem of calculating the sunk costs in the project the analysis only takes into account the production from the trees planted from 1991 upto 1995.

From the budget we have taken the costs of the salaries of the sericulture staff. This total does not include the salaries of the grainage staff which is counted separately in the production cost of the DFL. Costs also include building costs, equipment bought, cost of mulberry tree plantations, marketing and head office expenses.

Also included is the cost of the wheat supplied by WFP for the roadside plantations. The establishment cost of the trees includes the price paid to the nurseries for the saplings.

The establishment cost of 1991 and 1992 trees is counted. The cost includes the wheat paid to the caretakers. The cost is adjusted to reflect the price in 1992 Takas.

The costs of rearing include rearing house and equipment. The cost of rearing labour is counted. The cost of the DFLs is taken to be the production cost which turns out to be 5 times the present market rate.

Establishment of BRAC reeling facilities have already been counted in the budget items. Therefore what is left is the operational cost of the BRAC reeling facilities. This includes all the labour costs and the expenses associated with reeling.

The cost of establishing private reeling facilities as well as the labour and running expenses are also shown.

Since RDP/RCP offices provide the rural network for the operation of the sericulture program the cost of the services provided by these offices is taken into account.

The project benefits include the silk produced as well as the fuel wood obtained. The price of silk has been taken to be the price at which BRAC has been selling the yarn in the market. Although this price is now at Tk.1800/kg this has been a trend in

the last few months and represents a scarcity situation. In previous months when the market was better supplied the price was Tk.1600/kg. This is the price that has been used for the analysis.

The economic rate of return is 40%.

Sensitivity analysis was conducted. The results are given below

	ERR
Total Costs increased by 20%	31%
Total Costs increased by 40%	24%
Silk Price Decreases by 20%	30%
Silk Price Decreases by 40%	18%
Costs Up 20% & Revenue Down 20%	20%

Switching Value at 20% Discount Rate. Figures in millions of Takas.

	Value	Switching Value	Percentage Change
Cost	7583	11,526	48%
Silk Price	15,857	9,990	-37%

Table 5.7.1
(Millions of Takas)

Economic Rate of Return (ERR) for Project

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Total
Budget Items										to 2012	
Salary and Allowances	11	16	21	20	20	20	20	20	20	20	390
Training	4	5	5	5	5	5	5	5	5	5	91
Mulberry Cultivation	18	20	23	5							65
Building and Equipment	6	8	14								29
Marketing	3	3	3	3	3	3	3	3	3	3	65
Transport, Travel, and H.O.	8	8	10	8	7	7	7	7	7	7	147
WFP Support											
Value of Wheat	47	57	65	39	21						229
Trees Planted in 91-92											
Establishment Cost	11										11
Wheat Payment	39										39
Rearing											
House and Equipment	11	26	43	58	61	46	29	11			285
Labour	6	21	45	80	117	152	170	177	171	171	2,815
Cost of DFLs	2	7	14	24	35	43	48	50	48	48	805
Disinfection	0	1	3	5	7	9	10	10	10	10	161
Misc	1	2	5	8	11	14	15	16	16	16	258
BRAC Reeling											
Operational Cost	2	5	11	11	11	11	11	11	11	11	202
Private Reeling											
SetUp Cost	0.3	2	4	11	13	16	17	16	5		84
Labour	0.3	2	5	15	27	41	57	71	76	76	1,129
Fuel & Misc	0.2	1	3	8	13	21	28	36	38	38	564
RDP/RCP Service											
Area Offices Support	6	8	10	10	10	10	10	10	10	10	195
Regional Office Support	1	1	1	1	1	1	1	1	1	1	19
TOTAL COST	179	193	285	309	362	398	431	443	420	415	7,583
BENEFITS											
Silk Produced (Tonnes)	8	28	71	153	250	372	498	620	659	659	
Value of Silk	13	44	113	244	400	594	798	992	1,055	1,055	15,857
Revenue from Fuel Wood	3	9	20	34	51	63	70	73	73	73	1,194
TOTAL REVENUE	16	54	133	278	451	657	868	1,065	1,128	1,128	17,051
NET REVENUE	-163	-139	-153	-31	89	259	437	621	708	713	9,468
Discount Rate	NPV										
15%	1,420										
20%	788										
35%	83										
ERR	40%										

Table 5.7.2

FRR Calculation for rearer with 250 trees

A woman who uses the leaves of 250 trees will be able to rear 400 DFLs during the year. We assume that her cocoon yield will go from 18 kg per 100 DFL to 34 kg per 100 DFL over a period of 8 years. We also assume that the price of cocoons will increase by 2% per year until 2004. The price is then assumed to stabilise at Tk 100 per kg. All prices are in 1992 takas. We have taken the price of labour into the calculation, although in most cases family labour will be utilised, leading to higher returns. We also count the charges that will be levied for the use of the trees. Initially the charges will be Tk 1000 and then increased to Tk 2000 for the trees.

