

Final Report of
the Appraisal of the
BRAC

Rural Development Programme IV
Proposal for 1996 - 2000

Volume 2 - Component Reviews

DLO/BRAC Appraisal Team
Dlaka
25 May 1995

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**An Appraisal of the Fisheries Sector of the Bangladesh Rural
Advancement Committee Project Proposal for Rural Development
Programme IV**

Prepared by

Jim Monan and Chris Price

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1. INTRODUCTION

The Fisheries Component of the Bangladesh Rural Advancement Committee (BRAC) Rural Development Programme (RDP) IV Appraisal follows the Terms of Reference (TOR) with the important additions of an appraisal of the nutritional value of aquaculture development as a section of the Social TOR and an appraisal of the budget as a section of the Economic TOR. It furthermore attempts to measure objectively BRAC's achievements to date in the development of the fisheries component of its Rural Development Programme (RDP) and by extension to look at future projections for phase IV and determine whether these are realistic.

2. METHODOLOGY

This was a combination of reviewing BRAC documents, monthly information sheets and other relevant publications, interviewing BRAC head office and field staff and field research talking to farmers and extension workers. The area chosen for the field work was based on a scoring system that took into account the largest numbers of activities in each category of aquaculture development. *The raw figures to determine these were from BRAC's monthly report of December 1994. Mymensingh district scored high on all aspects of BRAC aquaculture development and was the site of the field visit. Habiganj was also chosen as a supplementary field visit site.*

In Mymensingh district field visits were made to three BRAC area offices encompassing the Thanas of Fulbaria and Trishal. The area offices were Fulbaria, Boilor and Trishal. In Fulbaria fieldwork was carried out in the villages of Ragunathpur and Chakradhakanai and in Boilor the village Baghpara. In all areas management and field staff were interviewed. In Habiganj the Regional Sector Specialist and his Programme Officer and Programme Assistant Fisheries were the subject of an intensive interview.

In evaluating the existing RDP III programme no human development indicators were utilised since BRAC monitoring is carried out using financial criteria. Loan repayments are the key indicators of whether a member is successful in aquaculture development. No records are kept of whether family nutrition has improved or whether children attend school for lengthier periods to use but two examples.

3. SOCIAL ASPECTS

3.1 Beneficiary Profiles

The existing participant population in the aquaculture sector development of BRAC RDP as of December 1994 stood at 41,623 members of which about 33,000 were women. These members would each represent one family. By far the largest numbers were in seasonal water bodies followed by carp polyculture which is perennial aquaculture and is more intensive. About 21,790 were in seasonal water bodies followed by 18,679 farmers in perennial

aquaculture and insignificant numbers in hatcheries and nurseries (see Annex 1).

The general selection procedure based on BRAC poverty rankings targeted farmers who fulfilled the following criteria:

- a) They had less than 2,000 square metres (1/2 acre) of land;
- b) They had to sell their labour for more than 100 days per annum.

Fieldwork sometimes revealed that these criteria were not always strictly followed or the interpretation was loose. In one example the farmer had 1.20 acres of land which included a fishpond. The land was irrigated and beside a tubewell and could yield three crops. This man had never sold his labour and to meet the landholding requirement his five sons had been included in the equation meaning he himself only possessed 0.20 of an acre. In other instances families owned a full acre of fishpond and were included.¹

For the aquaculture sector in RDP III, the breakdown for Trishal Area Office in terms of the amount of land held was as follows:

a) Less than 10 decimals:	230 members :	46 %
b) 10 - 20 decimals:	110 members :	22 %
c) 20 - 30 decimals:	70 members :	14 %
d) 30 - 40 decimals:	46 members :	9 %
e) 40 - 50 decimals:	39 members :	8 %
f) More than 50 decimals:	7 members :	1 %

Note : 100 decimals = One Acre

Breakdowns of numbers in other offices were unavailable.

The target beneficiary population for RDP IV 1996 - 2000 is not given numerically in the proposal but by utilising BRAC RDP IV projected new acreage and average pond sizes from RDP III the following numbers of new members emerge (BRAC officials confirmed this would yield fairly accurate projections).

¹ It is arguable that per capita land holdings may indeed be a better indicator. The Fisheries Team signals the need for BRAC to discuss this and take the appropriate action as an institutional issue.

FISHERY TARGETS FOR 1996 - 2000

a) Perennial Ponds:	26,072 New Members
b) Seasonal Ponds:	40,506 New Members
c) Prawn Nursery:	4,195 New Members
d) Carp Nursery:	1,478 New Members
e) Small Hatchery:	115 New Members
f) Prawn Hatchery:	4 New Hatcheries
Total:	72,370 New Members

(see Annex 2 for a total breakdown)

The large number of women aquaculturists derives from BRAC historical experience showing that working with women ensures the best chance of socio-economic improvement in the family situation. More particular in gender selection were that they displayed an aptitude for aquaculture and wished get involved in its development. However, in less than five per cent of cases were they women headed households.

3.2 Needs and Resources

BRAC assesses needs and resources using a standard methodology having the following framework:

- A survey of households is carried out in a BRAC working area to determine socio-economic characteristics of the population;
- If the population meets the criteria of the BRAC poverty focus a group is formed and institution building begins;
- The population is divided into Village Organisations (VO) which comprise between 40 and 50 members (in RDP IV this will be reduced to between 30 and 40 which according to BRAC will ensure even more equitable distribution of resources);
- The VO determines what local resources can be mobilised. In this sector this constitutes a water body suitable for fish production or perhaps a location for a hatchery or nursery to supply existing aquaculture programmes;
- Participants in aquaculture are selected on the basis of owning or having potential access to a small water body or alternatively displaying strong motivation to be involved.

In some instances in an area where BRAC has already established its presence, a group will approach the Area Office and suggest that there are local resources which could be developed in the interests of poverty alleviation. BRAC will then carry out the inventory of poverty and help form the VO(s).

On this basis and with its operating experience, for RDP IV BRAC has decided to increase its Area Offices to 330. BRAC has similarly determined where water resources exist (these new areas were not revealed to the team) in sufficient quantities to permit aquaculture. As a

result, in RDP IV fisheries development will be supported in 260 of all Area Offices (or 79%) reflecting the resource potential that remains untapped. In a sense then, the resource identification is preceding the human inventory and group formation. In the Consultant's view, this plan for expansion of fisheries is valid given the resource availability and the close relationship BRAC has with the VOs and their needs.

The VO is the fulcrum of all BRAC development activities and all the RDP staff work through these institutions. In the case of aquaculture development, after the VO is formed and has *initial organisational and social awareness training*, participants will be selected and trained in whatever aspect of aquaculture is suitable to local resources. Credit support, assistance with the supply of fingerlings and technical services will be provided to the participants when appropriate.

VOs will also receive the BRAC standard interventions such as health and education programmes. As of November 1994, BRAC had helped form 20,093 and 3,506 VOs for women and men respectively reflecting the heavy emphasis on women in development. Total membership stood at over one million with 87 per cent of these being women. In RDP IV it is hoped to increase the VOs to 46,000 by 1997 meaning BRAC, as stated above, will have to expand to an additional 95 Area Offices (at present 225) from which RDP support staff will work under the overall supervision of an Area Manager.

3.3 Appropriateness of Programme

In terms of poor people's needs and resources, aquaculture development is extremely important and until the mid 1980s was neglected to a large extent. In the diet of the rural poor, fish is often the only source of protein and vitamins available. The catches from capture fisheries have been steadily diminishing with the increasing emphasis placed on grain production and the consequent need for irrigation systems which frequently prevent migration of fish onto the floodplain.

Indeed research published by Oxford University shows that between 1937 and 1982 the Bangladesh per capita daily intake of fish decreased from 51.1 to 17.7 grams per capita (Health Policy and Planning: 3(4) 325-328 OUP 1988). The same study showed that for the same period minerals and vitamins vital to good health had also decreased significantly in the Bangladesh diet. Vitamin B1 decreased from 1.65 to 1.38. Vitamin B2 from 1.42 to 0.68. Vitamin C from 86 to 13.26 and Calcium from 470 to 260 milligrams per capita per day. These are all to be found in fish and the development of aquaculture can potentially combat these deficiencies as floodplain capture fisheries diminish.

The proposal does not mention improved nutrition as an objective although it can be assumed increased fish production will improve nutrition generally in the country. BRAC uses economic indicators, mainly loan recovery, to measure the improved standard of living of these poor families. It would be useful if improvements in nutrition of the beneficiaries as a result of increased fish intake in their diet also formed an indicator of RDP IV achievements.

One of the BRAC general goals in the RDP IV proposal is to promote more fully *"technology biased labour intensive activities"* as opposed to traditional income generation schemes such as goat raising or rice husking. Notably in RDP III the latter activities still formed 70 per cent of income generating activities. Aquaculture is not labour intensive apart from the harvesting of ponds and in some cases in RDP III that was undertaken by contracting professional fishermen. The most arduous activity is in the preparation of the pond but thereafter for the greater part of the growing cycle it remains only to apply fertiliser and/or feed in the pond. For seasonal ponds between 10 and 20 person days are needed annually; perennial pond aquaculture requires only 30 to 40 person days per year. For nurseries perhaps 150 to 175 person days are necessary. Importantly, aquaculture is a most appropriate venture for women who have a full round of other domestic and homestead activities. *The increasing emphasis on aquaculture in RDP IV is thus a most useful addition to BRAC's programme for their target group.*

3.4 Access to Resources

Until December 1994 BRAC had developed aquaculture programmes in 17 of Bangladesh's 64 districts. This comprised 18,679 perennial ponds, 21,790 seasonal ponds, 1,018 nursery ponds and 136 hatcheries. In terms of access to resources, the water bodies for perennial aquaculture are leased predominantly from private landowners with only around 10 per cent available from government khas land. Seasonal ponds are almost exclusively under the control of the target beneficiaries. *Over 90 percent of the perennial ponds leased privately have previously fallen into disuse through neglect or because the landowner does not have the capital to repair and maintain the pond in fish production.*

The lease for perennial ponds is negotiated by the VO with help from BRAC on legal and organisational issues. In the past leases were for variable terms but in RDP IV these will be standardised to ten years. These leases (in the names of individual farmers) are legally binding documents and are legitimised by government stamp duty which the VO member pays. In very few of the present cases are there ten year leases and fieldwork seemed to indicate that these long leases are not easy to negotiate.

The landlord receives between Tk. 35 and 50 per one hundredth of an acre (one Bangladeshi decimal) per annum for the lease of his pond. The variation is designed to negotiate a rate commensurate with the state of the pond when the VO member takes it over. In cases of dispute BRAC will provide moral and legal support to the operators. At the end of the lease the landowner has the right to take back the pond and operate it himself. BRAC staff in Habiganj confirmed this happened in about ten per cent of cases.

In sum, it is the availability of long term leases which is the critical issue for the success of this activity. BRAC is aware of this and is anticipating the need for support to their groups.

4. ECONOMIC ASPECTS

4.1 Marketing Strategies

Marketing of the BRAC aquaculture programme produce is exclusively within Bangladesh and usually to local markets situated near the ponds. No fish processing is carried out as yet by the VO aquaculture members and there is no plan to do so during the life of RDP IV.² Although women in both perennial and seasonal ponds are in the ascendancy in ratios of around 5:1 they do not physically harvest or market fish. There is no physiological reason why women could not harvest fish from a small pond; rather the constraints are cultural. The same is true for the transporting and marketing of fish. To overcome these cultural barriers women have developed the following alternative marketing strategies:

- a) They negotiate an agreement with traditional fishermen on a price per kg of fish harvested and these men net the pond, weigh the fish, pay the member and market the catch;
- b) Local male VO members net the pond and the women sell the harvest to traders who buy at the pond-side;
- c) Local male VO members net the pond and the husbands and/or male members of the fishery group transport the fish to the local market and sell it directly to the vendors.

It is important to recognise here that in the cases of a) and b) the women have considerable control over both the marketing of the fish and the cash generated by the sale. In c) the women members potentially lose control of the marketing (see Boxes 1 and 2 for examples of differing economic control of the ponds by women.) BRAC officials do admit problems over loss of control by the women members and in line with their poverty alleviation objectives would prefer women members to have full control of the marketing strategy. These problems are generally that the income from the ponds, when male members or husbands market, is that they tend to retain the income. In addition the income may not be spent as wisely as the women would and therefore the benefits accruing to the family may be fewer. Another strategy to overcome this male dominated control of the income is that the BRAC PA supervises the marketing and ensures the money goes to the female aquaculturist. In Habiganj they claimed to do this when they found out the husband or male who marketed on behalf of the women was dishonest. The issues are endemic and not specific to aquaculture. BRAC's 5 Year Strategy addresses the requirement to increase attention to this issue.

Marketing is carried out on an individual basis. More collaboration is achieved in production activities. Indeed BRAC aquaculture workers were of the opinion that collective marketing was not well suited to the economic culture of Bangladesh.

² Given the high local demand for fish and the nutritional needs, export at this stage is not viewed by the Consultants as being desirable.

BOX 1

Raghunathpur village is in the BRAC Fulbaria area. The women's VO in this village has 43 members of which three are involved in aquaculture.

Hamida is thirty five years old and has three daughters and one son. Two daughters are already married, one is at school and the son is too young for school. Her husband has 0.24 of an acre of land so therefore she qualified for BRAC VO membership. She became an aquaculturist because the family has a 0.50 acre pond which she now uses for perennial carp culture.

Hamida has had no BRAC training in aquaculture but knows that fish feed on oil cake and rice bran and that the pond needs fertiliser. She knew some of the carp which needed to be stocked. She spends two hours each day looking after the pond.

She knows that the loan from BRAC was Tk 6,000 which is repaid at Tk 71 per week and this includes a BRAC interest charge of 15 per cent. This will take one year and nine months to repay. She said that it was sufficient to start production.

Hamida knows nothing about the financing and economics of the pond although she is technically the aquaculturist. Her husband buys the inputs, harvests the pond and sells the catch. She does not know what profit is made. Her only tangible benefit from the pond is that she takes fish occasionally to feed her family.

Amena is about forty years old and is member of the same group as Hamida. Her husband is a farmer and has one acre of land which is above the ceiling for BRAC assistance. She has two sons and a daughter who is already married. One son owns a stationery shop and the other is a rickshaw driver. Amena said her pond size was about half an acre and like Hamida's it is owned by the family thus making her an obvious choice as a BRAC aquaculturist although the family hardly makes the BRAC poverty criteria for assistance.

Amena has had no BRAC training either but knows feeding and fertiliser treatment of the pond. She mixes mustard oil cake with rice or wheat bran and feeds these to the fish. She also knows the value of TSP and Urea for improving the pond fertility. Her sons buy these inputs for her. She works on the pond from 10 am to midday each day.

She took a Tk 6,000 loan from BRAC which she repays at Tk 85 per week which she hopes to clear in one and a half years. This is her first production cycle. Amena, unlike Hamida, insists when she harvests she will negotiate with the trader and will keep the profit for use in the home.

4.2 Economic Profitability

BRAC fisheries activities fall into 5 categories:

1. -Polyculture This is undertaken in ponds which contain water for the whole year. It involves the stocking of several species of fish occupying different *niches* (carps with a variety of feeding habits) thus utilising the whole water column. The carps are slower growing than the Thai Shorputi, referred to below, and therefore require a longer growing cycle and more investment. As of December 1994 BRAC had 18,679 farmers involved with 4302 acres of water area. As a system of partial harvesting is employed and cumulative production figures recorded it was difficult to secure annual figures but figures calculated for

BOX 2

At a meeting with a women's VO in Itaghpara village six of them identified themselves as aquaculturists. The VO had 48 members who attend weekly meetings. Unlike Fulbaria this area is liberal and the women had no problem giving information and demonstrated considerable financial control of their affairs.

Zohura is in her mid forties and has five daughters and four sons. Her husband is a small fish trader in the local bazaar. She has no agricultural land beyond a kitchen garden. Two years ago she leased a pond of 0.65 of an acre from a local landowner. The lease was for three years and she would have liked a longer one but the loan given by BRAC was not enough. She has to pay Tk 7,000 per annum to the landowner. She was given TK 5,000 as a loan from BRAC which she repays at Tk 110 per week. This was enough to prepare and stock the pond.

She demonstrated a considerable knowledge of perennial aquaculture some of which she learned on training courses from both BRAC and FRI. She feeds her fish duckweed which she buys from a neighbour giving fish in return.

When she had diseased fish she knew how to treat them with lime and salt. She keeps her pond fertile with Urea, TSP which she buys herself and cow dung. She knows the prices and send her children to purchase these inputs. Zohura works on her pond every day.

During the last harvest she negotiated Tk 38 per kilogramme for her fish with a trader from Dhaka. She keeps this money for future inputs but she has also improved her home and she sends her children to school. Zohura said her family's diet had improved much since she took the lease of the pond.

June 1993-May 1994 suggested an average production of 912 kg per acre. During a visit to Habiganj Regional Office the reported average production figures were 920 kg per acre. The figures for the Fulbaria and Boilor areas were 879 kg per acre although during farmer interviews which, although frequently inaccurate and often understated, showed an average of 640 kg per acre. The total gross value of the BRAC national Polyculture programme, based on the 1994 pond-side market price of Tk. 35 per kg multiplied by total acreage (4,302 acres) and average production of 920 kg per acre which is the BRAC national average figure to December 1994. The model in Annex 3 reveals a return to the participant of Tk. 36 per labour day during the 2 year loan period and Tk. 108 per labour day after the repayment.¹

BRAC management recommendations accord with standard donor and GoB recommendations for polyculture and consist of a mixed species stocking standard ratio of carps plus organic and inorganic fertilisation to increase plankton supply on which the fish feed. It was reported by BRAC in Dhaka that supplementary feeding was not recommended. Fieldwork showed, however, that individual area recommendations appeared to include feeding and indeed some farmers said they were adding rice bran. It is however a stable, low risk "improved extensive" system and eminently suitable for BRAC target groups.

¹ Unskilled agricultural labour earns 2 kg. of rice for an 8 hour day, or about Tk. 35 per day.

BOX 3.
CASE STUDY FULBARIA

Group: Nich Kushmail - 70 members - 4 associated with fisheries

Member: Abdul Matin

Age: 37

His father has 2 acres of irrigated paddy and prior to his involvement with BRAC he farmed this land. He did not report having sold his labour. He has one brother. He reported, confirmed by BRAC, that his first loan was Tk 7000 of which he paid back Tk 3000. He is planning to lease three more ponds as two of his current pond leases expire in March 1995, the third in March 1996. He felt that fisheries was the most profitable of all the group activities. He was happy with the activity confirmed by his enthusiasm for taking on new ponds.

Ponds: 2 leased prior to BRAC involvement
3 ponds with BRAC with total area of 1.2 acres (three times reported average)
Ponds leased for three years

Training: Mr Matin received two 14 days training courses (confirmed by BRAC), the first on aquaculture at Rajendrapur Training Centre, Joydepur; the second on Group Activities in Modhupur.

Records: There was no entry since February 1994 when he had invested Tk 20,000 as well as the BRAC loan of Tk 7000. He had paid back Tk 3000 and Tk 700 service charge (levy).

40 decimal pond:

Mr Matin reported spending half an hour, an average, on each pond per day. On special occasions he would eat some fish although most of the production is sold at market.

Three systems were being employed for harvesting, the first being the most profitable.

- to hire a net from the BRAC office (Tk.30 per day although BRAC reported a free service) and to harvest and market himself. This was generally for partial harvesting. Often his friends helped for which he would reward them with a small amount of fish (1kg each)
- to contract the netting to professional fisherman who charged Tk 50 for one netting. He would market himself
- to agree a price with a retailer who would harvest and market the fish

Mr. Abdul Matin 40 decimal Polyculture pond

INPUTS	QUANTITY/NO'S	TAKA PER POND
Poison	200 tablets Phostoxin	800
Lime	40 kg	160
Urea	50 kg	250
TSP	55 kg	330
Feed Oil Cake	200 kg	1400
Rice bran	120 kg	360
Fingerlings	400 no's	200
Loan	(half as it is paid over 2 years)	3500
Interest at 15 %		1050
BRAC Service Charge		400
TOTAL		8450
OUTPUTS		9000 (640 Kg/acre)
NET INCREMENTAL GAIN		Tk. 550

Note: This level of production which approximates to 640 kg based on an average market price of Tk 35 is well below the potential yield and slightly lower than average figure (889 kg) for Fulbaria area reported to the team at the Area Office.

BRAC's average figure of 912 kg yield per acre is 60% of some other donors' projects (e.g. Danida and GoB) that claim productivity averaging 1500 kg per acre. In Habiganj the team were informed that the BRAC target figure was 1200 kg per acre. A complete financial farm budget, based on the BRAC "model", and reported production rates, can be seen in Annex 3 and a case study is presented in Box 3.

The production figures do not match farmer trials performed by BRAC in Jessore (Action Research Findings on Carp Polyculture, BRAC, 1992). Average production rates of 1474 kg per acre with a profit of Tk. 15,564 per acre were reported in these trials clearly demonstrating that a strategy based on organic and inorganic fertilisation yielded a higher net profit than a strategy involving supplementary feed (see also Section 3.2.).

2.- Thai Shorputi. This species of fish (*Puntius Goniotus*) was imported from Thailand in the late 1980's. They are a fast growing minor carp attaining marketable size within 6 months. It is therefore suitable for seasonal ponds that dry out in the winter. It is also suitable for a variety of culture systems in addition to the one employed by BRAC groups. The Shorputi is good "homestead fish", easily cultured, feeding on a large variety of materials and commanding a high market price.

As of December 1994 BRAC had 31,645 farmers involved with 2,500 acres of seasonal water area. The team were able to secure production figures for the period June 1993-July 1994 and these indicated an average production of 450 kg per acre. During the field visits the reported average production figures for the Fulbaria and Boilor areas was 614 kg per acre and 523 kg per acre for Habiganj. This was subsequently found to be an accurate figure following farmer interviews in both these areas. The Mymensingh figures would be expected to be higher because of both the fact that BRAC ponds are more mature in this area and that Mymensingh ponds tend to be more fertile than other parts of Bangladesh. The total gross value of the BRAC national Shorputi programme, based on the December 1994 figures (1740 acres), a pond-side market price of Tk. 35 per kg and an average production of 450 kg per acre, was Tk. 27.4 million.

BRAC recommendations for the seasonal ponds are consistent with standard donor and GoB recommendations which similarly comprise a mix of fast growing fish that complement the Shorputi; in most instances these are Silver Carp, Common Carp, and/or Tilapia species. Management practices are also similar with organic and inorganic fertiliser applied to increase plankton supply on which the fish feed and small amounts of supplementary feeding. At 450 kg per acre, the average BRAC seasonal pond production is 38% of the reported results of over 1200 kg per acre from some other donor projects (e.g. Danida in Mymensingh and GoB). A complete financial farm budget based on the BRAC Shorputi "model" can be seen in Annex 3 and a case study in Box 4. Like the polyculture systems it is a stable, low risk system appropriate to the environmental conditions and target group. The model reveals a return to the participant of Tk. 41 per labour day during the 2 year loan period and Tk. 53 per labour day after the repayment.

BOX 4.
CASE STUDY BOILOR

Group: Baggara - Kalam - 35 members - 6 associated with fisheries

Member: Mr Shamsul Hoque

Age: 44

Mr Hoque had been a BRAC member for thirteen years, first starting with a loan for betel nut trading. With the profits from this he had purchased a thirteen decimal homestead plot. He had decided to use his existing land (26 decimals), which he owned prior to BRAC involvement, for fish culture. Prior to his involvement with BRAC he had been in daily seasonal labour. He reported, confirmed by BRAC, that his first loan for fish culture was Tk 5000 which he had taken two years ago. He decided to adopt Shorputi culture as the loan would have been insufficient to excavate his pond to a suitable depth for Polyculture. He felt that fisheries was the most profitable of all the group activities. He was happy with the activity.

Ponds: 1 BRAC pond with total area of 0.2 acres (three times reported average)
The pond was owned by himself

Training: Mr Hoque had received training (confirmed by BRAC) at the Fisheries Research Institute, Mymensingh and locally by BRAC staff.

40 decimal study.

Mr Kashem reported spending half an hour, an average, on the pond each day. On special occasions he would eat some fish although most of the production is sold at market.

Three systems were being employed for harvesting, the first being the most profitable.

- to contract the netting to professional fisherman who charged Tk 50 for one netting. He would sell the fish to another group member who was a fish trader and also had 2 BRAC ponds.
- to agree a price with a retailer who would harvest and market the fish

Mr. Shamsul Hoque
20 decimal Shorputi pond

INPUTS	QUANTITY/NO'S	TAKA PER POND
Lime	30 kg (half recommended dose)	50
Urea	30 kg	150
TSP	30 kg	150
Cow dung	520 kg (Free as he had 1 cow)	
Feed - Rice bran	18 kg (Duckweed at no cost)	54
Poultry droppings	(Free and at random)	
Fingerlings	1,225 no's	410
Loan	(half as it is paid over 2 years)	2,500
Interest at 15 %		375
BRAC Service Charge		200
TOTAL		3,589
OUTPUTS	120 kg	6,000 600 Kg/acre
NET INCREMENTAL GAIN	Tk.	2,100

Note: The level of production in this study, which approximates to 600 kg acre, based on an average market price of Tk 35, is again below the potential yield, and is below the average figure (655 kg) for Boilor area reported to the team at the Area Office.

The BRAC pond management recommendations, particularly those at field level, accord with the BRAC poverty focus, especially in terms of their gender strategy :

- cowdung is traditionally collected by women and children which is often considered "pure" work and used traditionally as a building, cleaning and purifying material. It is therefore available to women to fertilise the ponds and they reported it was at no cost;
- women in the poorest households are involved with rice husking, the activity providing rice bran to feed the fish.

Both the above are easily accessible to women and moreover are more appropriate as inputs than inorganic inputs such as Urea and TSP as these have to be purchased in the market and purchase is predominantly the responsibility of the male member of the household.

3. - Nurseries. This activity produces a variety of fingerlings of different species (1-3 inch fish) for stocking in the growout Polyculture and Thai Shorputi systems.

As of December 1994 BRAC had 1,565 farmers involved with 360 acres of nurseries. The team were able to secure total harvest figures for the period January 1994 - December 1994 which indicated an average production of 443,300 fingerlings per acre. The Mymensingh Regional Office reported an average production figure for the Fulbaria and Boilor areas as 588,900 per acre which are produced during three short production cycles. As in the previous case this was subsequently found to be an accurate figure following farmer interviews in both these areas. The total gross value of the BRAC national programme to December 1994 based on an average production of 443,300 fingerlings per acre, a total of 329 acres and a market price of Tk. 0.5 each, was Tk. 72.92 million.

BRAC recommendations for nursery management accord with standard donor and GoB recommendations for nursery pond systems with organic and inorganic fertiliser applied to increase plankton supply on which the fingerlings feed as well as supplementary feeding with rice bran. The BRAC average productivity in Mymensingh compares favourably with productivity in other systems. This would be expected as the nursery farmers have had experience in other fish culture systems before starting nursery production. A complete financial farm budget, based on the BRAC "model" can be seen in Annex 3 and a case study can be seen in Box 5. This level of production is consistent with other donor and GoB reported production figures. The model in Annex 3 reveals a return to the participant of Tk. 288 per labour day during the 2 year loan period and Tk. 340 per labour day after the repayment.

Consistent with the other systems it is a well proven and stable system but with the potential of greater profits it involves higher risks and requires a higher degree of management and

BOX 5
CASE STUDY BOILOR

Group: Baghpara - 35 members - 8 associated with fisheries

Member: Mr Abdul Kashem

Age: 38

Mr Kashem had been a BRAC member for thirteen years, first starting with a loan for fish trading. With the profits from this he had purchased a six decimal homestead plot on which we were interviewing. Prior to his involvement with BRAC he had been in daily seasonal labour. He felt that fisheries, especially nursery rearing although involving risk and high investment, was the most profitable of the fisheries activities and that fisheries in general was the most profitable of all the group activities. He was happy with the activity.

Ponds: 2 BRAC ponds with a total area of 0.58 acres (above the reported BRAC average size)
Mr Ahmed had an 8 decimal pond on a 2 year lease and a 50 decimal pond on an 11 year lease

Training: Mr Ahmed had received training (confirmed by BRAC) at the TARC Sarar as well as several other BRAC sessions.

One 50 decimal and one 8 decimal pond

Mr Kashem reported spending 3-4 hours a day on the fisheries activities during the nursery season, April-October, less during the winter months when he was repairing and preparing the ponds.

Mr Kashem harvested himself with the help of part time high season labour (to whom he just supplied food which he estimated cost him Tk 300/month) for harvesting. Mr Kashem sold fingerlings to local farmers some of whom were BRAC members. He was currently re-excavating one of his ponds and had taken a loan of Tk 6500 with which to do this.

Mr. Abdul Kashem
50 decimal nursery pond

INPUTS	QUANTITY/NO'S	TAKA PER POND
Photoxin	250 No's (for removal of predatory fish)	1,000
Lime	705 kg (less than recommended dose)	350
Cow dung	925 kg (Free as he had 1 cow)	
Rice bran etc.	200 kg	600
Oil Cake	200 kg	1,400
Fry	300,000 no's + 500gms spawn	9,000
Labour	1,800 (Six months at Tk300)	1,800
Loan	(half as it is paid over 2 years)	3,250
Interest at 15 %	487	
BRAC Service Charge		500
TOTAL		18,387
OUTPUTS		
	1st 50,000	8,000
	2nd 100,000	20,000
	3rd 80,000	16,000
TOTAL		44,000
NET INCREMENTAL GAIN	Tk	25,613

expertise. BRAC have taken this into account and ensured their clients gain experience or have experience in Polyculture or Thai Shorputi before starting nursery production. This methodology is sound but could tend to create a constraint inasmuch as when BRAC expand into new areas of the country in RDP IV, starting with Thai Shorputi or Polyculture, there may not be enough BRAC nursery producers and therefore, as is common already in some areas, a shortage of fingerlings.

4. - Hatcheries Most carp hatcheries in Bangladesh are based on a proven system of simple management. BRAC hatcheries are no exception. The activity produces hatchlings (7 days old) to be stocked in nursery ponds for ongrowing to fingerlings (the intermediate stage), before these are sold on for stocking into the "food-fish" ponds. The species of fish involved with the Polyculture and Thai Shorputi systems are bred in a similar way utilising hormones to induce ovulation and spawning, the manual stripping of fish and transfer of eggs to a vertical jar system for incubation and then for first stage nursing of the hatchlings until the yolk sac is absorbed (5 days).

As of December 1994 BRAC had 150 hatcheries with the same number of farmers. The team were able to secure total harvest figures for the 1994 season which indicated a production of 14.2 kg of hatchlings (400,000 hatchlings per kg.) During the visit to *Mymensingh Regional Office* the reported average production figures for the *Fulbaria* and *Boilor* areas were given as 13.91 kg of spawn per hatchery produced during five short production cycles. The production model was confirmed by two field visits to small hatcheries. As in the previous case this was subsequently found to be an accurate figure following farmer interviews in both these areas. The total gross value of the BRAC national programme to December 1994, based on 136 hatcheries with an average production of 14.2 kg and a market price of Tk. 2500 per kg (400,000 hatchlings), was Tk. 4.82 million.

The BRAC hatchery design is consistent with other government and NGO carp hatcheries. There is a small scale version, a "Mini-Hatchery", based around a treadle pump/hand pump to supply groundwater rather than the more traditional shallow or deep tubewell. This is obviously a function of size and total water demand. The BRAC hatchery productivity compares favourably to others in terms of production of hatchlings by volume of incubation vessel. A complete financial hatchery budget, based on the BRAC "model" can be seen in Annex 3 and case studies in Boxes 6 and 7. The model in Annex 3 reveals a return to the participant of Tk. 80 per labour day during the 2 year loan period and Tk. 145 per labour day after the repayment. As with the other systems it is a well proven, stable system but involving higher risks than pond culture and requiring a higher degree of management and expertise.

BRAC, as with nursery ponds, have taken this into account and ensured their clients gain experience or have experience with pond culture before starting the hatchery operations. Once again the methodology is sound but could tend to create a constraint, inasmuch as when BRAC expand into new areas of Bangladesh, starting with other technologies, there will be no BRAC hatchling producers and potentially there may exist a shortage of hatchlings for

BOX 6

Bashir Ali lives in Chakradhakani village in Fulbaria. The total size of VO membership is 62 of which 40 are involved in aquaculture.

Bashir Ali has a hatchery where he spawns mixed carp, puts them into a nursery pond of one third of an acre, fattens them and sells the fingerlings locally for cash. He also has a pond of less than one fifth of an acre for his brood stock. He owns the brood stock pond while his father-in-law owns the nursery pond. He pays his father twice the BRAC recommended maximum rent for use of the nursery pond.

Three years ago Bashir Ali received an advance (not a loan) of Tk 7,500 to start his hatchery. This was not enough for the development and BRAC advanced another Tk 5,000. When the hatchery proved to be successful the advance was converted to a BRAC loan. BRAC management said that even if the hatchery had been unsuccessful he would have had to repay the principle. This meant that he was experimenting with his own money on technology that BRAC could eventually disseminate. Bashir Ali will now have to repay his converted advance at Tk 170 per week.

Bashir Ali attended two BRAC training courses. He went to Rajendrapur for hatchery training and Modhupur for the management of fry. He is serviced by a hatchery technician two or three days each week.

Bashir Ali only just qualified, at least as far as landholding was concerned, for BRAC VO membership since he had half an acre of rice land when he joined. Since the success of his hatchery he has bought another half an acre of rice land.

Case study Mini-hatchery

Inputs

Capital loan	12,500
Running costs/materials	8,945
Broodfish	3,360
Pond and broodfish maintenance	4,000
Loan (half paid off in first year)	6,250
Interest at 15%	1,875
Total	24,430

Outputs

Spawns	15.00 kg @ Tk 2500 per kg	37,500
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Net incremental gain	Tk	13,070
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BOX 7

Abdus Salam runs a carp hatchery which he started two years ago with an advance from the BRAC Rural Enterprise Programme. The advance was Tk 12,500 which has now been converted to a loan which he says he paid off but he had no receipt for this nor could BRAC show the record at site. The BRAC zonal manager claimed Abdus has lost his documentation. From the card Abdus keeps and which is supposed to be checked by the extension worker he still owes this money.

Checking his records for production it was discovered that BRAC had recorded two kilogrammes of shorputi spawn when in fact incubation had failed. Otherwise his production was good but in distributing this more problems emerged. He had supplied other aquaculturists in the VO with over eight kilogrammes of fry for which he was owed over Tk 16,000. This had been transacted in August 1994 and apart from Tk 2,000 this debt has been owed to him for seven months.

Abdus said the extension PA had guaranteed the credit was safe and was responsible for it if there was default. The PA had given Abdus a scrap of paper with the names of his four debtors and the amounts and had signed it. The zonal manager, when asked, said it was not an official duty of the PA but that he was helping out.

Abdus was unaware of when and how he would get this money back. BRAC officials said there were records in the area office.

stocking in fingerling ponds. Hatchlings are easily transported, however, and this constraint may not be of major significance (see also Section 3.3).

Note: The estimated total gross benefit to BRAC clients from all the current fisheries activities is Tk. 243.64 million for fish production year 1994.

5. -Prawn (*Macrobrachium*) nurseries BRAC are considering investment in *Macrobrachium* hatcheries (see also Section 2.3.). Should BRAC consider support to their groups in prawn nurseries the supply of the raw material, called post larvae, will have to be guaranteed by hatchery development as post larvae are currently in very high demand and scarce. Furthermore, selection of the site of these nurseries will be critical to the success of the venture in terms of demand for product (juvenile prawn for on-growing) as it is in the southern regions of the country where the processors offer collection of the adult prawns for export. There is little, if any, local demand with the exception of Dhaka and the international markets are becoming increasingly volatile as a result of higher production in other Asian countries. If demand is present in other areas of Bangladesh success will certainly depend on whether the final producers of the large export prawns are able to market their produce efficiently.

Although the profits from *Macrobrachium* nurseries are potentially high for the group members, the risks are also very high as is the investment required. A financial appraisal, based on other experiences in the south of the country, can be seen in Annex 3. The promotion of prawn nurseries for BRAC members, when the technology for low risk, stable fish culture systems are simple and readily available, is not a decision to be taken lightly.

It is recommended that BRAC consolidate and optimise their current activities before the decision is made to introduce prawn nurseries to their group members. At present the production from Polyculture and Shorputi is still below average (see also Section 3.2.) Should BRAC consider a venture into prawn nurseries, it will be important that adequate technical support is available and that there is a market for the products. The proposed Fish Feed plant (addressed below) would be beneficial, although perhaps not essential to these activities.

4.3 BRAC Revenue Generating Activities

The potential revenue generating activities for BRAC can be divided into two categories. The first is a result of the service charges to farmers which for Carp Polyculture and Shorputi will be Tk. 5 and Tk. 3 respectively per decimal, Tk. 10 per decimal for a nursery and a flat rate of Tk. 1000 for a hatchery. The total incremental revenue from which is shown below in Table One.

TABLE ONE - Service Charge Revenues for Fisheries 1996 - 2000
(Tk. million)

	1995	1996	1997	1998	1999	2000	Total revenue earned
Polyculture	2.25	3.7	4.5	5.4	5.95	6.4	28.70
Shorputi	.75	1.03	1.23	1.3	1.65	1.71	7.86
Prawn nurseries	0	.065	.16	.29	.42	.46	1.395
Carp nurseries	.36	.4	.5	.6	.65	.7	3.21
Carp hatcheries	.15	.175	.2	.235	.26	.26	1.28
TOTAL	4.01	5.37	6.59	7.82	8.9	9.53	42

The total budget for Programme Assistants' salaries in financial year 5 (Year 2000) is Tk. 8.7 million. The service charges to farmers in the programme by the year 2000 (Tk. 9.5 million) would therefore cover these salaries. A more complete discussion of service charges and their contribution to overall cost recovery is contained in the Finance and Credit Analysis.

There are two future revenue generating activities proposed:

- the development of Prawn (*Macrobrachium Rosenbergi*) Hatcheries
- the development of feedmills.

Prawn hatcheries

Prawn hatcheries could be considered necessary for the success of the prawn nursery component of RDP IV as there is a shortage of post larvae (the animals stocked in prawn nurseries). BRAC have, at present, one Prawn hatchery in Jessore that was designed and built closely following donor (Bay of Bengal Project) design specifications. The team were unable to secure any financial plan for these hatcheries although it did secure the designs.

The BRAC hatchery is of a well proven design based on a partial brine recycle system (due to the necessity of 12 ppt salinity water during the incubation cycle) which can produce 2.4 million post larvae for stocking in nursery ponds. BRAC experience, so far, is not good and they have failed to produce any significant numbers of post larvae from their current hatchery in Jessore. The fault is not in the design, but in the lack of technical capacity. This is available to a limited degree in Bangladesh but the recruitment of suitably qualified and

experienced personnel may prove difficult as there is currently great competition in the private sector for staff to develop these potentially high profit ventures. If the current and planned hatchery developments in the private sector succeed, and there are certainly many hatcheries being built at present, the profit margin envisaged will almost certainly decline due to increased supply. However, the price of post larvae and juveniles has doubled over the last year and is still increasing so there could be some enormous short term gains. Even in a stable market, however, the investment looks promising.

It is recommended that BRAC recruit a suitably qualified local consultant to supervise their Prawn Hatchery activities. To enable BRAC to recruit an appropriate person, the remuneration must be commensurate with experience, not necessarily in line with the standard BRAC salary structure. Alternatively BRAC consider requesting donor support to train their existing staff.

It is furthermore recommended that BRAC consider the marketing opportunities and demand before committing themselves, and their group members, to activities in the Northwest of the country, or indeed anywhere away from the main processing centres of Khulna and Chittagong.

Feed Mills

Feedmills are not essential to the success of the present BRAC pond aquaculture, as the impact of the dissemination of existing appropriate technology still has considerable potential before introducing supplementary feeds. The Consultants accept BRAC's concern that will be some BRAC farmers (high achievers) who will be producing optimal yields and that BRAC will wish to support these farmers in the regular supply of appropriate fish feeds which are in short supply in Bangladesh.