Year	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	TOTAL
												to 2012	
Rearing House	5000												5000
Equipment	2100												2100
Cost of 400 DFLs	800	800	800	800	800	800	800	800	800	800	800	800	16000
Charge on Trees	1000	1000	1500	1500	2000	2000	2000	2000	2000	2000	2000	2000	37000
Disinfection	200	200	200	200	200	200	200	200	200	200	200	200	4000
Labour (180 woman days at Tk 20 per day)	3600	3600	3600	3600	3600	3600	3600	3600	3600	3600	3600	3600	72000
Misc (Repairs etc)	100	100	100	500	500	500	500	500	500	500	500	500	8800
TOTAL COST	12800	5700	6200	6600	7100	7100	7100	7100	7100	7100	7100	7100	144900
BENEFITS													
Cocoons in kgs	72	72	80	88	100	112	124	136	136	136	136	136	
Revenue from cocoon sale	5760	5875	6659	7471	8659	9893	11172	12498	12748	13003	13263	13600	229399
Fuelwood	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	30000
TOTAL REVENUE	7260	7375	8159	8971	10159	11393	12672	13998	14248	14503	14763	15100	259399
NET REVENUE	-5540	1675	1959	2371	3059	4293	5572	6898	7148	7403	7663	8000	114499
Discount Rate	NPV												
15%	20533												
25%	7860												
FRR	50%												

Table 5.7.3

Production Resulting from the Project

As of Dec 1991 BRAC has planted 2.6 million mulberry trees in roads and homesteads. The following table represents a projection of what the silk production will be like if the plantation process stops after 1995.

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Saplings Planted (Millions)	3	3.5	4	4.5	0	0	0	0	0
Total Trees (Cumulative in Millions)	5.5	8	11	14	13	12	11	11	11
DFL (Millions)	1	2	4	7	12	16	19	21	22
Cocoons Produced (Tonnes)	166	385	781	1,498	2,544	3,949	5,330	6,535	7,428
Silk (Tonnes)	9	23	46	94	182	282	410	545	675
Value of Silk Yarn (Million Takas)	15	36	74	150	291	451	656	871	1,080
Fabric Produced (Thousand Sq M)	184	453	919	1,873	3,634	5,641	8,200	10,892	13,505
Value of Fabric (Millions Takas)	28	68	138	281	545	846	1,230	1,634	2,026
Rearers(000s)	2.6	6	11	19	29	39	48	53	55
Reelers(000s)	0.2	0.5	1	2	4	6	8	11	14
Weavers(000s)	0.9	2	5	9	18	28	41	54	68

It is assumed that rearers will rear 400 DFL per year and will involve 180 womandays of rearing. Private reeling establishments will consist of three people working 300 days per year to produce 150 kg. Weavers will weave 200 sq m per year involving 200 person days of work.

Table 5.7.4

BRAC Sericulture Projections up to the Year 2000

As of Dec 1991 BRAC has planted 2.6 million mulberry trees in roads and homesteads. The following table represents a projection of what the silk production will be like if the pace of plantation continues until a peak of 28 million trees is reached in 1999

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Saplings Planted (Millions)	3	3.5	4	4.5	5	5.5	6	5	0
Total Trees (Cumulative in Millions)	5.5	8	11	14	18	21	25	28	26
Cocoons Produced (Tonnes)	166	385	781	1,498	2,544	3,949	5,886	8,321	11,307
Silk (Tonnes)	9	23	46	94	182	282	453	693	1,028
Value of Silk Yarn (Millions of Takas)	15	36	74	150	291	451	724	1,109	1,645
Fabric Produced (Thousand Sq M)	184	453	919	1,873	3,634	5,641	9,055	13,868	20,559
Value of Fabric (Millions of Takas)	28	68	138	281	545	846	1,358	2,080	3,084
Rearers(000s)	2.6	6	11	19	29	39	53	67	83
Reelers(000s)	0.2	0.5	1	2	4	6	9	14	21
Weavers(000s)	0.9	2	5	9	18	28	45	69	103

It is assumed that rearers will rear 400 DFL per year and will involve 180 womandays of rearing.

Private reeling establishments will consist of 3 people working 300 days per year to produce 150 kgs of silk

Weavers will weave 200 sq m per year involving 200 person days of work.

BRAC Seed Supply Project

There are two ways in which BRAC could set up its seed supply project. One system is a self contained project, in which the farms in which the seed cocoons are produced are BRAC farms, and there is the commercial grainage in which the commercial seed is prepared and distributed. The other system is to have contract growers who are supplying the seed cocoons to the grainage. This system is not self sufficient.

The advantage with the first system is the fact that seed cocoons can be reared scientifically, under the hygienic conditions and BRAC will be sure about the quality of the cocoons that are being used in the seed supply process. The disadvantage is the start up cost which tends to be much higher than the second option. The problem with the second option is that there is a much higher chance of disease and lower quality because BRAC will not be able to control the conditions under which the rearing process is taking place.

Given the present situation, it would be shortsighted of BRAC to try and minimise initial costs and build the initial grainage using contract growers. The rearers that are presently under the BRAC program do not have the necessary skills, nor are they rearing under hygienic enough conditions, to ensure a supply of good seed cocoons. If BRAC starts producing seed then the eggs supplied must be of superior quality. There is no point in establishing a grainage that supplies inferior quality seed to the rearers. Since this is BRAC's first venture into seed supply it is imperative that BRAC does this project carefully. Therefore the initial grainage that BRAC will set up will be a self sufficient system. Silkworm egg supply is such a critical issue that the extra outlay of money will be well worth it in terms of minimising the risk of producing bad quality seed. The risk of disease will be minimised by having three levels of farms known as the P1, P2 and P3 farms. These farms multiply the seed at different stages. Having several different levels reduces the risk of disease. Even if the commercial level is infected by disease the contamination can be prevented from spreading to the next level, thus keeping some stocks of the silkworm races healthy. The problem with having so many levels of farms is that the initial cost of the grainage increases by many degrees. The main cost is that

of the land for the farms especially the farms at the P1 level. The components required for this project to be implemented are:

1. P1 farms
2. P2 farms
3. P3 farms
4. Personnel for each of these farms
5. Grainage Building.
6. Cold Storage.
7. Generator.
8. Experts to advise on how to organise the seed project, give technical advice and to help in running this operation.
9. The help of experts at Rajshahi to assist in the technical aspects and to supply the silkworms races.
10. Training of BRAC personnel in silkworm seed technology.

The first phase for the project will consist of bringing in experts to survey the situation in Bangladesh and to submit a plan for setting up the seed supply facility. This plan will then be reviewed by another team of experts and once the review team has approved of the proposal then BRAC will proceed with the building of the various facilities. The experts will be in charge of running the project until such time as it has gone through two cycles of production. Once the facility has gone through two cycles of production then it will be handed over to BRAC personnel who will then take over the responsibility of running the establishment. BRAC will consult frequently with experts in Rajshahi as well as the experts who have set up the seed supply centre in order to make sure that the project is being run in the best possible manner. Once this facility is operational BRAC will then proceed to build another grainage. This grainage will be built along different lines. BRAC will have had time to build progressive farmers into seed cocoon farmers. These farmers will supply seed cocoons for the second grainage. The initial costs for this second grainage will not be as much as the first one because BRAC will not be going in for the several levels of farms that are a part of the first seed supply project. By this stage BRAC will have had experience in producing silkworm eggs therefore there is less of a risk of producing low quality eggs even if the seed cocoons are being produced by group members rather than by BRAC farms. The government has indicated to BRAC that it will help in any way that it can in BRACs efforts to establish a seed

production facility. A quick calculation for the cost of producing 2.5 million DFL is given below.

Interest on Capital (20%)	1,900
Depreciation of Equipment (10%)	730
Farm Maintenance	360
Salaries	1,996
Operating Costs	463
Total	5,449
Cost of producing 100 DFL	218

The estimates suggest that the production costs will be on the order of Tk 200 to 250 per 100 DFL which is five to six times the present value of DFLs in the market.

In a financial analysis done on the project the FRR comes out to be 17% which is lower than that of the other activities that we have considered in the project. Since the entire project is dependent on the grainage the economic return will be higher since we have to factor in the benefits from the entire project.

Table 5.7.5
(Thousands of Takas)

Grainage Costs and Returns

	Year 1	Year 2	Year 3 - 20	Total
Land For P3 farms (2 acres)	400			400
Land for P2 farms (5 acres)	1,000			1,000
Land for P1 farms(38 acres)	7,600			7,600
Commercial Grainage Building		2,500		2,500
Equipment for F1 grainage		500		500
Backup generator		300		300
Cold Storage		1,000		1,000
Rearing Houses	900			900
Staff Quarters		800		800
Dormitories	700			700
Vehicle		600		600
Plantation Establishment	500			500
Ploughing and Plantation Maintenance				
45 acres at 8000 per acre		360	360	6,840
Salaries				
Grainage Officer (1 at 15000/mth)		180	180	3,420
Grainage Technician(4 at 5500/mth)		264	264	5,016
Grainage Assistant (8 at 2000/mth)		192	192	3,648
Watchmen (1 at 1800/mth)	22	22	22	432
Seed Crop Supervisor (4 at 3000/mth)		144	144	2,736
Plantation Assistant (6 in yr1 and 12 after that at 1500/mth)	108	216	216	4,212
Rearing Assistant (6 in yr1 and 12 after that at 1500/mth)	108	216	216	4,212
Rearing Labour (16 in yr1, 32 in yr2 and 48 from yr3 on, at 1000/mth)	192	384	576	10,944
Travelling and Transport (35% of A and B)		155	155	2,953
Training and Development(7% of A and B)		31	31	591
Grainage Operating Costs				
Chemicals		20	20	380
Egg Sheets/ cases		50	125	2,300
Workers Wages (20 workers at Tk 30 per day)		108	216	3,996
Electricity Diesel and Water		72	72	1,368
Contingencies and Misc.		30	30	570
TOTAL COST	11,530	8,144	2,819	70,417
REVENUE		2,500	6,250	115,000
NET REVENUE	-11,530	-5,644	3,431	44,583

DISCOUNT RATE NPV
15% 1,604

FRR 17%

Table 5.7.6

WORK SCHEDULE FOR SERICULTURE ACTIVITIES

OPERATIONS	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mulberry Sapling Prod												
Land Selection							xxxx					
Land Preparation									xx xx			
Collection of cuttings										xx		
Plantation of cuttings										xxx		
Application of fertiliser	xx		xx						x xx			
Weeding	xx		xx	xx	xx							xx
Irrigation	xx		xx									
Pruning of offshoots				xx	xx	xx						
Transplanting Saplings												
Selection of farmers					xxxx	xxxx						
Plantation of saplings									xx xxx			
Pruning			xx			xx			xx			xx
Application of fertiliser			xx			xx			xx			xx
Rearing												
Rearer Selection			xxxx			xxxx			xxxx			xxxx
Buying/Repair of Equipment	xx			xx			xx			xx		
Disinfection of Equipment	xx			xx			xx			xx		
Distribution of DFL	x			x			x			x		
Rearing of chawki worms		xx			xx			xx			xx	
Rearing of adult stage worms		xx			xx			xx			xx	
Spinning of cocoons			x			x			x			x
Reeling of cocoons												
Marketing of cocoons			xx			xx			xx			xx
Drying of cocoons			xxx			xxx			xxx			xxx
Reeling operations	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx

List of Abbreviations

AIRD	Asian Institute of Rural Development
BIDS	Bangladesh Institute for Development Studies
BSB	Bangladesh Sericulture Board
BSRTI	Bangladesh Sericulture Research and Training Institute
BUET	Bangladesh University for Engineering and Technology
CB	Cross Breed
CRC	Chawki Rearing Centre
CSB	Central Silk Board
CSRTI	Central Silk Technological Research Institute
DFL	Disease Free Laying
GS	Gram Sheboks
HYV	High Yielding Variety
ICTRETS	International Centre for Training and Research in Tropical Sericulture
PO	Programme Organisers
SDC	Swiss Development Corporation
TADC	Training and Demonstration Centre
WFP	World Food Programme

References

Ahmed, S.U. 1988, Sericulture in Bangladesh: Past, Present and Future, International Congress on Tropical Sericultural Practices

Bakht, Z. 1986. Supply Side Study on Sericulture in Bangladesh, BIDS Report

Barman, A.C. 1991, Outbreak of Silkworm (*Bombyx Mori* L) Diseases Under the Influence of Different Commercial Seasons in Bangladesh, Bulletin of Sericulture Research, BSRTI, Rajshahi

Chowdhury, N.A. 1990, BRAC Sericulture Programme, RDP Report

Indian Silk, Feb 1992, Central Silk Board of India Publication

ITC 1989, Report on Silk, International Trade Centre, ITC-UNCTAD-GATT

Jolly, M.S. 1986, Organisation of Industrial Bivoltine Grainage for the Tropics, CSRTI Mysore

Jolly, M.S. 1992, Consultancy Report on Silkworm Egg Production, Central Silk Board, Bangalore

Sinha, S. 1990, The Development of Indian Silk, Intermediate Technology Publications, Oxford and IBH Publishing Co.

Ullal & Narsimhanna 1987 (3rd Ed), Handbook of Practical Sericulture, Central Silk Board, Bangalore.

CHAPTER 6
CREDIT

CHAPTER 6

CREDIT

BRAC's experience has produced some effective approaches to employment and income generation. A central feature of the approaches is extension of credit. It has been demonstrated that the landless can be good credit risks with appropriately designed and implemented programmes and, also, poor as they are, they can make savings for their own betterment. Along with unutilized or underutilized village resources, these savings form the starting point for activities that generate jobs and income. BRAC proposes to promote employment and income generation in the period mainly through expansion of its Revolving Loan Fund. The expression credit is used here not only in the all inclusive sense of referring to the lending operation as such, but also, to the supporting actions which ensure its success - training of borrowers, mobilization of local resources, provision for supply of inputs, technical support, supervision and monitoring. Because of the critical importance of credit in the Rural Development Programme, the entire credit system is explained in some detail.

Currently, BRAC's credit facility takes the form of a Revolving Loan Fund (RLF), operated within the framework of the Rural Development Programme, designed to meet the credit needs of BRAC's landless group members. Loans realised are credited to, and form a part of the fund which is used for extending further credit. This revolving process (lending, recovering and again lending) ensures that credit facilities are available, eventually, to all group members for use in creating self employment and earning income.

The Revolving Loan Fund has as its objectives: (1) stimulation of employment for both men and women; (2) mobilization of underutilized and unutilized local resources (for example use of derelict ponds, planting trees on roadside embankments and unused government land); (3) diffusion of appropriate technology (i.e. irrigation) and encouragement of more efficient uses of existing

technology (for example, in fish culture, irrigation and horticulture) and promote better health care (i.e. sanitation).

There are certain basic rules which serve as a guideline for granting loans against various economic activities. These are :

- priority is given to schemes/projects with economic and social profitability potential.
- no collateral is (in the traditional sense) required.
- all loans provided are subject to continuous and intensive monitoring and supervision.
- loans are granted at 20% interest rates (from January '92) calculated on reducing balance.

In addition, a member or borrower needs to fulfill the following conditions :

- must have completed functional educational training i.e. Social Awareness
- must have a record of regular attendance at the weekly meetings and regular saving deposits.
- must have clear knowledge of the 17 BRAC promises.
- must have savings equivalent to 5% of the loan requested for the first time, and another 5% for each consecutive loan cases.

Operational Procedures: Disbursement and Recovery

Loan proposals are screened and approved by the group during their weekly meetings. To have a loan proposal approved by the group, two thirds of the members must be present. Participation and group responsibility are thus essential elements of the loan process. After approval, the loan proposal is submitted to the Area Manager through the responsible BRAC POs. The loan amount is disbursed to the borrower in cash in the presence of the management committee of the group.

Loans disbursed are recoverable in weekly installments. Once a week the Gram Shebok (GS - village workers) visits each village to collect all loan installments from the group (both women's and men's) of the same village in the presence of all group members,

including management committee members, and enters the account into the borrower's pass book. The same day the GS deposits the money with the Accountant at BRAC's Area Office.

Credit Portfolio Management

One important area that will receive priority attention is the credit portfolio management. Loans disbursed will be continuously followed up to ensure timely repayment, adequate flow of capital to the desired sectors and initiate action, where needed, well in advance.

The characteristic features of the loan portfolio management will be as follows:

1) **Monitoring:**

- Monitoring of each individual loan at monthly intervals. This will provide all information including repayment performance needed to act for maintaining the portfolio quality.