BRAC also envisages commercial sales of feeds but there is no indication of this in the proposal for RDP IV. There is a growing demand for fish feed, especially in the light of rapidly expanding prawn culture and BRAC should, by developing the mills, be in a position to address this demand from the private sector. A financial appraisal, supplied by BRAC, can be seen in Annex 3. To supply high achievers and to allow commercial supply, BRAC's involvement in a Fish Feed plant may indeed be justifiable.

However, it is recommended that BRAC pursue feed mill feasibility on a commercial basis outside the immediate RDP IV requirements⁴. The implications of the cost of this input to their "regular" aquaculture borrowers would need to be investigated using the farm models contained in Annex 3. Due care should be taken to ensure the incremental benefit from the feed offsets any incremental cost before including the demand for such feed from BRAC's

⁴ This point will also be reviewed in the Finance and Credit Section.

aquaculture programme in the feed mill analysis.

4.4 Budget Analysis

At the macro level, a review of total fisheries expenditure and numbers of participants shows that during the five year lifespan of RDP IV, BRAC will expend approximately Tk. 2,000 per participant to provide a water body, training and deliver stock and technical services to around 73,000 new members involved in aquaculture. If cost recovery in the form of a service charge/levy on the farmers for services (see Section 2.3) works efficiently this investment will be reduced to about Tk. 1,400 per capita. If the cost of the feed mills is removed and the cost recovery is successful the per capita investment is reduced to approximately TK 1,300 per farmer. (The reason for these different computations derives from the fact that the RDP IV proposal does not give an investment cost per new member in aquaculture development).

On the basis of the economic models (see Annex 3) it would cost in excess of Tk. 211 millions to recruit and assist the number of new aquaculturists targeted by BRAC on the assumption that these new fish farmers need a 100 per cent loan. There are large sums budgeted for the total Loan Fund Requirement, Tk. 490 and 315 millions for 1996 and 1997 respectively, but no indication as to how much is set aside for aquaculture development. The final three years of RDP IV loans would be funded from the recoveries from 1996 and 1997 and also from another Rural Credit Programme budget.

Table Two below gives the annual loan requirement breakdown for each category of aquaculture development during the entire life of RDP IV.

The total Aquaculture Loan Portfolio for the 5 year RDP IV is thus Tk. 261 Million. This represents 25.5% of the total RDP IV loan portfolio of Tk. 1.02 billion.

TABLE TWO - Loan Requirements Per Annum RDP IV (Tk. Millions)

Enterprise	1996	1997	1998	1999	2000
Perennial	26.31	22.1	24.9	15.2	12.4
Seasonal	4.27	3.32	4.27	2.37	.94
Carp Nursery	.97	2.42	2.43	1.21	1.21
Prawn Nursery	3.9	9.74	17.66	25.88	27.91
Carp Hatchery	.48	.67	.48	.48	nil
Total	35.72	38.25	49.74	45.14	42.26

To qualify for a loan the VO member has to start saving during the group formation phase of the project and potential aquaculturists are expected to have saved between 5 and 15 per cent of the start-up costs. Interest on the individual member's savings is six per cent. They need not use this but BRAC requires the savings in its possession as a precondition for the loan. The entire VO is responsible for each member's loan meaning BRAC has ensured group policing for its outlay. Individual aquaculturists can have loans for the first three years with a nine month grace period before repayment begins. Interest on all loans is at a flat rate of 15 per cent per annum. The loans have annual ceilings of four, six and ten thousand taka but exceptions can be made for aquaculture which often has higher start-up costs.

In the RDP IV budget there are also sums for a revolving fund, Tk. 10 million, and a fund for what is called Experimental and Development which is Tk. 7.5 million. The former is for loans for ponds which require extensive excavation costs and these are over and above loans for pond aquaculture operations. The latter is for experiments involving eg new species of fish regimes in aquaculture and other experimental factors such as new feeding mixes.

Within the constraints of the time for the assignment, the consultants find that the budget, excluding credit which is contained in the general budget, is reasonable and sufficient for the scope of the aquaculture work in BRAC RDP IV.

5. INSTITUTIONAL ASPECTS

5.1 BRAC Organisational Capacity

The systems proposed in RDP IV involve well proven, low risk appropriate technology strategies suitable to the environmental conditions and target beneficiaries. The development capacity exists within the organisation as demonstrated by trials performed in the Jessore region to establish the most profitable fertilisation/feeding regimes and more recently in collaboration with the Fisheries Research Institute (FRI) and International Centre for Living Aquatic Resource Management (ICLARM) in the Technology Transfer Project (TTP) in the development of "models" achieving up to 1500 kg per acre in Polyculture ponds. These profitable strategies during the life of RDP IV will require very little further development. Production can potentially increase from current levels through effective dissemination of appropriate information and the development of the individual's capacity for effective management of the resource rather than the development of the technology *per se*. Farmers, as they begin to understand the concepts of fish culture, will improve their own management regimes.

In the further development of the technologies there has to be a significant increase in production to yield an average production of a reported (but not verified in the field) 2000 kg per acre to justify greater expenditure on feeds and increased stocking. The organisation at present does not appear to have the numbers of manpower (in terms of the ratio of Fisheries Programme Assistants to farmers) to deliver appropriate training at this level of technology.

The Extension Staff levels and ability to extend the technologies will be discussed below in para. 3.2. In terms of extension strategy the team concluded that, although BRAC have produced very good training manuals (although not in evidence during some field visits), there is considerable potential for developing farmer based leaflets, posters and pictorial guides. Messages are reaching the farmer, but these are often distorted and do not accord with the standard BRAC, or indeed any other, recommendations. Evidence of great success, although technically artificial, exists in the TTP of ICLARM and FRI. The TTP farmers, who include some BRAC group members, appear in the field to be given similar recommendations as other BRAC non-TTP members yet production by the TTP farmers is over 60% higher than BRAC non-TTP farmers. TTP farmers are, however, given free inputs of fertiliser, feed and fingerlings and these are applied at regular intervals and closely supervised by the Programme Assistants. There may be several reasons for the differences in productivity:

- non TTP BRAC farmers are not following the BRAC recommendations, or least not following them regularly; this may be due to the lack of farmer based training materials;
- non TTP BRAC farmers are not receiving the same amount of advice, technical backup or again farmer based information and are unsure as to what the recommendations are;

- non TTP BRAC farmers will not commit valuable resources to the pond in return for a possible future gain since they think it is a risk. They put less in, get less out but are less vulnerable. For TTP farmers inputs are free at no risk.

Obviously the Technology Transfer Project is unsustainable but may convince farmers that investment in the pond can yield good returns. In terms of the first two reasons, however, it could be a function of high ratio of farmers to Programme Assistants and specialist support (see also Section 3.2.)

It is recommended that BRAC develop farmer based extension materials or support to do this would be available from BAFRU.

The ratio of farmers to Programme Assistants is addressed below.

5.2 Technical and Extension Capacity

One gap in the technical and extension services is the failure of BRAC to recruit women to service an aquaculture programme the female participants of which form over 80 per cent of the total membership. In the Fulbaria area of the BRAC operation there are no female Programme Assistants whatsoever out of 11, while for the higher grade of Programme Officer there was one. The team were told that although women were frequently interviewed they did not accept the jobs which according to BRAC management was the result of them finding the prospect of the work too difficult.

The new development of Prawn Nurseries in RDP IV will require intensive extension services. Between now and the year 2000, the Programme Assistants will eventually be expected to give services to up to 422 farmers each. This is a very high number even if RDP III farmers need less and less assistance. At the most pessimistic level the extension worker can only give each farmer one half day per annum if he sees them on an individual basis.

The statistical records of BRAC were often inadequate at the national, area and field level. Records for total production for each area on an annual basis were requested and not furnished because of problems with the computer or because BRAC did not keep them in a form which allowed them to access this data easily. Production and expenditure record cards at farm level were often lacking information and in some instances had not been filled in for months. Access to information on production processes was easier through farmers than through BRAC professionally trained staff. In the field, in the presence of zonal, area and field staff, it was frequently impossible to get accurate information on inputs and outputs.

The team were told that currently there are 22 Regional Sector Specialists who are fisheries graduates and under these are 157 Programme Assistants who are mainly intermediate school leavers but from the project areas. Each of these Programme Assistants can be responsible for up to 25 acres of Polyculture, 25 acres of Thai Shorputi and 2.5 acres of Nurseries as

BOX 8
FULBARIA AREA

STAFF

1 Branch Manager
6 Project Officers (1 women in health)
12 Sector Programme Assistants (one fisheries)
2 Health Assistants and two contract, part time, Hatchery Technicians.
A total of 22 full time staff.

FISHERIES ACTIVITIES AND ACHIEVEMENTS

140 (19.85 acres)	Polyculture Farmers	14,000 kg	705 kg acre
341 (22 acres)	Shorputi Farmers	14,000 kg	636 kg acre
9 (4.1 acres)	Carp Nurseries	3,000,000 fingerlings	7,317 per acre
1	Hatcheries	20 kg hatchlings	10 kg hatchery

GENDER

	Male	Female
Polyculture	120	20
Shorputi	206	135
Nurseries	9	0
Hatcheries	2	0
TOTAL	337	155
PERCENTAGE	68%	32%

BOX 9
BOILO AREA

STAFF

1 Branch Manager
5 Project Officers
22 Sector Programme Assistants (one fisheries)
A total of 28 full time staff.

FISHERIES ACTIVITIES AND ACHIEVEMENTS

196 (52.30 acres)	Polyculture Farmers	70,005 kg	1338 kg acre
482 (22 acres)	Shorputi Farmers	14,725 kg	6.69 kg acre
10 (5.45 acres)	Carp Nurseries	3,200,000 fingerlings	5871 per acre
1	Hatcheries	16.5 hatchlings	16.5 kg hatchery

GENDER

	Male	Female
Polyculture	89	107
Shorputi	83	319
Nurseries	8	2
Hatcheries	1	0
TOTAL	181	428
PERCENTAGE	29%	71%

well as one hatchery. Using average figures for pond size of 28 decimals for Polyculture, 8 decimals for Shorputi, 33 decimals for prawn nurseries and 28 for carp nurseries (these were confirmed with BRAC as acceptable averages) there are a reported 19,642 Polyculture Farmers, 31,645 Shorputi Farmers, 1,565 nursery farmers and 150 hatcheries. A total number of 53,002 supervised and technically assisted by 157 PA's averages out at 265 farmers per Extension Worker taking into account all existing and new farmers in the programme. The targets for the Fisheries Programme 1995-2000 (including RDP IV) in terms of both acreage and farmer numbers can be seen in Annex 2. Attempts have been made to identify how many farmers the Programme Assistants (Fisheries) will be responsible for. The figures in Table Three are cumulative including 1995 figures and based on the average pond figures quoted above and the proposed increased staffing levels in RDP IV.

TABLE THREE - Cumulative numbers of farmers per Programme Assistant.

1995	1996	1997	1998	1999	2000
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Including all farmers in the programme, existing and future.

272 farmers	340 farmers	328 farmers	364 farmers	401 farmers	422 farmers
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Including only those farmers in RDP IV. Figures in brackets are cumulative.

Not applicable	88 farmers	58 farmers	66 farmers	40 farmers	25 farmers
	(88)	(138)	(204)	(244)	(269)

Field visits to both Mymensingh and Habiganj confirmed the numbers of clients each Programme Assistant is responsible for. Data for the Fulbaria area can be seen in Box 8. The Programme Assistant, in this particular case, is currently responsible for 492 farmers in the fisheries programme. Data for Boilor area can be seen in Box 9 and it is significantly more difficult with the Programme Assistant being responsible for 609 farmers.

It was reported that the Project Officer for credit and senior colleagues offer support and also visit farmers but clearly the responsibility is great and the workload high. The team interviewed the Programme Assistants who reported that they attempted to visit two VOs a.m. and two p.m. most working days. There are in fact often several fish farming activities attached to one VO (reported average 4) which would reduce the workload to 123 VOs at four per day. This would still involve 30 days of visits if all were to be visited monthly. Clearly these targets are ambitious.

BRAC staff are clearly committed to assist and maintain supervision over farmers as far as

practical within what the team see as staff constraints in the fisheries programme. All farmers without exception reported that they considered fish culture activities as the most profitable of the group activities. Even conservative financial analysis confirms the potential incremental benefit is of significant value to farmers. It is especially important that new farmers are well supported.

It is therefore recommended that:

- the number of BRAC Programme Assistants be increased over and above the increases proposed in RDP IV. A realistic increase would be the doubling of the manpower to ensure the farmers achieve the full potential available to them. This may be reflected, as found in other projects, in increased production through increased farmer contact. The increase can be covered from increase in service charges.
- every effort should be made to recruit women field and extension staff more rigorously; indeed if more PAs are recruited generally the areas to be covered will be reduced and the positions will become more attractive to women.
- the number of Fisheries Specialists be increased, especially in view of the proposals for prawn nursery and hatchery development.
- the system of keeping records with the farmer should be improved and senior staff should regularly inspect the farmers' record cards; this should include both financial and pond input/output data.

5.3 Production Strategies

With all culture systems, increased density of fish leads to increased demand for feed as the natural pond ecosystem is unable to maintain sufficient balance through organic or inorganic fertilisation alone. This larger investment in feeds increases the financial risks and level of management expertise required. Should BRAC decide that semi-intensive or intensive systems are appropriate for experienced group members, a constraint may well be the availability of feed supply. This constraint now exists amongst semi-intensive fish, shrimp and prawn producers. Feedmills are being developed in response to this demand. BRAC has also included in the proposal a sum for feedmills in RDP IV, so a basic diet for semi-intensive aquaculture may not be a major constraint (see also Section 2.4.) At present, however, it does appear that there is a need for consolidation and realisation of the full potential from existing resources under group member control as well as for future members to be involved with the fish activities.

Material inputs to the current fish culture systems, and indeed semi intensive fish culture systems, should not be a constraint. There could, however, be input constraints with any ventures into *Macrobrachium* nurseries or hatcheries (see Section 2.1.).

The BRAC fisheries programme is impressive but perhaps the full potential from the existing "models" should be fully realised before consideration is given to more intensive systems. The "high achievers", to whom BRAC would like to support more fully, are clearly in the minority.

It is therefore recommended that BRAC, within their fisheries development, continue to implement the current recommendations on production strategies, some of which have been developed through the Technology Transfer Project with FRI and others by their own 'Action Research'.

5.4 Institutional Collaboration

BRAC's strategy in dealing with the GOB has been to attempt to create a system of mutual interdependence. This is designed to alleviate any antagonism towards NGOs and especially large ones like BRAC which may sometimes be seen to be competing for foreign funding especially since multilateral and bilateral donors started funding NGOs.

It is notable that in the recent past, BRAC has worked with no fewer than 13 different government departments. In RDP III in the fisheries sector it has collaborated with the Ministry of Fisheries (MoF), Bangladesh Water Development Board (BWDB) and the Ministry of Local Government and Rural Development (MLGRD). In some instances it has unofficially undertaken work for the GOB allowing the state to take credit for it. This, one observer noted (BRAC 1994 Review Mission), has had the important strategic effect of the GOB leaving BRAC alone to get on with the work in hand.

In 1993 BRAC was able to secure Tk. 38 million from the GOB for use as loan funds. This amply demonstrates the positive working relationship BRAC has developed with the government. During the life of RDP IV it is the intention of BRAC to expand its access to government funding although not necessarily for aquaculture.

BRAC has an advocacy programme with the GOB. One of the more innovative pressures it has brought to bear has been to encourage the government to take over all derelict ponds countrywide and for the DoF to lease these to the landless and provide training and extension services.

For technical assistance BRAC has relationships with the government supported FRI and ICLARM. In Mymensingh where field work was carried out there is the programme for fisheries called Technology Transfer Project (TTP) which involves FRI, ICLARM, and the Department of Fisheries. These institutions work with BRAC and also Proshika and the Grameen Bank in transferring aquaculture skills to local farmers.

One institution which has had a continuous effect on the work of NGOs in general has been the village mosque. Local mullahs frequently see NGOs as an undermining influence and especially where the empowerment of women is concerned. Most research in Bangladesh

shows that these mullahs are frequently the puppets of local landowners and moneylenders who want to maintain the status quo.

To work with the mullah and local elites in combatting the traditional patron-client relationships that exist in most rural areas of Bangladesh, BRAC attempts to create informal relationships with two groups to assist rather than hinder its work. One group is educated villagers who work in powerful positions in government or industry. The second is local politicians. If these groups are involved in BRAC entering the area to "help" the rural poor, the project can make faster headway.

BRAC relationships with other local NGOs in general terms have been highly variable and sometimes very antagonistic. As this will be discussed elsewhere in the overall appraisal, this section will adhere to NGO relationships as they involve fisheries.

In aquaculture BRAC has trained and provided services to a number of smaller NGOs. Two with whom they have formed strong relationships are Uttichi in Habiganj and Jagaroni Chakri in Jessore. Both NGOs received personnel training and the supply of spawn and fingerlings. During the life of RDP IV, BRAC has budgeted for a new support programme for more NGOs in aquaculture development.

It is recommended that BRAC continue to work with and expand contacts with other agencies both government and non-government and also with foreign donor supported projects.

6. ENVIRONMENTAL ASPECTS

6.1 Environmental Implications of Pond Culture

There are a number of environmental benefits to the project. Freshwater aquatic resources are the main focus of the programme which will promote improved management of seasonal and perennial ponds. Stagnant ponds will be rehabilitated, thus reducing the incidence of water borne diseases. In addition, greater control of mosquito borne diseases like malaria, have been proved possible by stocking fish. This has significant health implications in rural areas.

The nature of the recommendations for fish culture do not involve excessive use of chemical treatments. In fact a major BRAC recommendation insists that organic materials be used in the fertilisation of ponds. The only potential negative input to the ponds is the chemical Phostoxin which is used to poison predatory fish during pond preparation. This is toxic to humans and dangerous to use.

The development of aquaculture can promote integration with agricultural farming activities since pond waste can be used instead of chemical fertiliser. Aquaculture also permits the

cultivation of many crops which not only stabilise pond embankments but also provide nutrition for the families involved.

The team found that BRAC extension workers also promoted rice/fish culture. This in turn requires Integrated Pest Management which excludes the use of chemical pesticides and herbicides.

It is recommended that rotenone or other organic materials be recommended for the control of predatory fish even though they may be more expensive

It is also recommended that BRAC makes every effort to expand the acreage under rice/fish culture as this has positive environmental benefits. This technology and expertise is available from CARE/FAO/BAFRU.

7. CONCLUSIONS

The Appraisal Team recommends to the BRAC Donor Consortium that the Fisheries Component of the Rural Development Programme IV be fully supported for the following reasons;

- a) The BRAC objectives for its RDP programmes have a well defined poverty focus;
- b) The fisheries component of RDP IV will have impacts on a large number of new fish farmers as has already been demonstrated in RDP III;
- c) RDP fisheries have considerable impact on gender and social change inasmuch as it *targets large numbers of women who have previously been excluded from fisheries* development and economic control of the lives of their families;
- d) BRAC fisheries integrates human and economic development as a consequence of its emphasis on human resource development preceding economic activity;
- e) The fisheries programme of BRAC addresses the problem of a diminishing natural fish supply which has important nutritional implications for the rural poor;
- f) BRAC is also promoting the development of under- and in many cases unutilized *existing water resources*;
- g) RDP III fisheries has demonstrated that there is a positive incremental gain for the farmers involved with fisheries activities;
- h) The fieldwork demonstrated to the team that farmers have very positive experiences of fisheries development and clearly expressed the unanimous view that fish farming was

the most profitable of rural sector economic programmes;

i) The investment cost to introduce a farmer to fish culture is extremely modest;

j) BRAC Regional and Area Office staff demonstrated a high level of commitment and motivation to the general goal of improving the condition of the rural poor and more specifically to fish farming as a means to achieve this.

Finally the Appraisal Team strongly recommends to BRAC that they consider very carefully the recommendations that have been made throughout the text of the appraisal and are repeated below, as these will almost certainly strengthen the RDP IV programme.

8. SUMMARY OF RECOMMENDATIONS

1. BRAC consolidate and optimise their current activities before the decision is made to introduce prawn nurseries to their group members. At present the production from Polyculture and Shorputi is still below average (see also Section 3.2.) Should BRAC consider a venture into prawn nurseries it will be important that adequate technical support is available and that there is a market for the products. The proposed Fish Feed plant (addressed below) would be beneficial although perhaps not essential to these activities.

2. BRAC recruit a suitably qualified local consultant to supervise their Prawn Hatchery activities. To enable BRAC to recruit an appropriate person, the remuneration must be commensurate with experience, not necessarily in line with the standard BRAC salary structure. Alternatively BRAC consider requesting donor support to train their existing staff.

3. BRAC consider the marketing opportunities and demand before committing themselves, and their group members, to activities in the Northwest of the country, or indeed anywhere away from the main processing centres of Khulna and Chittagong.

4. BRAC develop farmer based extension materials or support to do this would be available from BAFRU.

5. The number of BRAC Programme Assistants be increased over and above the increases proposed in RDP IV. A realistic increase would be the doubling of the manpower to ensure the farmers achieve the full potential available to them. This may be reflected, as found in other projects, in increased production through increased farmer contact.

6. Every effort should be made to recruit women field and extension staff more rigorously; indeed if more PAs are recruited generally the areas to be covered will be

reduced and the position become more attractive to women.

7. The number of Fisheries Specialists be increased, especially in view of the proposals for prawn nursery and hatchery development.

8. The system of keeping records with the farmer should be improved and senior staff should regularly inspect the farmers' record cards; this should include both financial and pond input/output data.

9. BRAC, within their fisheries development continue with to implement the current recommendations on production strategies, some of which have been developed through the Technology Transfer Project with FRI, others by their own 'Action Research'. The BRAC fisheries programme is impressive but perhaps the full potential from the existing "models" should be fully realised before consideration is given to more intensive systems. The "high achievers" are clearly in the minority. However, it depends on the extent of support and levels of technical backup that BRAC are prepared to extend to farmers.

10. BRAC continue to work with and expand contacts with other agencies both government and non-government and also with foreign donor supported projects.

11. It is recommended that rotenone or other organic materials be recommended for the control of predatory fish even though they may be more expensive.

12. BRAC makes every effort to expand the acreage under rice/fish culture as this has positive environmental benefits. This technology and expertise is available from CARE/FAO/BAFRU.

13. It is recommended that BRAC pursue feed mill feasibility on a commercial basis outside the immediate RDP IV requirements. The implications of the cost of this input to their "regular" aquaculture borrowers would need to be investigated using the farm models contained in annex. Due care should be taken to ensure the incremental benefit from the feed offsets any incremental cost before including the demand for such feed from BRAC's aquaculture programme in the feed mill analysis.

Annex I

BRAC farmer and area figures to December 1994

BRAC/RDP
FISH CULTIVATION PROGRAMME
MONTHLY INFORMATION SHEET OF DECEMBER, 1994

Sl.	Region	Carp poly culture						Thai Sharputi						Carp Nursery						Fish Hatchery							
		Farmers			Ponds		Fish production		Farmers			Ponds		Fish production		Farmers			Ponds		Fingerling production		Hatchery Farmers			Spawn production	
		Male	Female	Total	No.	Area	Monthly	Cumulative	Male	Female	Total	No.	Area	Monthly	Cumulative	Male	Female	Total	No.	Area	Monthly	Cumulative	Male	Female	Total	Monthly	Cumulative
	Moulga	230	422	652	358	182.01	7387	20162	138	186	324	924	87.28	3240	8119	28	14	42	49	14.56	37000	280000	9	2	12	1	47.03
	Holga	318	1064	1382	1293	419.88	36603	43421	49	807	856	856	96.87	3059	5155	23	50	73	41	21.39	277300	6301218	6	1	7	0	71.10
	Rajshahi	238	1341	1579	1435	401.38	170311	204041	145	2267	2412	2432	185.25	41136	42679	42	71	113	117	30.09	10000	16013100	13	10	23	0	188.65
	Rangpur	413	813	1226	1144	293.04	7661	8781	395	1179	1574	1574	105.14	2721	3606	22	39	61	67	20.05	41000	5733100	3	2	5	0	42.49
	Serdip	199	1247	1446	1324	322.84	23393	23393	47	111	158	158	69.87	3077	3077	13	63	76	82	14.28	0	391400	2	1	3	0	10.40
	Bogra	172	1051	1223	1078	264.21	21973	33671	33	1027	1060	1060	121.01	27890	21953	6	73	79	91	22.93	0	14591073	1	1	2	0	128.30
	Falga	136	330	466	412	132.99	5235	6371	28	476	504	504	41.94	2539	4481	18	11	29	36	12.11	2	12061370	1	0	1	0	134.63
	Mymensingh	493	1524	2017	1648	411.35	46480	49223	553	2302	2855	2900	238.42	36110	51762	41	84	125	108	30.54	1231750	19528090	10	1	11	0	121.31
	Feni	221	1514	1735	1286	556.01	51295	78155	183	1816	2000	2000	153.36	30055	127102	34	25	59	51	24.28	7370	3930218	8	0	8	0	17.32
	Barisal	38	353	391	343	79.83	2184	18172	16	180	196	197	34.48	2118	4418	8	16	24	27	8.18	1500	1143070	1	2	3	0	7.03
	Arura	432	879	1311	1084	432.78	14355	18257	522	2627	3149	3136	261.64	35231	49044	190	33	223	113	47.6	301310	25436150	10	1	11	0.5	465.55
	Baranadi	294	444	738	1010	290.39	8022	24771	110	1351	1461	1456	172.67	2834	18926	43	14	57	79	26.47	134100	7025227	11	0	11	0	108.05
	Cumilla	178	401	579	181	173.37	23178	23063	0	279	279	279	26.33	1367	1517	0	34	43	47	12.29	11000	3061810	4	2	6	0	42.40
	Jamuna	56	324	380	269	19.94	22553	22553	31	338	369	366	31.73	8125	12413	12	8	20	25	6.09	0	2781608	4	0	4	0	18.10
	Sylhet	10	177	187	186	39.42	295	365	0	171	173	173	15.88	43	103	0	20	20	22	5.27	16	412716	0	1	1	0	0.30
	Kailash	84	307	391	329	196.44	26096	26096	56	985	1041	1041	57.55	18536	35615	56	43	99	56	16.15	1684305	4287930	1	1	2	0	145.75
	Barisal	10	1520	1530	1310	363.48	530	1450	1	650	651	651	52.38	1010	1010	0	31	31	45	7.21	70000	611500	0	0	0	0	0.90
	Total	1704	17729	19433	16130	4302.68	478293	607901	1318	14572	15890	15890	1740.88	241915	312871	420	469	1018	1180	329.47	7830404	14561108	54	42	96	1.2	1553.67

Annex 2 - Cumulative Acreage and Numbers of Farmers
in the BRAC programme to date and until the year 2000

Item	1995	1996	1997	1998	1999	2000
Polyculture No.Farmer Av. .28Acre	5,500 Acres 19,642 no's	7,400 Acres 26,428 no's	9,000 Acres 32,142 no's	10,800 Acres 38,571 no's	11,900 Acres 42,500 no's	12,800 Acres 45,714 no's
Shorputi No.Farmer Av. .079	2,500 Acres 31,645 no's	3,400 Acres 43,037 no's	4,100 Acres 51,898 no's	5,000 Acres 63,291 no's	5,500 Acres 69,620 no's	5,700 Acres 72,151 no's
Prawn No.Farmer Av. .33Acre	none	65 Acres 196 no's	160 Acres 484 no's	290 Acres 878 no's	425 Acres 1,287 no's	460 Acres 1,393 no's
Carp Nurseries Av. .23Acre	360 Acres 1,565 no's	400 Acres 1,739 no's	500 Acres 2,173 no's	600 Acres 2,608 no's	650 Acres 2,826 no's	700 Acres 3,043 no's
Carp hatcheries	150	175	210	235	260	260
Prawn hatcheries	1	2	4	5	5	5
Cumulative No. of Farmers per P.A.	272	340	328	364	401	422

Note: Farmer numbers calculated from average pond size provided by BRAC.

Annex 3 - Financial Models for Pond Culture/Hatcheries

Note:

"Models" of inputs/outputs to calculate a net incremental gain per farmer.

In terms of inputs BRAC could not give standard recommendations. The recommendations given at Headquarters, Regional and Area level all varied substantially. The inputs are therefore based on educated "guesses", averaging figures provided by the offices above and including the recommendations that farmers stated they were given.

All systems do reveal positive incremental benefits to farmers.

As they are financial farm models, no opportunity costs have been included for the inputs that the farmers reported as free. Furthermore, no opportunity cost has been placed on the farmer labour days.

ANNEX 3
BRAC RDP IV
ENTERPRISE BUDGETS
Enterprise: Polyculture

Page 2

Area/Description	Direct Target # YR 1	Direct Target # YR 2	Direct Target # YR 3	Direct Target # YR 4	Direct Target # YR 5	Direct Target # YR 6-15
	28	4788	17500	18979	22455	24072
Inputs (With Project)	Units	Quantity	Quantity	Quantity	Quantity	Quantity
Seed grass						
Seed rice	Tonnes	2	4	112		
Urea	Kg/ha	1	4	188		
Urea	Kg/ha	0.15	0.75	21		
TSP	Kg/ha	0.075	0.375	10.5		
Cow dung	Kg/ha	1	0	0		
Stocking						
Guano	tonnes	0	0	0		
Guano Cap	tonnes	12	5	84		
Calc	tonnes	4	2	56		
Rice	tonnes	7	2.1	58.8		
Maize	tonnes	6	1.8	50.4		
Guano Cap	tonnes	5	1.5	42		
Protein	tonnes	0	0	0		
Common Cap	tonnes	3	0.75	21		
Fertilization feed						
Cow dung	Kg/ha	450	0	0		
Urea	Kg/ha	2.7	13.5	378		
TSP	Kg/ha	1.35	6.75	189		
Fertil	Kg/ha	12	36	1008		
Purchased Labour (Man days)		0	0	0		
BRAC Levy				10	240	
Lease/rental	Tk/ha			50	1,050	
TOTAL OF COSTS				1,06,525	3,078.7	
Capital Inputs (With Project)						
At 10%					0	
At 10%					0	
TOTAL CAPITAL COSTS					0	
Interest percent	15 plus 50 % principal	for year 1			2521.155	
TOTAL COSTS					6,596.855	
Output						
Price Sales	Kg/ha	0.12	273.6	7660.8		
TOTAL INCOME					7660.8	
NET MARGIN					1,06,545	
WITHOUT PROJECT COSTS					0	
WITHOUT PROJECT INCOME					0	
INCREMENTAL COSTS					6,596.855	
INCREMENTAL INCOME					7660.8	
INCREMENTAL BENEFIT					1,06,545	

NUMBER OF OWN LABOUR DAYS	25 per pond	WITH PROJECT	WITHOUT PROJECT	INCREMENTAL LABOUR
MEN		207844	321420	113576
WOMEN		281776	208790	72986

INCREMENTAL BENEFIT EACH DIRECT TARGET FARMERS	Tk 1,06,545
For 1st and second year of loan repayment	

INCREMENTAL PROJECT BENEFITS	YR1	YR2	YR3	YR4	YR5	YR6-15
No. Direct	4788	17500	18979	22455	24072	
TOTAL BENEFITS	27,56,712.37	1,97,61,012.3	2,09,68,478.91	2,98,72,061.83	3,28,75,192.84	

Cost of inputs		Share price	41.40
Rice from	1.00	Share crop	0.25
Urea	0.15	Common crop	0.21
Urea	1.00	Value of outputs	
TSP	0.075	Average fish price	40.00
Cow dung	0.25		
Cow dung	0.00		
Fertilizer	0.25		
Protein	2.00	Protein price	40.00
Calc	0.3		
Rice	0.3		
Maize	0.3		
Guano Cap	0.5		
Protein	0.5		

Value of Labour days during loan payback 1st and 2nd year 36.05
Value of Labour days following loan payback 16x 26

ANNEX 3
BRAC RDP IV
ENTERPRISE BUDGETS
Enterprise: Carp Monoculture
Number of cycles
Area Decadal

	Direct Target # YR 1	Direct Target # YR 2	Direct Target # YR 3	Direct Target # YR 4	Direct Target # YR 5	Direct Target # YR 6-15
	78	174	408	1047	1291	1478
Inputs (With Project)	Units	Quantities	Costs	Costs	TOTAL Pond	
Pond prep						
Plaster	Tubular	2	4.00	112.00		
Line	Kg/dec	1	6.00	168.00		
Dye	Kg/dec	0.15	0.75	21.00		
TSP	Kg/dec	0.075	0.38	10.50		
Cow Dung	Kg/dec	5	1.75	49.00		
Stocking						
Carp seedlings	Gms/dec	20	30.00	1400.00		
Fertilization/Food						
Cow dung	Kg/dec	90	22.50	630.00		
Rice bran	Kg/dec	8	24.00	672.00		
Dye	Kg/dec	1.2	6.00	168.00		
TSP	Kg/dec	0.6	3.00	84.00		
Purchased Labour (Man days)		90	600.00	600.00		
BRAC Levy			10.00	280.00		
Transportation	Tk./Pond		50.00	1400.00		
TOTAL OP. COSTS 1 cycle			178.78	5594.50		
Capital Inputs (With Project)						
Minor Works				0.00		
Minor Equipment				0.00		
TOTAL CAPITAL COSTS				0.00		
Interest %	15 plus 55% principal	over 1st year		4636.41		
TOTAL COSTS 1 cycle				4250.91		
TOTAL COSTS 3 cycles				12752.73		
Outputs						
Fish Sales	kg/dec	4417	1129.40	37237.20		
TOTAL INCOME				37237.20		
GROSS MARGIN 3 cycles				24484.47		

WITHOUT PROJECT COSTS	0
WITHOUT PROJECT INCOME	0
INCREMENTAL COSTS 3 cycles	12752.73
INCREMENTAL INCOME 3 cycles	37237.20
INCREMENTAL BENEFIT 3 cycles	24484.47

NUMBER OF OWN LABOUR DAYS	78 per pond	WITH PROJECT	WITHOUT PROJECT	INCREMENTAL
MALE		50252	80472	30220
FEMALE		20108	80472	60364

INCREMENTAL BENEFIT EACH DIRECT TARGET FARMERS	3 cycles	24484.47
For 1st and second year of loan repayment		

INCREMENTAL PROJECT BENEFITS	YR1	YR2	YR3	YR4	YR5	YR6-15	Comments
No. Direct	174	408	1047	1291	1478		
TOTAL BENEFITS	37237.20	1129.40	37237.20	37237.20	37237.20		

Cost of inputs		Direct cost	0.30
Rice bran	1.00	Minor cost	0.30
Dye	0.15	Common cost	1.00
TSP	0.075	Value of outputs	
Cow dung	0.25	Average fish price	35.00
Plaster	0.25	Average fingerling	0.30
Phosphate	2.00	Person days	10.00
Carp seedlings	2.5		

Value of Labour days during loan	payback	1st and 2nd year	378.27
Value of Labour days following loan	payback		540.20

ANNEX 3
BRAC RDP IV
ENTERPRISE BUDGETS
Enterprise: Polyculture

Area (ha/ha):	Direct Target # YR 1	Direct Target # YR 2	Direct Target # YR 3	Direct Target # YR 4	Direct Target # YR 5	Direct Target # YR 6-15
	28	4786	17080	18929	22879	24072
Inputs (With Project)	Unit	Quantity	Cost/ha	TOTAL/ha		
Fertilizer	Tons/ha	2	4	112		
Lime	Kg/ha	1	9	188		
Urea	Kg/ha	8.15	0.75	21		
TSP	Kg/ha	6.075	0.375	10.2		
Cow dung	Kg/ha	7	0	0		
Sheep	No/ha	0	0	0		
Silver cow	No/ha	12	3	84		
Cattle	No/ha	4	2	56		
Bebu	No/ha	1	2.1	55.5		
Algal	No/ha	6	1.8	20.4		
Grass cow	No/ha	3	1.5	42		
Protein	No/ha	6	0	0		
Common cow	No/ha	3	0.75	21		
Fertilization feed						
Cow dung	Kg/ha	150	0	0		
Urea	Kg/ha	2.5	17.5	278		
TSP	Kg/ha	1.35	6.75	184		
Feed	Kg/ha	12	36	1008		
Purchased labour (Man days)		0	0	0		
BRAC Levy				10	280	
Leasehold	Ts/ha			50	1400	
TOTAL OF COSTS			138.529	3078.1		
Capital inputs (With Project)						
At 1/1/80				0		
At 1/1/81				0		
TOTAL CAPITAL COSTS				0		
Interest percent	15 plus 20 % principal	for year 1		2521.175		
TOTAL COSTS				6399.815		
Output						
Feed	Kg/ha	8.12	277.8	3660.8		
TOTAL INCOME				3660.8		
GRAND MARGIN				1260.945		

WITHOUT PROJECT COSTS	0
WITHOUT PROJECT INCOME	0
INCREMENTAL COSTS	6399.815
INCREMENTAL INCOME	3660.8
INCREMENTAL BENEFIT	Ts 1260.945

NUMBER OF OWN LABOUR DAYS	28 per pond	WITH PROJECT	WITHOUT PROJECT	INCREMENTAL LABOUR
MEN		307944	521480	157960
WOMEN		281576	2087160	1785584

INCREMENTAL BENEFIT EACH DIRECT TARGET FARMERS	Ts 1260.945
For 1st and second year of loan repayment	

INCREMENTAL PROJECT BENEFITS	YR 1	YR 2	YR 3	YR 4	YR 5	YR 6-15
No. Direct	4786	17080	18929	22879	24072	
TOTAL BENEFITS	619722.71	2176112.8	2386682.91	2967266.73	3257918.04	

Cost of inputs		Sheep	0.40
Rice feed	3.00	Silver cow	0.25
Lime	0.10	Common cow	0.25
Urea	1.00	Value of output	
TSP	3.00	Average fish price	20.00
Duck waste	0.25		
Cow dung	0.00		
Fertilizer	0.25		
Protein	2.00	Protein feed	60.00
Cattle	0.2		
Bebu	0.1		
Algal	0.3		
Grass cow	0.5		
Protein	0.5		

Value of Labour days during loan	payback	1st and 2nd year	70.05
Value of Labour days following loan	payback		106.06

ANNEX 2
PART B/IV
ENTERPRISE BUDGETS
Enterprise: Pigeon Poultry
Number of cycles
Area in Hectares

Page 4

	Direct Target # VR 1	Direct Target # VR 2	Direct Target # VR 3	Direct Target # VR 4	Direct Target # VR 5	Direct Target # VR 6-15
	33	305	675	1545	2620	4195
Inputs (With Project)	Unit	Quant cycle	Cost/cycle	TOTAL (Pound)		
Feed carp	Kg/cycle	2	4.00	172.00		
Protein	Kg/cycle	1	6.00	196.00		
Urea	Kg/cycle	0.15	0.75	24.75		
TSP	Kg/cycle	0.075	0.74	12.74		
Cow dung	Kg/cycle	7	0.00	0.00		
Stocking						
Pigeon feed Larvae	No. per Dec	750	375.00	12375.00		
Fertilization/Feed						
Cow dung	Kg/cycle	90	0.00	0.00		
Feed	Kg/cycle	9	180.00	3240.00		
Urea	Kg/cycle	1.2	6.00	196.00		
TSP	Kg/cycle	0.6	3.00	99.00		
Purchased Labour (Man days)		0	0.00	0.00		
Levy			10.00	350.00		
Maintenance & Repairs	Tk (Pound)		50.00	1650.00		
TOTAL OP. COSTS 1 cycle			415.13	20299.13		
Capital inputs (With Project)						
Minor Works				0.00		
Minor Equipment				0.00		
TOTAL CAPITAL COSTS				0.00		
Interest payment	15% plus 50% principal	over 1st year		5644.87		
TOTAL COSTS 1 cycle				25944.00		
TOTAL COSTS 3 cycles				77832.24		
Outputs						
Revenue from sales	Kg/cycle	3 cycles	1200	9000.00	9000.00	
TOTAL INCOME				9000.00		
GROSS MARGINS	3 cycles			39017.76		
WITHOUT PROJECT COSTS				0.00		
WITHOUT PROJECT INCOME				0.00		
INCREMENTAL COSTS	3 cycles			77832.24		
INCREMENTAL INCOME	3 cycles			9000.00		
INCREMENTAL BENEFIT	3 cycles		Tk	39017.76		