2) **Analysis:**

- Data collected from the field will be analysed to examine the aggregate positions of credit activities in respect of gender, economic sectors, loan size etc.

3) **Aging:**

- Each year an aging schedule will be prepared to see whether the amount provided for loan loss is adequate.

4) **Feed back:**

- The field managers will be continuously fed back with individual loan performance and aggregate position, performance vis-a-vis budget and efficiency of each branch compared with that of others.

Table 6: Overview of RDP Loan Portfolio (June 1991)

Average loan size	:	Tk. 1,135
Maximum loan size	:	Upto Tk. 7,000
Interest : From Jan'92	:	20% per annum (except housing, 10%)
Upto Dec'91	:	16%
Repayment (nature)	:	Weekly
Term: Short term	:	(1 year) 69%
Medium "	:	(3 year) 13%
Long "	:	(3 +) 17%
Number of loans outstanding	:	208,000
Value of loans outstanding	:	64%
Repayment rate	:	98% (average)

This table does not take into account housing loans for village group members (Tk.14.5 million outstanding, average loan size Tk.5,000) funded by NOVIB and UNICEF.

Moreover, poultry loans within IGVD (Tk.21.4 million outstanding) funded by the Directorate of Relief and Rehabilitation is not mentioned here.

Proposed expansion in RDP III

The present credit procedures will be continued in RDP III. More loans will go to the organised sectoral programmes such as, sericulture, fishculture, poultry and livestock.

Housing Loans for Group Members

BRAC has designed a housing loan system that uses stricter lending criteria than its income and employment generation loans. Prior to disbursement, group members must save higher amounts weekly, i.e. equivalent to weekly installment repayment account, over a six month period with no missed payments. Also they must install a slab latrine. However, the interest rate, at 10%, is half that of the other loans. About 16,988 housing loans, average size Tk.4,650 have been disbursed.

The loan funds are now financed with donor and UNICEF funds, outside of RDP II. BRAC so far could meet the demand for construction of houses of a limited number of group members. The

experiences are positive, both the recovery and the use of loan money is high. BRAC proposes to expand this system within RDP III to reach 62,500 more group members, maintaining the same lending criteria and interest rates.

Transition of RDP into RCP and the Sectoral Programme

Each RDP branch will be transferred to RCP at the end of 4 years. RCP will buy out fixed assets and the loan portfolio. This transition of RDP to RCP will bring in a qualitative change in different areas notably attitude of the staff, relationship with the beneficiaries, spectrum of service delivery and cost recovery. Since RCP is a self-financing institution it will endeavour to recover costs of service in full. This would mean programmes that are not cost-effective will be cut down. However, the programmes initiated under RDP are essential for attainment of the objective of empowering and poverty alleviation. Therefore, continuation of these programmes is desirable. To ensure this RDP will have to set up a mechanism which will contribute toward sustainance of those programmes in RCP. To this end the following process will be emphasized:

- 1) Establish a self-propelling system within the village organisation that will secure institution development without outside intervention or support. The new members, for example, will learn discipline and receive training from the existing members. The leadership will be developed through the rotating process.
- 2) A short term, a medium term and a long term plan will be worked out outlining the mechanism process, procedure and time frame of cost recovery from the beneficiaries in respect of sectoral programmes.

It is very difficult to say at this stage what percentage of costs could be effectively recovered, how much time would be needed to enable the borrowers or what support mechanism could be established. However, RDP will emphasize on recovery

of operating costs only. Research and development costs will be borne by RDP in full.

- 3) Though BRAC has recovered a number of costs partly or fully from the beneficiaries there has never been a consistent policy. The recovery was rather sporadic and on case to case basis. BRAC will now establish a consistent policy to recover the full cost and formulate plans to translate the policies.

The responsibility of the sectoral programme division will be:

- i) to research into and develop different sectoral programmes
- ii) to support Rural Development Programme to implement the sectoral programmes
- iii) to develop a cost recovery mechanism for each sectoral programme.

CHAPTER 7

NON-FORMAL PRIMARY EDUCATION PROGRAMME

CHAPTER 7

NON-FORMAL PRIMARY EDUCATION PROGRAMME

Introduction

Less than 25% of the people are able to read and write in Bangladesh making it one of the leading countries today in its illiteracy rate. Among the poorest third of the population illiteracy is probably universal.

The formal primary school system is government run and free. For decades this sector has remained under financed, neglected and beset with problems. The quality of education too, has therefore suffered.

Although enrolment figures are shown to have doubled over the past 50 years (from 35% to nearly 70%), this is probably overstated. Enrolment of girls is much worse than that of boys. Estimates of successful completion of primary school by girls is about 30% only. It is estimated that less than 30% of all school children pass the primary stage (Source BANBEIS, 1990).

The effects of these problems on the millions of children today and on the coming generations are unimaginable. The prospects of having a skilled and an informed nation is rapidly disappearing. The handful of people who get any education at all comprise the country's future stock of educated workers, planners and managers.

It is in recognition of the dire needs that the government has taken a determined step to eradicate illiteracy by the turn of the century. Government's Fourth Five Year Plan (1990-95) calls for a 'multi-frontal attack on illiteracy' by expanding its budget allocation for education, particularly primary education. During this plan period, compulsory primary education is being introduced with a view to full coverage by year 2000. This will naturally require massive investments. A conservative estimate is that even if present capacities were to increase by half, at least 32 million children will still either drop out or never enter primary school by 1998. The government therefore, recognises the importance of strengthening its own mass literacy efforts by expanding non-formal

primary education and by mobilising non-government organisations to come forward.