NUMBER OF OWN LABOUR DAYS	50 people	WITH PROJECT	WITHOUT PROJECT	INCREMENTAL LABOUR
MEN		142830	87600	55230
WOMEN		570570	175680	394890

INCREMENTAL BENEFIT EACH DIRECT TARGET FARMERS	Tk
	39017.76/25

INCREMENTAL PROJECT BENEFITS	VR1	VR2	VR3	VR4	VR5	VR6-15
No. Direct	33	305	675	1545	2620	4195
TOTAL BENEFITS	260362.404	2635685.47	60282433.41	118050072.4	165476687.5	
No. Capital farmers	0	0	0	0	0	0
TOTAL BENEFITS	0	0	0	0	0	0
TOTAL	260362.404	2635685.47	60282433.41	118050072.4	165476687.5	

Inputs		Direct part	0.50
Rice bran	1.00	Direct carp	0.50
Urea	6.00	Compound carp	1.00
Urea	1.00	Value of output	
TSP	1.00	As per fish price	23.10
Cow dung	0.25	As per fish price	2.30
Cow dung	0.00	10 g/d	
Fertilizer	0.25	Protein feed	60.00
Protein	2.00		
Cow	1		
Protein	0.5		
Cow feed/Protein	2.5		
Salmon feed	20		

Value of Labour days during loan	payback	1st and 2nd year	111.40
Value of Labour days following loan	payback		600.00

ANNEXE 1
BRAC RDP IV
ENTERPRISE BUDGETS
Enterprise: Carp Hatcheries

Number of cycles	Direct Target # 5 YR 1	Direct Target # YR 2	Direct Target # YR 3	Direct Target # YR 4	Direct Target # YR 5	Direct Target # YR 6-15
	1	25	20	35	115	115
Inputs (With Project)						
Operational Costs						
Fish				1000	1000	
Hermetics				1400	1400	
Feed etc.				1200	1200	
Others				500	500	
Purchased Labour (Man-days)				90	1150	
Lary				1000	1000	
TOTAL OP. COSTS					4400	
Capital Inputs (With Project)						
Hatchery					10500	
Minor Equipment					700	
TOTAL CAPITAL COSTS					10800	
Interest: percent		18 plus 50% principal	over year 1		11750	
TOTAL COSTS					26150	
Outputs						
Hatchling sales: Kg			11.3	34500	34500	
TOTAL INCOME					34500	
GROSS MARGIN					14720	

WITHOUT PROJECT COSTS	0
WITHOUT PROJECT INCOME	0
INCREMENTAL COSTS	26150
INCREMENTAL INCOME	34500
INCREMENTAL BENEFIT	14720

NUMBER OF OWN LABOUR DAYS	180 Per hatchery	WITH PROJECT	WITHOUT PROJECT	INCREMENTAL LABOUR
MEN		5440	2780	2660
WOMEN		25360	9280	16080

INCREMENTAL BENEFIT EACH DIRECT TARGET FARMERS	14720
For 1st and 2nd year of loan repayment	

INCREMENTAL PROJECT BENEFITS	YR 1	YR 2	YR 3	YR 4	YR 5	Cumulative
No. Direct	25	20	35	115	115	
TOTAL BENEFITS	718000	1007400	1740400	1620000	1640000	
TOTAL	718000	1007400	1740400	1620000	1640000	

Value of outputs

Average hatchling 3000.00 Kg

Per man-day 15.00

Yr 1 of Labour days during loan payback 1st and 2nd year 79.56
Yr 2 of Labour days following loan payback 166.72

PHASE 1
FINANCIAL COST-BENEFIT ANALYSIS

Page 8

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	TOTAL
OPERATING COSTS																	
Recurrent Costs		3,368,800	12,512,284	19,280,994	23,297,031	23,297,031	23,661,088	23,661,088	23,661,088	23,661,088	23,661,088	23,661,088	23,661,088	23,661,088	23,661,088	23,661,088	0
One-time Costs		41,479,216	79,968,284	121,142,835	940,287,866	194,877,839	194,877,839	194,877,839	194,877,839	194,877,839	194,877,839	194,877,839	194,877,839	194,877,839	194,877,839	194,877,839	0
Cost Inflation		2,968,837	16,772,834	11,791,362	21,512,565	28,214,396	28,214,396	28,214,396	28,214,396	28,214,396	28,214,396	28,214,396	28,214,396	28,214,396	28,214,396	28,214,396	0
Other Inflation		11,666,334	40,468,025	42,621,367	146,248,827	221,425,513	221,425,513	221,425,513	221,425,513	221,425,513	221,425,513	221,425,513	221,425,513	221,425,513	221,425,513	221,425,513	0
Cost Reduction		304,764	1,817,743	1,917,030	2,129,346	2,726,934	2,726,934	2,726,934	2,726,934	2,726,934	2,726,934	2,726,934	2,726,934	2,726,934	2,726,934	2,726,934	0
TOTAL COSTS		49,887,801	146,965,786	185,249,988	365,768,239	448,253,403	451,886,867	451,886,867	451,886,867	451,886,867	451,886,867	451,886,867	451,886,867	451,886,867	451,886,867	451,886,867	6,194,648,635
OPERATING REVENUE																	
Recurrent Revenue		19,494,481	26,294,720	47,576,240	59,698,040	59,698,040	59,698,040	59,698,040	59,698,040	59,698,040	59,698,040	59,698,040	59,698,040	59,698,040	59,698,040	59,698,040	0
One-time Revenue		11,994,000	22,794,000	19,594,000	179,120,000	246,712,000	246,712,000	246,712,000	246,712,000	246,712,000	246,712,000	246,712,000	246,712,000	246,712,000	246,712,000	246,712,000	0
Cost Inflation		6,479,273	22,990,238	26,476,800	46,979,400	55,096,582	55,096,582	55,096,582	55,096,582	55,096,582	55,096,582	55,096,582	55,096,582	55,096,582	55,096,582	55,096,582	0
Other Inflation		14,848,000	46,827,000	221,425,000	275,090,000	415,369,000	415,369,000	415,369,000	415,369,000	415,369,000	415,369,000	415,369,000	415,369,000	415,369,000	415,369,000	415,369,000	0
Cost Reduction		461,500	2,617,000	2,272,000	2,947,000	3,842,000	3,842,000	3,842,000	3,842,000	3,842,000	3,842,000	3,842,000	3,842,000	3,842,000	3,842,000	3,842,000	0
TOTAL REVENUE		43,877,254	118,542,958	289,874,040	585,614,440	730,725,622	730,725,622	730,725,622	730,725,622	730,725,622	730,725,622	730,725,622	730,725,622	730,725,622	730,725,622	730,725,622	7,336,796,395
OPERATING SURPLUS (LOSS)																	
Recurrent Surplus		16,225,681	19,822,720	28,285,240	21,740,900	16,480,900	16,480,900	16,480,900	16,480,900	16,480,900	16,480,900	16,480,900	16,480,900	16,480,900	16,480,900	16,480,900	0
One-time Surplus		8,479,216	22,794,000	22,994,000	28,212,000	19,576,000	19,576,000	19,576,000	19,576,000	19,576,000	19,576,000	19,576,000	19,576,000	19,576,000	19,576,000	19,576,000	0
Cost Inflation		1,512,565	12,767,363	22,488,400	25,967,565	26,422,000	26,422,000	26,422,000	26,422,000	26,422,000	26,422,000	26,422,000	26,422,000	26,422,000	26,422,000	26,422,000	0
Other Inflation		7,000,000	26,176,000	16,242,000	19,129,000	28,247,000	28,247,000	28,247,000	28,247,000	28,247,000	28,247,000	28,247,000	28,247,000	28,247,000	28,247,000	28,247,000	0
Cost Reduction		194,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	0
TOTAL PRIVATE CASH FLOW		36,286,761	73,067,783	132,545,680	187,130,960	245,248,822	245,248,822	245,248,822	245,248,822	245,248,822	245,248,822	245,248,822	245,248,822	245,248,822	245,248,822	245,248,822	1,111,980,000
CONSORTIUM FUNDING		343,799,000	3,772,000	38,327,000	39,000,000	186,124,750											18,361,000
PROJECT CASH FLOW		-407,512,239	80,839,783	170,872,680	226,130,960	431,473,572	245,248,822	245,248,822	245,248,822	245,248,822	245,248,822	245,248,822	245,248,822	245,248,822	245,248,822	245,248,822	200,141,000

Discount rate 15

NPV
NPV = \$54,143,302

MACROBRACHIUM HATCHERY MODEL

Annex 3

Financial analysis

8

Total benefits (Tb)	000s	0	97000	97000	97000	97000	97000	97000	97000
Project cost (Tc)	000s	129530	31125	31125	31125	31125	31125	31125	31125
Cash flow		-129530	45875	45875	45875	45875	45875	45875	45875

IRR

10 years

32.4%

NPV 1990s

8011.38

17.16

MACROBRACHIUM HATCHERY MODEL

Size of hatchery

2.4 MILLION # NRE survival

Hatchery season: May-September

Input

HATCHERY

Quantity

Price/Unit

Ts

Tb/hatchery

Building sq.m

420 sq.m

210000

210000

Overhead tank

1

45000

45000

Sand filter

6

7200

7200

Land

2800 sq.m

801800

801800

Holding tanks

6

72000

72000

Raising tanks

4

28000

28000

Larval tanks

8

112000

112000

Wells

2

Antenna (antennal part)

6

9000

9000

Air blower

2

50000

50000

Concrete

1

12000

12000

Electricity

1

45000

45000

Brine Storage/Filtering tank

1

64000

64000

Roach (larvae) (2000)

8

20000

20000

Flushing

4

20000

20000

Furniture

1

10000

10000

Refrigerator

1

10000

10000

Lift equipment

1

80000

80000

Pump

3

18000

18000

Is

8

50000

50000

Misc. ... (Larvae etc)

1

80000

80000

Misc. (cost)

97100

97100

Overcapacity

188710

188710

NR total

287618

287618

INPUTS

Adults

1500

75000

75000

Antenna

90

162000

162000

Chemicals

1

12000

12000

Food

224 kg

22400

22400

Brine

1

54000

54000

Sub total

255400

255400

LABOUR AND UTILITIES

Labour

18

90000

90000

Electricity

4

4000

4000

MISCELLANEOUS

Miscellaneous

56825

56825

Sub total

101825

101825

TOTAL INPUTS

ANNUAL

351125

351125

FISH PRODUCTION

Macro

240000

960000

960000

Subtotal

240000

960000

960000

Plus crop from larval ponds

10500

10500

NET RETURN

970000

970000

COSTS

Antenna

1800

Electricity

4000

Food

100

Drift

0.2

Chemicals

12000

Maintenance

0.5

Is

80000

Transport

0.5

Land

2800 sq.m

Overhead/Plastic Pipe

0.5

Larval tanks

16500

Brine

0.2

Raising tanks

7000

Macro-brine

50

Building tank

12000

Pump

18000

Antenna tanks

17000

Labour

90000

Air blower

25000

Concrete/Plastic/Land

15000

Concrete

12000

Roofing

2000

Brine storage/Filtering

64000

Furniture

10000

Sand filter

7200

Electricity

4000

Overhead tank

45000

Refrigerator

10000

Land

277 sq.m

Lift equipment

80000

REVENUE

Macro FL

0.4 FL/000/000

BUDGET
PRAWN HATCHERY

PRASITY

CAPACITY : 30,00,000 Nos P.L. (1/2 -)
Cycle -3/year

A. CAPITAL COST :	Taka
1. Land for hatchery house (0.30 acres) Tk.10,00,000 per acres	300,000
2. Land for pond (0.50 acres) Tk.10,00,000 per acres	500,000
3. Building construction	400,000
4. Mchineries and Equipment	800,000
5. Pond excavation	100,000
Total Capital Cost (A)	2,100,000
B. Working Capital	
1. Brood fish, medicine, feed etc.	200,000
2. Brine water	150,000
3. Furniture and fixture	50,000
Total of Working Capital (B)	400,000
Total Cost	
A.Capital cost	2,100,000
B.Working Capital	400,000
	2,500,000

PRAWN HATCHERY
Profitability Analysis

	1st year 60% Utilization	2nd year 75% Utilization	3rd year 90% Utilization
Revenue			
Sale Post Larvae (PL) TK. 1.00 each. (Production 3,000,000)	1,800,000	2,250,000	2,700,000
Sale of Broad fish (30%)	22,500	22,500	22,500
Total of Revenue	1,822,500	2,272,500	2,722,500
Cost of production			
Brood fish (1500 Nos) (Tk.50 per brood)	75,000	75,000	75,000
Medicine (3 Cycle) (Tk.1500 per cycle)	45,000	45,000	45,000
Food(8 Nos tank) (Tk.6000 per Tank per Cycle)	144,000	144,000	144,000
Brine Water (72,000 kg) (Tk.1 per Kg)	72,000	72,000	72,000
Carrying cost	150,000	150,000	150,000
Total cost of Production	486,000	486,000	486,000
Gross profit	1,336,500	1,786,500	2,236,500
Operation Cost			
1. Salary :			
a. Program Organiser (Fish)(1 no) Tk.5500 per month	66,000	66,000	66,000
b. Hatchery technician (2 Nos) Tk.5500 per month	132,000	132,000	132,000
c. Labour cum Caretaker (3 nos) Tk.1500 per month	54,000	54,000	54,000
d. Service Staff (2 Nos) Tk.1500 per month	36,000	36,000	36,000
2. Travelling and transportation	63,000	63,000	63,000
3. Stationeries and Supplies	24,000	24,000	24,000
4. Utilities	120,000	120,000	120,000
5. General Expenses	24,000	24,000	24,000
6. Maintenance	60,000	60,000	60,000
7. Depreciation	180,000	180,000	180,000
8. H.O. logistics and mgt. support.	57,900	57,900	57,900
Total of Operational Cost	816,900	816,900	816,900
Net profit	519,600	969,600	1,419,600
Less:Purchase cost of Pickup for Transportation	1,200,000	0	0
Net Surplus/(Deficit)	(680,400)	969,600	1,419,600
Cumulative Net Surplus/(Deficit)	(680,400)	289,200	1,708,800

BUDGET
FEED MEAL PROCESSING CENTRE

FEEDMEAL

(Capacity : 300,000 Kg/year)

A. CAPITAL COST :	Taka
1. Land (.50 acres) Tk.500,000 per acres	250,000
2. Building:	150,000
a. Godown & Stores (50'x20' = 1,000 sq ft X Tk.150)	
b. Machine Room (40'x15' = 600 sq ft X Tk.150)	90,000
c. Office Room (20'x15' = 300 sq ft X Tk.150)	45,000
3. Open Floor Sun Drying(40' x 60' = 2,400 sq ft X Tk.15)	36,000
4. Dry Fish Grinder (1,200 kg/ 8 hour)	30,000
5. Pellet Machine (1,000 kg/8 hour)	30,000
6. Electric Motor (10 HP with other equipments)	13,000
7. Scale (300 kg)	7,500
8. Equipments	10,000
9. Furniture & fixture	18,000
10. Electrical Fittings	20,000
Total Capital Cost (A)	<u>699,500</u>
B. Working Capital :	
1. Raw Materials (for 3 months)	
a. Dry Fish (25,000 kg X Tk.25)	625,000
b. Wheat (10,000 kg X Tk.6)	60,000
c. Rice polish (auto) (5,000 kg X Tk.4)	20,000
d. Coconut/Mustard Cake (5000 kg X Tk.5)	25,000
e. Shark Liver oil/fat (1200 kg X Tk.32)	38,400
f. Oyster shell (1500 kg X Tk.3)	4,500
g. Salt & Vitamine	2,500
2. Poly Bag (for 3 month) (10,000 Nos X 2.50)	25,000
Total fof Working Capital (B)	<u>800,500</u>
TOTAL COST: A. Capital Cost	699,500
: B. Working Capital	800,500
	<u>1,500,000</u>

FEED MEAL PROCESSING CENTRE
Profitability Analysis

	1st year 60% Utilization	2nd year 75% Utilization	3rd year 90% Utilization
Sales (300,000 Kg X 20 Per Kg)	3,600,000	4,500,000	5,400,000
Cost of Production			
A.Dry fish (100,000 kg Tk 25 per Kg)	1,500,000	1,875,000	2,250,000
B.Wheat (80,000 kg Tk 6 per Kg)	288,000	360,000	432,000
C.Rice polish (67,500 kg Tk 4 per Kg)	162,000	202,500	243,000
D.Cake (Coconut/Mastard)42,500 kg Tk 5 per Kg)	127,500	159,375	191,250
E.Liver Oil (6000 Kg Tk.32 per Kg)	115,200	144,000	172,800
F.Oyester shell (5000 kg Tk.3 per Kg)	9,000	11,250	13,500
G.Salt and Vitamin	3,000	3,750	4,500
I.Poly bag (60000 Bag Tk 2.5 per Bag)	90,000	112,500	135,000
Total cost of production	2,294,700	2,868,375	3,442,050
Gross profit	1,305,300	1,631,625	1,957,950
Operating cost			
A.Staff salary and Benefits			
A.1.Manager (1 No.) (Tk.5500 per month)	66,000	66,000	66,000
A.2.Accountant (1 No.) (Tk.4500 per month)	54,000	54,000	54,000
A.3.Machine Operator (2 Nos) (Tk.3000 per month)	72,000	72,000	72,000
A.4.Helper (2 Nos) (Tk.2500 per month)	60,000	60,000	60,000
A.5.Drying labour (3 Nos) (Tk.1500 per month)	54,000	54,000	54,000
A.6.Packing Worker (2 Nos) (Tk.2500 per month)	60,000	60,000	60,000
a.7.Service Staff (2 No) (Tk.1500 per month)	36,000	36,000	36,000
B.Travelling and Transportation	91,500	91,500	91,500
C.Staff training	36,600	36,600	36,600
D.Utilities (Tk.10,000 per month)	120,000	120,000	120,000
E.Maintenance (Tk.3,000 per month)	36,000	36,000	36,000
F.Stationeries and Supplies	24,000	24,000	24,000
G.H.O. logistis and Management support.	71,010	71,010	71,010
G.Depreciation	44,950	44,950	44,950
Total Operating cost	826,060	826,060	826,060
Net profit	479,240	805,565	1,131,890
Less:Purchase Cost of Pickup for Transportation	1,200,000	0	0
Net Surplus/(Deficit)	(720,760)	805,565	1,131,890
Cumulative Net Surplus/(Deficit)	(720,760)	84,805	1,216,695

BRAC APPRAISAL MISSION ITINERARY

- Mon 20 Feb BAFRU, Donor Liaison Office, BRAC HQ Fisheries Staff
- Tues 21 Feb Donor Liaison Committee Chairman, Appraisal Team Meeting, ODA Fisheries Advisor
- Wed 22 Feb BRAC Programmes Director, Director Donor Liaison Office
- Thurs 23 Feb Review of BRAC Reports and Background Literature
- Fri 24 Feb BAFRU, Appraisal Team Meeting, Methodology Meeting
- Sat 25 Feb Travel to Mymensingh, BRAC Training and Resource Centre and Regional Office Mymensingh
- Sun 26 Feb Fulbaria Area Office, Ragnunathpur and Chakradhakanai Villages
- Mon 27 Feb Boilor Area Office, Baghpara Village
- Tues 28 Feb Trishal Area Office, Travel to Dhaka
- Wed 1 Mar BRAC Programmes Director, Team Leader DLO Appraisal Mission
- Thurs 2 Mar Travel to Habiganj, Habiganj Regional Office Sylhet Regional Fisheries Spec
- Fri 3 Mar BRAC Fisheries Appraisal Documentation

**An Appraisal of the Sericulture Sector of the Bangladesh Rural
Advancement Committee Project Proposal for Rural Development
Programme IV**

Prepared by

Ashley Morton and Sanjay Sinha

April 15, 1995

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TABLE 2.1 - Profile of existing and target beneficiaries in the sericulture programme

TABLE 2.2 - Production by individual rearers covered during field assessment

TABLE 2.3 - Summary of BRAC's proposed sericulture budget

TABLE 2.4 - Performance of the BRAC reeling units, 1994

TABLE 2.5 - BRAC Sericulture - Targets & Achievements

ANNEX 2.1 - BRAC *Flow chart of silk production*

ANNEX 2.2 - Economic Model

1. Silkworm seed production (grainage)

2. Chawki rearing centres

3. Silkworm rearing units

4. Reeling units

5. Consolidated analysis of the proposed programme

ANNEX 2.3 - Recommended revised project scale/targets

ANNEX 2.4 - Recommended revised budget

Glossary of Terms

Basin	Part of a silk reeling machine in which cocoons float in warm water.
Bivoltine	Silkworm varieties from temperate climate countries which breed only twice a year and whose eggs exhibit dormancy.
Chambon Croisure	crossing of silk thread with neighbouring thread during cocoon reeling.
Chandraki	Bamboo structure in which silkworms spin their cocoons.
Charka	Indian simple, hand driven silk reeling machine with one basin and four to six ends.
Chawki	Descriptive name of very young silkworms.
Cocoon	Silk capsule formed by silkworm larva in which it spends pupa stage.
Cottage Basin	Mechanized silk reeling machine used in villages. Each unit has six to ten basins each with six ends.
Dala	bamboo rearing trays.
Degumming	Removal of sericin from silk waste.
Denier	Grams silk for 9,000 meters yarn or filament, used as measure of silk yarn or cocoon filament thickness.
Ends	Part of silk reeling machine where several cocoon filaments are combined into silk yarn.
Filature	Silk reeling factory.
Ghorakati	Rearing shelves.
Grainage	Establishment for silkworm egg production.
Hatchery	Communally operated village establishment where eggs hatch into silkworms.
Katghai	Bangladeshi simple, hand driven silk reeling machine which is similar to the Indian charkha.
Laying	Egg production from one female moth.
Mai thai	Thai silk which is divided into quality grades.
Moriculture	Cultural system for production of silkworm cocoons.
Multivoltine	Tropical silkworm varieties which breed throughout the year and whose eggs have no dormancy and are synthesized by hybridizing bivoltine and polyvoltine varieties.
Nistari	Indigenous variety of silkworm.
Polyvoltine	Continuously brooded variety of silkworm.
Raw silk	Silk yarn, after reeling.
Renditta	Measure of silk recovery from cocoon; ratio of kg cocoons needed to reel 1 kg raw silk.
Sericin	Gummy substance which binds filament together on cocoons and also binds silk waste fibres together.
Sericulture	Cultural system for production of silkworm cocoons.

Silk Recovery	Reciprocal of renditta.
Silk Waste	By-product of silk reeling and raw material for spun silk.
Spun Silk	Silk yarn prepared from silk waste by degumming, combing and spinning process, similar to that used for wool.
Tavelette Croisure	Crossing of silk thread with itself during cocoon reeling.
Tharpatti	A crude thread guide mounted above the front rim of a basin.
Univoltine	Similar to bivoltine silkworm varieties, but breed only once during the year.
Warp	Lengthwise threads in woven fabric.
Weft	Crosswise threads in woven fabric.

2.1 Background

2.1.1 Sericulture in Bangladesh

Bengal (a part of which now constitutes Bangladesh) has a long history of sericulture. During the period 1772-1792, the British East India Company introduced contemporary Italian technology and the exports of raw silk increased from 220 tonnes to about 530 tonnes by 1827. The industry then declined due to a combination of (i) frequent epidemics of silkworm diseases, especially pebrine; (ii) competition for land generated by increased prices for foodgrains; and (iii) failure to introduce the technical changes necessary for successful competition against the rising industries in Japan and China. By 1911 the raw silk production in the important Rajshahi District was just 10 tonnes and by 1940 all but two of the French-owned filatures had closed, despite officially-sponsored efforts to increase the quantity and quality of Bengal filature silk. On the eve of the partition of India in 1947 the Bengal silk industry was on the verge of extinction, producing just 50 kg of raw silk from a few villages in Rajshahi District.

Efforts were made to rehabilitate the silk industry during the period 1956-1962, including the establishment of 10 mulberry nurseries, 22 extension centres, the Silk Research Institute and the Rajshahi Silk Factory. These efforts were intensified following Independence, with the establishment of the Bangladesh Silk Board (BSB) in 1977 and the launching of the Swiss-Bangladesh Bilateral Project in 1978. Total raw silk production increased from 25 tonnes in 1979-1980 to 34 tonnes in 1983-1984 but then declined to 29 tonnes in 1985-1986, well short of the Second Five Year Plan target of 172 tonnes. Despite the subsequent renewed efforts of both the BSB and several Non-Governmental Organisations (NGOs), annual raw silk production has not increased beyond the range of 25-40 tonnes. The domestic raw silk production in 1994 is estimated to be 30-32 tonnes¹.

Notwithstanding this paucity of domestic raw silk, Bangladesh has a substantial weaving industry producing silk fabric for sarees and shirting (punjabies and koties). In the powerloom sector, a steady decline in output was suddenly and dramatically reversed in 1992/93 when the import duty on raw silk was reduced from 30% to 7.5%: fabric production increased 51% to 473 000 metres. In 1994 the import duty was removed altogether and production leapt up 78% to almost 840 000 metres¹. Similar trends are evident in the much larger, but less well documented, handloom sector: it is estimated that total handloom production of silk fabric increased from about 1.5 million metres in 1993 to as much as 3.3 - 4.9 million metres in 1994¹. The combined raw silk consumption of the powerlooms and handlooms in 1994 is estimated to be 215-220 tonnes, of which only about 30 tonnes was sourced from domestic production¹.

¹*Silk Marketing in Bangladesh*. In preparation: Ford Foundation/World Bank.

2.1.2 Government Policy on Development of the Silk Sector

Predictions² that access to international quality raw silk and silk yarn would enable an efficient silk weaving industry to emerge in Bangladesh have been proved correct by recent. As a result, Government interest is now focused on nurturing the development of silk weaving and encouraging linkages to Bangladesh's manufacturing success story, the *readymade garments (RMG) industry*. Although mulberry, cocoon, domestic raw silk and silk yarn production will continue to be promoted, there is determination that the potential of the weaving industry should not be undermined by inappropriate means of encouraging local silk content. Thus the competitiveness of weaving is likely to be facilitated by ensuring continued access to imported raw silk and silk yarn at world market prices, at least until an internationally competitive mulberry-silkworm-reeling agronomy emerges in Bangladesh.

The evolving public policy for the Bangladesh silk industry is therefore that the search for comparative advantage should proceed upstream, from any advantages that are revealed in the markets for silk garments or silk fabric. Thus the success and sustainability of BRAC's proposed sericulture programme will be dependent upon ensuring that the resulting cocoons, raw silk and spun silk yarn meet the quality and price requirements of the market in the face of competition from imported raw silk and silk fabric.

2.1.3 BRAC's Experience in Sericulture

BRAC's sericulture programme started in Manikganj in 1978 and was based on mulberry block plantations. Although reportedly successful, no significant expansion took place during the following 10 years. However, in 1989/90 BRAC received wheat from the World Food Programme (WFP) and began to employ landless women to establish and care for roadside plantations of mulberry tress. This initiated a massive expansion of moriculture: from the 1987 stock of less than 1 million roadside trees, by June 1994 BRAC had planted 11.2 million trees and employed more than 36 000 caretakers in Manikganj, Jessore, Jhenaidah, Faidpur, Rangpur, Rajshahi, Pabna, Bogra, Mymensingh, Kishoreganj, Sherpur and Jamalpur³.

After a year of looking after the mulberry trees, the women are encouraged to become silkworm rearers. To these and other landless women, BRAC offers the necessary training plus loans for the construction of rearing houses and the acquisition of rearing equipment.

² *Bangladesh: From Stabilization to Growth*. March 1994: World Bank.

³ *RDP Half Yearly Report June 1994*. BRAC.

BRAC's silkworm rearing operation is set up as two sub-systems:

- chawki rearing - the relatively difficult and more capital-intensive operation of hatching the silkworm eggs (disease-free layings, DFLs) and producing part-grown silkworms (chawkis);
- grown-worm rearing - the less difficult but more labour-intensive operation of rearing the chawkis through to the cocoon stage.

Rearers who are prepared to make a larger investment in better rearing facilities and equipment, or who have demonstrated good rearing results, are offered extra training opportunities in order to prepare them for chawki rearing. BRAC provides the chawki rearers with DFLs which they hatch and then rear through to the chawki stage. Some of the chawkis are then sold to the grown-worm rearers and the remainder are kept for cocoon production.

BRAC has tried to encourage the rearers to sell their cocoons in the open market. Each season, a recommended price for various qualities of cocoons is announced by BSB: this is the price that the BSB filatures are supposed to pay for the cocoons that are brought to them. BRAC establishes its own purchase price, based on its assessment of the quality of the cocoon crop in each area. Although BRAC has stated that it treats the BSB price as a floor price rather than a ceiling price⁴, it applies more stringent quality criteria than BSB, with the result that the many rearers assert that BRAC, in common with other NGOs, generally offers them less than the BSB recommended price for their cocoons.

Recognising the importance of maximising the returns to rearers, BRAC has undertaken two additional sets of activities. The first focuses on encouraging the development of a more open market for cocoons by introducing local reeling facilities for the production of raw silk. Multi-end basin reeling units, operated almost entirely by women, have been established at Manikganj, Jamalpur, Monirampur, Natore, Pabna, Atghoria and Taraganj. The second approach focuses on improving the quality of the cocoons, through the introduction of improved varieties of silkworm and the production of better quality DFLs. BRAC has moved away from complete dependence upon BSB for its supply of DFLs: firstly by importing DFLs of improved silkworm varieties from India and China and secondly by maintaining parent lines and establishing grainage facilities in order to become self-sufficient in DFLs.

BRAC is also involved in downstream activities. Although BRAC does not have very extensive weaving facilities and it does not intend to weave all the raw silk and spun silk it produces, it does aim to develop group members into weavers and it has established a silk weaving centre at Gorpara. Under RDP III, BRAC also intended to establish a design unit and marketing division to sell its silk fabrics, particularly through BRAC's own international marketing outlet, Aarong.

⁴ *Project Document: Rural Development Programme III 1993-95. BRAC.*

Thus, since about 1989, BRAC has undertaken activities and gained experience in each stage of the conversion of mulberry leaves to finished silk fabrics. The main focus of this appraisal is therefore to determine the extent to which BRAC has learned from this experience and applied this learning to the development of its proposals for consolidation and expansion of sericulture activities under RDP IV.

2.2 Methodology

At a meeting with the donor representatives on 29 March 1995 it was agreed that the Terms of Reference should be revised to take account of the paucity of information presented in BRAC's RDP IV Project Proposal (Draft 2) and the fact that the sericulture component of the RDP III project had not yet been evaluated. The donors insisted that the consultants should complete an appraisal of the Draft 2 Proposal to the best of their ability, filling gaps with information gleaned through personal contact with BRAC counterparts, and only then provide some assistance to BRAC to facilitate BRAC's own efforts to revise the proposal in line with the suggestions and recommendations made by the team.⁵ In order to comply with these instructions, the consultants adopted the following approach:

- A more detailed description of BRAC's proposed RDP IV sericulture project was compiled by augmenting the draft two proposal with information provided by BRAC in response to specific requests for quantitative targets, business plans and justifications for assumptions.
- An indication of the progress made under the RDP III programme was gathered by drawing on BRAC's recording and reporting systems at HQ and area offices, supplemented by interviews with BRAC personnel and project participants in Manikganj, Jamalpur, Rajshahi and Natore.
- An assessment of the market opportunities for cocoons, raw silk and silk products was prepared by drawing on primary data recently collected for the preparation of a possible National Sericulture Programme⁶.
- BRAC's RDP IV Project Proposal (Draft 2) was appraised on the basis of the above, within the framework presented in the original Terms of Reference.
- Recommendations were drawn up and discussed with BRAC counterparts, to form the basis of BRAC's RDP IV Project Proposal (Draft 3).

⁵ File reference 841/000/002: April 10, 1995. AMOD.

⁶ *Silk Marketing in Bangladesh*. In preparation: Ford Foundation/World Bank

2.3 Appraisal of BRAC'S Proposal (Draft 2)

2.3.1 Overview

This report addresses two aspects of BRAC's RDP IV Project Proposal (Draft 2) for sericulture: (i) the deficiencies of the proposal document *per se*; and (ii) the social, economic, institutional and environmental aspects of the proposed project interventions.

The sericulture programme section of BRAC's proposal comprises a narrative which simply provides a general account of BRAC's involvement in sericulture. It does not provide sufficient information to permit an appraisal. A striking feature of the proposal is the absence of a clear statement of the project objectives, the anticipated outputs, and the activities and inputs necessary to generate those outputs. Moreover, although it is possible to glean some quantitative data from the RDP IV Budget Summary, there is no explanation of the rationale behind these figures and no justification is offered for the scale of the project. This latter is particularly unfortunate because, unlike the other sector programmes, the sericulture component of RDP III has not yet been evaluated and so neither BRAC nor the consultants have the benefit of a detailed assessment of the advantages and constraints of BRAC's present strategy.

The consultants submit that these weaknesses in the RDP IV proposal should give rise to concern because exactly the same deficiencies were noted in the appraisal of RDP III⁷. On that occasion, BRAC acquired technical assistance to facilitate the preparation of the sericulture component proposal⁸ and this was followed by a fresh appraisal⁹. In perhaps all other areas, BRAC is justifiably identified as a learning organisation. BRAC's apparent failure to learn from the RDP III sericulture appraisal is therefore all the more surprising and disappointing, especially as sericulture has to operate in a highly competitive commercial environment in which "intuitive" planning is unlikely to prove sufficiently effective or efficient.

With regard to the proposed project interventions, the consultants are concerned that BRAC's production targets are unrealistically high. Although BRAC and the consultants agree that there are substantial potential domestic and export market opportunities for raw silk and silk products that could be produced in Bangladesh, provided certain standards of quality and productivity can be met, a difference of opinion exists over the rate at which these necessary improvements can be expected to occur. The consultants submit that it seems most unlikely

⁷ *BRAC Donor Consortium RDP III Appraisal: Sectoral Support Programs*. March 1992: Jennifer Sebstad.

⁸ *Consultancy Report on BRAC's Sericulture Programme*. 1992: M.S. Jolly.

⁹ *Developing Bangladesh Sericulture: An Appraisal of BRAC's Proposal 1993-1995*. July 1992: Neungpanich Sinchaisri and Sanjay Sinha.

that BRAC will approach, let alone attain, its stated target of 765 tonnes of better quality raw silk by the year 2000.

The consultants submit that unless the proposed interventions are revised to focus on correcting the deficiencies in quality and productivity, there is a real risk that implementation of the proposed programme would simply result in the production of large quantities of poor quality, *relatively expensive product for which it would be difficult to secure a profitable market*. Such a project would fail to generate adequate returns to the target beneficiaries and would prove financially unsustainable.

2.3.2 Social Aspects

The Draft 2 Proposal provides no specific information about the profile of the existing and target beneficiaries of the sericulture programme. No account is given of the needs and resources of these beneficiaries and no attempt has been made to explain how the programme takes account of these factors.

Beneficiary profile

Since the mid-1980s, BRAC has defined its target group as those who own less than 0.5 acre of land and who have to sell more than 100 days of labour in a year for survival. Women have become increasingly important in the RDP interventions because BRAC has found that working with and for women provides the best opportunity for the achieving socio-economic improvement in these households. Discussions with BRAC counterparts and field observations confirm that the sericulture programme is focused exclusively on 'landless' women, but that the varying nature and complexity of the tasks dictates that certain selection criteria have to govern recruitment into the programme:

- *Mulberry tree caretakers* have to be mobile, prepared to work away from the household from 'dawn till dusk', and must accept that their caretaking duties will most likely be difficult to incorporate with domestic work.
- *Grown-worm rearers* have to be mobile and must be able to call on the assistance of at least one adult helper during the most labour-intensive periods of the rearing cycle; they must be prepared to invest in rearing houses and equipment (BRAC loans available) and should appreciate that the activity involves some financial risk.
- *Chawki rearers* have to be mobile and must be prepared to commit above average investment in training, rearing houses and equipment; the work is technically challenging and involves some financial risk.

- *Reeling workers* have to be mobile and prepared to undertake technically challenging wage work in a factory environment - this is culturally challenging and not appropriate for the less empowered women.

The selection of participants is undertaken through BRAC's village organisations - virtually all of which are women's groups. Whether or not a woman is selected depends upon her willingness to undertake the activity as well as her fulfilling the above criteria. In case there are more applicants than opportunities for participation in sericulture, the final choice is made by the village organisation acting as a group.

Divorced, widowed and separated women are particularly suited to the programme because of their extreme economic insecurity and lack of employment opportunities. It is assumed that because they have no male support they will be more determined to succeed and will face less criticism from their families and the community if they are active outside the household. For similar reasons, households in which women bear the brunt of income generation - such as in the case of an elderly couple living apart from their children - find sericulture well suited to their needs. In practice, even these women may be forced to turn to other male relatives (father, brother or son) for security. It would be unreasonable to expect them to be free from dependence on men for their economic or social survival and BRAC rightly does not insist on such independence.

Table 2.1 presents the consultants' assessment of the socio-economic profile of participants in the mulberry caretaking and silkworm (both chawki and grown-worm) rearing components of the programme. It shows that in a typical sericulture household around 38% of the total income is likely to be earned by the woman; in many it is substantially higher.

Sericulture information emerging from interviews with 24 rearers during the consultants' field assessment is detailed in **Table 2.2**. This shows that the average annual revenue from sericulture is Tk 2 800 though, for regular rearers, it can lie anywhere in the range Tk 1 900 to Tk 10 000. This yields an average net income of around Tk 2 200 within a range of Tk 1 400 to Tk 8 000. Given an average of 60-100 (average: 70) person days of rearing per year (spread over four rearing cycles), this indicates a daily return in the range Tk 23-80 at an average of Tk 31.50. This compares favourably with the agricultural labour wage of Tk 20-35 (with an average of Tk 27-30) in most areas.

Given the poor resource base of the target groups, BRAC's support needs to consist of finance, training, on-going support (extension/learning-by-doing), provision of key inputs and assistance with marketing the products. BRAC's performance in each of these areas under RDP III has been rather patchy:

- *Finance.* Overall BRAC has provided loans worth Tk 353 million to women in the sericulture programme. During 1994, some Tk 19.4 million were disbursed to 3 179

women in the programme. The current recovery rate is reported to be 99.8%. As in most of the BRAC credit programme, however, loan recovery is dictated more by the financial discipline imparted to the borrowers than by the performance of the activity for which the advance was made. Repayments are usually made from all sources of income available to the borrowing family. The recovery rate, therefore, does not provide a good indication of the viability of the sericultural activities for which loans were made.

- *Training and extension.* To date, nearly 21 000 grown-worm rearers, 2 100 "progressive silk farmers" and 1 100 chawki rearers have received training; well in excess of the RDP III target of 15 000 rearers to be involved in the programme by the end of 1995. Extension support is provided to these women by 177 POs, with backstopping from 42 regional sector specialists and 3 zonal sector specialists. Quantitative assessment of the impact of the training and the effectiveness of the extension support needs to be based on the marketable yields achieved (i.e. kg of cocoons of given renditta), but these also depend upon the availability of good quality DFLs and adequate rearing facilities. The average yield is reported to be 20.5 kg/100 DFL. This is ahead of BRAC's target of 19.5 kg/100 DFL but still well below the necessary minimum competitive standard of 30-32 kg/100 DFL. Field observation suggests the main constraints are facilities and inputs rather than training and extension.
- *Key inputs.* The most critical inputs are high-quality DFLs, without which good productivity and marketable cocoons cannot be achieved. Throughout RDP III, BRAC has been dependent upon BSB for its supplies of DFLs and it is evident that BSB has not been able to provide either the quantity or quality of DFLs required by the project participants. The RDP III budget made provision for BRAC to establish its own grainage in order to become less dependent upon BSB, but this component has slipped due to a dispute over the land BRAC purchased in Bhaluka, Mymensingh. Although an additional grainage is under construction in Rajendrapur, BRAC's only operational grainage is the seed farm at Shahbazpur (Jamalpur) which released its first supply of just 17 000 DFLs in March 1995. In an attempt to make up the shortfall, BRAC imported 300 000 DFLs from India during 1994. Nevertheless, the seed distributed was 2.1 million DFLs, well below the target of 4.0 million DFLs.
- *Marketing.* BRAC provides a guaranteed market for cocoons, subject to generous (i.e. non-competitive) quality criteria, to all participants who do not wish to sell to the external markets. During 1994, BRAC reeled 42% (177 tonnes) of the 420 tonnes of cocoons produced, yielding 3.1 tonnes of raw silk. Of this raw silk, over 90% was consumed by BRAC's own weaving operations.