In support of the government drive toward Education For All, BRAC plans to supplement the efforts of government and donors to achieve universal primary education by the end of this decade through rapid expansion of its non-formal primary education (NFPE) programme. The NFPE will provide an important bridge for millions of children to the formal education system.

Non-formal Primary Education (NFPE)

Responding to the urgent need, BRAC started a primary education programme in 1985 complementing formal schooling designed specially for deprived and disadvantaged rural children. These children have either never entered school or have left it before acquiring any reading, writing or numeracy skills.

The objectives of the programme are as follows:

- * To support government efforts achieve its goal of Compulsory Primary Education.
- * To provide education opportunities for children of poor landless families who would otherwise not have access to education.
- * To promote education of girls.
- * To mobilize community participation.
- * To develop para-professional teachers from within the community.

The school puts the 'student first', meaning that it is flexible to respond and adjust to learner need and time.

The Programme

Two school models are implemented serving two different age groups: First, the NFPE programme for 8 to 10 year old children and a second model for 11 to 16 year old adolescents known as Primary Education for Older Children (PEOC). The PEOC is a later modification of the NFPE and began in 1987.

NFPE runs for a term of three years, taking children from class

I through to III. PEOC on the other hand was of a two year duration (until recently when all PEOC schools will run for three years, completing classes I through V). In the PEOC, shorter time for each phase has been allocated since it is seen that adolescents learn much faster. They will be finishing primary school in three years instead of five.

Girl focus

All the learners are from the poorest families in the village. In view of the severely low female literacy and very high drop out rates, NFPE places special emphasis on the enrolment of girls. More than 70% of the learners are therefore girls.

Class size

There are only 30 students in a class with one teacher who sees them through their entire term in school.

School timing

The school is for two and a half hours every day of the week except Friday. School timing is decided by parents who rely on children's work at home or in the field. Annual school calendar is 270 days. No long vacations are allowed for students or for the teacher.

School teacher

Teachers have a minimum of nine years of schooling and are local recruits. Women make up nearly 80%. Teachers are paid an average monthly allowance of Tk. 450.

Teacher training

To prepare teachers for the task ahead all teachers undergo an intensive 15 days of training at BRAC residential training centres. The training focusses on child psychology, pedagogy, use of books, teaching aids and co-curricular activities.

But this is not all. In addition, one day each month is devoted

to refresher training. During these sessions, teachers discuss teaching methods, learning issues and any problem arising in school. Comprehension rather than memorization is stressed.

Before the beginning of the second year of school, teachers go through a four day refresher training course where they are made familiar with the new syllabus.

The bi-weekly supervisory school visits by Programme Organisers reinforce the continued development of teachers.

Co-curricular activities

Forty minutes of each day is set aside for co-curricular activities. This time is spent doing physical exercise, singing, dancing, drawing, toy-making or simply playing.

Parent and community participation

Teachers meet with parents every month to discuss class attendance, progress and any other issue that may be of particular relevance to their child.

Each school has its own school managing committee comprising of four members-two parents, the teacher and one volunteer who must be a person with social credibility in the village. Their responsibilities are to ensure regular attendance, repair school facilities whenever needed and liaise with the community.

School building

Schools are made of bamboo or mud walls with tin or thatch roofs measuring at least 240 sq ft. School building is rented from the community. Inside, children sit on the floor, on mats, in a 'U' formation so that teacher and student are easily visible to one another.

Management and supervision

A small number of staff manage and monitor the overall programme from the head office in Dhaka. But more direct supervision is done at the field. The first-line supervisors of schools, the Programme

Organiser (PO) looks after 15 schools on an average. They visit each school at least twice a week during which time they check class attendance; academic progress of students; cleanliness of the classroom, teacher and students and class discipline. The PO prepares reports of the monthly parents'-teachers' meetings and solves school related problems with parents' and teachers.

Programme success

The past seven years shows an impressive set of figures. With a 98% retention rate, the number of student drop outs is only 2% at the end of the three years. It is reported that more than 50% drop out at the government schools at the end of class three.

NFPE under RDP III

The desperate demand for schools and NFPE's steady escalation over the past seven years (from only 22 schools in 1985 to 6,626 in March 1992) has led BRAC to project the growth of NFPE for the period 1993 through 1995. By the end of this period BRAC hopes to operate 50,000 NFPE schools providing 1,500,000 rural children with basic education.

Schools which will open with support from RDP III (1993-95) will be part of the NFPE greater expansion.

Under RDP-III, 9,000 brand new schools will be opening, phasing in as under. Schools graduating will not close but reopen the same year using the same teacher and PO for a new set of learners. The number of on going schools or schools carried forward from the previous year, financed by RDP are also given.

Table I
Schools under RDP III - Phase in

Year	1993	1994	1995
New	2,500	3,000	3,500
Closing	(-) 1,629	(-) 1,141	(-) 3,413
Reopening	1,629	1,141	3,413
Carry forward	6,183	8,683	11,683
Total schools	8,683	11,683	15,183
Total children	260,490	350,490	455,490

In Table II below, number of teachers and programme organisers required during the implementation of NFPE- RDP III are given. It should be noted that the teacher number is the aggregate of the number of teachers required for new schools plus the number required for re-starting schools. We expect about 10% teacher attrition after schools close.

POs have been calculated one for every 15 schools on an average.

Table II
Teacher and PO Requirement - RDP III

Year	1993	1994	1995
Requirement			
Teacher	2,662	3,114	3,841
Programme Organiser	166	200	234

Why NFPE in RDP

BRAC's broad based and multi-faceted programme is the Rural Development Programme. Among its many sided approach to development and the empowerment of the poorest, literacy plays a major role. Literacy of children therefore, is not only a vital component of RDP, it also demands more than one third of the RDP budget. As RDP is designed to provide every kind of support service to the members

of its village organisations, reaching their children with basic education is seen as essential service to them. NFPE, although expanding now to non-RDP areas still remains a key activity within RDP and will continue to remain so in the interest of RDP beneficiaries. One can hope that ten years hence, this new generation of literates will be better able to deal with circumstances than their parents could.

NFPE in perspective

BRAC schools have, throughout, maintained high attendance rates, low dropouts and a good learning competence. Moreover, most children graduating from these schools have entered government schools in classes IV.

Nonetheless, while trying to analyse BRAC's non-formal schools, one question to ask is--how large should a non-formal system become?

BRAC's twenty years of experience with village values, social behavior as well as its programme practice of over two decades have led it to believe that greater expansion of its non-formal education programme is not only necessary but also feasible. Already 8000 schools are currently operating. Seven years ago this would have seemed unattainable.

Some modifications in the programme are necessary in order to make children's learning more sustainable. The PEOC schools which have been of 2 years duration until now, will, from 1992 have an additional year so that adolescents are able to complete classes IV and V. Age of these children limit their access into formal primary schools. Special text books of Bengali, General and Social Sciences, English and Arithmetic are being written.

Another significant change taking place is in the duration of teacher's basic training. Planners and teacher trainers feel that there is ample reason and scope for stretching the time of the training. The 12 day basic training will be increased to 15 days of training keeping the essence of the training the same but providing some breathing space to teachers in between tight schedules.

Scaling up has prompted NFPE administration to become more decentralised. Jurisdiction of Field Officers previously in-charge of 300 schools (now 150 to 200 schools) have been made tighter so that field level administration and supervision can be intensified. This also reduces time lost in travelling to distant Area Offices. The Field Officer and his team, now made much smaller in number are able to meet more often to discuss school administration and quality. Regional managers and programme monitors previously centrally stationed are now field based, being able to keep constant vigil over programme implementation.

Over the next three years NFPE will be expanding, but expanding prudently. It is not only a period of quantitative expansion but a time when the programme pulls together its strengths and makes itself more comprehensive and complete.

CHAPTER 8

**INCOME GENERATION FOR VULNERABLE GROUP
DEVELOPMENT (IGVGD)**

CHAPTER 8

INCOME GENERATION FOR VULNERABLE GROUP DEVELOPMENT (IGVGD)

Introduction

In Bangladesh destitute rural women constitute the poorest stratum of rural society. Some 450,000 families in rural Bangladesh are recipients of 31.25 kg of wheat under the Vulnerable Group Development (VGD) programme administered by the Directorate of Relief and Rehabilitation and supported by the World Food Programme (WFP). This programme covered all the unions in Bangladesh and has been in operation since 1974. The VGD card holders are the poorest 10% of the population, women, and in most cases, they own no land, have little or no income and live without a husband's support because of desertion, divorce, death and disablement. Being women they are in many cases excluded from development projects. The programme (VGD) provides food ration for a period of 2 years during which attempts are made to make the families self-supporting. However the programme was unable to ensure lasting benefits for a number of beneficiaries at the end of the two year period. Women did live better during the two years when they received food aid but after that they relapsed to their former position.

Although making women economically self reliant was one of the objectives of the VGD programme, the programme virtually turned into a relief programme as the target beneficiaries received only wheat because of lack of adequate manpower, technical ability and resources. BRAC realised that this monthly wheat ration to destitute women can be made into an important vehicle in changing their destiny by planning to build a sound economic base for the destitute women.

Background

In 1985 the Integrated Development Programme (IDP) of Bangladesh Rural Advancement Committee (BRAC) at Manikganj, collaborated with the Vulnerable Group Development (VGD) Programme

of the Ministry of Relief and Rehabilitation. The VGD programme is implemented by the Directorate of Relief and Rehabilitation.

IDP/BRAC, Manikganj as a recipient of the Women's Training Centre (WTC) component of the VGD programme, selected 700 women in selected areas of Manikganj to provide skills training combined with the VGD monthly take-home ration of 31.25 kg wheat. IDP started this programme on an experimental basis and distributed wheat to the selected women and ensured training on different skills i.e. poultry, sericulture, vegetable cultivation and embroidery, to each of them. The Programme ensured each woman a monthly income of Tk.60 to Tk.150.

While some of the RDP/BRAC areas started to test the same programme under the WTC component of VGD programme, BRAC in response to Ministry of Relief and Rehabilitation's request during mid 1986, extended its collaboration to Directorate of Relief and Rehabilitation (DRR) on an experimental basis. During this experimentation BRAC at its own cost trained about 1,000 women who were receiving VGD ration for two years through 9 Union Council VGD Centres in Manikganj Upazila. The training package included skills training in the four above mentioned skills along with Functional Literacy, Health and Nutrition Education and Group Formation.