Field observation shows that the combination of continued dependency upon BSB for the key input of quality DFLs and the consequent lack of investment in dedicated silkworm rearing facilities has resulted in the failure to achieve the potential earnings. A prime indicator of

this is the distinct but relatively small income advantage derived by sericulturists over agricultural wage workers. Nevertheless, as women in rural Bangladesh are generally discouraged from undertaking the latter activity, sericulture undoubtedly makes a major socio-economic contribution to those of BRAC's target group population who are able to become involved in it.

2.3.3 Economic Aspects

Products and markets

The Draft 2 Proposal does not provide a sufficiently detailed account of the planned products, their competitive position or BRAC's strategy for marketing these products.

The supplementary *Flow chart of silk production (Annex 2.1)* provides revised targets for cocoon production and indicates that although 40% of the target production of 2 400 tonnes of cocoons would be reeled by BRAC in 1996, the proportion will reduce to just 16% of the 11 475 tonnes of cocoons that BRAC expects to produce in 2000. Despite the acknowledgements in the Draft 2 Proposal that the reeling sector in Bangladesh has suffered losses in recent years, no indication is given as to how BRAC will dispose of the cocoons that cannot be processed by its own reeling units. Moreover, given that the proposal asserts that rearers need access to local reeling facilities and that it is difficult to transport the cocoons over long distances, it seems unlikely that more distant markets can be considered viable alternatives.

The provisional estimates¹⁰ of domestic cocoon consumption by reelers and spinners in 1994 is about 580 t. About 65-70% of the total production is derived from the indigenous *nistari* silkworm race which yields about 16 kg cocoons per 100 DFL. These cocoons have only 200-350 m of filament and produce a renditta of 18-42 kg cocoons to produce 1 kg of raw silk. Almost 90% of the cocoon producers and traders interviewed asserted that these cocoons were too small and therefore difficult to dispose of. The main buyer was the BSB, which has a mandate to act as a buyer of last resort and therefore applies less stringent quality criteria than the private sector or NGO reelers. However, BSB is starved of working capital and most sellers experienced long delays in receiving payment for their cocoons.

Except for the market distortion created by BSB (which will be removed through the intended restructuring of BSB), the domestic demand for the small *nistari* and other low-grade cocoons is restricted to the production of coarse raw silk or spun silk yarn (often incorrectly termed dupion) of 60/80 - 80/100 denier. The bulk of demand is for the larger cocoons (yielding 700-800 metres filament), produced by improved multivoltine or bivoltine silkworm races, which can be economically reeled to produce 14/16 - 20/22 denier raw silk. Owing to

¹⁰ *Silk Marketing in Bangladesh*. In preparation: Ford Foundation/World Bank.

the poor quality of the available cocoons, the Bangladesh reeling sector mostly produces poor quality silk which is very uneven, ranging from 14/16 to 40/42 denier. This product is unable to compete with the raw silk imports and the demand for domestic raw silk has decreased rapidly since 1992/93. Almost 70% of the raw silk and silk yarn traders interviewed opined that katghai and mechanical reeling in Bangladesh would disappear within five years unless the quality of the cocoons and the efficiency of the reeling operations were substantially improved. This implies considerable uncertainty about the persistence of a private sector market for BRAC's proposed cocoon production, unless these cocoons approach international quality standards.

BRAC's proposal is similarly deficient in respect of marketing of raw silk and silk fabrics. Although BRAC intends to increase its weaving capacity, no indication is given of the proportion of the raw silk and spun silk production that these looms will consume.

Domestic raw silk and spun silk production in 1994 is estimated at 30-32 tonnes, of which about 28 tonnes was consumed by the handloom sector and less than 2 tonnes was taken by the powerloom sector. It is estimated that an additional 180-210 tonnes of raw silk were imported in 1994. About 85-90% of the imported raw silk is 19/21 - 20/22 denier, medium quality (Grade B to 2A) and this is sold for Tk 1,000 - 1,130 /kg. This reflects the preferences of both the handloom and the powerloom sectors, which account for about 85% and 15% respectively of the estimated 1994 output of 4.1-5.7 million metres of fabric

The handloom weavers in greater Rajshahi account for up to 60% of the total domestic production of silk fabric. Their preference is for 20/22 denier Grade 2A Chinese raw silk for both warp and weft, mostly for the production of kurathan. Although these weavers also consume about 80% of the domestic raw silk production, they are mostly looking for 60/80 - 80/100 denier for the production of "dupion", motka, endi sateen and similar specialist fabrics. The handloom weavers of Mirpur account for about 30% of raw silk consumption and they mostly produce brocade katan and benarasi, for which they also prefer 20/22 denier Grade A to 2A Chinese raw silk for both warp and weft. For low priced sarees they will use Vietnamese or local raw silk of 20/22 - 50/70 denier of any grade providing the price is low enough. These weavers commented that sales of traditional (heavy) sarees have declined even during the popular Eid season and many are now looking to move into high-value, light-weight 'fashion' (Indian style) saree production. This will result in reduced demand for anything other than 14/16 - 20/22 denier raw silk. Finally, the powerloom sector is virtually dependent upon imported raw silk and output increased 88% in 1994 to 768 000 metres. About 90% of powerloom production is for sarees and uses 20/22 denier for both warp and weft. Warp yarn is 95% Chinese. Weft yarn is sourced from China, Vietnam and Korea, with Bangladesh raw silk accounting for just 2-5%.

Given that about 90% of the domestic demand for raw silk is for 20/22d Grade A or better and that this is currently satisfied by imports from China, Vietnam and Korea priced at Tk 1,000-1,300/kg, it is difficult to accept that BRAC will be able to improve both quality and productivity sufficiently to enable it to compete successfully in this market before 1998. Similarly, although BRAC's target production of 765 tonnes of raw silk could be readily consumed by neighbouring countries, this would be contingent upon roughly similar quality standards being obtained. The consultants therefore submit that BRAC does not have reasonable grounds to suppose that a sufficient market exists for its raw silk unless significant quality and productivity improvements can be achieved within the first three years of the proposed project.

Even if BRAC elected to weave all the raw silk produced by the proposed project, it is far from clear that the proposed strategy of marketing the fabric through Aarong would suffice. According to the proposal, Aarong currently consumes about 325 000 metres of fabric per year. Yet in 1996 BRAC plans to produce enough raw silk to weave 2-3 million metres and this could increase to 13-19 million metres in the year 2000. Given that only about 10% of the current domestic market is for the heavier fabrics that could be produced from lower quality raw silk, and that there is little demand for such products in neighbouring countries, it is not clear how this volume of fabric could be marketed. Moreover, notwithstanding the opening of new branches in London and Vancouver, there appear to be no marketing studies produced by BRAC in support of the assumption that Aarong would be able to export this volume of such specialist products.

Financing needs

The financing needs of the major components of the sericulture programme remaining in Draft 2 Proposal (Budget Draft 14) are summarised in Table 2.3.

Staff and staff training

Salaries have been budgeted in accordance with BRAC's normal payment structure and training and transport costs have been provided for respectively 10% and 30% of salary costs in accordance with well established BRAC norms. Subject to the overall management review of BRAC, these provisions appear reasonable. The overall numbers of extension and managerial staff also seem appropriate to the needs of the project - except the number of grainage assistants. Only one assistant per grainage has been provided for, but in order to ensure the maintenance of proper, hygienic production conditions and testing procedures for the production of disease-free silkworm eggs (DFLEs), in the opinion of the consultants, at least two assistants should be deployed at each grainage.

Tree plantation and replacement

The number of mulberry trees already planted far exceeds that required for any reasonable level of silk production attainable over the next five years (this is discussed in the following section). Given that this is the case, there is little justification for this line item. If additional mulberry saplings are to be planted, however, Tk 5 per tree is a reasonable unit cost.

Training of sericulturists

The number of persons (women) to be trained, particularly as rearers, has to be questioned in the context of the overall production and productivity targets set for the programme. However, the unit costs for all training programmes appear reasonable. Progressive silk farmers and chawki rearers will attend residential courses at the Sericulture Resource Centres whereas grown-worm rearers will be trained at Area Offices. Training costs include materials, board and lodging in the former case and materials plus one meal per day for rearers under training. No stipends are to be paid.

Training of reeling workers

The training of reeling workers is an expensive proposition because a valuable raw material (cocoons) has to be used without much usable raw silk output in the initial stages. It is for this reason that the training process needs to be carefully monitored by unit managers. As training progresses, a better output is obtained and this may be sold to contribute to the revenues of the unit. The provision of training costs of Tk 10 000 per worker appear reasonable, though careful monitoring will still be required to maintain the operational efficiency of the reeling units in spite of the training of workers. Thus, no more than a few workers should be trained at any unit at one time in order to avoid burdening the operation with an excess production of waste silk or unsaleable raw silk.

Training of nursery farmers and bush plantation farmers

As the consultants do not recommend the retention of the moriculture components of the programme, the training of these farmers is considered unnecessary.

Chawki rearing centres

BRAC has projected the need for 1 000 chawki rearing centres of 10 000 DFL capacity. This will create an overall chawki rearing capacity of 10 million DFLs, sufficient - on the basis of BRAC's target levels of output and productivity - for just 26% of overall production by the year 2000. Part 2 of the Economic Model (Annex 2.2) for a revised sericulture programme shows that it should be possible to establish chawki rearing centres of 16 000 DFL capacity at the same capital cost. In any case, this is the minimum capacity at which a chawki rearing centre will be financially viable.

Sericulture Resource Centres

These are being established in order to meet the needs for training large numbers of sericulturists as well as extension staff. They consist of training halls; accommodation for 20 trainees, 2 trainers and support staff; rearing houses; and attached mulberry bush plantations, covering a total of 0.81-1.20 hectares of land. The provision of Tk 5 million per centres and the establishment of 3 such centres is reasonable for a programme of this scale.

Research and Development

This is mainly for the purpose of field testing and undertaking adaptive trials of varieties of mulberry and races of silkworm that have already been, or will be, acquired from India and China. An income guarantee scheme for the rearers who agree to participate in the

programme is a necessary provision. The variable experience with imported DFLs makes apparent that such testing is necessary and the provision made in the budget is not excessive for this purpose.

Head Office Logistics and Management

This has been provided for at the rate of 10% of field - staff and investment - costs included in the above account heads. It covers all head office management salaries and overhead costs incurred on the sericulture programme. This follows the pattern established by BRAC for the entire proposal and, as in the case of staff salaries and training, it is acceptable subject to the overall management appraisal of the organisation.

Grainage

Grainage investments and costs have been subjected to stringent economic viability analysis. From Part 1 of the Economic Model (Annex 2.2) it is apparent that a grainage of 1 million DFL capacity requiring an investment of Tk 10 million is economically viable (economic rate of return over 16%). However, this ERR is obtained only at a selling price of Tk 300 per 100 DFLs and not at the Tk 100 per 100 DFLs costed by BRAC in their Revised Budget Draft 14.

Reeling Units

These were subjected to similar economic viability analysis. However, it soon became apparent that the 9 tonnes (per year) capacity units would not be viable at any realistic levels of raw material costs paid and output prices obtained. These units are **highly sensitive** to changes in the prices of raw silk and if cocoon prices paid by BRAC improve to Tk 70 per kg, as projected by the consultants, a 9-tonne unit needing an investment of Tk 7.5 million cannot be viable at a raw silk price of Tk 1 100 per kg. In order to obtain higher raw silk prices, not only would raw silk quality have to improve considerably but the international prices of this commodity would have to improve considerably as well. Neither of these events is likely in the short term of 1-2 years and BRAC's business plan for the reeling units is therefore unrealistic.

Financing mechanisms

At present, there are just two mechanisms proposed for financing the sericulture programme. These are grant funding by BRAC's Donor Consortium and the recovery of service charges from the silkworm rearers. All the programme components discussed above are to be funded by the Donor Consortium subject to the deduction of targets for the collection of service charges from the overall totals for the programme, rather than from any specific component.

While earlier service charges were levied on the number and age of mulberry trees allocated to rearers, due to a disappointing experience in determining and agreeing the age of trees with rearers, BRAC now proposes to levy service charges on the much less controversial basis of DFLs reared by each participant. The level of charges indicated by BRAC -

increasing from Tk 30 per 100 DFLs in 1996 to Tk 50 per 100 DFLs in 1998 - is relatively moderate and unlikely to have any major adverse impact on the viability of rearing. However, according to BRAC's estimates, this yields service charge collections increasing from Tk 3.35 million in 1996 up to Tk 22.9 million in the year 2000. Over the five years of the proposed RDP IV, the estimated aggregate service charge collections amount to Tk 72.3 million, just 12% of the overall (inflation adjusted) budget of Tk 596 million estimated by BRAC. It is apparent from the summary (Table 2.3) that this level of cost recovery will not even provide for the staff salary and staff training component of the budget.

In addition, BRAC has indicated informally that some manufacturing components - such as the spun silk mill, weaving factory and dyeing and printing unit - included in earlier versions of the proposal will now be funded from commercial sources when the programme starts to generate sufficient quantities of raw materials and the market shows a reasonable response to BRAC/Aarong's promotional efforts.

The commercial funding of the other components of the project is not possible at this stage because, in the absence of an established and smoothly functioning infrastructure, sericulture investments would still be seen as an extremely high risk proposition. It is expected that a few years into the project BRAC will have acquired the necessary experience and demonstrated the economic viability of activities such as silk reeling and grainage, and it will then become much easier to attract commercial funding.

Budget review

Analysis of the budget allocations (see Table 2.3) shows that the overall allocation to staff salaries, travel and training costs is 13.5% of the overall budget (Draft 14) proposed by BRAC. It is apparent from the staffing pattern indicated that a major extension effort is envisaged. In addition, around 11% of the total is allocated to the training of sericulturists and another 2.7% to Sericulture Resource Centres. To the extent that these expenses can be expected to contribute to major improvements in the adoption of technically appropriate rearing practices and processing techniques, the allocation of around 27% of the total budget is reasonable.

The investments necessary for production of good quality DFLs, on the one hand, and the reeling of strong, uniform raw silk, on the other, are highly capital intensive. Given that this is the case, the allocation of a substantial proportion (40%) of the total budget to these investments is inevitable. As already indicated, however, the consultants do not consider further investments in mulberry planting to be necessary.

2.3.4 Institutional Aspects

Sericulture Division business plan

The Draft 2 Proposal does not present a comprehensive business plan for the sericulture division which projects investments, phasing, costs of production and output. It does specify the projected growth of the programme over the period 1995-2000 in terms of DFLs distributed, cocoons produced and the numbers of rearers, together with cost recovery projections based on a service charge for the quantity of DFLs utilised. It also provides a budget summary for the proposed investments.

The supplementary *Flow chart of silk production (Annex 2.1)* presents the important technical coefficients for the project. The coefficients adopted by BRAC do not provide a satisfactory basis for a financially sustainable sericulture project on the scale proposed, for the following reasons:

- BRAC envisages a gradual improvement in *renditta*¹¹ from 20 kg in 1996 to 15 kg in 1999 and 2000. In order to minimise the period of operating at a loss, and to have any realistic prospect of competing successfully against producers in India and Thailand, BRAC must achieve a *renditta* of around 10 kg (cocoons per kg of raw silk) as quickly as possible.
- BRAC anticipates that rearers will improve their cocoon yields from about 24 kg per 100 DFLs in 1996 to 30 kg per 100 DFLs in 1999. If the sericulture sector is to be financially sustainable it must become competitive; this implies that rearers must be prepared to accept about Tk 70 per kg for cocoons with *renditta* of less than 11 kg. In order to generate a reasonable return to labour at this price, the rearers must achieve yields in excess of 30 kg per 100 DFLs.
- Under these constraints, rearers will also need to operate at a minimum scale of 400 DFLs per year if they are to generate a return on their investment in rearing houses and equipment. But the BRAC plan indicates that this scale of operation will not be achieved until 1998, which is too late.
- In Bangladesh it requires about 26 kg of mulberry leaf to produce 1 kg of cocoon, compared to 18 kg in India and 13-15 kg in Japan, China and Vietnam. Yet the flow chart indicates that BRAC rearers will require 33.3 - 38.5 kg. As a result, BRAC has greatly overestimated the number of mulberry trees that are likely to be required to produce any given quantity of cocoons.

¹¹ The quantity of cocoons (in kg) required to produce 1 kg of raw silk.

- Despite the considerable difficulties BRAC has experienced in securing sufficient good quality DFLs for distribution to rearers, the plan indicates that BRAC intends to supply only 55-78% of the programme requirements from its own grainages until 1999. This obviously presents a risk of repeating the RDP III failure to ensure that adequate supplies of DFLs are available for distribution to rearers.

Individual business plans for grainages, chawki rearing centres and reeling units were obtained, separately from the Draft 2 Proposal, by the consultants from their BRAC counterparts. Some comments on these business plans were made in the previous section. It is apparent that BRAC did not make a rigorous attempt to assess its consolidated sericulture programme from a commercial or economic point of view. The business plans do not reflect a consistent approach to such overhead provisions as maintenance costs for buildings and machinery, depreciation and interest charges (whether notional or not). This can be seen from the following comparison of the provisions made:

Expenditure Category	Grainages	Chawki Rearing Centres	Reeling Units
Maintenance and replacement	No provision	No provision	Included
Depreciation	Basis unspecified	Buildings 5 %	Buildings 4 % Machinery 10 %
Interest charges	None	Included	Included

Further, there are inconsistencies in the estimation of major direct cost and revenue categories. Thus, the revenue of the grainages has been seriously underestimated by assuming a price of Tk 1 per DFL - an unrealistically low estimate by any consideration. The chawki rearing centre business plan, on the other hand, contains neither any provision for the cost of the DFLs obtained from the grainages nor, by extension, for the incubation and disease losses in the process of rearing chawkis. Similarly, the reeling units are assumed to be purchasing cocoons at Tk 50 per kg - also unrealistically low. If investments are to take place in silkworm rearing and if consequent cocoon quality improvements to internationally competitive levels are to take place, then a significant increase in cocoon prices will be necessary.

As the BRAC business plans only show cash flows over a short (three year) period - with neither static calculations of returns on investments nor dynamic indicators (such as economic rates of return) - the effects of underestimating costs and revenues have not been reflected in the business plans. Thus, even with the assumption that these business plans contributed to BRAC's decision making, in practice the Draft 2 Proposal provides no indication of the commercial or economic viability of the sericulture programme upon which BRAC could have reached a decision.

Securing key inputs

The key input for the proposed programme is an adequate supply of disease-free eggs (DFLs) of consistently high quality. The Draft 2 Proposal and the *Flow chart of silk production* (Annex 2.1), *inter alia*, clearly indicate that BRAC intends to rely mostly on DFLs imported from India and China to make up the shortfall from its own grainages. This strategy has evolved in response to BRAC's experience during RDP III that the BSB grainages suffer from inadequate disease control, low quality eggs, badly managed hybrid seed production, uneconomic price setting and nonfunctional cold storage facilities.

Whilst the consultants strongly support BRAC's intention to move away from reliance upon BSB for provision of DFLs, there must be some doubts over the feasibility of BRAC producing or importing DFLs on the scale envisaged in the proposal. To date, BRAC has imported about 300 000 DFLs from India and its experience in commercial grainage is limited to an initial distribution of just 17 000 DFLs from the Shahbazzpur grainage in March 1995. The suitability of BRAC's own DFLs cannot be assessed because the cocoons have not yet been harvested. The impact of the DFLs imported from India was mixed: although the draft proposal states that "some rearers obtained yields on the order of 50 kg", the field survey revealed that a significant proportion of rearers lost the entire crop. This simply reflects the fact that improved silkworms from India are not necessarily adapted to the rearing environments currently provided by the majority of BRAC rearers in Bangladesh. Yet faced with (i) unproven internal capacity to provide adequate DFLs, (ii) a significant shortfall (48%) during RDP III despite importing DFLs and (iii) proof that imported DFLs may not be suitable for certain rearing seasons, BRAC claims that it will be able to supply 5.5 million DFLs in 1996 and 20 million in 1998.

Infrastructure and human resources for industrialization of silk production¹²

Although not described in sufficient detail in the Draft 2 Proposal, the necessary infrastructure for commercial-scale grainages and reeling facilities has been well thought out by BRAC and presented in the form of separate budgets (discussed above). The consultants agree that these budgets make appropriate provision for the establishment of the necessary infrastructure.

While the budget also provides for reasonable numbers of operational staff for this infrastructure (except in the case of grainage assistants, as discussed above), management issues and the human resources aspect of the utilisation of this infrastructure has not been adequately addressed. As already discussed, observations made by the consultants during the

¹² Note that the draft two proposal refers to the establishment of a spun silk mill and a modern weaving factory. BRAC subsequently withdrew these components from the sericulture sector programme proposal for RDP IV.

field assessment indicate a lack of management experience at all levels of the programme. It is apparent that a far more systematic and interactive approach to programme monitoring and management will be required than has been practised so far. Thus, it is apparent that much of the information that is generated at present is not used to inform decision making. Two examples of this are:

- *Grainage investments.* BRAC are currently in the process of establishing a grainage at Jamalpur. Instead of a close monitoring from head office of the costs of establishing the grainage, it is apparent that the information is not even being maintained separately. Indeed, the accounts at the Area Office level show much of the investment made in this facility under the comprehensive (but misleading) heading, "Bush plantations".
- *Reeling unit profitability.* Five of the six reeling units also provide training to new workers. While this performs a social function in imparting skills to the community, it also confounds reeling unit accounts because it becomes impossible to monitor the quantity of cocoons used for actual production and that used for training purposes. As the training function is not being physically or financially separated from production, it would appear that large quantities of cocoons are being written off without any real accountability. This results in extremely high levels of renditta (around 35-40 compared to 10 reported in more efficient reeling centres in India using similar levels of technology, and 22.9 reported by BRAC's own Manikganj reeling unit - see Table 2.4). At present, renditta levels are not even being monitored by BRAC and thus there is no real indication of the losses, if any, being incurred in the reeling activities.

Technical viability and constraints

The draft two proposal provides neither a systematic account of what BRAC has learned from RDP III in respect of the technical viability and constraints the sericulture programme, nor a sufficiently detailed plan for alleviating the constraints and improving technical performance. The following is therefore based on such information as could be gleaned in the time available. A summary of BRAC's targets and actual achievements under RDP III is presented in Table 2.5.

Mulberry

BRAC has made excellent progress in achieving its targets for planting roadside mulberry saplings, reaching a total of 21 million trees by the end of 1994, and it is anticipated that about 9.8 million mature trees will be available for silkworm rearing in 1995. However, the area of bush plantation remains small: 40 ha in the Nilphamari, Syedpur area and 18 ha in Sylhet, together with small plantations at BRAC's grainages in Shajadpur and Bhaluka. As a result, mulberry yields are low - 18-22 t/ha/yr - and most of the leaves have low nutritional value. This compares with competitors' production of 24-45 t/ha/yr of high quality leaf. A

consequence of the low yields is that there are frequent shortages of good quality leaf during the most favourable rearing seasons (Agrahayani and Chaita).

In almost all the major sericulture countries, mulberry is cultivated almost exclusively in the form of bush plantations at a density of 5 000-12 000 plants per hectare. A system of pruning is adopted which ensures the synchronised production of leaves of uniform quality that has proved essential for stabilising cocoon yields. The leaves of bush mulberry also have a higher moisture content and other characteristics that favour the growth of young silkworms and it is quite common for separate bush plantations to be specially maintained for chawki rearing. In addition, the regular basal pruning mostly eliminates potential mulberry pests such as stem borers and scale insects. Bush plantations tend to produce maximum returns from the land. Unfortunately, the bushes have comparatively shallow rooting systems and therefore yield poorly during the dry season and are susceptible to drought damage.

The preponderance of roadside mulberry plantations is a characteristic of the revival of interest in sericulture in Bangladesh. The use of roadside land avoids competition with most other crops and has put an unexploited resource to productive use. Once well established, mulberry can be expected to thrive in roadside habitats, where it benefits from maximum exposure to sunlight, and the deep rooting system of mulberry trees should ensure that they are drought tolerant and remain reasonably productive during the dry season. The main disadvantage of roadside tree plantations is that the leaves tend to be too tough, with a water content that is too low for optimal rearing of young silkworms. In this respect it should be noted that although mulberry was traditionally cultivated along roads and field boundaries in the Jammu region of India, bush cultivation has been successfully promoted on these marginal lands since 1988.

Although the present low yields of mulberry can be compensated for by more extensive mulberry cultivation (at the cost of the increased labour needed to harvest and transport the leaves over a greater distance), the low nutritional value of the leaves inevitably will be reflected in lower cocoon yields and smaller cocoons. The consultants submit that the problem must instead be addressed by (i) ensuring that chawki rearing is based solely on high quality mulberry leaves harvested from specially established bush plantations; and (ii) improving both the yield and the nutritional value of leaves from the roadside plantations through improved pruning and judicious applications of compost, manure and fertiliser.

BRAC's proposal does state that this is the strategy that will be adopted during RDP IV. But the supplementary *Flow chart of silk production Annex 2.1* fails to take account of the fact that, if productivity and leaf quality is improved, the number of mulberry trees needed for sericulture will be far less than proposed: the production of even 765 tonnes of raw silk should require no more than 13-15 million trees rather than the 27 million envisaged by BRAC. As at least 14 million productive trees are expected to become available before the end of 1995, there appears to be no justification for BRAC's continued emphasis on mulberry sapling production and roadside planting.

Grainage

Based on the supplementary information provided by BRAC counterparts, the proposals for the establishment of grainages and for routine pebrine inspection to ensure quality are technically sound and are fully endorsed by the consultants. However, the consultants are unable to endorse BRAC's proposal that even greater production of DFLs should be obtained through the use of contract farmers (outgrowers) to produce the bulk of the seed cocoons. Unless these outgrowers use rearing houses of much better quality and adopt exemplary rearing techniques - neither of which appears practicable or probable in the short term - there is too high a risk that any greatly increased scale of production will be accompanied by increased incidence of disease and widespread failure of DFL production.

This risk would be best managed by ensuring that the scale of the grainage operation is dictated by the availability of the necessary physical and skill resources, rather than simply by the demand for DFLs. The appropriate course of action would be for BRAC to scale-down its proposed scale of rearing operations to the level at which it can be largely self-sufficient in DFL production, with perhaps occasional imports of good quality DFLs of suitably adapted silkworm varieties from, for example, West Bengal.

Chawki rearing

BRAC's proposal clearly acknowledges that organized chawki rearing centres, with good mulberry bush plantations and a better standard of rearing facilities, are essential for bringing about the necessary improvements in cocoon quality and productivity in the shortest possible time. However, field observation confirms that BRAC has not yet developed or implemented an appropriate system for the proposed rapid expansion of chawki rearing in Bangladesh. At present, the majority of chawki rearers appear to have been selected solely on the basis of enthusiasm and aptitude - they do not have access to bush mulberry and the standard of their rearing houses is little better than that of their non-chawki sericulturist neighbours.

Unless the proposed expansion of chawki rearing is clearly linked to substantial improvements in the rearing houses, equipment, training and extension support made available to these women, there is a risk that a substantial proportion of the improved DFLs entering the system will simply be wasted. The consultants submit that this problem would be best avoided by substantially reducing the proposed scale of the rearing operations to ensure that available resources can be concentrated to ensure good results, rather than being spread too thinly.

Grown-worm rearing (cocoon production)

Other than through the distribution of chawkis of improved silkworm races, BRAC's proposal makes no clear provision for improving the quality of the cocoons or the productivity (and hence income) of the silkworm rearers. This is because the main requirement is for loans to enable the rearers to establish better rearing houses and acquire other necessary inputs. These

loans do not feature in the sericulture sector budget but are included in the general credit component of BRAC's programmes. The consultants have not had the opportunity to disaggregate these data, but suggest that the average loan is approximately Tk 6 000.

At present, a combination of overcrowding, inadequate ventilation and rearing buildings ill-suited to effective sanitary management of the livestock inevitably leads to reduced cocoon yields. Based on BRAC's calculations, productivity is about 20.5 kg cocoons per 100 DFLs with renditta in excess of 20 kg cocoon to produce 1 kg raw silk. This compares poorly with the minimum necessary competitive standard of 32 kg cocoons per 100 DFL with renditta less than 11 kg.

The consultants are therefore particularly concerned to note that BRAC's supplementary *Flow chart of silk production (Annex 2.1)* does not take into account the productivity coefficients that must be attained if the sericulture sector programme is to be economically sustainable. The stated target for 1996 is 24 kg/100 DFL with a renditta of 20 kg, improving to 30 kg/100 DFL and renditta 15 kg by the year 2000. Unless the rearers are able to exceed BRAC's targets by a considerable margin, it seems most unlikely that BRAC's target production of 765 tonnes of raw silk could be sold at a competitive price without incurring considerable financial loss.

It is evident from the RDP Half-Yearly Reports and **Annex 2.1** that BRAC has adopted a policy of setting targets on the basis of what it believes is attainable for a given scale of operation, rather than by reference to the realities of the competitive market. The consultants submit that this is not a tenable approach and that approaching such targets may simply generate a false sense of security and confidence within BRAC. The scale of the problem is illustrated below:

Comparison of Actual Performance with Targets, 1994.

	Actual	BRAC Target (RDP III)	% of BRAC Target	Competitive Target	% of Competitive Target
Rearers	11,000	10,500	95.5	N/A	N/A
DFLs distributed (millions)	2.1	4.0	52.5	4.4	47.7
Cocoon (tonnes)	420	781	53.7	1,408	29.8
Raw silk (tonnes)	19.1	46.0	41.5	140.8	13.6

Thus, whereas BRAC's RDP Half Yearly Report for June 1994 states that cocoon production and raw silk production are 98% and 83% of the respective targets, this reflects a history of pragmatic downward revisions of the targets stated in the RDP III Project Document. The actual situation is far less encouraging, with BRAC so far having attained just 14% of the productivity necessary to offer real hope of successful competition.

This result does not suggest that BRAC's sericulture project under RDP III has failed. But it does indicate the need to consolidate the substantial progress that has been made, by concentrating on bringing about improvements in productivity rather than on large-scale extension of the present inefficient production systems. The consultants are therefore unable to endorse BRAC's proposal to increase the number of silkworm rearers to 95 600 by the year 2000.

Reeling

According to the Draft 2 Proposal, BRAC intends to set up reeling factories that use semi-automatic and automatic looms, with most of the funds (70%) coming from commercial sources. From Annex 2.1 it is clear that BRAC envisages these facilities eventually attaining a renditta of 15 kg of cocoons for 1 kg silk which, as discussed above, does not reflect a competitive level of productivity. This indicates that BRAC's reeling operations will incur financial losses unless BRAC depresses the price of cocoons, so reducing the potential returns to the target beneficiaries in order to subsidise the reeling losses. Neither BRAC nor the consultants regard this as an acceptable option.

During 1994, BRAC records indicate that 177 tonnes (42.1% of the production of 420 tonnes) of cocoons were reeled at BRAC's facilities in Jamalpur, Sherpur, Kushtia, Atghoria, Taraganj and Manikganj, at an average renditta of 33.2 kg. However, it is apparent from the field assessment (and subsequent data analysis) that the reeling centre accounts and management information systems (MIS) are far from satisfactory and that inventory control is also a neglected area. Moreover, at virtually all the centres, the training function is mixed up with production and this makes it impossible to assess overall productivity and financial performance. The best available indicator of the actual productivity is provided by the record for Manikganj, where no training was conducted and the renditta was 22.9 kg. It therefore appears that BRAC's reeling centres are incurring financial losses; this is certainly the case for Jamalpur and Sherpur but insufficient data were available to assess the other centres.

Given the present decline of the Bangladesh reeling sector - caused by the lack of good quality cocoons and competition from imported raw silk - it is possible that much external reeling capacity will be lost before BRAC is able to generate adequate supplies of good quality cocoons. Therefore, in order to preserve a market for these cocoons until confidence returns to the reeling sector, BRAC needs to develop the capacity to reel a significant proportion of its cocoon production, but this should not be undertaken as a loss-making

"holding" operation. BRAC therefore needs to focus its reeling efforts on obtaining good silk recovery from good quality cocoons, and that means setting an economically realistic target of achieving an average renditta of 10 kg cocoons per 1 kg of raw silk by the year 2000.

Training and Extension

The RDP IV Project Proposal (Draft 2) simply states that BRAC will (i) continue its training programme; (ii) establish more Sericulture Resources Centres (SRCs) for this purpose; (iii) look at ways to do training at the village level using demonstration units; and (iv) continue to send its personnel to different institutions (such as Rajshahi, India and China) for training.

The Revised Budget (Draft 14) indicates the following training components:

Training Component	Number of persons/units	Total Cost (Tk millions)
Program Assistant training	300	3.75
Staff Training & Development	Not specified	1.97
Training Abroad	Not specified	5.00
Progressive Silk Farmers	5 250	11.03
Chawki Rearers	5 250	5.51
Silkworm Rearers	52 500	15.75
Reeling Workers	250	2.50
Sapling Nursery Farmers	950	0.14
Mulberry Bush Cultivators	Not specified	25.00
Sericulture Resource Centres	3	15.00

To date, nearly 21 000 grown-worm rearers, 2 100 progressive silk farmers and 1 100 chawki rearers have received training; well in excess of the RDP III target of 15 000 rearers to be involved in the programme by the end of 1995. Extension support is provided to these women by 177 Project Officers, with backstopping from 42 regional sector specialists and 3 zonal sector specialists.

Training and client-responsive extension are areas in which BRAC excels and the consultants have no doubt that highly motivated and competent extension staff provide a good transfer of acquired knowledge through the farmer training and follow-up programmes. However, at

present, only small quantities of silkworms are used for training and the rearing cycle is compressed - this approach is more like a demonstration rather than intensive practical training and it may not suffice for the development of commercially competitive sericulturists. More significantly, the low level of capital investment amongst the farmers inevitably results in significant differences between the training and production environments, with the result that most of the farmers do not have the opportunity to put their training into practice.

There is a limit to what training alone can achieve and the consultants submit that further advancement is contingent upon better rearing facilities, more inputs (such as quality DFLs) and continued extension support rather than a greatly extended programme of training. The number of women to be trained, particularly as rearers, has to be questioned in view of the need to review the overall production and productivity targets set for the programme.

The BRAC proposal also makes provision for training of 250 reeling workers. This training is inevitably an expensive proposition because valuable raw material (cocoons) has to be used without generating much usable raw silk output in the initial stages. It is for this reason that the reeling training process needs to be much more carefully monitored by unit managers. As training progresses, a better quality output is obtained and this can contribute to the revenues of the reeling unit. Nevertheless, no more than a few workers should be trained at any unit at one time, in order to avoid burdening the operation with an excess production of waste silk or unsaleable raw silk.

2.3.5 Environmental Aspects

BRAC's RDP IV Project Proposal (Draft 2) does not present a satisfactory assessment of the anticipated environmental impact of the project.

The consultants considered producing an Initial Environmental Examination (IEE), but insufficient time was available to undertake a more extensive field programme to collect the necessary data. Nevertheless, the following information may suffice for purposes of environmental screening and the identification of mitigation measures.

Moriculture

Mulberry is indigenous to Bangladesh, so the project does not introduce any new risks to ecological stability. When grown on roadside verges and other unused land, mulberry trees have a beneficial environmental impact. As a perennial crop with good foliage and extensive root system, mulberry contributes to soil conservation by providing a stabilising influence against wind and water erosion. The timber prunings provide useful fuel wood and this both reduces pressure on other slower growing woody species and on the need to use valuable manure as a fuel. When not needed for silkworm rearing, the mulberry leaves provided

excellent fodder (especially for milch animals) and this may reduce grazing pressure on other fodder supplies.

Although mulberry responds well to fertiliser, and producers are encouraged to use fertilisers, more emphasis is placed on the use of manure and compost because this results in the best quality leaf. The quantity of fertiliser recommended and actually used is very small in comparison with that used for sugarcane, rice or wheat. Similarly, although mulberry is susceptible to certain pests and fungal diseases, virtually no pesticides are used in the cultivation of mulberry because silkworms are extremely sensitive to pesticide residues (for example, they are even seriously affected by tobacco plants flowering within 500 metres of the rearing house).

Sericulture

Silkworms have been reared continuously in Bangladesh for hundreds of years, so the project does not introduce any new risks to ecological stability. Silkworms and silk moths are completely domesticated animals and are dependent upon humans for their survival: the moths have lost the capacity to fly and the silkworms will starve rather than wander more than about 1 metre in search of the mulberry leaves which are their only food. Sericulture therefore presents no risks at all to any other crops or natural plant biodiversity.

The waste from rearing silkworms is hygienically safe and can be used as a valuable source of organic matter for other crops. The only environmental hazards associated with sericulture are those associated with the prophylactic use of formalin and bleach to reduce the risk of silkworm diseases. These hazards should be avoided by ensuring that the rearing house is not used for other purposes, particularly as sleeping quarters or food stores, and by adopting safe practices and sensible protective clothing (e.g. mask and gloves) when handling these chemicals.

Silk production

The processing of the cocoons to produce raw silk can have some adverse impacts on the environment and on human health. Cocoon reeling requires the use of hot water, often using scarce timber as fuel. Cocoon drying and reeling operations that are dependent upon fuel wood should be associated with a mitigating component involving the establishment and sustainable harvesting of wood for this specific purpose.

The constant immersion of reeling workers' hands in hot water contaminated with the gum (sericin) from the cocoons can cause dermatitis. It is also reported that working with the fine silk filaments under poor lighting can cause eye strain and headaches. Reeling and weaving should be regarded as workshop operations and should be subject to appropriate inspectorate standards.

The production of finished silk fabric involves the use of bleaching agents (usually hydrogen peroxide), acids, dyes, mordants and fixatives, some of which are potentially hazardous to health. Suitable handling precautions and appropriate protective clothing should be used. The frequent rinsing of the silk can result in localised ground water pollution if correct drainage facilities are not fitted to the dye houses and weaving units.

In many countries, reeling and weaving are operations mainly carried out by young children. BRAC should therefore ensure that donors' concerns over the issue of child labour are specifically addressed and, as a minimum, should ensure that adequate opportunities are available for school attendance, recreation and other important social interactions.

2.4 Recommendations for a Revised (Draft 3) Proposal

2.4.1 Revised Project Targets and Budget

The consultants are concerned that BRAC's proposed production targets are too ambitious. The consultants agree that, in time, the producers in Bangladesh should be able to increase their productivity and improve quality to the standards necessary to ensure that 765 tonnes of raw silk can be marketed successfully. However, a difference of opinion exists over the rate at which these improvements can be expected to occur - with the consultants asserting that it seems most unlikely that BRAC would approach, let alone attain, this target by the year 2000. Nevertheless, the consultants are sensitive to BRAC's insistence that the possibility of rapid improvement should not be constrained by lack of essential infrastructure or funds.

The consultants and BRAC have therefore agreed¹³ that a clear distinction should be made between the project targets (as recognised for monitoring and evaluation purposes) and the actual scale of production. The suggested revised targets are based on an assessment of what the consultants believe BRAC might reasonably expect to achieve - i.e. 28 tonnes of raw silk in 1996, increasing to 180 tonnes in the year 2000. However, the consultants propose leaving BRAC to determine the actual scale of production, subject to a maximum of that indicated by a one-year slippage in BRAC's *Flow chart of silk production*. Thus, BRAC will have access to sufficient facilities and materials to enable it to achieve a production of about 125 tonnes in 1997 (BRAC's target for 1996) and 250 tonnes in 1998 (BRAC's target for 1997), but the yardstick for project performance would be the consultants' targets of 48 tonnes and 82 tonnes for those years. This approach therefore enables BRAC to accelerate the programme towards the ambitious scale of production indicated in the *Flow chart of silk production* if it attains the higher levels of output.

¹³ The consultants' recommendations were welcomed and accepted by Mr Abed at a meeting at BRAC HQ on Monday 10 April, 1995.

The consultants therefore recommend that the revised project should comprise two phases: a five-year phase of consolidation (1996-2000) and a two-year conditional phase of expansion (1999-2000) to accommodate the possibility of BRAC approaching its original target of 765 tonnes of raw silk by the year 2000. The total budget should be just over Tk 598 million (inflation adjusted), of which almost Tk 383 million (64%) would be required for the main consolidation programme and the remaining Tk 215 million would be a conditional provision dependent upon the findings of a Mid-Term Evaluation.

The consultants submit that the proposed Mid-Term Evaluation, to be carried out before March 1998, is an essential feature of the suggested programme. The purpose of the evaluation should be to finalise the productivity and production targets for the duration of the programme, on the basis of extrapolation from the actual growth achieved during the period 1994-1997. By early 1998, any differences between the consultants' suggested targets and BRAC's actual achievements should be obvious. If it is clear that BRAC is successfully implementing the project on the ambitious scale outlined in its *Flow chart of silk production*, then the conditional provision will need to be disbursed in order to provide the extra grainage capacity and training of rearers that will be necessary to sustain the growth. However, if the actual productivity and production levels are closer to the targets suggested by the consultants, then there would appear to be little justification for further investments until the capacity provided through the project has been fully utilised (and this would then be unlikely to occur before the year 2000).

The recommended revised project targets are set out in **Annex 2.3** and the recommended revised budget is presented as **Annex 2.4**.

2.4.2 Recommended Indicators for the Logical Framework Analysis

Throughout the field visits and desk studies of BRAC's sericulture activities, the consultants have encountered numerous examples of deficiencies and internal inconsistencies in essential management information, including the absence of appropriate measures of technical production parameters in grainage, rearing and reeling operations. The consultants certainly caution against collecting data that serves no useful management function, but recommend that the following measurable indicators and means of verification should be included in a Logical Framework Analysis and presented as an integral feature of the revised (Draft 3) proposal:

Measurable Indicators	Means of Verification
Number of rearers and gross income of each rearer, by rearing season and year.	Rearing registers giving details of each woman's rearing activities in terms of DFLs supplied (quantities and batch numbers), cocoon yield (in kg <i>not</i> kahon), cocoons purchased, price paid and service charges deducted.
DFLs produced and distributed, by rearing season and year.	Grainage registers giving details of silkworm race, DFLs produced, pebrine inspection protocol and results, and subsequent distribution of each uniquely numbered batch of DFLs.
Quality of DFLs delivered, by rearing season and year.	Comparison of variance in cocoon yields within and between numbered batches of DFLs distributed to rearers (calculated from data in rearing registers).
Cocoon yields and total quantity of cocoons produced, by rearing season and year.	Rearing registers.
Reeling capacity, capacity utilisation and number of reeling workers employed.	Reeling centre register.
Raw silk produced and renditta obtained.	Reeling centre register giving details of cocoon purchases (kg and value), cocoons reeled (kg), raw silk produced (kg), waste silk produced (kg), calculated renditta and stock sold (kg and price) for every day of operations.
Numbers of rearers, chawki rearers, progressive silk farmers, reeling workers and BRAC staff completing training.	Training registers.
Impact of sericulture training.	Longitudinal studies of differences in cocoon yield and income of individual farmers before and after training (data from rearing registers).
Impact of reeling workers' training.	Productivity (raw silk production per basin per day) of trained versus untrained reeling workers.

Financial sustainability of grainages and reeling units.	Accounts of each unit.
Improved sericulture MIS.	Quarterly reports giving evidence of measurement of the above indicators, the reporting of findings and demonstrating appropriate management responses to the information.

2.4.3 Social Aspects

The main direct social impact of the recommended revised project would be to bring about substantial and sustainable improvements in the net annual income and the return to labour of the women involved in all aspects of raw silk production. In addition, successful implementation of the project would lay the foundations for the development of an internationally competitive silk industry. This would offer enormous potential benefits in terms of possible expansion of sericulture and also downstream activities in the weaving and ready-made garments sectors. As a general rule, for every 1 kg of raw silk produced, the direct and indirect employment amounts to 11-13 person years.

At present, the average net income from silkworm rearing is about Tk 2 200 from 70 days of rearing per year (over four rearing cycles). If the productivity coefficients specified by the consultants are achieved, then the improved productivity will generate a net income of approximately Tk 10 800 from the same amount of labour. The improved daily return of Tk 154 compares very favourably with the average agricultural labour wage of Tk 27-30.

The social cost of attaining this improved productivity - which must be achieved if sericulture is to be economically sustainable in the face of international competition - is that the project must focus on consolidation rather than expansion and so there must be fewer target beneficiaries. The consultants believe that no more than 14 100 rearers (all women) will be required for the production of 180 tonnes of raw silk in the year 2000. Nevertheless, sufficient infrastructure (in terms of grainage, chawki rearers, training and reeling capacity) would be provided to enable BRAC to expand the project to at least 35 500 rearers if it decides that it is possible to attain the productivity targets earlier than expected, for example during 1996-1998.

The revised project would also provide for the establishment of 400 chawki units by the end of 1998, with each unit providing income for two women. Chawki rearing is expected to generate a net income per woman of about Tk 5 500 from 40 days labour. It is anticipated that many of the 800 chawki rearers will also rear 400 DFLs through to cocoons and so generate a net annual income of at least Tk 16 000 from an average 110 days labour.

In addition, the project would provide wage employment to 900 female reeling workers through the establishment of 150 tonnes of new reeling capacity by 1998. These women will receive Tk 125 per kg of raw silk reeled. Productivity on comparable machines in India is about 300 kg per basin per year. Assuming an initial productivity of just 150 kg per basin, the average annual earnings per woman would be Tk 18 750.

At the recommended revised project scale, BRAC would be self-sufficient in DFLs and would have sufficient reeling capacity to provide a guaranteed market for the total cocoon production from the project (although only cocoons of a certain minimum standard should be purchased by BRAC). The reduced number of target beneficiaries would help ensure that adequate financing was available for rearing house loans and it would also enable BRAC to provide more intensive training and extension support to the rearers. Thus the revised project scale would be more appropriate to the beneficiaries' needs and lack of resources in terms of finance, training, extension, key inputs and marketing.

2.4.4 Economic Aspects

Products and markets

The recommended project would produce high quality DFLs, good quality cocoons and raw silk for sale at or slightly below current international prices. Vertical integration within BRAC's silk operations will ensure a market for the products and provide a buffer for the target beneficiaries in the event of BRAC's failure to bring about the necessary improvements in quality and productivity. However, if the agreed productivity coefficients are attained, the project will have established an excellent foundation for a internationally competitive - and therefore economically sustainable - sericulture sector. In this case, BRAC will have the option of allowing the domestic or export markets to consume most or all of the production from the project.

Taken together with the existing capacity, the proposed new reeling capacity of 150 tonnes to be introduced by 1998 would be more than sufficient to consume the target cocoon production of 180 tonnes by the year 2000. It would also be sufficient to enable BRAC to reel about 74% of its ambitious target of 270 tonnes for 1997/98. This ensures that BRAC need not be dependent upon external reeling units to provide a market for the cocoons produced through the project. However, by operating at 90% capacity and obtaining a renditta of 12 kg, each reeling unit could purchase cocoons at Tk 67 /kg and produce a net surplus of more than Tk 2 million per year through sales of 20/22 denier raw silk priced at a competitive Tk 1 150 /kg. By improving productivity to obtain a renditta of 10 kg, the net surplus could be increased to about Tk 4.4 million per reeling unit per year. This raw silk should enjoy strong demand from the domestic weaving sector and a very large market also exists in India.

Financing needs and mechanisms

Staff and staff training costs. These have been left unchanged on the assumption that even at lower physical output levels BRAC will need a considerable extension effort in order to achieve the productivity targets agreed.

Tree plantation and replacement. The number of mulberry trees already planted far exceeds that required for any reasonable level of silk production attainable over the next five years, so this line item has been deleted from the budget.

Training of sericulturists and reeling workers. The unit costs for sericulture and reeling training and the numbers to be trained are unchanged, but the extent of the training programme after 1998 will be determined at the Mid-Term Evaluation. However, as the consultants are unable to endorse the moriculture components of the programme, the line items for training of nursery farmers and bush plantation farmers have been deleted.

Chawki rearing centres. The consultants have determined that the minimum capacity at which a chawki rearing centre will be financially viable is 16 000 DFLs. The agreed revised number of chawki rearing centres is 400, each of which needs two full-time workers during each of the 8 cycles of chawki rearing per year and some labour outside them to maintain the mulberry bush plantations. Over ten years, chawki rearing yields an economic rate of return (ERR) of 23.6% with hired labour and 32% if only family labour is used.

Sericulture Resource Centres. No changes.

Research and Development. No changes.

Management Information System. A provision for an MIS consultancy has been added here to enable BRAC to systematise the technical and financial management of its sericulture programme. This provision has been made in 1996 so that the improved MIS can be implemented as soon as possible.

Head Office Logistics and Management. Provision at the rate of 10% has been retained.

Grainage. Provision for 10 grainages of capacity of 1 million DFLs at a cost of Tk 10 million each. If the DFLs were sold at Tk 300 per 100 DFLs it would be possible to generate an ERR of over 16%. The suggested price of about Tk 300 per 100 DFLs would enable rearers in Bangladesh to compete on a level playing field and yet the grainages would become self-financing, whereas the price of Tk 100 per 100 DFLs proposed by BRAC will not be sufficient to cover the costs of production.

Reeling Units. The consultants have determined that the minimum capacity at which a reeling unit becomes financially viable is about 15 tonnes raw silk per year, not the 9 tonnes proposed by BRAC. At the revised capacity, the fixed and working capital requirement of

each reeling unit amounts to Tk 10 million and the ERR is a healthy 23.5%. Should it become necessary or desirable to reel more than about 200 tonnes of raw silk after 1998, then on the basis of such impressive growth BRAC should experience little difficulty in securing commercial financial support for further expansion. The consultants therefore envisage that the reeling operations will not require grant financing beyond the completion of RDP IV.

Service charges. Recommended service charges have been aggregated to show the cost recovery element of the project. These increase from Tk 30 per 100 DFLs in 1996 up to Tk 100 per 100 DFLs in 1999 - twice the rate originally proposed by BRAC. Even at this level, however, using the agreed production targets the total cost recovery over the RDP IV period amounts to only Tk 16 million, just under 5% of the recommended budget. Additional ways of funding the programme - such as profits from reeling units and grainages - will need to be found if self-sufficiency is to be achieved without increasing the service charges. However, if the high profitability of cocoon production is realised through the project, there would appear to be plenty of scope for increasing service charges and rearer incomes rise.

2.4.5 Institutional Aspects

Sericulture business plan

It is recommended that BRAC adopts the project targets, revised budget and the economic models for grainages, chawki rearing centres, silkworm rearing units and reeling units as the basis for the preparation of a Sericulture Division business plan, to be presented as an integral component of the anticipated Draft 3 proposal for RDP IV.

Securing key inputs

It is recommended that BRAC reduces the scale of the sericulture programme to the level at which it can reasonably expect to become self-sufficient in production of DFLs, as indicated by the agreed production targets.

Infrastructure and human resources for industrialisation of silk production

Observations made by the consultants during the field assessment indicate a lack of management experience at all levels of the programme. In order to alleviate this important constraint it is recommended that BRAC (i) reduces the scale of the programme to a level which will place far less strain on the management system, as indicated by the agreed production targets; and (ii) utilises the new provision in the recommended budget for technical assistance in Management Information Systems at the earliest opportunity.

Technical viability and constraints

The agreed targets have been determined on the basis of technical and financial viability, as described above. The consultants strongly recommend that BRAC adopts these agreed targets in preference to any larger scale of production, at least during the early years of the project.

2.4.6 Environmental Aspects

The consultants recommend that BRAC incorporates into the RDP IV Project Proposal (Draft 3) a section describing how the potential adverse environmental impacts identified in section 2.3.6 above will be avoided or mitigated.

2.5 Conclusions and Summary of Recommendations

The consultants conclude that provided the project implementation remains focused on attaining the agreed quality and productivity targets specified in Annex 2.3, then there is a good prospect of BRAC laying the foundations for a much-needed revival of the Bangladesh silk sector. On this basis, the consultants recommend that BRAC prepares a revised project proposal (Draft 3) and that the Donor Consortium appraises that proposal in the context of the following main recommendations:

- As at least 14 million productive mulberry trees are expected to become available before the end of 1995, and this is sufficient for the production of at least 765 tonnes of raw silk, there is no justification for BRAC's continued emphasis on moriculture and this component therefore should be removed from the revised proposal.
- The sericulture project should be scaled down to emphasise the need for consolidation and improved productivity rather than expansion during 1996-1998, and the recommended targets and budget presented in Annex 2.3 and Annex-2.4 should be adopted by BRAC.
- A Mid-Term Evaluation should take place before March 1998, with a view to determining whether or not the conditions for an expansion during 1998-2000 have been fulfilled.
- BRAC should utilise the provision in the recommended revised budget for technical assistance in Management Information Systems (MIS) at the earliest opportunity. Before then, BRAC should endeavour to introduce or make better use of a system of registers for recording the recommended indicators from the logical framework analysis.
- BRAC should review its approach to cost recovery through service charges and give consideration to increasing service charges as rearer incomes rise.
- BRAC should develop an environmental policy statement. Meanwhile, BRAC should incorporate into the revised (Draft 3) proposal a section describing how the potential adverse environmental impacts identified in Section 2.3.6 will be avoided or mitigated.

Table 2.1: Profile of Existing and Target Beneficiaries in the Sericulture Programme

Gender	Always a woman
Family status	(i) Divorced; or (ii) Elderly with (partially disabled) husband; or (iii) Married with children over the age of 8 years and who are able to look after themselves (Rajshahi area).
Household	Nuclear rather than joint family.
Labour availability	Usually able to call upon a relative (husband/children or in-laws living nearby) to assist with leaf collection and feeding at the fifth instar (the last 5-7 days) of each rearing cycle; or young and fit enough to manage 50 DFLs on her own.
Landholding	None or negligible; occasionally around 0.1 ha of leased land.
Additional economic activities	Usually none. Occasionally household production such as palm-leaf mats or bamboo baskets, or processing such as paddy husking or spinning silk waste.
Husband's occupation	Usually wage labour in agriculture or brick fields and/or rickshaw/pedal van pulling; occasionally minor trading in livestock, firewood or groceries.
Family debt status	At least one loan from BRAC for rearing house, sericulture operations or other activities. Also often short-term consumption loans from village money lenders at very high rates of interest (around 20% per month).
Typical family income: Sericulture Rearer's other income Husband's labour Husband's other business	Tk 2 200 per year (20.7%) (270 DFLs per year) Tk 1 800 per year (17.0%) (Tk 100-200 per month) Tk 4 500 per year (42.5%) (Tk 20-30/day, 180 days) Tk 2 100 per year (19.8%) (Tk 30-40/day, 60 days) Total : Tk 10 600

Table 2.2

Production by individual rearers covered during field assessment

Region	Area	Village	Rearer	Falguni(February)				Chaita(March)					
				Seed DFLs	Prodn kahon	Value Taka	Service chgs. Tk	Seed DFLs	Prodn kahon	Value Taka	Service chgs. Tk		
Manikgati	Horganj	Paragram	Anwara Khatun (c)	100	19.00	1,427	100						
			Sukur Jan	70	15.44	1,009	70						
	Gorpara	Pathrail	Moloncho					50	2.00	124	20		
			Batasbi Begum					50	2.00	116	15		
Jamalgati	Mullapara		Sahara Khatun					50	4.44	332	32		
			Phulesa Begum					50	4.13	325	32		
	Porpara		Bahesa					75	6.06	500	43		
			Supiya					75	8.81	595	62		
			Fahida					75	8.19	595	63		
			Ambiya										
Rajshahi	Padma	Namopara	Jaida	75	4.44	250	75	75	8.06	591	59		
			Rina (c)					50	6.56	1,008	50		
			Sahara										
			Aliya					50	6.13	482	50		
			Murina					50	11.56	1,117	50		
			Rushanara										
Natore	Durgapur	Shyampur	Majeda										
			Borogachia										
			Meherbegi (c)										
			Sahara										
			(Rate)										
			Jolekha	100	19.00	1,610	50	100	21.00	2,007	200		
			Fatema	50	16.00	1,696	100	100	7.75	259			
			Johura	50	12.00	780	50	100	19.00	1,444	200		
				445	85.88	6,772	445	950	115.69	9,495	876		
				Prody	Price	Value		Prody	Price	Value			
				19.30	78.86	1,522		12.18	82.07	999			
				DFL/Rearer		Value/Rtr		DFL/Rearer		Value/Rtr			
				74		1,129		68		678			

Table 2.2

Jyeshtha(June)				Bhaduri(August)				Kartiki(September)				
Seed DFLs	Prodn kahon	Value Taka	Service chge, Tk	Seed DFLs	Prodn kahon	Value Taka	Service chge, Tk	Seed DFLs	Prodn kahon	Value Taka	Service chge, Tk	Seed DFLs
100	25.75	750	70	100	18.00	950	75	50	7.25	298	24	75
75	13.75	514	50	75	14.00	570	25					50
												50
150	24	1,633	15	200	42.00	1,965	30	150	31.00	2,643	50	200
				50	12.00	495	12	75	7.00	491	15	100
150	8.13	988	25									50
50	4.81	219	10	100	10.38	504	50	100	10.75	688	50	
50	3.25	147	25	100	9.56	459	45	100	12.44	768	50	
100	3.88	648	10	100	12.13	454	55					
50	5.25	955		50	0.88	77		100	4.13	254		
50	0.56	89		50	1.13	105	20	100	12.56	796	50	50
50	8.13	364	25	100	14.00	195	25					50
50	4.25	269	10	50	11.56	476	50					100
50	4.81	237	20	80	13.56	678	25					100
50	9.25	495	25	100	10.00	603	15					75
				75	22.75	885	70					100
				100	26.19	1,053	100					100
50	7.81	384	25	100	22.56	918	50					100
												50
												50
100	5.00	561		50	7.00	1,092	100	150	27.00	1,672	50	100
				50	6.81	259	50					50
				50	10.00	550	50	50	3.00	72	50	100
1125	126.63	8,251	320	1,580	264.50	12,888	847	675	115.13	7,682	339	1,550
Prody	Price	Value		Prody	Price	Value		Prody	Price	Value		Prody
11.26	65.16	733		16.74	48.73	816		13.16	66.73	878		16.96
DFL/Rearer		Value/Rr		DFL/Rearer		Value/Rr		DFL/Rearer		Value/Rr		DFL/Rearer
75		550		83		678		97		854		82
Rearers(nol)	15			Rearers(nol)	19			Rearers(nol)	9			Rearers(nol)

Table 2.1

Agrahayani(November)				Total, 1994					
Prodt'n kahon	Value Taka	Service chge, Tk	Seed DFLs	Prodt'n kahon	Value Taka	Service chge, Tk	Prody kg/DFL	Price Tk/kg	Svc chge % value
16.00	1,010	267	425	86.00	4,435	536	20.2	51.57	12.1
11.38	720	178	270	54.56	2,813	333	20.2	51.56	11.8
13.00	908	150	50	13.00	908	150	26.0	69.85	16.5
32.00	3,875	375	750	131.00	10,240	490	17.5	78.17	4.8
16.00	1,019	140	275	37.00	2,121	182	13.5	57.32	8.6
6.06	442	50	250	16.63	1,760	107	6.7	105.86	6.1
			50	4.13	325	32	8.3	78.79	9.8
			325	32.00	1,911	153	9.8	59.72	8.0
			325	34.06	1,969	182	10.5	57.81	9.2
			275	24.19	1,697	128	8.8	70.16	7.5
			200	10.25	1,286	0	5.1	125.46	0.0
1.25	85	5	400	28.00	1,916	209	7.0	68.43	10.9
9.38	603	50	250	38.06	2,830	150	15.2	74.35	5.3
20.13	1,462	150	200	36.00	2,207	210	18.0	61.31	9.5
11.31	655	50	280	35.81	2,052	145	12.8	57.30	7.1
22.19	1,634	200	275	53.00	3,849	290	19.3	72.62	7.5
10.19	956	150	175	32.94	1,841	220	16.8	55.89	12.0
10.13	777	50	200	36.31	1,830	150	18.2	50.40	8.2
16.06	1,214	50	250	46.44	2,516	125	18.6	54.18	5.0
8.63	641	50	50	8.63	641	50	17.3	74.32	7.8
2.13	129		50	2.13	129	0	4.3	60.75	0.0
26.00	2,890	200	600	106.00	9,832	600	17.5	93.64	6.1
9.00	457	150	250	39.56	2,671	300	15.8	67.51	11.2
22.00	2,794	200	350	66.00	5,640	550	18.9	85.45	9.8
262.88	22,331	2,465	6,525	970.69	67,419	5,292	14.9	69.45	7.8
Price	Value		Prody	Price	Value				
84.95	1,441		14.88	69.45	1,033				
	Value/Rrr		DFL/Rearer		Value/Rrr				
	1,175		272		2,809				
			kg/100df	1.30	kg/kg Tk/kg				
			19.3	1,261.89	53.43				
			Rearers(no)	24					

TABLE 2.3
Summary of BRAC's Proposed Sericulture Budget

<i>Component</i>	<i>Number of persons/ units</i>	<i>Unit cost (Taka)</i>	<i>Total cost (Tk millions)</i>	
Staff & staff training	366	various	73.89	13.5%
Tree plantation & replacement	17 million	5	85.00	15.5%
Training of sericulturists				
- progressive silk farmers	5 250	150 x 14 days	11.03	2.0%
- chawki rearers	5 250	150 x 7 days	5.51	1.0%
- silkworm rearer	52 500	50 x 6 days	15.75	2.9%
- reeling workers	250	10000/worker	2.50	0.5%
- sapling nursery farmers	950	50 x 3 days	0.14	0.0%
- mulberry bush planters	5 000 acres	5000/acre incl. supplies	25.00	4.6%
Chawki rearing centres	1 000	50 000	50	9.1%
Sericulture resource centre	3	5.0 million	15	2.7%
Research and development			10	1.8%
HO Logistics/management		10% of above	29.38	5.4%
Grainage centres	15	10 million	150	27.4%
Modern reeling factory	10	7.5 million	75	13.7%
<i>Programme Total</i>			548.2	100.0%

Table 2.4

Performance of the BRAC Reeling Units, 1994

		Jamalpur	Sherpur	Kushtia	Atghoria	Taraganj	Manikganj	Total
Cocoons in stock	kahan							
purchased		19,957.0	10,938.0	26,044.5	18,666.0	25,185.0	12,574.0	113,364.5
- non-reelable		537.0	719.0	2,131.9	837.0	200.0	58.0	4,482.9
reeled		17,411.0	8,768.0	15,864.5	15,589.0	16,916.3	3,809.0	78,357.8
non-reelable used		187.0	193.0	2,131.9	119.0	(1,485.3)	(7,604.0)	(6,458.4)
closing stock		2,196.0	1,644.0	10,180.0	2,359.0	6,583.3	1,103.0	24,065.3
- non-reelable		350.0	526.0	0.0	718.0	1,685.3	7,662.0	10,941.3
Silk in stock	kg							
produced		664.2	357.8	351.4	703.6	779.2	216.1	3,072.2
sold		664.2	357.8	344.2	617.1	778.2	209.6	2,971.1
closing stock		0.0	0.0	7.2	86.5	1.0	6.5	101.1
(Renditta)		34.1	31.9	58.7	28.8	28.2	22.9	33.2
Waste in stock								
Waste produced		2,199.0	872.0	2,762.3	1,993.0	2,482.2	591.0	10,899.5
sold		2,199.0	722.0	2,612.3	1,886.0	2,382.2	591.0	10,392.5
closing stock		0.0	150.0	150.0	107.0	100.0	0.0	507.0

Table 2.5

BRAC Sericulture - Targets & Achievements

		1989	1990	1991	1992		1993		1994		1995
		Achvt	Achvt	Achvt	Target	Achvt	Target	Achvt	Target	Achvt	Target
Sapling farmers	no.					225		435			
land	acres					225		402		1,613	
produced	mn.					3.1		6.3			
planted	mn.	0.5	2.3	3.2	3.0	2.9	3.5	5.1	4.0	7.0	4.5
Trees available	mn.			0.4	5.5	2.0	8.2	4.2	11.0	6.3	14.0
Rearers	'000	0.8	1.4	2.1	2.6	2.4	6.0	6.0	11.0	10.5	15.0
Chawki rearers						183		804		1,520	
Seed distributed	mn dls				1.0	0.2	2.0	0.7	4.0	2.1	6.0
Cocoon production	tonnes	12	21	44	166	32	385	122	781	420	1,200
Productivity	kg/100 dfl				16.6	16.2	19.3	16.6	19.5	20.4	20.0
Rearers	'000				200		500		1,000	448	2,000
Silk produced	tonnes				8	1.5	23	6.5	46	19.1	84
at BRAC facilities						1.0		1.6		3.6	
Renditta	kg/kg silk				18.4	22.0	16.7	22.0	17.0	22.0	12.8

ANNEX 2.1

BRAC Flow Chart of Silk Production

BRAC/RDP
Sericulture Program
Flow chart of silk production

DAF Chart 701P-LC

	1994	1995	1996	1997	1998	1999	2000
Silk (in MT)	16.8	57.8	120.0	270.8	448.5	672.6	765.0
	25 kg for 1 kg silk	22 kg for 1 kg silk	20 kg for 1 kg silk	18 kg for 1 kg silk	16 kg for 1 kg silk	15 kg for 1 kg silk	15 kg for 1 kg silk
	↑	↑	↑	↑	↑	↑	↑
Cocoon (in MT)	419.5	1,270.7	2,400	4,875	7,176.4	10,089	11,475
	20 kg cocoon/ 100 df	22 kg cocoon/ 100 df	24 kg cocoon/ 100 df	26 kg cocoon/ 100 df	28 kg cocoon/ 100 df	30 kg cocoon/ 100 df	30 kg cocoon/ 100 df
	↑	↑	↑	↑	↑	↑	↑
DFL (in 000)	2,058.8	5,776	10,000	18,750	25,630	33,630	38,250
	8 kg leaves for 1 df rear	8 kg leaves for 1 df rear	8 kg leaves for 1 df rear	10 kg leaves for 1 df rear	10 kg leaves for 1 df rear	10 kg leaves for 1 df rear	10 kg leaves for 1 df rear
	↑	↑	↑	↑	↑	↑	↑
Leaves (in MT) annually	16,470.4	46,208	80,000	150,000	256,300	336,300	382,500
	12 kg/tree 10 MT/acre	13 kg/tree 10 MT/acre	14 kg/tree 10 MT/acre	15 kg/tree 10 MT/acre	16 kg/tree 10 MT/acre	16 kg/tree 10 MT/acre	16 kg/tree 10 MT/acre
	↑	↑	↑	↑	↑	↑	↑
Tree (in mil)	8.5 serviced	15.2 serviced	21.3 serviced	22.0 serviced	23.8 serviced	25.9 serviced	27.3 serviced
	1,373 productive	3,555 productive	5,214 productive	9,000 productive	14,581 productive	19,081 productive	21,469 productive
Bath	—	—	700 acre	1,500 acre	2,300 acre	3,100 acre	3,900 acre

Year-wise BRAC Production : 1994 — 2000

DFL Prodn. by BRAC (in 000)	—	4,50	5,500	13,000	20,000	28,000	34,000
		7.8% of total need	55% of total need	69.3% of total need	78% of total need	83.3% of total need	88.9% of total need
Silk prodn. by BRAC (in MT)	3.5	28.0	48.1	71.3	101.5	128.0	128.0
	20.8% of total prodn.	48.5% of total prodn.	40% of total prodn.	26% of total prodn.	22% of total prodn.	19% of total prodn.	16% of total prodn.

Year-wise Employment Generation : 1994 — 2000

Employment	10,500	23,100	33,300	53,600	64,000	84,000	95,600
Silk season Rev	200 df/yr	250 df/yr	300 df/yr	350 df/yr	400 df/yr	400 df/yr	400 df/yr
Reeling worker (250 days/year, 2 Weeks/ Basin)	448	1,156	1,920	3,610	5,126	6,726	7,650
	300 g/day/Basin	400 g/day/Basin	500 g/day/Basin	600 g/day/Basin	700 g/day/Basin	800 g/day/Basin	800 g/day/Basin

Annex 2.2
Economic Model

1. Silkwood seed production (Grainage)

Parameters costs	Units	T\$/unit	Quantities (Tons)				Amounts (T\$)			
			Year 0	1	2	3-10	Year 0	1	2	3-10
Land	acre	150,000								
Land development	acre	80,000								
Plantation cost	acre	12,500								
Grainage building	sq ft	400								
Office building	sq ft	350								
- production parameters		Number								
Seed cocoons	cocoons/dfl	3.5								
Egg sheets	dfls/sheet	20								
Production capacity	dfls/cycle	145,000								
Capacity utilisation	cycles/year	8		50%	80%	90%				
Substructure costs		Quantity								
Developed land	area	18.0					4,320,000			
Plantation	area	18.5					206,250			
Grainage bldg	sq ft	8,000					3,200,000			
Office bldg	sq ft	1,800					630,000			
Equipment										
- plantations/keeping							388,600			
- grainage							448,950			
- cold storage							575,000			
- generator							75,000			
Contingencies							10,700			
Subtotal cost							9,850,000			
Production costs		T\$/unit	Qty/unit							
Seed cocoons	katon	150	400				240,000	384,000	432,000	
Egg sheets	sheets	0.75					21,750	4,350	4,894	
Chemicals							20,000	20,000	20,000	
Electricity							48,000	48,000	48,000	
Grainage labour	person days	40	150				48,000	8,000	8,000	
Maintenance	monthly				5,000	8,000	12,000	60,000	96,000	144,000
Supervision cost										
- Seed manager	monthly	8,500					78,000	78,000	78,000	
- Grainage assist		2,500	2				60,000	60,000	60,000	
- Travel		1,500					18,000	18,000	18,000	
Total production cost							12,000	587,750	714,350	810,894
Total costs							9,862,000	593,750	714,350	810,894
Revenue										
Silkwood seed	100 dfls	300					1,740,000	2,784,000	3,132,000	
Net surplus							19,862,000	1,146,250	2,068,650	2,321,106
Economic rate of return							19.4%			

Annex 2.2
Economic Model

2. Chawki Rearing Centres (CRC)

Parameters	Units	Tk/unit	Quantities/prices				Amounts (Tk)			
			Year 0	1	2	3-10	Year 0	1	2	3-10
Land price	acre	150,000								
Seed cost	per 100 dfl	300								
Infrastructure costs			Quantity							
Land	acres	0.10					15,000			
Garden establishment/maintenance		0.09	35,000	10,000	10,000	10,000	3,150	900	900	900
Building/repair	sq ft	360	60		5	10	21,600	0	1,800	3,600
Equipment		Tk/unit		Number						
Dalatrays		20		50	10	20	0	1,000	200	400
Shelves								800	0	50
Nets								400	0	25
Thermometer				1				150	0	30
Stove				2				264	0	66
Other								250	50	50
Total infrastructure costs							39,750	3,764	2,950	5,121
Production costs			Tk/unit							
Silkworm seed	100 dfls	300		170	170	170		51,000	51,000	51,000
Fertiliser	kg/acre	10		72	72	72		720	720	720
Chemicals	8 cycles/yr	75		8	8	8		600	600	600
Labour	10 days/cycle	30		80	80	80		2,400	2,400	2,400
Total production costs							0	54,720	54,720	54,720
Total costs							39,750	58,484	57,670	59,841
Revenue										
Chawki worms	100 dfls	400		160	160	160		64,000	64,000	64,000
Leaves	kg	0.50		3,000	3,000	3,000		1,500	1,500	1,500
Fuelwood	kg	1.00		3,000	3,000	3,000		3,000	3,000	3,000
Total revenue							0	68,500	68,500	68,500
Net surplus - with labour							(39,750)	10,016	10,830	8,659
- without labour							(39,750)	12,416	13,230	11,059
Economic rate of return - with labour							19.4%			
- without labour							26.9%			

TABLE 2.2
Economic Trends

3 30% weight loading ratio of 4 barbed 1,000 mm
rod and horizontal plate steel

[illegible]

5. Considered analysis of the keyboard programs

[illegible]

Annex 2.3

BRAC RDP IV Appraisal: Sericulture and Silk Development Recommended Revised Project Scale/Targets

		1996	1997	1998	1999	2000
raw silk	tonnes	28	48	82	130	180
renditta	kg cocoons/kg silk	20.0	18.0	15.0	12.0	10.0
cocoons	tonnes	550	864	1,230	1,550	1,800
yield/100 DFLs	kg	20	24	28	30	32
dfis/yr	million	2.8	3.6	4.4	5.2	5.6
seed/rearer	no. of layings (dfis)	250	300	350	400	400
rearers required		11,200	12,000	12,551	13,000	14,063
leaf required	tonnes 1 tn/100 dfi	28,000	36,000	43,929	52,000	56,250
leaf/tree	kg	12	13	14.5	16	16
trees reqd	million	2.3	2.8	3.0	3.3	3.5
trees per rearer		208	231	241	250	250
service charges	Tk/100 dfis	30	50	80	100	100

BRIAC NCIP IV Approval: Structures and SAs Development

Recommended Revised Budget

Physical targets - additional, early 1990s

Recommendations
Start & start training course
Training
1 Progressive self-learning
2 Chinese course
3 Silkworm course
4 Reading materials training materials
Chinese training course
Scientific Research Centre
Guanqun
Research centre

Country (see text)	1996	1997	1998	1999	2000
	1,200	2,000	1,500	0	0
	200	250	200	0	0
	8,450	18,000	32,500	0	0
	75	75	100	0	0
15,000-60%	175	125	100	0	0
	0	1	1	0	0
1,000,000-60%	3	2	0	0	0
	2	2	0	0	0
1%			0	0	0

**Conditional probability
training set**

1	Progressive with features
2	Classic training
3	Submatrix training
	Classic training controls
5	5 unknown

	a	b
1,500	1,500	1,500
400	400	400
12,500	12,500	12,500
200	200	200

Funds required

Built & well serving centre
financing

1. Programme all farmers
2. Chemical inputs
3. Silage/machinery
4. Feeding material/housing/transport

Chemical feeding centres
Structural Renovation Centre
Research & Development
Management Information System (consultancy)
is O) Logistics & Management
O service
O building units

[illegible]

Continental procedures

Training

1. Programme with families
2. Chained release
3. Self-release exercises

Post-employment & maintenance

Chained training centres

113 Logistics & Management

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Frequency	%	N of the cases
1907	1	10
1908	1	10
1909	1	10
1910	1	10
1911	1	10
1912	1	10
1913	1	10
1914	1	10
1915	1	10
1916	1	10
1917	1	10
1918	1	10
1919	1	10
1920	1	10
1921	1	10
1922	1	10
1923	1	10
1924	1	10
1925	1	10
1926	1	10
1927	1	10
1928	1	10
1929	1	10
1930	1	10
1931	1	10
1932	1	10
1933	1	10
1934	1	10
1935	1	10
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2370	1	10
2371	1	10
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2373	1	10
2374	1	10
2375	1	10
2376	1	10
2377	1	10
2378	1	10
2379	1	10
2380	1	10
2381	1	10
2382</		

Source: Sherratt, 1990, p. 10.

**An Appraisal of the Essential Health Care Component of the
Bangladesh Rural Advancement Committee Project Proposal
for Rural Development Programme IV**

Prepared by

Priti Dave Sen

April 14, 1995

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GLOSSARY

ARI	Acute Respiratory Infection
CSP	Child Survival Programme
EHC	Essential Health Care
EPI	Expanded Programme of Immunisation
FP	Family Planning
FWA	Family Welfare Assistant
FWV	Family Welfare Volunteer
HPP	Health and Population Programme
IEC	Information, Education and Communication
LFA	Log Frame Analysis
MCH	Maternal and Child Health
MR	Menstrual Regulation
ORP	Oral Rehydration Programme
PA(H)	Programme Assistant (Health)
PHC	Primary Health Care
PO(H)	Programme Officer (Health)
RED	Research and Evaluation Division
RTI	Reproductive Tract Infection
SS	Shasio Shebika
STI	Sexually Transmitted Disease
VAC	Vitamin A Capsule
WHDP	Women's Health and Development Programme

3.0 Overview

3.0.1 Current Status RDP-PHC

The RDP-PHC programme (re-named Essential Health Care in RDP IV) is currently operating in 170 RDP areas.

On the basis of the MIS and RED studies it can be concluded that the programme has had an impact in terms of increased health coverage and uptake of services, and improved health behaviours.

The following need to be strengthened

- * health expertise of RDP-PHC staff
- * MIS system
- * health education curricula and materials
- * quality of family planning programme.

3.0.2 Proposed RDP Essential Health Care (EHC), Phase IV

The Essential Health Care proposal for RDP IV has undergone considerable revision in both budgetary and programmatic terms during the period of this consultancy. Mid way through the assignment BRAC senior management decided to add a significant new component to the proposal. The main features of the new proposal are:

1. A request for Tk. 267 million to fund the primary health component of RDP IV, for a 5 year period starting 1996 and ending in year 2000. EHC represents 7.2% of the total RDP IV proposed budget (as of 23 March).
2. To expand the programme from the current 170 RDP areas to 300 areas.
3. To introduce clinics on a pilot basis at 80 Area Offices. The clinics will provide curative and basic pathological services.
4. To increase cost recovery efforts. Clinics will levy user charges. They estimate that clinics will break-even in year 4 and generate a surplus sufficient to support other RDP-EHC costs, namely salary of PAs.

3.0.3. Overall Appraisal of RDP-PHC IV

3.0.3.1 Social

The programme is considered to meet priority health needs. However, RDP-EHC should consider inclusion of other health interventions that also meet priority health needs. Such as:

- * TB control and treatment
- * Goitre (iodine deficiency)
- * ARI information and advice
- * Reproductive health information and advocacy.

The clinics fill a gap in the existing health delivery system for low cost, high quality first referral curative care. They would also provide support to the community based health programme, and greater scope for provision of women's reproductive health care.

RDP's chosen strategy of continuing to facilitate government MCH/FP services, rather than attempting to provide them directly is considered appropriate. It is a more sustainable approach in the long term and will have more lasting impact.

The appropriateness of RDP taking on a greater role in curative care provision is more complex. By doing so BRAC accepts the limitation of its current strategy of government facilitation and complementarity. It may be considered appropriate if the long term aim was greater pluralism in the health sector.

The family planning programme does serve to increase accessibility and availability of contraceptive information and services. However, the programme needs to give more attention to quality of care.

The programme does not address wider reproductive health needs of women.

3.0.3.2 Economic

Unit costs (or cost per beneficiary or contact) of the community based health programme and clinics are low. This suggests that the programme is cost effective. In part, health costs are low because of shared overhead costs with other RDP programmes.

The mechanism of compensating the SS directly from fee revenues is considered appropriate. It is operating fairly successfully at present. However, the SS should charge more to non-VO households.

Clinic fee levels have been set with consideration of what people are already spending on health, as well as their ability to pay. Cost recovery estimates seem to be based on sound projections of service utilisation. An alternative financing approach is health insurance. The VO's provide ideal groups for sharing health risks. It is recommended that RDP pilot test health insurance.

BRAC has not begun to operationalise its stated intent of integrating HPP and RDP. BRAC's long term efforts in health should be directed through RDP. The most appropriate role of HPP (in addition to that of innovator) should be to "top up" the services provided by RDP. This would require HPP to re-locate to RDP areas.