The positive results of the programme led BRAC to design an independent programme named 'Income Generation for VGD Women (IGVGD)' during mid 1987 to replicate the achievement on a larger scale. IGVGD in collaboration with DRR and the Department of Livestock (DOL) launched a poultry scheme in August 1987 which aimed to train VGD wheat receivers at union level, in better poultry keeping practices to generate a sustained monthly income if not equal but as close as possible to the value of VGD monthly ration.

IGVGD is thus a collaboration between the World Food Program (WFP), Directorate of Relief and Rehabilitation (DRR), Department of Livestock (DLS), and BRAC to improve the income earning potentials of destitute women who are VGD card holders of the monthly wheat ration of 31.25 kg. of wheat. The programme aims to

provide skills training and other support over a period of 2 years when the VGD beneficiaries are supported by the wheat ration. This training would be on better poultry rearing practices so that women can earn a sustained income equivalent to their monthly wheat ration when this is withdrawn.

Poultry rearing was considered as it is suitable for widespread implementation. It is low cost, requires little skills, highly productive and can be incorporated into the household work schedule. Initially, the programme was taken up on an experimental basis in 1987 with the Directorate of Relief and Rehabilitation (DDR) and Department of Livestock (DLS) in 22 Upazilas. Its success led to its expansion, and by June 1990 the programme covered 32 Upazilas benefiting 53,724 women. From July 1990 the second 2 year cycle began and the programme has covered 36 upazilas in 15 districts benefiting 80,000 card holders.

Objectives of the Programme

- 1 Create income equivalent to the monthly wheat ration of 31.25 kg in cash
- 2 To reduce poultry mortality (45% to 15%)
- 3 Increase the poultry population
- 4 To introduce cross breeds and increase the production of eggs and meat and also fulfill the protein deficiency among the rural poor
- 5 To generate savings habits of the VGD card holders
- 6 Generate income and employment through poultry related activities.

The programme model and its components:

- o Selection of VGD beneficiaries for training
- o Training of poultry workers
- o vaccination on a regular basis to reduce bird mortality
- o development of key rearers
- o establishment of units to rear day-old chicks
- o free range feed supplemented by balanced feed

- o Egg collection
- o credit support
- o follow up on a regular basis

Selection

The women are jointly selected by representatives from DRR, DLS, local union councils and BRAC according to the criteria set up by BRAC. In each union there are 150-200 VGD card holders and out of them only those with potentials are chosen for the poultry programme; approximately 75%.

Poultry Worker

To prevent poultry mortality and develop poultry rearers, one VGD woman from each village is selected and given a 5-days training on poultry management, basic treatment of diseases and vaccination. The poultry worker is responsible for all vaccinations and dissemination of information on poultry rearing practices. A one day refresher's course is held every month. The poultry worker collects vaccines twice a month.

Vaccination

The poultry workers are provided with the necessary equipments required for vaccinations and vaccines on a regular basis. The worker charges a token fee of Tk.0.25-0.50 per bird. The average monthly income of a poultry worker is about Tk.250 from giving vaccinations and her own poultry rearing.

Key Rearer

The selected VGD women are given 3 days training on the ideal method of poultry rearing and are developed as key rearers. Each key rearer has one HYV cock and ten hens (4-5 HYV) and suitable space for their housing. She earns Tk. 150 - 200 monthly from her poultry.

Chick Rearing Unit

To ensure continuous supply of birds, 15 to 25 chick rearing units per upazila have been established. The chick rearer are given 3 days training on chick rearing and provided with credit. The DOL poultry farms supply the day-old chicks at the rate of Tk.7.00 per bird and the chick rearers rear it for two months, after which they are sold to the key rearers. Their average monthly income is Tk. 600-800 (with 200 chicks).

Feed sales centre

To run the mini farm and chick rearing units properly, 5-10 poultry feed sales centre has been established in each area. With the spread of hybrid variety of birds, the people are gradually getting habituated to buying balanced for their birds.

Egg collections

In each village the poultry worker acts as an egg collector. There is one agent appointed from each ward (5-7 villages comprise a ward) to collect and market the eggs.

Credit

To ensure proper utilization of skills, credit support is provided to key rearers, chick rearers, feed sellers and egg collectors. A Pilot Credit scheme was under taken in 1988 with the 22 upazilas and present 36 upazilas whereby credit support to the women were ensured. This scheme was financed by DRR (Directorate of Relief and Rehabilitation) through monetized wheat of WFP. The rearers are encouraged to open Bank accounts and monthly deposit Tk.25 in their accounts. The amount is deposited with a Bank. This savings is held in escrow for 2 years when they receive the wheat ration.

Achievement report on IGVGD Programme upto December '91

Sl. No.	Subject	Achievement
1	Covered Upazilas	36
2	Covered Unions	332
3	No. of covered VGD Cardholders	75,000
4	No. of selected cardholders	60,391
5	No. of Trained Cardholders	57,929
6	No. of Trained poultry workers	5,867
7	No. of Trained Key rearers	54,684
8	No. of Trained Chick rearers	609
9	Birds distributed	533,897
10	Feed selling centres	228
11	Egg collectors	517
12	a) Loan disbursed (cum)	60,993,300
	b) No. of loanees	52,548
	c) Loan realised (cum)	45,885,133
	d) Loan disbursed (this session)	46,840,000
	e) No. of loanees (this session)	37,229
13	Total doses of vaccines distributed	26,093,291
14	Average monthly income (Tk.)	
	Poultry worker (Tk.)	263
	Key rearer (Tk.)	158
	Chick rearer (Tk.)	590
	Feed seller (Tk.)	447
	Egg seller (Tk.)	233