RDP coordinates well with government. Coordination with other NGOs and private providers is less developed.

In sum, it is recommended that donors support RDP-PHC. The existing health programme should be strengthened and deepened in scope. Clinics should be introduced on a pilot basis.

3.1 Current Status RDP-PHC

3.1.1 Background

The RDP-PHC programme (re-named Essential Health Care in RDP IV) is currently operating in 170 RDP areas. Health was introduced into RDP in a phased manner. It was initially integrated into 27 RDP areas in 1991, during phase II. It was further extended to 90 RDP areas in 1993 and then 50 more areas in 1994.

The primary health care programme comprises a package of selective health interventions. These include:

1. Family Planning
2. Maternal Health
3. Immunisation
4. Health and Nutrition Education
5. Basic Curative Services
6. Water and Sanitation.

(see proposal for project description and staff description)

The strands of the current package of health interventions evolved from BRAC's past efforts and experiences in the health field. They started in 1972 with a largely curative health initiative in Sulla Thana, comprising clinics, doctors and paid paramedics. They then switched to a target group approach towards the latter part of the 70s, concentrating on the poorest segment of the community. Health became part of an integrated development programme. It was at this time that the idea of the Shasto Shebika (SS) was born. Local women were trained and supplied with basic drugs which they were allowed to sell at nominal charge. A programme of training dais or Traditional Birth Attendants (TBAs) was also initiated. In 1980 BRAC launched its country wide Oral Rehydration Treatment Programme (ORTP), which aimed to teach every household about oral rehydration therapy. This led to a wider Child Survival Programme (CSP) in Sulla and Manikanj, which included immunisation, VAC administration and growth monitoring. The CSP was the precursor of RDP-PHC. Certain new elements such as Maternal and Child Health, and Family Planning (MCH/FP) and water and sanitation were added during integration into RDP. TBA training and growth monitoring were withdrawn a few years later. Thus the present package of interventions and mode of service delivery can be concluded to have developed through experiences in the field, on a trial and error basis. Manikanj served as a laboratory site for BRAC's health activities. Certain activities, such as the TB programme though found to be successful in Manikanj have never been incorporated into the RDP-PHC programme. The programme remains a targeted one. VO members and their families are the main beneficiaries, although non target groups do seek curative services from the SS. EPI facilitation is also directed at the entire community, as are the health education forums.

The overall strategy is to facilitate and strengthen government capacity to provide health care, and to complement services where needed. For example, the SS coordinates with the government health worker with regards to organisation of EPI and satellite clinics (for MCH and family planning services), she informs the relevant VO members of the date clinics are to be held and motivates them to attend. An important aspect of the programme is the empowerment of VO members to demand services from government.

3.1.2 Achievement and Impact to Date

An independent evaluation of RDP-PHC has never been undertaken. The following assessment of programme achievement and impact is based on the consultants review of the internal monitoring system, a number of studies undertaken by RED and a field visit to Faridpur.

Management Information System

Indicators of programme performance used by the project include number of eligible couples using family planning, immunisation coverage, Vitamin A Capsule (VAC) received, number of households with a slab latrine, and household with a tubewell. On the basis of their internal monitoring system (see Annex 3 for major variables tracked), the majority of activities, with the exception of second dose Tetanus Toxoid (TT), are well on track to meeting set targets by end of RDP Phase III. Most marked are achievements in immunisation coverage (measles coverage increased from 70% to 88% of children) and contraceptive acceptance (use of all methods increased from 50% to 62% of all eligible couples) between July 94 and end Dec 94. In fact the contraceptive acceptance has surpassed the set target of 60%. This compares to the national Couple Protection Rate (CPR) of 45%. The low coverage of pregnant women with TT remains a concern.

There are a number of problems with this monitoring system. First, baseline surveys are undertaken and consolidated prior to each phase of expansion (a baseline was undertaken in 1992 and 1994). The Table in Annex 3 shows the consolidated baseline information for the project on July 94 undertaken prior to expansion (ie. it includes the original 27 areas, 93 areas added in 1993, plus the new 50 areas to be added) and achievement as of December 94. Although a baseline was undertaken in 1992 it is not shown here since it is not comparable. This means that progress over time for particular areas can not be gauged. In fact it serves to underestimate achievement since new and old areas are combined.

Second, because the monitoring system relies on government records the accuracy of the records cannot be ensured. The SS has to liaise with the government health worker (FWA) to maintain complete records of immunisation, VAC and family planning status of VO households.

Third, acceptors of temporary and permanent methods are not disaggregated.

Fourth, there are no indicators of quality of care, particularly for family planning services. For example, the monitoring and follow up of drop outs, assessments of continuation of contraceptive use. The present system only monitors the numbers of pills and condoms distributed.

An important aim of the programme is facilitating uptake of government services, for example Ante Natal Care (ANC). However, at present the programme does not monitor achievement of this objective.

While it is appreciated that 50% of the SSs are illiterate and therefore unable to maintain very elaborate records, such information can be gathered with the help of PAs and through periodic surveys. These could be undertaken by the RDP Monitoring Unit. RDP Monitoring Unit was only given responsibility for monitoring the health programme in December 1994. Though belated, it is a welcome step.

While measures of programme output provide some measure of impact, it is outcome or improvements in health status (indicated by mortality, morbidity and fertility levels) that are the ultimate indicators of programme impact. A programme as large as RDP should consider setting up sentinel sites for data collection, ie. sites where health status and utilisation data are collected regularly. This would allow closer monitoring of impact.

It is recommended that:

- * in future the project maintain separate baselines for each phase of expansion.
- * monitor acceptance of temporary and permanent methods to allow a more meaningful interpretation of family planning acceptance.
- * develop indicators to better monitor facilitation of government, and service uptake.
- * The monitoring unit undertake periodic assessments of quality of care, changes in knowledge, attitude and practice, and health utilisation behaviours.
- * Monitor demographic and health status by setting up sentinel sites for data collection.

Inclusion of the above would provide a better assessment of programme impact and effectiveness.

Other indicators monitored by the programme on a regular basis include, average number of pills distributed by SSs per month, number of slab latrines sold each month, and total monthly income from medicine sales. The January 95 "Sanitation, Contraceptive and Medicine" Report shows that on average each SS sells 3.72 cycles of oral pill, 7 packets of condoms, 1.47 slab latrines and earns on average Tk. 307 (net profit) from medicine sales per month. Contraceptive sales are low (each VO is responsible for about 160 households).

However, the SS is also responsible for motivating couples to take up clinical contraception from government. This makes it difficult to judge her contribution to family planning acceptance on the basis of pill and condom sales alone.

Other studies

A recent review of the programme undertaken by the Research and Evaluation Division (RED) (March 1994) compared performance indicators for VO households and non-VO households in the same area. VO households performed better in all aspects of knowledge, and health service use compared to non-VO households, with the exception of use of slab latrine. For example, contraceptive acceptance for VO members was 40.6%, compared to only 33.5% in non-VO households. The study further compared hygiene behaviour of VO and non-VO households. Significantly more VO household members were found to use tubewell water for cooking, washing utensils, and bathing. Also more VO members washed their hands after defecating, and disposed of children's stool in a fixed hole. Ideally, to capture the true impact of the programme a comparison should be undertaken of knowledge, attitude and behaviours of VO member households with those in an area where RDP is not working. As mentioned, certain health inputs, such as health education are provided on a community wide basis.

The same review examined the performance of the SS in terms of accuracy of diagnosis and prescribing, and how frequently she was consulted. The study found that in 98% of cases she gave a correct diagnosis. The SS drug kit initially included a couple of anti-biotics. The review found that many SSs were giving incorrect dosages of these anti-biotics. The drugs have since been withdrawn from her drug kit. The study concluded that the credibility of the SS has been established in the community.

On the basis of the MIS and RED studies it can be concluded that the programme has had an impact in terms of increased health coverage and uptake of services, and improved health behaviours.

3.1.3 Cost recovery

The project achieves some cost recovery on the services provided by the SS. The SS does not receive a salary. Instead she is entitled to charge for drugs, contraceptives and vegetable seeds. In addition she gets a fixed commission for every slab latrine and tubewell sold. Each area office is provided with seed capital for 3 revolving funds:

1. basic drugs (Tk.19,200),
2. a slab latrine production unit (Tk.10,000),
3. tubewells (Tk.10,000).

The SS is given an initial stock of drugs and contraceptives worth Tk. 240. Thereafter the area office provides her with drugs at cost plus a 5% mark up. She is able to

sell the drugs to clients at a further 30% mark up. The SS receives Tk. 10 for every slab latrine sold and Tk.50 for a tubewell. Drugs are bought directly from pharmaceutical companies and contraceptives are purchased from social marketing organisations.

Cost recovery appears to be working well. It is estimated that an SS earns on average a net profit of Tk.350 per month from all the above sources combined (based on consolidated region wise "Sanitation, Contraceptive and Medicine Report" for January 1995, and confirmed by field visit). Based on discussions with a number of SSs during the field visit, they seem satisfied with their earning capacity. Many mentioned that they also take loans and are active in other income generating activities. Other reasons why they said they liked the job were: enhanced status that the job brings and ability to serve the community. There is an incentive for SSs to prescribe drugs unnecessarily, since her earnings are linked directly to drug sales. Earnings from drug sales are monitored by the project (monthly income from drug sales). However, this needs closer inspection.

The revolving drug funds are functioning successfully in Area Offices and total funds have actually appreciated.

Since the SS is compensated directly from sales income, it is difficult to estimate cost recovery levels. However, if it is assumed that each SS earns on average a net profit of Tk. 307 from drugs alone per month, then total earnings for 6032 SSs (in 170 areas) amounts to at least Tk. 1,851,824. This represents a significant monthly benefit for the project.

3.1.4 Programme Areas in Need of Strengthening

The consultant has identified a number of areas in RDP-PHC programme in need of strengthening.

i) There is need to develop and strengthen health expertise in RDP-PHC. Currently the only member of staff who has received public health training is the doctor at Head Office. She was recently transferred from HPP. The Health Sector Specialist has had no formal public health training. If the programme is to expand as proposed technical capacity of staff at all levels will need to be strengthened.

It is recommended: that the Health Sector Specialist be sent on a training course.

ii) Health education is an important component of the programme. For example, the SS is required to provide health education during her house to house visits, weekly VO meetings, issue based monthly meetings and special health education forums. While the PA is required to assist in the health education forums. The curricula for these health education forums is ill defined. Moreover, there is a serious lack of Information Education and Communication (IEC) materials to assist the health worker. Presently, each area office has access to only two flip charts.

VOs provides ready access to a large and relevant constituency of women. This should be tapped to the full potential. Appropriately designed health education inputs can have considerable impact in raising awareness on important health issues and influencing health behaviours.

It is recommended: that a more defined health education curricula is developed, and use made of creative health education approaches and materials.

iii) The MIS system needs strengthening (as discussed above). Both quantitative and qualitative indicators should be included.

iv) Greater attention needs to be given to quality aspects of family planning, for example:

- * information and counselling on different contraceptive methods so that clients are able to make an informed choice
- * good follow-up care, monitoring and follow up of drop outs
- * referral for management of side effects
- * provision of greater choice of oral pill and condoms
- * contraceptive advice that takes into consideration STI risk, etc.

3.1.5 Health and Population Programme (HPP)

BRAC's other health programme called HPP (previously known as Women's Health and Development Programme (WHDP)) is currently being implemented in 30 RDP areas (although its not managed through RDP), as well as in areas in the country where RDP is not working. The project has two main objectives - i) to experiment and innovate with new areas and approaches in the health field, and ii) to develop national technical expertise in health. The aim is to demonstrate lessons and provide technical support to health programmes within BRAC, (namely RDP-PHC) as well as the larger health community in the country.

HPP is currently implementing a combination of community based health initiatives as well as facilitating improvement in government efforts. Technical capacity is relatively stronger in HPP than in RDP.

3.2 Proposed RDP Essential Health Care (EHC), Phase IV

The health programme in RDP IV has been renamed Essential Health Care (EHC). Health falls under RDP's Social Development Programme (although in the draft proposal it was incorrectly placed under Support Services and New Programmes).

The health proposal has undergone considerable change in both budgetary and programmatic terms during the course of this consultancy. Mid-way through the assignment senior BRAC staff decided to add a significant new component to the health proposal. The main features of the new proposal are:

1. A request for Tk. 2.67 million taka to fund the primary health component of RDP IV, for a 5 year period starting 1996 and ending in year 2000. EHC represents 4% of total RDP IV (draft 15) budget.
2. To expand the programme from the current 170 RDP areas to 300 areas.
3. To introduce clinics on a pilot basis at 80 Area Offices. The clinics will provide curative services and basic pathological services.
4. To increase cost recovery efforts. Clinics will levy user charges. They estimate that clinics will break-even in year 4 and generate a surplus sufficient to support other RDP-EHC costs, namely salary of the PA.

A brief description of RDP-EHC IV is given below. The two components of the programme - community based care, and clinics are described separately.

3.2.1 Community Based Care

The current package of health services provided by the SSs and PAs will continue to be provided in RDP IV. The strategy of government facilitation of EPI and satellite clinics will continue.

Goal, objectives and activities remain exactly the same in RDP III. There was some discrepancy in coverage figures in the proposal, for example, the number of eligible couples using family planning by year 2000. Targets have been revised. Targets and indicators for monitoring progress are described in the LFA.

3.2.2 Clinics

The idea of opening clinics providing curative and basic pathology services was introduced into the proposal mid way through the appraisal. BRAC propose to open 80 such clinics in phase IV at selected Area Offices. This period will be used to pilot test the feasibility of clinics. Depending on the outcome of the pilot, BRAC plan to open a clinic in each of the 300 area offices. RDP plan to open 10 clinics immediately (from phase III funds). They then plan to open 30 more clinics in 1996, the first year of phase IV. And then a further 50 clinics the following year. Clinic sites will be selected so that a cross section of areas are included, such as different administrative levels (district, thana, union levels). They aim to have 3 clinics in each of the 30 regions.

The clinic will provide outpatient curative and basic pathology services. It will be staffed by a doctor, a laboratory technician cum paramedic and an office assistant. The laboratory will be equipped to undertake basic blood, urine, and stool examinations. Each clinic will be given initial seed capital for drugs. Charges will be made for drugs such that the fund operates in a revolving manner. BRAC intends to recruit female technicians and where possible female doctors.

Charges will be levied for a consultation with the doctor, diagnostic tests and drugs. They plan to charge a VO member less for a consultation, Tk. 10 compared to Tk.20 for a non target groups.

BRAC intends that clinics will generate sufficient fee revenues to cover all clinic operating costs, plus a surplus to support part of other RDP-EHC costs. Based on projections of increasing number of patients and diagnostic tests each year, they estimate that break-even can be achieved by year 4 of operation and that a surplus sufficient to cover salary costs of PAs can be generated.

To support this new component, they propose a change in management structure. The existing cadre of PO(Health) at the Area Office will be removed and the clinic doctors will take on responsibility for training and supervision of SSs and PAs. The PO(H) at the regional office will be retained. In addition, BRAC will place a doctor at each zone (there will be a total of 3 zones). These doctors will be responsible for training, supervision and monitoring. Two doctors will work in the Head Office to provide support to the Health Sector Specialist. They plan to second doctors from HPP to fill some of the above posts.

Doctors will be provided an initial training for 6 weeks to orientate them to PHC approach. BRAC anticipates that it will not be difficult to recruit doctors for the clinics, since the country has been producing an increasing number of doctors, while at the same time chances for doctors to migrate overseas have become more remote. It is anticipated that doctors will stay for approximately 5 years at the clinics.

The request for funding includes initial start up costs (mainly for equipment, furniture and training), and support for recurrent costs on a decreasing basis until year 4 when clinics break even.

Although not included in this proposal, BRAC plan to start a mobile service at sites which have a clinic. Clinic doctors would visit villages regularly to provide comprehensive family planning and other reproductive health services, such as Reproductive Tract Infection (RTI) diagnosis and treatment and possibly Menstrual Regulation. Where possible, BRAC propose to utilise government facilities to provide services. They would therefore serve to supplement government services. The mobile service would be implemented through HPP. In this way HPP would tap RDP resources and serve to "top up" their services.

The Consultant also spent time developing ideas for the logical framework analysis and left it with the EHC Team and the Appraisal Team Leader to complete. The draft as of April 14 is included in Annex.

3.3 Appraisal of RDP-PHC IV

It should be noted that this Appraisal has been undertaken without access to the amended proposal. At the time of writing BRAC was in the process of further revision and

incorporating the additional health component (ie. introduction of clinics) into the proposal. Therefore this appraisal is based on discussions with BRAC staff during the assignment with regard to their proposed plan. The appraisal addresses social, economic and institutional issues.

3.3.1 Social

3.3.1.1 Programme appropriateness and clients needs/expectations

Health Needs

Bangladeshis' health status is among the poorest in the world. The main cause of ill health is poverty and the concomitant lack of access to safe drinking water, sanitation and health services. Almost 30% of people fall below the official poverty line (World Bank 1994) and only 32% have access to basic sanitation. Optimal access to health care is constrained by low overall expenditure on health, as well support for inappropriate programmes. In 1990, government expenditure on health was only 1.4% of GDP. The national doctor to population ratio is 1 to 6,670 (in 1990 source UNDP). This compares to 1 to 2,440 in India.

66% of children under five are under weight. Bangladesh is one of few countries where women have a lower life expectancy than men. Infant mortality is around 91 per 1,000 live births, under 5 mortality 129 per 1000 live births and maternal mortality 400 per 100,000 live births (World Bank). These national averages mask considerable regional variation across the country, particularly rural and urban differentials. A significant cause of high mortality and morbidity is the very poor reproductive health status of Bangladeshi women. Although the family planning programme in Bangladesh has been considered a relative "success story" (the current contraceptive prevalence rate (CPR) is 45%, while total fertility rate (TFR) has dropped from 7 live births in 1970s to 4 in 1994), age at first marriage remains early at 16.7 years. Also the proportion of unmet contraceptive need is estimated to be 20%, ie. 1 in 5 married women say they would either not like another child or would like to delay the birth of their next child but are not currently practising a modern method of contraception

Programme appropriateness

The appropriateness of the proposed EHC programme is assessed in the context of the above health situation and needs.

Goals and Objectives

At the time of the appraisal visit, the programme's stated goal was to reduce maternal and infant mortality and morbidity rates. Though clearly an appropriate goal, it has not been quantified and further work was ongoing to improve it. It is accepted that surveys of health

status can be time consuming and difficult to undertake. However, it would be worthwhile for a large project such as RDP to establish sentinel sites for data collection on an on-going basis. This would allow a more accurate monitoring of programme progress and achievement.

Programme objectives (for the outreach programme) were not clearly stated in the proposal. They have been clarified (see LFA) and new targets set for the five year period for a variety of outputs. Among the more significant results:

- * to increase family planning acceptance rate from 45% (current national average) to 70% of eligible couples;
- * to increase and maintain DPT and measles immunisation coverage from 85% to 90% among children under 5 years;
- * to increase second dose TT among pregnant women from 40% (average number of pregnant women receiving ante natal care) to 95%;
- * to provide VAC to 90% of children under 6 years;
- * to increase slab latrine use from 20% to 100%;
- * to provide one tubewell for every 3 households;
- * to distribute 500 packets of vegetable seed to through each area office twice a year;
- * to meet basic and first level curative care needs;

NB. All the above targets are for VO households.

With the exception of the TT target, all programme targets are considered achievable. Second dose TT coverage in existing RDP areas is currently only 51%. It unlikely to increase to 95% within the project period.

It is recommended: that the TT target be revised.

Monitoring needs of the health programme has already been discussed in section 3.1.2. Indicators of progress are outlined in the LFA. All proposed indicators are quantitative. As mentioned, quantitative indicators need to be complemented by periodic surveys of quality of care, for example monitoring quality of family planning services. Indicators to monitor facilitation of uptake of government services need to developed, such as uptake of ANC.

Since the clinics are to be implemented on a pilot basis it would be important to monitor their progress closely. RDP should monitor the types of health problems being treated, utilisation patterns (eg. proportion of VO and non-VO households using the clinics, age and sex of patients), and satisfaction and perceptions of VO members regards clinic services. In addition to monitoring overall levels of fee revenue generated, it will be important to track separately revenue from consultation versus laboratory tests and income from VO versus non-VO households. User perceptions of fee levels should also be determined.

Beneficiaries

The programme's main beneficiaries are women and children. This is appropriate given the fact that women and children are most vulnerable. Further by targeting VO members and their households, the programme is automatically reaching the most disadvantaged section of the community. Curative services however, will be available to both VO and non-VO households. Although non-VO households will be charge more for curative services.

Health Interventions

The appropriateness of the two main components of RDP-EHC - community based care and clinics are appraised separately.

i) Community Based Care

RDP-EHC IV proposes to continue with the same package of health interventions in the community based care programme, as provided currently under RDP-III. This comprises of a minimal and selective range of health interventions. All are considered to address priority health needs. It is noteworthy that wider public health interventions, such as water, sanitation and nutrition (through vegetable seed distribution) are included. The other health activities (with exception of basic curative care) fall into the realm of Maternal and Child Health and Family Planning (MCH/FP). The "C" part of the programme evolved from the earlier child survival programme. (The appropriateness of the family planning programme is appraised separately in section 3.3.1.3).

Though the present package of health interventions is considered appropriate, the consultant feels that sufficient consideration has not been given to incorporation of other health interventions that address priority health needs. The concern for cost and the long term sustainability of the project appears to have kept the programme to its current small scope (a more detailed appraisal of the appropriateness of the health programme in the context of financial sustainability is undertaken in section 3.3.2.3). While cost is certainly an important consideration, it should not be the main criteria for selection of health interventions. It should be balanced by existing health needs, as well as the capacity of the programme to meet those needs.

It is accepted that the programme is constrained by what can be included, since the bulk of services are provided by the SS (a locally trained, part time health worker, who receives nominal compensation for her work). It would be unrealistic to expect her to take on too complex or too large a burden of health delivery tasks.

Nevertheless, several other health interventions have been identified that both meet priority health needs, and which the programme could take on at minimal extra cost. These are:

1. Tuberculosis (TB) treatment

HPP has implemented a successful community based TB treatment programme. The SS is responsible for collecting sputum samples and ensuring that TB patients comply with the drug therapy. Drugs are procured from the government at a nominal fee levied for the service. The SS receives a portion of this fee by way of compensation.

A similar TB treatment programme could be introduced into RDP-EHC the programme. As in HPP, the SS could take responsibility for administering drugs to TB patients. However, one anticipated difficulty would be access to a laboratory for sputum examination.

2. Goitre (Iodine deficiency)

Bangladesh has high prevalence of goitre (iodine deficiency) scattered through out the country. Iodised salt could be added to the existing range of commodities sold by the SS.

3. ARI knowledge and awareness

The SS could raise awareness about this health problem and encourage early health seeking behaviours. ARI Treatment is too complex a task for the SS to manage. She should continue to refer cases to other health providers.

4. Information and advice on reproductive health issues (see section 3.3.1.4).

The programme should include provision of information and advise to women on reproductive health. For example, on the risks of Reproductive Tract Infections (RTIs), including those that are Sexually Transmitted Infections (STIs), symptoms and advice on early treatment.

TBA training is not considered an appropriate activity to take on at this point in time. Firstly it would represent a huge undertaking for RDP since the aim would be to have one trained TBA per village. RDP-EHC will cover approximately 12,000 villages in phase IV. Secondly, the benefits of having a TBA assist a delivery is still unknown. A recent study undertaken by BRAC found little difference in maternal outcome for those deliveries attended by a trained person (BRAC, LSHTM 1994).

Mode of Service Delivery

The proposed programme employs a judicious combination of direct service delivery, health education and awareness raising, and government facilitation. The choice of interventions appear to have been based on health needs, as well as the ability of the programme to meet those needs. Government responsibility and capacity has also been taken into consideration. For example, immunisation, VAC and MCH/FP care are promoted through government EPI and satellite clinics. While health education is promoted through VO groups, house to house

visits and special health education forums. The VO groups provide a ready formed structure for reaching a large and relevant section of the community, namely women of reproductive age.

The concept of the SS has proved successful. Discussions held with VOs during the field visit suggested that VO members value the services provided by the SS. They also demonstrated knowledge on various health and family planning issues.

The majority of health interventions are directed through the VO groups. As a result the programme misses an important section of the community - men. This is particularly important in the family planning programme where male responsibility needs to be encouraged. A monthly issue based meeting is held, where VO members are requested to bring their husband. This represents a start, however it needs to be built on. Some difficulty may be experienced in approaching men since all health staff are female.

Local participation in the health programme is encouraged through VO groups. Each VO small group leader is given responsibility for a certain aspect of the health programme. For example, she may be drawn upon for help if a particular area is found not to be performing well, eg. in immunisation uptake. This is an innovative approach. A previous attempt to enhance community participation in health included setting up of village health committees. However, this was not successful. The VO groups provide a good channel for local views and needs to be heard, and should be used in that way.

ii) Clinics (pilot program)

Good quality, low cost first level referral care is a major gap in the existing health care delivery system. Currently the SS is providing basic curative services, and referring cases she is unable to deal with either to a government health facility, or in some cases to local village health practitioners.

The first level government referral facility, is the Thana Health Complex (THC). The facilities are severely under resourced. There are chronic staff and medicine shortages. On average only 2 out of the 8 sanctioned doctor posts at the THC are filled. Typically patients are given a prescription and have to buy drugs from a private pharmacy at commercial rates. In many instances they are also required to make informal payments to the doctor.

Recent estimates indicate that only 12% of all health contacts take place in the government sector. The majority of acute care treatment is provided by the private indigenous sector. Village health practitioners are an extremely heterogeneous group. Usually unlicensed they practice a blend of allopathic and indigenous systems of medicine. Quality of care is mixed. Anecdotal evidence shows that there is much bad practice within the sector.

The proposed clinics would certainly fill this gap for good quality first level care. One study estimated that rural households in Bangladesh spend on average Tk. 2400 on health care per

year, or 8.7% of their total annual household income (URC, 1993). Much of this spending is financed by credit. The Clinic would provide an opportunity to re-direct some of this spending towards more rational and effective care.

BRAC's five year strategy paper identified that the "customer" would like more emphasis on curative services. Thus the clinics would also meet a demand of clients.

The clinics would provide potential to strengthen the outreach programme. Referral linkages could be developed through the SSs. It would be important to develop a mechanism whereby patients did not bypass the SS and go straight to the clinic. For example, those who bypassed the SS could be charged more for a doctor consultation, a sort of penalty charge. The doctor could play an important role in developing technical capacity of SSs, and in their supervision and monitoring. The clinics would also reduce management costs of the programme, since it is proposed that POs at the area office be withdrawn and doctors take on responsibility for supervising and monitoring SSs and PAs. This is a rational step.

It would be important for the clinic to develop referral linkages with the THC and other government health facilities, as well as with VHPs.

RDP-EHC is currently viewed as largely a package of technical inputs. While these are important, the programme has enormous potential to play a wider role, in raising awareness on important health issues and influencing health behaviours. In particular, they can play a valuable role in advocacy of women's health and reproductive rights. The Social Awareness and Legal Rights programme should also include issues of reproductive rights. Like other RDP components, the health programme's ultimate goal should be to contribute to the empowerment of women.

It is recommended:

- * that the community based programme explore incorporation of other interventions that meet priority health needs.
- * *that more efforts be directed towards including men in the programme, especially in the family planning programme.*
- * the clinics develop referral links with government and village health providers.
- * the programme takes on a greater advocacy role for women's health and reproductive rights.

3.3.1.2 RDP-IV vs. Government service provision

The strategic aim in RDP-EHC IV remains facilitation of the government health system where possible, and provision of complementary services where necessary. The appropriateness of the RDP IV health proposal is assessed in this context.

i) Community Based Programme

As in RDP-III, MCH/FP service provision has largely been left to government, through EPI and satellite clinics, as well as fixed government facilities such as the Family Welfare Centre (FWC). The SS is responsible for identifying pregnant women and children, raising awareness of the importance of availing MCH/FP services, informing them of clinic dates, and motivating them to attend. Naturally, this approach relies heavily on the capacity of government to provide these services. The government's EPI programme has been fairly successful (immunisation coverage is currently around 80%). However, functioning of satellite clinics seems to have been more erratic. Although the programme does not monitor uptake of ANC, it would appear to be low as indicated by low TT uptake. Also quality of care provided at clinics and FWC is reportedly poor.

Despite these difficulties, RDP's chosen strategy of continuing to facilitate government services, rather than attempting to provide them directly is considered appropriate. This approach is more sustainable in the long term and will have more lasting impact. It takes a longer term perspective, in that women's empowerment will automatically lead to greater demand for services. The strategy also, serves to increase government accountability.

HPP has had some success in "activation" of government services. RDP has much to learn from their experience of how to make government services more effective. Consideration could be given to training government staff, or providing direct assistance, for example in development of appropriate IEC materials etc. In the past BRAC has provided such direct assistance to government.

Provision of oral pills and condoms by the SS is considered appropriate. It serves to increase availability and access to non-clinical contraception.

ii) Clinics (pilot program)

The appropriateness of RDP IV taking on a greater role in provision of curative care is a complex issue. As identified, in section 3.3.1.1, there is a gap in the current health delivery system for good quality, first referral curative care. But needs are multiple, and BRAC needs to determine where it can play a most effective role. NGOs can take on other more valuable roles apart from direct service delivery, such as advocacy, strengthening capacity of other providers (government and non-government), demonstrating valuable models etc. BRAC is already contributing to some extent in all these areas. Or should they focus more directly on addressing health needs of women, who are BRAC's main constituency?

At the same time, the clinics do offer other benefits apart from meeting health needs:

- * they provide scope for enhancing financial sustainability of RDP-EHC, since there is willingness to pay for curative services.
- * the clinics would provide support to the primary health/outreach component, particularly to SSs. The doctor could help in strengthening her technical skills,

- and in supervising and monitoring her activities.
- * they provide potential to address women's wider reproductive health needs. For example, the idea of the mobile providing comprehensive reproductive health services builds on the presence of the clinics. The clinics will have a small laboratory. This would enable RTI diagnosis to be undertaken.

The issue of long term ownership of clinics also arises. Will BRAC always be there to continue to run the clinics? In a sense this is resolved, since under the RDP/RCP model the clinics would remain a part of a permanent structure. Once set up, BRAC could also explore the possibility of "contracting" out the clinics to other private providers.

It is recommended that:

- * RDP learn from HPP experiences in activation of government services.
- * RDP builds on presence of clinics, for example strengthening the community based programme, and provision of reproductive health services.

3.3.1.3 Appropriateness of Family Planning Programme

As stated, it is estimated that approximately 20% of eligible couples have an unmet need for modern contraception. This implies that considerable opportunity exists to improve access and availability to modern family planning information and services.

RDP-EHC IV proposes to adopt the same family planning programme as in RDP III.

The programme's aim is to facilitate and complement the government family planning programme. Information, education and motivation on family planning are to be provided through various forums, such as house to house visits, VO and other meetings. The SS coordinates with the FWA and helps to organise satellite clinics. She informs women when the clinic is to be held and motivates them to attend. The SS also directly sells socially marketed brands of oral pill and condom.

Clearly, the programme does serve to increase availability and accessibility of family planning information and services. As discussed in section 3.3.1.2, the strategy of government facilitation is believed to be an appropriate one. VOs allow a large and relevant group of people to be reached, that is: women of reproductive age. However, by concentrating on VO members alone, the programme is missing other important groups of people, namely men and adolescent girls. All contraceptive information and services are currently directed at VO women. Male responsibility in family planning needs to be enhanced, particularly since they are the main decision makers. On a one to one basis this may be difficult since all the health workers are female. But on a group basis it may be culturally more acceptable. One SS said that she sells condoms to women and not men. Adolescence is the time when girls should be given family planning information and advice.

Socially Marketed Contraceptives

Sale of socially marketed brands of contraceptives by the SS is an innovative idea. It serves to both increase accessibility to contraceptives, as well as increase choice. Culturally, it may be difficult for women to approach local chemists and other retail outlets to buy pills or condoms. One SS explained that one of her regular pill clients had first tried the pill provided by government, but had suffered side effects. She finds the pill provided by the SS more suitable.

The SSs charge the following prices for pills and condoms.

Table 1 - Sale Price for Pills and Condoms

Contraceptive/ Brand	SMC Price (Tk.)	RDP Price (Tk.)	Shebica Price (Tk.)
Oral Pill (2 cycles)	3.00	3.25	4.00
a) Maya	4.75	4.85	6.00
b) Ovacon	10.00	10.20	12.00
c) Norquest			
Condom (3 pieces) Raja	0.51	0.55	1.00

The prices charged by SS appear to be almost the same as those charged by commercial retail outlets.

The SSs that the consultant met during the field visit most commonly stocked only Maya brand of oral pill. Contraceptive sales by SS are low. The reason for this remains unclear. In the absence of a marked price difference, it may be that clients are finding it equally convenient to buy contraceptives from retail outlets. This needs to be explored more closely.

The feasibility of the SS supplying a progesterone only pill for amenorrhoeic lactating mothers should be explored. This is not available in the government programme.

Links with Government

At present SS liaises with the FWA on an ad-hoc basis. It would be more effective if more formal channels of communications were developed, such as scheduled weekly meetings.

Quality of Care

Based on an assessment of the present family planning programme in RDP, greater attention needs to be given to quality of care issues during RDP IV. This includes:

- * technical competence of the SS. The SS demonstrated mixed knowledge of contraindications, and side effects associated with different methods. It is *important that she is referring effectively for treatment/management of side effects to government facilities.*
- * provision of information on all methods of contraceptives, to ensure informed choice can be made by the client. With the exception of two flip charts in each area office the programme has no other IEC materials. (Provision for IEC materials has been made in the revised RDP-EHC IV budget.)
- * Information and counselling on the differential STI risk of specific contraceptives
- * Follow up and counselling of drop outs
- * Monitoring continuation rates of contraceptive use

The programme should attempt to influence opinions of relevant community leaders regards family planning, especially religious leaders.

Other components of RDP will automatically serve to increase demand for contraception. Female education and access to employment opportunities influence desired family size as well as the ability of women to exercise their right to control fertility.

It is recommended that:

- * family planning information and services be also provided to men and adolescent girls.
- * the SSs offer a wider choice of socially marketed brands of oral pill and condoms.
- * the SS develops more formal channels of communication with the FWA.
- * the quality of the family planning programme be improved.

3.3.1.4 Family Planning vs. Reproductive Health

RDP-EHC IV programme does not address wider reproductive health needs of women. It is confined to a more narrow focus on family planning and maternal health.

A recent study undertaken by the Bangladesh Women's Health Coalition (BWHC) found 60% of married women suffering from a Reproductive Tract Infection (RTI), including those that are sexually transmitted (STI). It is estimated that 20% of maternal mortality is attributed to septic and incomplete abortions.

Women's health needs are much broader than those addressed by the proposed programme. The programme is understandably limited by what it can achieve in this area, as the main provider of health care is the SS. However, the programme could play an important role in providing information and education about RTIs/STIs (to both men and women) through

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existing forums. Though widely prevalent, women usually do not seek RTI treatment until latter stages of the disease. The programme could raise awareness on this health problem, provide information on risk of infection, and symptoms, and encourage early uptake of treatment. For those considered at risk of an STI, the SS can promote condom use. In fact as mentioned, the family planning programme should be providing contraceptive advice on the basis of STI risk assessment.

HPP has recently introduced reproductive health care in their programme. This includes community based syndromic diagnosis of RTIs. Though still early, HPP experience in reproductive health care provision should be monitored, and if appropriate introduced into RDP.

Those areas with a clinic have more scope to address reproductive health needs. The clinics will have a small laboratory. Therefore clinics can provide RTI diagnosis and treatment. Furthermore as discussed, the clinics would allow a mobile service to be developed providing services, such as MR, family planning services, RTI/STI treatment, etc.

RDP can play an important role as advocate of women's health and reproductive rights. Other components of RDP, such as education, enhancement of employment opportunities, social awareness and legal rights all feed into the broader goal of women's empowerment. It would be a missed opportunity if RDP IV did not include some of the above reproductive health components.

It recommended: that the programme addresses wider reproductive health needs of women.

3.3.2 Economic

3.3.2.1 Cost effectiveness of RDP-PHC IV

3.3.2.1.1 Costs

Total project cost of RDP-PHC IV is Tk 319,233,640. Of this Community Based Care is Tk. 198,035,640 and 80 clinics Tk. 121,198,000. Costs are analysed in the following manner.

- * by capital versus non-capital items.
- * by project start up cost (including initial training and capital costs) versus operating costs (operating, refresher training, supervision, and monitoring costs).

Capital and start up costs for the community based project are marginal relative to operating costs. *They are a more significant proportion in the clinics.*

Cost of the community based programme is Tk. 3,960,713 per annum (or Tk. 3,526,793 per annum minus start up costs). Cost of 80 clinics is Tk. 24,239,600 per annum (or Tk. 19,423,600 per annum minus start up costs).

3.3.2.1.2 Measures of Effectiveness

Unlike economic activities, benefits of social development programmes like health can not be measured in monetary terms. The ultimate measure of impact is an improvement in health status, *indicated by mortality, morbidity and fertility levels. However, even this is difficult to measure, and recourse is usually taken to measures of programme outputs, such as numbers of clients served (eg. numbers of children immunized or family planning acceptors).*

The main beneficiaries of the health programme are the VO members and their households. There will be a total of 1,800,000 VO members in the 300 areas. If it is assumed that each household has 5 members then the project will serve a total of 9,000,000 people.

The clinic will serve the entire community. According to RDP estimates, the 80 clinics will see a total of 7,603,200 clients over the 5 years (based on the clinic remaining open for 288 days per year) *or each clinic will see 19,008 patients per year.*

3.3.2.1.3 Cost Effectiveness

Crude unit costs can be calculated for the community based programme and for the clinics. By the end of year 5 the project will be serving a total of 1,800,000 VO members, and 80 clinics will have seen a total of 7,603,200 clients. Therefore cost per beneficiary in the community based programme is Tk. 2.2. Cost per clinic contact is Tk. 16. (These include capital and start up costs. Both the community based programme and clinics can be concluded to low cost interventions.

A recent review undertaken by RED estimated the cost effectiveness of the existing RDP-PHC programme. The study estimated the unit costs of individual programme components. Although the study has some methodological problems it nevertheless gives some indication of programme unit costs. For example, cost per new couple accepting family planning was estimated to be Tk. 36.4, cost per fully immunized child Tk. 18.60, and cost per slab latrine or tubewell installed Tk. 26.8. Unit costs were compared to those in HPP. Cost were significantly lower in RDP-PHC. For example in HPP the cost per new accepting couple was estimated to be 305 compared to 36.4 in RDP. However, such cost comparisons should be interpreted with caution since qualitative differences between the programme are not taken into consideration.

Costs are lower since large overhead costs are shared with other RDP activities, at area,

regional and health office levels. The programmes have common management staff, rent and utility costs, staff accommodation and transport costs are all shared with other RDP activities. The integrated approach adopted by RDP for social and economic development can be concluded to be extremely cost effective.

3.3.2.2 Cost recovery and Financial Sustainability

3.3.2.2.1 Cost recovery in community based programme

RDP IV proposes to continue implementation of the community financing strategy in the community based programme. As discussed in section 3.1.3, the scheme is operating fairly successfully. SSs appear to be satisfied with their earning potential. They currently earn about Tk. 350 a month. This is supplementary income for SSs, since they are also involved in income generating activities through VOs. However, they do spend several hours each day on their health duties. SSs deserve more payment in relation to the work they are expected to do.

The margin for increasing prices of drugs and other commodities sold by the SS is small. However, it is recommended that non-VO member households be charged more than VO member households. Although not mentioned in the proposal, RDP have been considering introduction of another financing method in the health programme. VO members would be asked to contribute Tk. 10 towards a health card. This would be a compulsory contribution linked to VO membership. Half of this would be paid to the SS, and the other Tk.5 retained by the project. It is estimated that this financing scheme would generate a total of Tk 60,000 for each Area Office (based on a membership of 6,000). SSs would earn the equivalent of Tk. 750 per annum.

The consultant supports implementation of this financing scheme. However, the popularity of such a scheme would have to be tested. Adding more and more compulsory requirements to membership can also prove counter productive. For example, members are already required to contribute to a life insurance scheme.

The revolving drug fund at Area Offices have operated effectively. The funds have gradually appreciated in value. Fees have been set at nominal levels, well below market rates. VO members do not appear to experience difficulties in paying for SS services. Although one study did find that in some cases the SS was having to provide care on credit (N. Islam 1994). This needs more investigation.

3.3.2.2.2 Cost recovery in clinics

RDP IV further proposes to recover costs through the clinics. They plan to levy user charges for a doctor consultation and laboratory tests. Non-VO members (Tk. 20) will be charged more than VO members (Tk. 10) for consultation. They will be charged equally for laboratory tests. Initial seed capital has been requested for a revolving drug fund. Drugs will

be sold at a slight mark-up to cover administrative costs.

To encourage patients to first see the SS, patients who go straight to the clinic will be charged more than those referred by the SS.

Fee levels

Ideally, fee levels should be set on the basis of willingness and ability to pay. Willingness to pay is indicated by what people are already spending on health. Currently people pay for health in both government and private sectors. A number of studies in the country have found quite high levels of spending on health. For example, one study estimated that people spend almost 9% of total annual household income on health (URC, 1993). This same study showed that much of this spending is provided on credit. This suggests that although people are spending on health, capacity to pay is limited. The clinics would allow some of this expenditure to be re-directed towards more low cost care of higher quality care.

Fee levels have been set with consideration of charges made by village health practitioners (between Tk. 10 to Tk. 20), and un-official payments made to government doctors (reportedly up to Tk 40). A consultation fee of TK.10 is considered to be within the paying capacity of VO members and their families.

The clinics will also provide drugs at lower cost than presently available. VHPs usually provide drugs, and charge a combined fee for consultation and drugs. While in government most often a prescription is given and drugs purchased from commercial outlets.

3.3.2.2.3 Financial Viability and Sustainability

Clinics (Pilot)

Cost recovery estimates for the pilot clinics are reflected in the budget. They are based on a projection of the number of clients (VO and non-VO) each clinic expects to see each year. Support has been requested for start up costs of clinics (including, capital and training), plus recurrent cost support on a declining basis as fee revenue increases. They estimate that clinics will break even by year 4 of operation, plus generate a surplus sufficient to support part of the outreach programme, namely the salary costs of the PAs.

The cost recovery estimates do not include replacement costs of capital or cost of training new doctors. They envisage that doctors will stay for an average of 5 years. Strictly speaking these costs should be included in the financial viability analysis.

It is difficult to assess the financial feasibility of clinics. Clearly, this is one of the intentions of the pilot. However, cost recovery estimates seem to be based on sound projection of clinic utilisation. There is a demand for the services, as well as some willingness and capacity to pay. The consultant is aware of at least one other NGO in the country which runs a clinic entirely on the proceeds of user fee revenue, the Dhaka Community Hospital.

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The programme would need to monitor closely clinic fee revenue over the pilot period, and track cost recovery levels. It would also be important to monitor utilisation patterns, for example the types of illnesses treated, age and sex of patients, and the relative proportion of VO and non VO users.

RDP-EHC overall

Based on the above estimates, areas with clinics would cover a significant proportion of their recurrent costs. This would include all clinic operating costs plus the salary cost of the 2 PAs. Other higher level costs such as the PO at the regional office, zonal and head office staff will need on-going subsidy. Areas without clinics will need on-going support for all costs from area office to head office levels.

The prime goal of RDP-EHC should not be achievement of financial self-reliance. Rather this should be the goal of RDP overall. The health programme may need to be cross subsidised either from surpluses generated by other RDP sectors or other sources. The health programme's main goal should be to meet priority health needs, and to recover costs to a level that community is able to bear.

3.3.2.2.4 Alternative financing method: health insurance

An ideal opportunity exists to introduce a health insurance/pre-payment scheme in areas that have clinics. Communities value access to curative services. While VOs provide ready formed community groups for pooling and sharing "health risks".

In such a scheme all VO members would be required to contribute a fixed sum per annum. This would entitle them and their families to the services of the SS (the SS would continue to sell drugs and other commodities), and access to subsidised clinic services. Contributions would have to be made a compulsory requirement of VO membership, otherwise people who felt they didn't need services might opt out. Non-VO members would continue to pay more for both SS and clinic services.

Alternatively, contributions could be linked to interest charged on loans. A portion of loan payments could be earmarked to a special health fund. This would operate like social or compulsory health insurance.

In either scheme the level of contributions and the package of benefits would have to be worked out. For example, an entitlement could be access to the clinic doctor and drugs at reduced cost. Earlier, BRAC had a health insurance scheme, in which payments were made in kind, in the form of rice. This was not successful and was withdrawn. The proposed package of services are much different to the one provided earlier. Plus VO groups provide a good organisational base on which to implement health insurance.

It is recommended: that RDP explore further the idea of introduction of a health

insurance scheme in areas where clinics are being piloted.

3.3.2.3 Volunteers and Paid Staff: Possible Effects on Quality of Care

The project does not make use of volunteers. The SS is compensated by the revenue she generates from sale of drugs, contraceptives etc. Her total earnings are not very high (approximately Tk. 350 per month). However, she is a part time worker, and as a VO member is also usually engaged in another economic activity.

Quality issues still remain however. For example, because the SS's earnings are linked to the quantity of services she provides, there is an incentive to over prescribe drugs. The programme monitors total cost of drugs issued by each SSs. So to some extent it is possible to pick out if a particular SS is prescribing relatively more drugs.

Some use of volunteers is made by the programme through the small groups within VOs. Each small group has a leader who has responsibility for a particular health task. More than volunteerism, this scheme serves to increase local participation in the programme.

3.3.3 Institutional

3.3.3.1 Plans and Viability for Merging RDP and HPP

"The WHDP plan calls for integration of the health programme with BRAC's ongoing Rural Development Programme over a six year period, eventually culminating in a self-financed Rural Credit Programme". BRAC's long term strategy combines literacy, health, education, credit and income-generation with preventive, promotive and small amount of curative health care. The over-arching goal is a health system that will be sustainable without BRAC" (Lovell and Abed).

BRAC has not begun to operationalise the intent of integration of HPP with RDP. The two programmes largely remain independent health initiatives. To date little thought has been given to the relationship between the two programmes, and how best they could be developed in a way that could be mutually beneficial and supportive.

There is a need to further conceptualise and clarify the objectives of two programmes. It is agreed that BRAC's long term efforts in health should be directed through RDP. It represents an integrated, cost effective, and sustainable approach to health service provision. However, presently it comprises of a minimal and selective package of health interventions. The health programme appears to have been kept to a minimum for two main reasons. Firstly, due to cost concerns since RDP's overall goal is financial sustainability. Second, due to management and technical capacities within RDP. The management and technical requirements of different RDP components already pose a considerable challenge. HPP on the other hand comprises a more comprehensive health project. It developed with the mandate to serve as an innovator in the health field, and pilot test new approaches. The

programme has grown considerably in size. It has also developed considerable technical capacity in health.

Currently, the two health programmes are physically and geographically distinct. Although HPP is working in 30 RDP areas, the programmes are implemented separately (in these areas there is no PHC component). In addition, HPP also works in areas where RDP is not present.

Taking into consideration these realities, two main options are identified for future management of HPP and RDP-EHC.

1) Integrate HPP with RDP. (This is the scenario outlined in the opening BRAC statement) In this option, the health project in RDP would need to continue to be funded by donors since it will be a larger and more comprehensive project.

2) RDP continues to provide a selective package of health interventions, that is both affordable and sustainable. HPP could then have the responsibility for providing additional health inputs as felt appropriate, ie "top" up this package. This additional health care would be grant supported. In this option HPP would have to have a physical presence in RDP areas, which means it may have to relocate in the long term.

The consultant favours the second option since it takes into consideration long term sustainability requirements. It is also the more favourable option in terms of consideration of RDP's technical and management capacity. The first option would add considerably to RDP's management and technical burden. An example of this relationship would be demonstrated by the idea of the mobile service. This would be run by HPP in RDP areas, but would utilise the clinic doctor.

In the event of either scenario, there is an immediate need to create channels of communication within the organisation that allow RDP to tap technical expertise of HPP. Also a means whereby HPP experiences and lessons from pilot activities can be transferred into RDP. The recent committee that has been set up to bring the two health programmes together, chaired by RED marks a beginning. The committee should aim for greater coordination and joint planning between the two health programmes. The committee should also provide a means for RDP to tap the technical expertise of HPP, for example for training.

3.3.3.2 Coordination and Complementarity RDP and NGOs, Government and Private Practitioners

Complementarity of RDP and government health programmes has already been discussed in section 3.3.1.2. RDP coordinates with government at a number of different levels:

At the regional level; the regional manager and PO(H) meet with the district health

administrator, the civil surgeon.

- | | |
|-----------------------|---|
| At area office level; | the area manager and PO(H) meet with the Thana Health Administrator. |
| At the village level; | the SS and PA liaise with the FWV and FWA. Most commonly <i>they discuss the schedule for the EPI and satellite clinics. The SS coordinates with the FWA to maintain her records, namely eligible couples and immunisation.</i> |

Coordination in this sense is good between RDP and the government. Such meetings serve to increase government public accountability, especially in organisation of EPI and satellite clinics. *The coordination between the SS and FWA seems a little ad-hoc at present. This could be formalised through scheduled weekly meetings.*

The regional manager sits on the district level NGO coordinating body, which is chaired by the district magistrate. Coordination with other NGOs is not as well developed as with government. It exists to the extent that RDP will not provide services if another NGO is working in the same area. For example in Matlab where ICDDR is working. The coordination with smaller NGOs is not so good. The health programme within RDP is constrained with regards where it can choose to operate, since it is part of a larger credit and employment programme. Nevertheless, to avoid duplication of services and to increase impact RDP needs to coordinate more effectively with smaller NGOs.

The programme's links with private practitioners, particularly the indigenous private sector is more tenuous. Some SSs do refer to VHPs if the case is complicated and they are unable to treat. However, the general consensus among RDP health staff (especially PA level and above) is that the majority are quacks. Clearly there is mixed quality of care in the sector, but it is the largest health provider (approximately 70% of all health contacts are with VHPs) and they cannot be ignored.

In areas where clinics are opened, it will be important to develop referral linkages with VHPs. RDP could even help in upgrading their skills, through provision of training. This could be undertaken by the clinic doctor.

It is recommended:

- * that the health programme networks and coordinates with other health NGOs
- * that greater links are established with the indigenous private sector.

3.3.4 Environmental

3.3.4.1 Implications of family planning programme for natural resource management

RDP's health programme does include family planning information and services. SSs sell the oral pill and refer clients to government for non-clinical contraception. As a result the programme contributes to a lowering of fertility. In terms of natural resource management, fewer people mean less pressure on natural resources.

3.4 Budget Revisions

The budget has undergone considerable revision:

Medical officers at the regional office have been removed (it was not considered necessary to have one medical officer in each of the 30 regions)

A larger allocation has been made for health education materials

The revolving drug funds for pit latrines and tubewells have been removed. These costs are now met in the environment programme.

Cost of 80 pilot clinics has been added

Salary cost of 80 POs(H) have been removed, to reflect the change in management structure where there are clinics

A motor cycle for each clinic doctor has been costed in.

Outstanding errors in budget revision #15 that need correction: 1. The costs of chemicals and reagents for laboratory tests have been omitted in budget calculations. 2. Training costs of medical officers and laboratory technicians incorrectly appears under essential health care (or the community based programme).

3.5 Conclusions and Recommendations

RDP provides an ideal means for integrated social and economic development. There is a synergistic relationship between health and other RDP inputs. Better health leads directly to greater productivity and thus higher income status. Conversely enhanced socio-economic status leads directly to better health. Ill health has also been identified as one of the reasons why VO members fall behind on savings and loan repayments (BRAC Monitoring Unit). VOs provide ready formed groups through which health activities can be directed. They present access to a large and relevant constituency, namely women of reproductive age. RDP is also a cost effective means of providing health care. Shared physical and management structures result in lower costs. It also provides scope for long term sustainability of health activities, both in financial and organisational terms.

However, to date health programme in RDP has not reached its full potential. The strategic intent to evolve a package of essential health care that balances community needs,

government responsibility and capacity, and RDP capacity is considered appropriate. However, government facilitation efforts need to be better defined and strengthened. The health programme comprises of a minimal package of health interventions. The concern for financial sustainability appears to be the main reason why the programme has been kept to its current small scope. While cost and long term sustainability are obviously important considerations in project design, they should not be the main criteria. Financial sustainability of RDP overall would be a more appropriate goal. The health programme may then require to be cross subsidised by surpluses generated by other RDP programmes.

The health programme has had some impact on health service uptake and health behaviours. However, it needs to be both strengthened and deepened. In particular, technical capacity among senior staff is weak. It is recommended that the Health Sector Specialist receive public health training.

Clinics represent a strategic shift for BRAC towards more direct service delivery. By increasing their service delivery role, they are accepting the limitations of their approach of government facilitation and complementarity. The clinics would fill a gap in the existing health service delivery system - low cost, quality first level referral care. They would also provide scope for strengthening the community based health programme, enhance RDP-EHC sustainability and allow reproductive health services to be developed. However, the question still remains whether curative service provision is the best role for BRAC to play?

BRAC's long term efforts in health should continue to be directed through RDP, since it is the integrated, cost effective and financially sustainable approach. HPP should serve to "top up" the RDP health programme. For this to happen, HPP needs to re-locate geographically to RDP areas, and greater working links established between the two programmes. In particular, RDP should tap the technical expertise of HPP.

In sum, the consultant recommends that donors support RDP-EHC IV.

However, attention needs to be given in Phase IV to strengthening and deepening the health programme. Ideally, it would be better if there was no expansion in the health programme in the first year of Phase IV, and attention was given to making qualitative improvements in existing RDP-EHC area. However, health is just one component in RDP, and RDP as a whole is due to expand in 1996. Since it would be difficult to omit health from the overall RDP package, it is recommended that it be included. It would be better if the health programme in new areas started first with water, sanitation and health education activities. Curative, family planning and other services can be added once qualitative improvements have been made in the existing programme areas.

It is recommended that support be provided to the pilot clinics.

Essential Health Care - RDP IV

Annex 1 - Logical Framework Analysis (April 14)

NARRATIVE SUMMARY	MEASURABLE INDICATORS	MOV	ASSUMPTIONS/RISKS
GOAL: To develop the organizational base from which the landless rural poor are involved in a sustainable process of poverty alleviation and empowerment	See RDP IV LFA	See RDP IV LFA	See RDP IV LFA
PURPOSE: To develop an effective essential health care system in RDP areas	By 2000 AD: - Increased modern contraceptives acceptance rate from 43% to 70% - Increased slab-latrines set-up from 20% to 80% - Reduced household per tubewell ratio to 5 households from 20 - Ensured and maintained 90% and 95% immunization coverage of children under one and pregnant women respectively - Distributed Vit "A" to 80% of children under six - Distributed vegetable seeds to 20% households twice a year - Each shasthya sebika treated on an average 30 patients each month - 100% of annual operating costs recovered by 3rd year of clinics operation	- RDP IV Monitoring Records - Studies and evaluation by RED/external agents	- Regular GOB supply of FP supplies, vaccines and Vitamin A are available - GoB clinics available - Water levels are maintained in tubewells - Availability of good seeds - RDP IV Income generating activities produce improvements in household income
OUTPUTS: 1. At the village level, shasthya sevikas service created, strengthened and supported	- Trained sevikas at the ratio of 1 for 4 VOs - 90% of the sevikas competent to diagnose and treat common diseases - Each sebika supported with adequate supply of drugs for common diseases treatment, contraceptives and technical assistance - Each sebika supplied with slab-ring latrines, vegetable seeds and tubewells to meet demand - No. of patients who utilize sebika services	- RDP IV Monitoring Records - Patient's register	- As above - Sevikas' services valued and accepted by community
2. Improved Family Planning services delivery & practices	- 70% of fertile couples are supplied with effective contraception methods - Referral system exists for treatment of side effects - Sevikas attend one satellite clinic each month	- Sales records - Referral system records - RDP reports	- Specialists are available - Satellite clinics are held regularly
3. Increased access to and use of tubewell water and slab-ring latrine	- Tubewell and slab ring latrines used by over 80% households	- Sales and program records	- As above
4. Increased access to and utilization vaccines for six preventable diseases	- Reduced mortality of the 6 (six) preventable diseases from 30% to 20%	- Study by RED	
5. Increased Vit-'A' capsules utilization and vegetable consumption	- Reduced incidence rate of night blindness - Improved nutrition status		

Essential Health Care - RDP IV

NARRATIVE SUMMARY	MEASURABLE INDICATORS	MOV	ASSUMPTIONS/RISKS																								
6. Increased link to and utilization of diagnostic and curative facilities	- No of patients utilizing BRAC's clinical services - Patient satisfaction with essential health services - Daily targets for patient treatments achieved: <table><tr><td>Year</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5 (year of operation of clinic)</td></tr><tr><td>Patients</td><td>30</td><td>50</td><td>70</td><td>90</td><td>90</td></tr></table> - No. of cases referred by SSs to BRAC's clinics and other sources	Year	1	2	3	4	5 (year of operation of clinic)	Patients	30	50	70	90	90	- Records - Interviews - Patients' register	As above												
Year	1	2	3	4	5 (year of operation of clinic)																						
Patients	30	50	70	90	90																						
ACTIVITIES: 1.1 Training and refresher of new SSs and Program Assistants (PA)	5,200 new SSs and 260 PAs trained on following schedule: <table><tr><td>Year</td><td>'96</td><td>'97</td><td>'98</td><td>'99</td><td>2000</td></tr><tr><td>SSs (trainees)</td><td>2,600</td><td>1,200</td><td>1,400</td><td>0</td><td>0</td></tr><tr><td>PAs (trainees)</td><td>130</td><td>60</td><td>70</td><td>0</td><td>0</td></tr><tr><td>SS refresher events</td><td>12</td><td>12</td><td>6</td><td>6</td><td>6</td></tr></table>	Year	'96	'97	'98	'99	2000	SSs (trainees)	2,600	1,200	1,400	0	0	PAs (trainees)	130	60	70	0	0	SS refresher events	12	12	6	6	6	Program records	SSs maintain determination to serve the community
Year	'96	'97	'98	'99	2000																						
SSs (trainees)	2,600	1,200	1,400	0	0																						
PAs (trainees)	130	60	70	0	0																						
SS refresher events	12	12	6	6	6																						
1.2 Procurement of essential drugs, contraceptives, vegetable seeds	Quantity of goods procured by BRAC	- Records - Interviews	As above																								
1.3 Distribution of goods through SSs	Each SS purchases drugs, contraceptives, vegetable seeds from BRAC regularly	- Stock register - Records																									
2.1 SSs, PAs and POs motivate and encourage eligible couples to use FP services	70% eligible couples use modern contraceptive methods by 2000 AD <table><tr><td>Year</td><td>'96</td><td>'97</td><td>'98</td><td>'99</td><td>2000</td></tr><tr><td>Couples Using</td><td>50%</td><td>55%</td><td>60%</td><td>65%</td><td>70%</td></tr></table>	Year	'96	'97	'98	'99	2000	Couples Using	50%	55%	60%	65%	70%	Records													
Year	'96	'97	'98	'99	2000																						
Couples Using	50%	55%	60%	65%	70%																						
2.2 Follow-up of acceptors by SSs, PAs and POs	90% acceptors received followup within last 2 months throughout project	Monitoring	Confidence of the clients for services will be developed																								
2.3 Assistance to Government FP workers in service delivery at community level	- Each Sebika attends one satellite clinic a month - No. of clients who choose semi-permanent and permanent methods	- Records - Monitoring	As above																								
3.1 Produce and sell slab-ring latrines 3.2 Educate people to install and use	- proportion of demand met 80% of the households buy and use slab-ring latrines by 2000 AD <table><tr><td>Year</td><td>'96</td><td>'97</td><td>'98</td><td>'99</td><td>2000</td></tr><tr><td>At Home Use</td><td>30%</td><td>50%</td><td>60%</td><td>70%</td><td>80%</td></tr></table>	Year	'96	'97	'98	'99	2000	At Home Use	30%	50%	60%	70%	80%	- Records - Reports	Household income is sufficient to buy inputs												
Year	'96	'97	'98	'99	2000																						
At Home Use	30%	50%	60%	70%	80%																						
3.3 Motivate VO to procure tubewell and use tubewell water for domestic purposes	100% households use tubewell water for drinking purpose by 2000 AD 70% of the households use tubewell water for washing and cleaning by 2000 AD <table><tr><td>Year</td><td>'96</td><td>'97</td><td>'98</td><td>'99</td><td>2000</td></tr><tr><td>HH Drinking</td><td>98%</td><td>98%</td><td>98%</td><td>98%</td><td>100%</td></tr><tr><td>HH Washing/Cleaning</td><td>30%</td><td>40%</td><td>50%</td><td>60%</td><td>70%</td></tr></table>	Year	'96	'97	'98	'99	2000	HH Drinking	98%	98%	98%	98%	100%	HH Washing/Cleaning	30%	40%	50%	60%	70%	- Monitoring - Interviews - Study by RED	As above						
Year	'96	'97	'98	'99	2000																						
HH Drinking	98%	98%	98%	98%	100%																						
HH Washing/Cleaning	30%	40%	50%	60%	70%																						

Annex 2 - References

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- "Health Care Services Utilisation and Behavioural Pattern in Save the Children (USA) Catchment Areas", University Research Corporation (URC), 1993.
- World Bank
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Annex 3 - RDP III Achievements from July '94 (after baseline) to Dec '94

Sl	Particulars	Baseline Survey Targets (7/1994)	Achievement (7/1994 survey)	%	Achievement to Dec'94	%	Target Phase 3
1	No. of Population	13,590,151	-	-	-	-	-
2	No. of Households	2,736,151	-	-	-	-	-
3	No. of Eligible Couple	2,602,303	-	-	-	-	-
4	Children 0m - 1 y	482,183	-	-	-	-	-
	9m - 1 yr	276,792	-	-	-	-	-
	6m - 6 yr	1,848,653	-	-	-	-	-
5	No. of Women 15yr- 45 yr	3,205,399	-	-	-	-	-
6	Service Coverage	-	-	-	-	-	-
6.1	EPI a) DPT - 3	-	305,782	63%	381,621	79%	90%
	b) Measles	-	185,414	70%	242,766	87%	90%
	c) TT - 2	-	1,579,354	49%	1,622,015	51%	90%
6.2	VAC Received	-	1,079,468	58%	1,281,111	69%	90%
7	Family Planning	-	-	-	-	-	-
7.1	a) Permanent Method	-	209,895	-	299,104	-	-
	b) Temporary Method	-	1,079,153	-	1,305,399	-	-
	c) Total Acceptors	-	1,289,048	50%	1,604,503	62%	60%
8	No. of Slab Latrine	-	393,069	14%	500,806	18%	50%
9	No. of Tube-Well	-	648,991	24%	751,052	27%	-
10	No. of Sebika	-	5,598	-	5,954	-	-

Source: BRAC records

**An Appraisal of the Non-Formal Education Program
of the Bangladesh Rural Advancement Committee Project Proposal for
Rural Development Program IV**

Prepared by

Drs. Yusuf Kassam and Roger Garrett

April 10, 1995

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4.0 Overview

The consultants are firmly of the opinion that BRAC has a model for NFPE that is cost effective and efficient. The strategies that BRAC has employed have evolved through a process of trial and error over several years and are now clearly sound and proven and should therefore be supported.

The whole programme is delivered through a set of standardized packages. BRAC's flexibility lies not within the packages themselves but in its ability to redesign those packages in the light of experience. Thus there is little room for individuals to respond to local situations and to develop alternative materials, but the resources provided for them help with a variety of situations.

The secret of BRAC's success in the field of NFPE lies in its field management structure and the continuous support and supervision that is provided for the teachers through Programme Officers and Assistants, who are in turn monitored and supported.

The optimal use and coordination of local community and human resources is also a vital factor in the success of the overall strategy.

As a result, BRAC is making a significant contribution to Education for All in Bangladesh. Together with associated NGOs, BRAC reaches something like 10% of the population not covered by the formal system. Its material and experience are influential and valued by all working in the field, both NGOs and government. As such, BRAC plays a key role in NFPE in particular, and primary education in general.

The plans that BRAC has for consolidating and improving the quality of what it provides is timely and founded upon a realistic judgement of its capacities. In doing this, BRAC needs to consider several issues:

- Given its mission to assist in the alleviation of poverty, a thorough reexamination of policy on teacher and pupil selection is required in order to explore ways that will not exclude the very poorest and most disadvantaged sections of Bangladeshi society.
- Consideration needs to be given to the production of more flexible materials that will meet the needs of pupils with different capacities and capabilities.
- More commitment is required to the training and retention of specialist staff in the central offices with a carefully thought through career structure being provided.
- A stand alone NFPE programme can operate effectively, but without the added advantage of linkages with other RDP development interventions, its potential multiplier development impact is reduced.

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- A stand alone NFPE programme can operate effectively, but without the added advantage of linkages with other RDP development interventions, its potential multiplier development impact is reduced.

Cooperation and coordination of BRAC's activities with those of government and other NGOs is now vital if future duplication of effort is to be avoided and experiences and expertise are to be shared.

4.1 Social

4.1.1. Programme's Appropriateness to the Needs and Resources of Target Groups

BRAC's NFPE model is conceptualized, designed and operationalized with the purpose of meeting the needs of the poor and taking into account their very limited resources. Both the NFPE schools (for 6-10 year olds) and the PEOC schools (for 11-14 year-olds) represent an alternative approach and solution to address the constraints and barriers that have prevented the poor sending their children to formal schools and those that have resulted in their drop-out. These constraints are well known and need not be repeated here.

The BRAC schools circumvent these barriers and constraints associated with formal schools by providing relevant and high quality primary education using a nonformal mode of delivery. The nonformal approach includes such features as the location of the school in or near the village, flexible scheduling of classes, sympathetic and dedicated teachers from their own community, smaller class size, minimizing the opportunity costs in attending schools, the parents' involvement in the affairs of the school, and the totally free provision of education.

The NFPE programme is intended to reach the poorest in rural Bangladesh. Through its nonformal mode of delivery, BRAC's NFPE programme is able to reach poor children who are drop-outs and non-starters, and especially girls who are the most disadvantaged.

According to the 1993 BRAC Report on NFPE, out of a total enrolment of 408,363 children, girls made up about 70% in the NFPE schools, and the corresponding female enrollment in PEOC schools was about 73%. Of the 100,210 graduates from both types of schools, about 78% were girls. More than 90% of the teachers were women.

Statistical socio-economic data on the entire target group of the NFPE programme are not available. However, a small comparative study of eight villages served by BRAC schools and government primary schools carried out by Khan and Arefeen in 1992 cited in the study by Lovell (1992, p.33) provides one micro statistical profile. The study showed that 72% of the children of BRAC's schools came from families who owned less than 0.15 hectares of land including the homestead versus 29% of the parents of government school students. The annual income of households of BRAC's target group was less than 20,000 Tk. compared with about 25,000 Tk. of the families whose children were in government schools. 76% of the BRAC households were headed by parents with less than three years of formal schooling compared with 63% of the parents of formal school students.

The eligibility criteria of BRAC's NFPE programme are as follows:

- ◆ At least 8 years old
- ◆ Family with less than .2 hectares of land, including its homestead
- ◆ Never attended primary school or dropped out
- ◆ 70% targeted to girls.

Based on the findings from 12 localities that were studied by BRAC in its Impact Assessment Study of RDP (1995), on average 40% of the school children came from the poor sections (the target group), and 60% from the non-target group. This finding can be explained by the fact that although NFPE policy emphasizes targeting, in the case of RDP areas it does not limit enrollment to the children of the members of Village Organizations (VOs) only. According to the study, there was some evidence to suggest that the richer families wanted to send their children to NFPE schools because they considered them as better than formal primary schools. In addition, it is possible that the selection criteria were not used rigorously. However, too much should not be read into this study for several reasons. The findings were based on a very small sample of 12 localities, and the study did not define the term "richer families" in relation to the target groups. In any case, the term ought to be interpreted in relative terms in the context of pervasive poverty. In addition, the study did not indicate whether or not the most of the poor children had already been served by one or more cycles of the NFPE programme.

The overall policy in both the RDP and non-RDP areas is to give first priority to the eligible children of the poor, and if there are any more places available, then the children from the relatively better-off households can be accepted. This raises the question of whether BRAC schools are seen as "poor people's schools" or "community schools".

Given the fact that the poorest of the poor live in remote and isolated areas, and given the unavailability of the programme-wide statistical data on the target group, it is plausible to argue that perhaps BRAC has not been able to serve the most disadvantaged. However, this problematique is addressed to some extent through the Education Support Programme (ESP). Through the ESP, BRAC supports and funds small grassroots NGOs to open NFPE schools using the BRAC model. These schools run by small grassroots organizations serve those disadvantaged communities where BRAC is not operating. For example, some of these NGOs run schools in some of the poorest parts of the country inhabited by indigenous/tribal peoples. As of October 1994, 1475 schools have been supported and funded by BRAC through 138 NGOs. ESP intends to fund more schools and more NGOs in the future. In this way, BRAC is able, albeit on a very small scale, to reach the most deprived areas.

Another question about reaching the most deprived relates to BRAC's selection policy for its teachers. The majority of teachers should be women with a minimum of 9 years of formal schooling, married and living in or near the village where the school is located. This is admirable for a large number of situations and obviously works well. However, it would probably be difficult to find teachers with this level of formal schooling, and especially

women, in the most disadvantaged villages against the background of the very low literacy rate in the country. On the other hand, to have teachers with lower levels of formal schooling will most likely jeopardize the quality of education provided. There is no direct evidence that BRAC's tight selection policy for its teachers prevents it from serving the poorest villages, but attention needs to be drawn to the possibility of this situation occurring.

In selecting the pupils for its schools, the field staff conduct face to face interviews with prospective pupils. In this attempt it assesses, among other things, cognitive ability. Through this process, classes of 33, predominantly girls, are produced. Observation of classes, albeit from limited samples, led the consultants to note that there appeared to be no children with any particular special needs. Thus children with hearing or visual difficulties were not detected as one might have expected. No children with physical problems were present either. The field staff pointed out to the consultants that children with severe learning difficulties were screened out. Combining these factors in the selection of process with the fact that girls tend to be more diligent than boys in their studies, then the success of BRAC needs to be viewed in that light. There may well be an argument for some pupils with severe learning and physical difficulties to be catered for in special institutions, but there must be a large group who could and should be in mainstream schools and whose needs are not apparently being catered for.

Some of the foregoing observations on the socio-economic status of BRAC's NFPE children should not be interpreted to suggest that the vast majority of the NFPE children of the target group are not being served. These observations should serve as mere signs of caution and as pointers to the need to pay more attention to the rigorous application of BRAC's selection criteria. In addition, BRAC in its strategy document for RDP IV has recognized the difficulty of reaching the bottom 10% of the poor, as is the case with many other comparable NGOs.

Regarding the BRAC graduates' access to formal schools, the record has been very encouraging. In the 3-year period between 1990 and 1992, more than 90% of BRAC graduates entered formal primary schools. This entry rate is higher than that of the formal school students who began in the formal system (Ahmed, et al., 1993). Based on a BRAC study (Khan and Chowdhry, 1991), 58% of the BRAC graduates who entered Class IV in 1989 progressed to Class V, and in 1990, 74% of those who entered Class IV progressed to class V.

Conclusion:

By and large, BRAC is reaching a large majority of the poor children in the areas in which it is operating.

Recommendation:

BRAC should carefully review its strategies with a view to ensuring that the very poorest segments of the population are being reached.

4.2 Economic

4.2.1. Comparative unit costs

a. *Unit costs of the formal education system and those of BRAC are generally regarded as being equal when the differences in activity are taken into account. In particular the high retention rates and good achievement of its pupils in comparison to those attending government institutions, make BRAC schools comparatively cost effective.*

This performance is achieved through judicious use of its resources as revealed in its unique spending profile. As can be seen from the table below, a relatively very small proportion of income is spent on teachers salaries while an equally high proportion is devoted to high quality direct management and in-school support for the teachers. Similarly relatively large sums are spent on pupils' materials and this is achieved through a policy of renting accommodation rather than building.

Table 1. Expenditure by BRAC on NFPE Programme

Expenditure	Percent
Teacher salaries	29.1
Direct management	27.0
Students' books etc.	20.2
School rent	12.1
Training	6.1
Teaching aids & equipment	4.0
Staff offices & housing	1.5
Total	100

Source: Ahmed et al 1993

b. When comparing the unit costs of BRAC and those of smaller NGO's also engaged in the provision of NFPE, figures quoted have been of the order of US\$19 and US\$17 respectively, per pupil per year. A similar case to that made above can be put regarding BRAC costs. The smaller organizations do not maintain the same infrastructure and central services as do BRAC, neither do they provide extension libraries, R & D facilities, or overall monitoring services. Frequently they do not have the capacity to produce their own curriculum materials or even to produce budgets. Much reliance is therefore placed upon the services of BRAC in all of these areas, most particularly in the provision of student materials and staff training. Thus for many of the smaller NGO's the support of BRAC is probably crucial for their ability to function successfully in the area of NFPE.

This service facility provided by BRAC, although paid for, is a justification, in part, for its higher costs. If the Phase IV proposals for BRAC to extend its capacity and to assist additional small NGO's with materials, then this is to be welcomed and will also further justify the higher BRAC costs providing they do not rise further.

Up to a point greater size increases efficiency and reduce unit costs for any programme, When the savings produced are ploughed back into providing a better and more comprehensive service, such as provided by BRAC through its curriculum development programme, monitoring, R & D, training programmes etc., then there are obvious advantages. If this starts to spawn a burgeoning bureaucracy that drains resources, then care is required. BRAC is probably at the point in the provision of NFPE where its size is in danger of jeopardizing its cost effectiveness and this needs to be monitored carefully.

4.2.2. Access to Government Funding

It is difficult at this stage to disaggregate the issue of access to government funding from a consideration of the government's whole approach to NFPE.

With the recent General Education Programme (GEP) and the Expansion of Integrated Non-Formal Education Programme (INFEP), both under the Primary and Mass Education Division, the government has taken on a high profile commitment to non-formal primary education. The fact that funding for the same activity is being channelled through two different departments within the same division of the Ministry however, would seem to indicate a lack of clarity about the importance and priority of that commitment. Some of the responsibility for the confusion is almost certainly to be laid at the door of the funding agencies too, in that the demands they make within their own agendas as to how and where money is to be disbursed, creates the need for separate channels to be set up. Thus GEP is designed to fund individual NGO initiatives and therefore is able to support innovative activities. INFEP on the other hand can only fund its own NFPE programme with its approved curriculum and materials, and any NGO involved must keep within these guidelines.

Although the two approaches are understandable, it is worrying that they come under two offices with the inevitable duplication of administration that is involved. One is also obliged to question the commitment government has to its own NFPE programme when it is located in a section (INFEP) that has the much larger and, for it, more important remit for adult literacy. If all government NFPE activity could be brought together under one administration there could be savings made. This is even more important at the moment since the overall activity of Government in NFPE is very small. Any changes to donor policy that might help to reduce this fragmentation of effort would be useful.

Quite clearly the Government, despite difficulties experienced in some areas with the use of the term non-formal, has a commitment to NFPE and to BRAC's work in particular. This is manifested in the direct funding, through GEP, of 900 BRAC schools in addition to a further

17 other NGOs working in the same field. Future access by BRAC to government funding however is difficult to predict. Should the government's own foray into the field through INFEP prove to be successful, government may choose to funnel its resources in that direction and to NGOs prepared to work within the system. Independent programmes like BRAC's would therefore not qualify.

As far as can be judged, the GEP programme is experimental in the sense that it is more likely to fund innovative ideas and then only to a small extent. The 900 schools GEP currently funds through BRAC is a relatively small percentage of BRAC's overall commitments in the area. On the other hand, if BRAC were to move to a four year cycle then such an innovation might well be funded, or assisted through GEP resources.

What is much clearer however is that Government funding, whether raised through taxation or loans from the World Bank or ADB, is not sufficient to the need. The bulk of all NFPE resourcing will have to continue to come from bilateral donor agencies either directly to the NGOs or funnelled through government channels. Given the current situation we would recommend the former route as being the most cost effective.

Conclusion:

BRAC is both cost efficient and cost effective. Under the present circumstances, it seems unlikely that BRAC will gain access to major government funding and for the foreseeable future they are likely to be heavily dependent on external aid.

Recommendations:

- For the RDP IV phase, funding of NFPE should be carried out through aid provided direct to BRAC.
- BRAC and the donors should attempt to develop a coordinated tripartite arrangement with government for the funding of NFPE after the completion of Phase IV.

4.3 Institutional

4.3.1. BRAC NFPE Contribution to the National Education Strategies

In its efforts to achieve Universal Primary Education (UPE) and Education for All (EFA), the Government of Bangladesh has taken several initiatives in recent years. The major initiatives include the enactment of the Compulsory Primary Education Act in 1990, the General Education Programme (GEP) begun in 1992, and the Integrated Nonformal Education Programme (INFEP) also launched in 1991. The National Plan of Action outlines strategies and targets on childhood education, formal primary education, nonformal basic

education and adult literacy. For basic education, the Plan has established the following targets:

- Increasing the primary school enrollment rate from the current 76% to 82% by 1995 and to 95% by 2000.
- Raising the primary school completion rate from 40% to 52% in 1995 and to 70% by 2000.
- Increasing the adult literacy rate from 34% to 40% by 1995 and to 62% by 2000.

The available statistics on primary education and the school-age children from different sources are rather conflicting and inconsistent. According to the latest statistics compiled by UNICEF in 1993, there were 16.7 million school-age children (6 - 10 years) in Bangladesh. Of these, 6.9 million (about 41%) were not enrolled; 5.9 million (about 60%) of the total enrolled children dropped out of primary schools.

This means that there were about 12.8 million children who were not enrolled or dropped out of the formal primary schools. Some of the poorest children who are served by BRAC and other NGOs belong to this category. BRAC schools attempt to fill this gap to the extent that is possible. As of June 1994, the total number of students in the NFPE/PEOC schools was over 747,000 in 23,319 schools. Of these schools, 10,163 were funded out of the RDP donor consortium representing about 40% of the total number of schools.

By the end of 1995, the total number of both NFPE and PEOC schools are expected to reach up to 37,000 by which time BRAC will have served over a million children.

In the period 1996-2000, the NFPE programme will operate at the 1995 levels. Of the 37,000 schools, 14,000 schools will be operated under RDP IV funding package, representing about 38% of the total of NFPE/PEOC schools. Under the proposed phasing-out of NFPE schools funded through the RDP package, no new schools will be opened. Consequently, as the three-year cycles of each school are completed, the number of schools supported will decrease to 9,202 in 1998, 6,068 in 1999 and to 3,304 in 2000. These schools are expected to produce about 588,543 graduates. Taking into account the expected dropout rate of 6%, the total number of graduates will be about 584,540. The enrollment of girls is expected to reduce from the current 70% to 60% in the next phase, since gender inequalities will have been largely addressed by the previous programmes.

Out of the total of 37,000 schools, 23,000 schools or 62% of the total number of NFPE schools will operate outside the RDP funding package. After 2000, all the NFPE schools are expected to operate under a separately funded programme from RDP.

The following table shows the breakdown of schools by year in the RDP IV as indicated in the LFA prepared by BRAC.

Number of NFPE Schools in RDP IV

Year	1996	1997	1998	1999	2000
I	2,996	6,068	3,034	0	0
II	4,545	2,996	3,034	3,034	0
III	6,459	4,936	3,134	3,034	3,034
TOTALS	14,000	14,000	9,209	6,068	3,034

BRAC's expected coverage of over a million children by the end of 1995 represents about 8% of the 12.8 million children who do not enter primary schools or drop out. Considering this coverage in *quantitative* terms, BRAC's contribution to the national plans for basic primary education in Bangladesh is modest yet significant, and by NGO standards anywhere in the world, it is substantial and impressive.

Notwithstanding the significant quantitative contribution, the assessment of the quantitative dimension alone would provide a rather short-sighted and blinkered vision of BRAC's role and contribution to NFPE and the national educational scenario in the country. The *qualitative*, *strategic*, and the *technical/institution-building* dimensions of BRAC's interventions are as important and significant as the quantitative dimension.

Qualitatively, the NFPE schools perform significantly better than formal schools in terms of the high completion rates of schooling, considerably lower drop-out rate, low teacher-pupil ratio, and higher rate of continuing education of BRAC's graduates through access to formal primary schools.

The *strategic* contribution can be viewed in two ways: in terms of the poverty alleviation strategies, and in terms of influencing GOB policy on nonformal primary education. In relation to poverty alleviation, BRAC's strategic contribution lies in the fact that BRAC schools serve the poorest children of whom about 70% are girls who would otherwise be bypassed by the formal system. In relation to GOB policy on NFPE, the initiation of both the GEP and INFEP can perhaps be partly attributed to the recognition by the government of the relevance, usefulness, and validity of BRAC's nonformal approach to primary schooling and its proven NFPE model. Through the GEP, the government funds BRAC's 900 NFPE schools in addition to other similar schools of 17 other NGOs. Through INFEP, the government has initiated its own nonformal primary schools using the BRAC model to a

large extent. Currently, BRAC is providing training to INFEP to operate its monitoring system.

At the *technical and institution-building* level, BRAC has been supporting and contributing to the capacity-building of 138 small grassroots NGOs who have run 1,475 NFPE schools. The technical assistance provided by BRAC consists of financing the schools, training the management staff as well as the teachers, and providing them with the teaching materials. Over a period of time, these NGOs plan to increase the number of NFPE schools. The *institution-building and strengthening of their management capacity has the potential* multiplier effect of enabling them to engage in new development programmes for the poor. In addition, to date, BRAC has also provided the necessary training and materials to 45 other large and medium-size NGOs who have been operating a total of 1,965 nonformal primary schools. In this group of NGOs, those that are involved in NFPE in a major way include Rangpur Dinajpur Rural Services (RDRS), CODEC, Proshika, Jagorani Chakra, ARBAN, HEED-Bangladesh, and the World Vision of Bangladesh.

Lastly, at the international level, it is noteworthy to touch on BRAC's contribution to other developing countries in Africa and Asia. BRAC has increasingly been called upon to share its experiences and expertise of its NFPE model. For example, largely under UNICEF auspices, it has helped Save the Children in Mali to institute the NFPE model and to assist another NGO engaged in similar work in Sierra Leone. Currently, through the UNICEF regional office in Nairobi, BRAC is working with the Governments of Zambia and Uganda in setting up NFPE schools modelled on the BRAC experience.

Conclusions:

BRAC's contribution to the national plans for basic primary education are quantitatively modest but significant. Qualitative contributions are high in terms of performance of the schools and pupils. In relation to poverty alleviation and GOB policy on NFPE, it is strategically influential.

BRAC's increasing collaboration with NGOs and its technical assistance in the capacity-building of many NGOs is desirable, significant and a growing activity.

Recommendations:

- BRAC should be encouraged and assisted to continue to make its contributions in all of the above areas.
- BRAC should enhance its strategic and institution-building activities while maintaining its NFPE programme at 1995 levels.

4.3.2. BRAC's Role in Developing Curriculum and Learning Materials.

Curriculum has to be viewed in its widest possible sense viz. that of materials, methodology, general classroom environment and pupil assessment techniques that are used. Given the very humble educational background of the teachers recruited by BRAC, the village level paraprofessionals that its policy demands, then there is a very real need for the curriculum to be *innovative and specially created for the situation*. BRAC has produced its own written materials for both pupils and teachers. To some extent this has been forced upon them. Because of time constraints not all of the National curriculum's 57 objectives can be covered in BRAC schools. In addition the commitment BRAC has to the principles of making the curriculum relevant to local needs, attractive to both pupils and parents and more child/activity centred also require it to develop specific materials.

Since BRAC produces its own materials for use in its schools and given that many other NGOs involved in NFPE also employ them, then the role of BRAC is very important. As the government itself has not, until recently, produced materials of its own for the NFPE form of delivery, then BRAC's contribution in this area is even more important. Indeed BRAC materials have been influential on INFEP and the development of their curriculum. The lead that BRAC has given, and the experience it has gained has put the organization into a position of leadership and responsibility whereby it will be looked upon to develop and improve what it has already achieved.

In making an assessment of the capacity of BRAC to develop the curriculum, one has first of all to look to what has been achieved and then attempt to evaluate the potential for future developments.

BRAC's undoubted success in producing materials has helped produce a teaching environment from which the drop-out rate is as low as seven per cent. The extent to which the curriculum materials are an important factor in this overall success is something that *could usefully be investigated*.

The curriculum that BRAC provides is designed to encourage a "learner-centred and participatory approach". Based upon our observations in the field however, it is hard to support this statement. Claims of having a child-centred curriculum are almost certainly inflated given the level of training and basic education of the teachers available. Given that constraint, it is probably unrealistic to expect BRAC's schools to cater for the individual needs and development of children anyway. The real strength of the BRAC curriculum is that it has managed to package very carefully a standard set of materials, teaching methods and assessment procedures that can be more or less successfully delivered by village recruited paraprofessionals who are provided with good on-the-ground support. Some superficial elements of a child-based curriculum have been incorporated into the model but they are carried out by the teachers in a fairly rote manner. That is to say, group work is incorporated, materials are displayed on the walls etc, but the value of these activities are poorly understood and not exploited by the teachers in any meaningful way. There is a very

high reliance on teacher based traditional methods. Where BRAC schools do score well is in the area of co-curricular activities. A lot of singing, dancing and play acting is rather more child-centred and plays an important part in the retention of children in the schools.

BRAC's experience in developing innovative materials is limited. Some of the shortcomings in this regard are mitigated by its supervisory system and continuous teacher in-service training. Intensive supervision is supplied by Programme Officers (PO) and Programme Assistants (PA) who visit each school twice a week to provide support and advice. In addition to their initial training of 15 days, each teacher receives a monthly refresher day, two days before the start of year one and four days prior to year two.

Despite this effective system however, there is a real need for attention to be paid to the differences to be found among children. Although catering for individuals is probably still too ambitious, extension and remedial materials are probably required for fast and slow learners - particularly if the NFPE is to be extended to four years (see 4.3.4b). This could well be an area where the resources of the larger NGOs with curriculum development capacity (E.g., Proshika) could be pooled and work on different and complementary parts of the curriculum divided up.

A further indication of the value of the curriculum, which, as has been said, must include materials, teaching methods and attention to the general school environment, is the comparative success NFPE graduates have had as compared to their state school compatriots. An Assessment of Basic Competencies (ABC) developed and carried out in 1992 and 1993 in collaboration with UNICEF found that 60 per cent of BRAC pupils passed the test which was better than that recorded for state school pupils.

Although 90 per cent of BRAC pupils find places in the state system for the fourth year, their drop out rate thereafter increases dramatically to 60 per cent with girls faring the worst. While such factors as distance of school from home, and opportunity costs of time may be important features in accounting for this situation, conditions in the school environment and the general curriculum on offer may also be crucial factors.

All of this would seem to point to some considerable practical success on the part of BRAC in the area of curriculum development. A word of caution however is required. A study carried out by Rashid and Chowdhury (1994) in a joint BRAC - ICDDR study indicates that the politics of teacher selection is also important and that parents' view of this are crucial in determining whether their children attend school or not. Given sufficient parental interest and support, it is likely pupils will attend school regularly - perhaps despite the curriculum on offer. If, in addition the curriculum has been developed or adapted in response to requests made by parents, then there is an even greater chance of their providing their support. BRAC, as a matter of policy, includes parental desires in its curriculum considerations.

Discussions with some members of the BRAC curriculum team indicated a general awareness and sensitivity necessary for curriculum development to take place. Whilst still remaining as close as possible to the national curriculum, certain content was removed. For example, HCFs and LCMs in the maths curriculum for the NFPE schools were eliminated but were retained for the PEOC schools. More gender sensitive materials produced, such as more pictures of women as role models and portraying girls in a more positive light. While a brief and necessarily biased sample of materials may well be unfair, it was noted however in a science book that there were no illustrations of female scientists. Requests from parents to supplement first aid with primary health care material has also been carried out. The most innovative development carried out by BRAC so far would seem to be the work currently under trial for "interactive" radio in the teaching of English for class three.

Conclusions:

BRAC's track record in curriculum development is impressive in producing a realistic deliverable package under the restrictive conditions in which it operates. Claims for innovation in curriculum development are probably inflated.

Recommendations:

- BRAC staff in curriculum needs to be examined carefully and strengthened and provided with more specialist training in curriculum development.
- Staff need to be retained in specialist positions and not moved around too frequently
- Selected experienced teachers need to be utilized more in the development of curriculum ideas
- A fourth year curriculum will have to be more flexible and cater for the different levels of development of children
- Co-operation among NGOs with curriculum development expertise should be encouraged and collaboration on different aspects of the curriculum undertaken.

4.3.3. Comparative Advantages of a Five Year Programme

There would seem to be a prima facie case for BRAC to develop a five year programme and possibly for that to be condensed into one year with the proposed new year four.

Studies conducted by the Research and Evaluation Division (Khan and Chowdhury 1992 & 1993) indicate that while former NFPE students academically perform comparatively well to

their State school counterparts, when they pass on to the formal system their dropout rate rises dramatically to 56 per cent within two years. Some of the reasons for this finding were identified as being the state of illiteracy of adults in the family, poor socio-economic status, the high cost of formal education, late enrollments in school, poor performance of the NFPE teacher, lack of supervision in the formal schools and the traditional methods employed by the formal school teachers. For girl pupils, whose dropout rate from the system was higher than the boys, increased distance to school and early marriage must also be included among the factors influencing their non continuation.

A five year programme provided by BRAC would therefore counter some of these factors if the same strategies and techniques were to be pursued as those currently employed by BRAC for the first three classes. Thus for example, supervision and teaching methodologies would need to remain largely similar. The financial considerations would need to be reduced, the opportunity costs of the additional year negotiated with the parents, and an optional attendance pattern agreed upon. With demands on illiterate parents being reduced through a realistic homework regime and schools remaining close to the children's homes other pressures to remove children from the school would be reduced.

It can be concluded that the advantages for a BRAC extension to cover the five year primary programme are potentially large, with the possibility of BRAC's very high retention rates being extended to cover the whole of (if restricted) primary education.

One strategy that might be adopted to make such an exercise more cost effective may be for students to be selected more carefully. Those assessed as being the most "at risk" of dropping out if sent to the formal school system could be retained. Those thought to be able and willing to transfer to the formal system should be encouraged to do so whilst the rest (c. 60 per cent) could remain on the "accelerated" BRAC programme. It is of course recognized that such a strategy may well have to be presented to parents very carefully and sensitively. BRAC schools are already often more highly regarded by parents than are the state schools and persuading some to send their children to the formal system may prove difficult. An additional advantage of such a strategy is the smaller classes it would yield which in turn might help to alleviate some of the problems noted in 4.3.4a.

4.3.4. Capacity of BRAC to introduce a fourth year NFPE programme.

There would seem to be four major areas for concern in providing a two year programme for classes four and five in a single compressed or accelerated year. Three of these are professional issues; the teachers' abilities to cope with the higher levels of work, the compressing of the subject matter, and the students' abilities to cope with the accelerated course and a final technical matter which is the relationship of such a course to the formal system.

a. Teachers' capacity.

It would seem obvious that those teachers with only minimal qualifications and their BRAC training will experience considerable difficulties in teaching to the higher levels required by such a programme. Some already would appear to have problems with mathematics and, from our limited observations in the field, competence in English is woefully inadequate even for class three. *One would also have to anticipate increased problems in the area of science education*, where experience from other countries would lead us to expect serious knowledge shortcomings and low teacher confidence.

Despite these problems, there are potential solutions and BRAC is as well equipped as anybody to extend its system and to cope with them. Some teachers are clearly well able to manage the increased demands this development would place upon them and would probably welcome the opportunity of taking up the challenge. This group of teachers would require at least one more session of extended training (15 days) to help them acquire the knowledge they will lack, plus some additional teaching methodology training (see b & c below). They would also need additional refresher training and the continuous support from POs and PAs that they currently enjoy, with the former possibly concentrating on the final year.

These more competent teachers might then be deployed in a number of different ways:

- They may simply continue with their school for a fourth year extending the cycle as is currently practiced.
- They may be used to start a new, fourth year school to serve a number of others in a cluster.
- They may be given specialist subject training (Maths, English or Science) and deployed as a peripatetic teacher (a strategy already being contemplated by BRAC).
- A fourth option might be to change the model of schools and to offer classes One and Two with one teacher and classes Three and Four with the more competent and qualified teacher. This tactic might also be of advantage in areas of high demand as it would cut the entry to the primary school cycle for children from three to two years.

Whatever option might be selected there would appear little doubt that the BRAC system could cope with the increased management demands, providing sufficient funding were made available for the recruitment of additional POs to assist with supervision and increased refresher course loads. Currently in many areas these people are stretched to their limits.

Given that two school years will be taught in one intensive year with more highly trained teachers, the additional outlay in teachers and supervision/training is likely to prove to be cost effective, but this would need careful study in a pilot area.

b. Compressing of subject matter

Two major issues arise here. The first is the need for careful selection from the national curriculum to enable the paraprofessional teachers, with their limited training and field support, to cover the work required of them and for the two years to be compressed into one. The second and related issue is that of the time available to teach this new syllabus.

As far as the first of these problems is concerned, BRAC has already demonstrated its ability, together with the parents, to make a judicious selection from the national curriculum without overtly compromising the basic quantity and quality of provision and there would seem to be no reason why such an exercise should not be carried out again. Indeed there exists experience within the NGO community that BRAC would be well advised to tap into. The Materials Development Cell of Proshika have already produced a draft compressed four year NFPE curriculum that attempts to cover the full formal curriculum (Habibur Rahman 1994).

As far as time available to teach the programme is concerned, there may well be no real issue to be addressed. If one assumes that the formal schools open for approximately 170 days per year for three hours, then over the full five year cycle a student will receive 2550 hours of schooling. On the assumption that BRAC provides 2.5 hours a day, 270 days a year for the first year and 3 hours per day for the second, third and fourth year then a pupil would receive 3105 hours total schooling. Not only does this compare favourably with the formal system, one can also argue that, together with the suggestions made above, the restricted curriculum, richer school environment, and good attendance record for both pupils and teachers, would be sufficient to compensate for some of the shortcomings in the BRAC system, in particular the restricted curriculum, relative inexperience and qualifications of the teachers and lack of attention to the needs of different learners.

In short, it can be argued that a BRAC four year course would provide for a greater amount of high quality, on-task time to be spent by each pupil, albeit on a more tightly focussed curriculum.

c. Students' abilities.

A much more complex issue is the ability of students to undertake such an accelerated final year. Even assuming the ideal situation that might arise from the options presented above, viz. a small class of about 20 pupils with a good and well supported teacher, the increase in cognitive demand required over the shorter time span will not allow for the normal cognitive development of the pupil to take place and that is presumably assumed to occur during the span of the formal national curriculum. This, together with the unequal development of pupils is likely to create significant pressure for a curriculum that caters much more for the individual needs of the students. More personal attention will be required and a detailed system of assessing and monitoring of each individual will be necessary. This is an area where BRAC has probably not got the necessary experience (see discussion in 4.3.2) and

may need to consider some cooperation with other NGOs who do, or to consider obtaining some technical assistance in the area. At the very least the extended curriculum would require both remedial and extension materials for the rapid and slow learners respectively and a training programme in classroom management necessary for such an approach to be successful.

d. Relationship of an accelerated NFPE course to the formal system.

Currently the stance adopted by BRAC is to provide a complementary service to that of the formal system. Its aim is to provide a basic minimum range of skills and knowledge for those pupils who cannot get access to the early years of primary education that will equip these children to eventually take their place in the formal primary sector. Provision of a full primary curriculum in the way discussed above may still be regarded as stop-gap activity, although as we have already noted, the end for such a service does not seem to be in sight. However, as a basis for entering the much more rigorous world of secondary education this may not be adequate. Similarly the issuing of a certificate of primary education on the basis of an alternative and shortened route may cause difficulties for the government. Some of the arguments for considering its equivalence to the formal system have been rehearsed above, but this is an issue that would require careful consultation between BRAC, all the NGOs and the Ministry of Education. Any such recognition of the proposed course could only be arranged if its development were to be carried out in close consultation with the Ministry from the outset; a strategy that BRAC has shown itself both amenable to and capable of following.

Conclusions:

The capacity of BRAC to manage a fourth year NFPE seems to be adequate.

Recommendations:

BRAC needs to pay careful attention to:

- teacher capacity: e.g., optimum use of experience already gained by teachers
- students' abilities: e.g., the need for extension and remedial materials
- the relationship of any new course to the formal system

A series of pilot studies should be set up to test alternative solutions.

4.3.5 BRAC NFPE Strategic Plan

BRAC's strategy for the NFPE programme in the next phase consists of two major thrusts. One is to maintain its NFPE operations at the 1995 levels, that is, about 37,000 schools. This is a major departure from its previous ambition to run 100,000 schools by the year 2000. This shift is conceived as moving away from linear expansion to working more closely with the national system. The second planned action is to pay greater emphasis to policy dialogue with the government in an effort to contribute to improvements in the national system as a whole through sharing information on curriculum development, teacher training and educational management systems.

While the original intention to run 100,000 schools would have made a valuable contribution in meeting the enormous primary education needs of the poor children and of primary education as a whole in the country, the magnitude of the gap in primary education in Bangladesh will remain substantial in the foreseeable future. The decision to move away from linear expansion is prudent and pragmatic and has several strategic implications and political ramifications:

- While BRAC has the management capacity to handle 100,000 schools, it also has the potential to overextend itself.
- The decision is consistent with BRAC's perception of NFPE as a stop-gap measure that can be useful until a permanent formal government system is in place.
- While there has been increasing collaboration between the government and BRAC in recent years, a dramatic expansion of NFPE schools may be a little too intimidating to the government and may result in unnecessary posturing and competition.
- In taking on the expanded role in the provision of primary education, BRAC may unwittingly create conditions and a mentality that could slow down the government's full ownership of efforts to achieve universal primary education.

BRAC's intention to intensify its policy dialogue on the national education system with the government is an appropriate and timely strategic intervention. With the development of a sound and proven NFPE model, BRAC (and many of its NGO colleagues) have acquired the expertise to be in a position to play a more valuable and influential role in shaping government policy. The scope of the policy dialogue is unpredictable depending on the extent of the government's genuine willingness and receptivity, and its capacity to provide undisrupted and consistent leadership in the field of education.

However, judging from the examples of BRAC-GOB collaboration in recent years predominantly at the programme delivery level, the increasing recognition of BRAC's NFPE model by GOB, and the increasing collaboration between many other NGOs and the GOB through its GEP and INFEP, the chances of collaboration at the policy level would seem to be most promising.

The present climate in GOB and BRAC's desire to engage in policy dialogue with the government seems to be conducive for BRAC to the development of a genuine *partnership*. For real partnership to work, it must be characterized by equitable relationships, mutual trust, respect for each other's autonomy, and reciprocal transparency. Such a partnership relationship would need to be formalized through a setting up of some kind of a forum or mechanism. In this partnership, BRAC should work through CAMPE to strengthen the experience base and to avoid alienating other NGO players. The inclusion of other NGOs in this partnership would be in conformity with BRAC's intention to work more closely with other NGOs. In this GOB-NGO partnership, BRAC would inevitably be a major, but not an exclusive player. Obviously, there would be numerous hurdles complexities in realizing this kind of partnership. Many issues will need to be negotiated patiently. But a bold new initiative in this direction would seem to be most opportune now.

One of the elements of the changing external environment (i.e., external to BRAC) is the emergence of strengthened NGOs and their increasing involvement in providing nonformal education to children. In BRAC's own words, "it is no longer necessary or even advisable for an organization to think of indefinite and indiscriminate expansion". Hence BRAC's intention to make concerted efforts to work more closely with other NGOs is appropriate and would, among other things, further strengthen its valuable role and contribution in the capacity-building of other NGOs as examined in some detail in Section 4.3.1.

There are several other elements in BRAC's Five Year Strategy that need to be examined. One element that applies to RDP as a whole is the intention to put greater emphasis on the poorest. While BRAC's NFPE as well as other programmes are designed to reach the poor, BRAC has recognized the difficulty of reaching the bottom 10% of the poorest. However, a strategy and a plan of action has not been formulated on how NFPE intends to target and shape its programme to reach those 10% during RDP IV.

Another element on the NFPE strategy is the decision not to impose any service charges for the provision of education to children. This policy stand is rational and appropriate, for any attempt to recover costs however minimal would defeat the very purpose and *raison d'être* of NFPE in serving the poor children.

Finally, there is the big question of the future of NFPE funding after 2000. At the moment there is no clarity on this question, but the future funding of BRAC's NFPE will depend on the outcome of BRAC's intended policy dialogue with government, donors and NGOs "with a view to harmonizing services and reaching more effective long-term arrangements on the regulatory climate and on cost-sharing arrangement with government". The proposed

partnership between the government and NGOs would be the most appropriate and useful vehicle for carrying out the policy dialogue. In addition, in view of the prevailing funding fragmentation of the NFPE programme run by the government and BRAC (and other NGOs), the possibility of a tripartite approach that includes BRAC, the government and donors should be explored. Such an arrangement has the potential to work in the interest of harmonizing services and funding. The technicalities and politics of this tripartite strategy cannot be underestimated but the potential for its success should not be underestimated either.

Conclusions

BRAC's strategy for phase IV NFPE reflects the maturity and vision that BRAC has *acquired that would enable it to play roles that are larger, professional and more strategic* instead of confining itself to programme delivery alone.

BRAC's decision to move away from linear expansion is both prudent and pragmatic.

BRAC's intention to intensify its policy dialogue on the national education system with the government is an appropriate and timely strategic intervention.

Recommendations:

BRAC should take as leading role in forging partnerships between itself, other NGOs and GOB, with a view to constructing mutually supportive strategies for NFPE.

The possibility of a tripartite approach involving BRAC, the government and donors should be explored to harmonize the funding of NFPE programmes of BRAC and the government.

4.3.6. "Feeder" School Approaches and their Coordination

The "feeder" schools, satellite schools and community schools that exist in Bangladesh, serve to *complement* government efforts to achieve universal primary education. Neither BRAC's schools nor the other schools run by many other NGOs represent parallel structures. Rather, they represent alternative options in meeting primary education needs. While BRAC schools will have served about one million children by the end of 1995, representing about 8% of primary education needs in the country, the other NGOs combined presently cater for about 5% of the total enrolment in primary education.

On the government side, and, apart from its provision of formal primary education, INFEP runs about 5,000 nonformal primary education centres that serve about 150,000 children. This programme is sub-contracted to NGOs as implementing agencies using the curriculum developed by INFEP with the help of BRAC. Through a different mechanism from INFEP,

the General Education Programme (GEP) funds 17 NGOs who run their own schools using their own curriculum and management systems. In addition, through the Primary and Mass Education Division, the government runs about 16,000 community schools providing five years of primary education. These schools basically use the same system and curriculum as the formal primary schools, but are managed by the respective communities themselves with the teachers coming from the same communities. Based on the enrollment of an average 175 students per school, these community schools serve about 2.8 million children.

All of these efforts help to partially fill the large gap in the provision of primary education. In quantitative terms, therefore, the question of duplication of efforts does not arise. There is a room for many players.

Concerning the curriculum used by the various NGOs, there is, admittedly, some diversity in terms of its content, quality, teaching methodology, and target groups. While the majority of small and medium-size NGOs use the BRAC NFPE model, there are only 4 other NGOs in addition to BRAC that have the capacity and expertise to produce their own materials for primary education. These are *The Dhaka Ahsania Mission*, *Underprivileged Children's Education Programme (UCEP)*, *GSS*, and very recently, *Proshika*.

The diversity in the teaching materials is not synonymous with a duplication of effort. This diversity is the result of the inherent innovativeness of NGOs and should be viewed as an asset to NFPE broadly. It is perhaps not desirable or even possible to have one uniform curriculum model especially in the context of the diversity of needs and socio-economic situations in Bangladesh. The ability to innovate and experiment conceived as part of an evolutionary but dynamic process in the context of changing and diverse needs is necessary and should be encouraged. After all, one of the major criticisms of the curriculum used by formal primary schools is that its rigidity and uniformity makes it irrelevant to the needs of many poor rural children resulting in a high drop-out rate.

However, while there is some sharing of experiences and curriculum amongst NGOs, some of which is facilitated by CAMPE through workshops and seminars, the optimal utilization of existing resources is hindered by the lack of coordination.

The lack of coordination has also raised several other issues concerned with organizing and running nonformal primary schools. One of the issues has been the location of the schools which had produced some conflict in the past between the NGOs. For example, during the expansion of BRAC's NFPE during 1993-94, BRAC had to pull out of some localities where other NGOs had established themselves. Over the last year, this problem has been alleviated by convening monthly meetings at the district level of all NGOs operating in a given district under the DC office. Under an agreement by INFEP and BRAC and other NGOs, NGOs cannot open their schools in INFEP areas. Another issue relates to the government's Food for Education Programme which lures some students away from BRAC's and other NGOs' schools.

Given the above scenario, there is obviously a need for some formal mechanism to facilitate *some degree of coordination and harmonization amongst the NGOs as well as between the NGOs and the government*. As far as the NGOs are concerned, the existing NGO umbrella organization, CAMPE, which presently serves as a forum for the exchange of ideas and experiences amongst those NGOs that are involved in nonformal education at large, could possibly take on the additional function of coordination.

Similarly, there is a need for some kind of a forum that can facilitate better collaboration and coordination between the GOB and NGOs. However, in view of the increasing collaboration that has been taking place between the NGOs and GEP and INFEP, what is needed is not mere coordination but a real partnership as elaborated upon in Section 4.3.5.

Conclusions:

Although there is a variety of "feeder" school approaches, quantitatively, there is no duplication of effort but there is also no attempt or desire to create parallel structures. While there is some diversity in the curriculum used by the various NGOs, this is not synonymous with duplication of effort. In all of these activities, however, there is a general lack of coordination and harmonization.

Recommendations:

A forum should be set up to facilitate coordination of NFPE between NGOs and GOB. *Similarly, there is a need for coordination amongst the NGOs involved in NFPE that could possibly be facilitated by CAMPE.*

4.3.7. Optimal Management of NFPE within BRAC

Currently, about 40% of the NFPE schools are operating under the RDP funding package. In relation to the total number of NFPE schools, about 89% operate in the 221 areas that include RDP, Small Livestock Development Programme (SLDP) and Income Generation for Vulnerable Groups Development Programme (IGVGDP). The rest of the schools, about 11%, are run in non-RDP areas consisting of 58 rural thanas and 24 urban thanas.

In the case of RDP IV, all of the 14,000 NFPE schools will be operating in RDP areas. For the rest of the NFPE programme that runs in the non-RDP areas, it is anticipated that most of the new areas that will be covered by RDP during 1996-2000 will be those areas where NFPE is presently operating.

For optimal development impact of the NFPE programme, it would be desirable for all the NFPE schools to operate in RDP covered areas. After all, the demand for the education of children was articulated by the VOs that began to be served by RDP. As demonstrated by the experiences in many developing countries with large rural populations, an *integrated*

approach to rural development has the potential to achieve greater developmental impacts, both in the short-term and the long-term. By operating in RDP areas, it makes it possible to make linkages between the NFPE and other development programmes offered by RDP that serve the same target groups. In this way, NFPE benefits reinforce and multiply the benefits of other RDP development interventions.

No comparative study has been made on the development impact of NFPE in RDP areas and non-RDP areas, nor is there a study that has examined the linkages between NFPE and other RDP activities. The consultants visited a Kishore-Kishori library in Chaudhgram thana in Comilla where 20 adolescent girls who had graduated from the PEOC schools had gathered to engage in reading and socializing. A conversation with these girls who could not financially afford to go to high schools, revealed that many of them were directly benefitting from some of RDP programmes. For example, 12 of the 20 girls were involved in RDP's training in tailoring, and 15 girls had already received training in poultry rearing. The mothers of 7 girls who are VO members had taken several loans from RDP with which they bought rickshaws for their husbands, set up a mechanics shop for repairing bicycles and rickshaws, and were engaged in cow-rearing. One enterprising mother had bought 3 rickshaws, two of which were rented out. All of the girls were also involved in the RDP savings programme. This is one example of the kinds of linkages that can be made between NFPE and other programmes of RDP and the associated emerging development impacts.

At the level of the management and implementation of NFPE as a single sectoral programme, available evidence suggests that, in general, the programme operates equally effectively in the RDP and the non-RDP areas. Since NFPE is a self-contained programme with its own uniform management system, the performance of the schools in terms of learning achievements, completion rates, drop-out rates, and access to formal schools seems to be the same in both the RDP and non-RDP areas. From this consideration of the ultimate performance of schools, a stand alone NFPE programme can operate effectively but without the added advantage of linkages with other RDP development interventions.

However, the operation of NFPE in the non-RDP areas as a stand alone programme raises other issues. Firstly, it has implications on the issue of targeting the poorest children. A BRAC 1993 study of a small sample of 12 RDP localities where NFPE was operating concluded that in the RDP areas which have VOs, "their (VOs) involvement appears to provide a high level of guarantee that poorer children are enrolled. It may be hypothesized that schools without VO support, such successful targeting may be harder to attain" (RDP Impact Assessment Study, 1993, p.59).

Secondly, according to the experience of the field staff, it is more difficult and more time-consuming to mobilize and motivate a given community for the NFPE programme in areas where BRAC has had no previous presence.

A third issue that the independent operation of the NFPE programme raises is the question of the programme's capacity to deal with social conflict such as the fundamentalist opposition to

the NFPE schools. It was found that the recent fundamentalist attack was better contained in the RDP areas than in the non-RDP areas. The majority of the 80 schools that were burned down were in the non-RDP areas. This would seem to suggest that a larger organizational infrastructure and the existence and influence of the Village Organizations in the RDP areas provides both a protective shield and a better capacity to deal with the problem of fundamentalism.

Conclusion

A stand alone NFPE programme can operate effectively, but without the added advantage of linkages with other RDP development interventions, its potential impact is reduced.

Recommendation:

For optimum development impact, the NFPE programme should be linked with all elements of the RDP, and conceived as a totally integrated approach to rural development.

4.4. Environment

4.4.1 Potential impact of the educational programme on environmental issues

A consideration of the impact upon the environment may be considered under two headings; how the programme might increase pressures upon the environment and how it may have an impact upon decreasing environmental pressures.

a. Increasing pressures on the environment.

Generally the construction of the schools uses locally available and potentially renewable materials for walls, floor matting, doors and windows. The floors are made of packed mud and the roof supports use timber and a small amount of concrete. Only the roofing of corrugated iron requires complex manufacturing with the implications for resource depletion and pollution. Paper consumption in the schools is at a minimum level and much is recycled while other materials are, or can be, constructed from normal household waste (eg aerosol cans used as pencil holders etc.).

The construction of a simple building in a village for use by its own pupils would not seem to impose great environmental pressures unless it were to take up prime agricultural land. One school serving a wider cluster of villages might result in pressure from the incoming children upon the resources of the host village but the numbers involved are too small for this to be significant.

Currently the short hours of the school and its close proximity to the children's homes

probably precludes the construction of latrines or the provision of water. However, if the school were to be shared with other villages, or the working day to be increased significantly, then, in the interests of the "healthy schools" concept, these facilities should be considered as a priority. If not properly designed inadequate sanitation could have a serious impact upon the area. On the other hand, good sanitary provision and education in its use would help reinforce health messages and reduce environmental pressures.

The large number of support and supervisory visits required by the BRAC system does mean that a considerable amount of fuel is used and fragile roads traversed frequently by POs. However the use of bicycles and lightweight motor cycles minimizes their effect. It is possible that this one factor represents the greatest pressure on the environment.

b. Positive effects

The school curriculum can contain very powerful messages about care for the environment, even for very young pupils, and the more advanced four year course ought to pursue these ideas most vigorously, thus providing those children who will not have any further formal education with a good basic understanding of the need to care for the natural world. If the NFPE is firmly embedded in the RDP - as we have suggested, and the curriculum of the school is woven into the local community, then these environmental considerations should be reinforced.

BRAC currently provides seeds for schools to plant in gardens. This is an initiative that could be usefully extended to the provision of seedlings. These might be Mulberry, if there were a local sericulture project, or other trees that would provide shade for the school and surroundings and possibly a fruit crop and/or timber eventually. Care for these trees by successive groups of pupils and an understanding of their importance would also help in the long term strategy for educating the young in their appreciation for, and the need to conserve, the natural environment.

Conclusions:

Overall, the negative environmental pressures are small and with care can be kept to minimal levels. The potential of the schools for positive environmental impact is large and could far outweigh any of the negative aspects.

4.5 Summary of Recommendations

BRAC should carefully review its strategies with a view to ensuring that the very poorest segments of the population are being reached.

For the RDP IV phase, funding of NFPE should be carried out through aid provided

direct to BRAC.

BRAC and the donors should attempt to develop a coordinated tripartite arrangement with government for the funding of NFPE after the completion of Phase IV.

BRAC should be encouraged and assisted to continue to make its contributions in all of the above areas.

BRAC should enhance its strategic and institution-building activities while maintaining its NFPE programme at 1995 levels.

BRAC staff in curriculum needs to be examined carefully and strengthened and provided with more specialist training in curriculum development.

Staff need to be retained in specialist positions and not moved around too frequently

Selected experienced teachers need to be utilized more in the development of curriculum ideas

A fourth year curriculum will have to be more flexible and cater for the different levels of development of children

Co-operation among NGOs with curriculum development expertise should be encouraged and collaboration on different aspects of the curriculum undertaken.

BRAC should take as leading role in forging partnerships between itself, other NGOs and GOB, with a view to constructing mutually supportive strategies for NFPE.

The possibility of a tripartite approach involving BRAC, the government and donors should be explored to harmonize the funding of NFPE programmes of BRAC and the government.

BRAC needs to pay careful attention to:

- teacher capacity: e.g., optimum use of experience already gained by teachers
- students' abilities: e.g., the need for extension and remedial materials
- the relationship of any new course to the formal system

A series of pilot studies should be set up to test alternative solutions.

A forum should be set up to facilitate coordination of NFPE between NGOs and GOB. Similarly, there is a need for coordination amongst the NGOs involved in NFPE that could possibly be facilitated by CAMPE.

For optimum development impact, the NFPE programme should be linked with all elements of the RDP, and conceived as a totally integrated approach to rural development.

ANNEX A - List of Persons Contacted

A. BRAC Headquarters

1. Kaniz Fatema, Director of NFPE
2. Aminul Alam, Director of RDP
3. Sunil Gosh, Manager, Education Support Programme
4. Sudhir Sarker, Education Specialist
5. Sâeda Anis, Senior Regional Manager, Curriculum Development
6. Mushtaque Chowdhury, Director, Research and Evaluation Division

Activities Carried out In the Field

1. Visited 8 NFPE schools and 2 PEOC schools in Jamalpur, Sherpur and Comilla
2. Participated in two parents' meetings
3. Observed two refresher courses for teachers
4. Observed a training session for teachers at TARC, Comilla.
5. Visited 2 Kishore-Kishori libraries
6. Met with 2 Regional Managers, 3 Area Managers, 3 Team-in Charge, and 12 POs and PAs

GOB

1. Nurudin Kamal, Projets Coordinator, General Education Project (GEP)
2. Khandaker Shahidul Islam, Executive Director, Integrated Nonformal Education Programme (INFEP)

ANNEX B - NGO Consultation Meeting

1. A.N.S. Habibur Rahaman, Coordinator, Proshika
2. Kamaluddin Akbar, Assistant Director, RDRS
3. Jerome Sarkar, Programme Officer, RDRS
4. A.M. Sharafuddin, Director, CAMPE
5. Shaikh Halim, Executive Director, VERC
6. Asish Muhuri, Deputy Associate Director, World Vision of Bangladesh
7. Kaniz Fatema, Director of NFPE, BRAC
8. Saeda Anis, Senior Regional manager
9. F.R.M. Hasan, Executive Director, GSS
10. Jerome Rodrigues, Advisor, Caritas
11. S. M. Hadiuzaman, Deputy Project Coordinator, CMES
12. Bishop B.D. Mondar, Chairman, Church of Bangladesh
13. Issac Adhikary, Senior Education Officer, Church of Bangladesh
14. M. Nayimuddin, Team Leader of GEP's monitoring & evaluation program, DPS
15. Sajjad Hussain, Deputy Director, UCEP
16. Wahida Banu, Programme Coordinator, Terre des Hommes - Switzerland

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**An Appraisal of the Enterprise Development Sector of the Bangladesh
Rural Advancement Committee Project Proposal for Rural
Development Programme IV**

Prepared by

Robert Mitchell and Anders Werak

12 April 1995

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5.0 Enterprise Development

BRAC provides all the basic components of enterprise development: credit, training, new technologies, and advisory services - both technical and to a growing extent simple business management. They influence some government policies; for example, the GOB Livestock Department has adopted their model for micro-scale livestock ventures. BRAC also recognizes the potential, based on the VO structures, for forming micro/small business associations or "clubs" in rural areas. This chapter reviews the social, economic, institutional, and environmental dimensions of some of the enterprises in RDP IV. The credit component, and the fisheries and sericulture enterprises are appraised in separate reports.

This report reviews a sample of the many (over 300) types of enterprises that BRAC supports, focusing on those member enterprises that receive credit, training, and "followup"/extension services. The majority of enterprises are household businesses "owned" by women, since they take most of the loans to start them.

5.0.1 The Sample

The sample includes:

- 25 types of member-owned micro enterprises which receive credit, training and extension services. They pay interest on the loans and some pay service charges for extension. The sectors chosen are the main ones not covered in other reports, and ones for which there is considerable performance data. These are in the following 4 sectors:

- poultry
- livestock
- social forestry
- horticulture and vegetables

- BRAC-owned, medium-scale commercial enterprises which are new activities within RDP (but not within BRAC), which remove significant constraints on the supply of inputs to the member enterprises. Compared to the small member enterprises (Tk 1000 to 10,000 loan size), these range up to Tk 30 million per investment and provide wage employment. These include:

- Poultry and dairy feed mills
- poultry hatcheries
- vegetable seed production units

- The deep tubewell (DTW) irrigation enterprises, 680 of which were funded in previous phases of RDP. These are collectively managed by members in joint ownership (80:20%) with BRAC. These are the only major collectively owned enterprises that BRAC assists.

- **Experimental and pilot** investments in potential member enterprises which are in various stages of implementation. These have emerged from the R&D efforts of the Rural Enterprise Project (REP) in the previous phase and/or are proposed for R&D in Phase IV. Included in this category are women-owned restaurants, women's carpentry shops, and grocery stores. *The assessment below focus on the management of the R&D process rather than the individual enterprises.*

- **Rural trading and food processing enterprises** which are the two largest categories of member enterprises. They receive credit only. The rural trading category alone includes about 105 different types of micro businesses. These collectively form the largest proportion of the BRAC loan portfolio (RDP plus RCP). These are only examined briefly since there is little data on them other than their loan repayment performance.

The services to these enterprises are managed within the RDP "Sectoral" and IGVGD (mainly poultry) programs, with the exception of rural trading which is in the Credit Program. While most of these are agricultural production enterprises, there are some micro service enterprises - such as restaurants, or para-veterinarians. All, with a few exceptions, are individually or household owned and managed.

The overall activity set from which the sample is chosen covers about 20 % of the total RDP IV budget. On the revenue side, it is projected that these enterprises will generate about 44 % of the service charge revenue in the year 2000, with the remaining 56 % generated by fisheries and sericulture.

5.0.2 Methodology

The Enterprise consultants take the beneficiary/member perspective, while the Credit and Financial Management report focuses on the macro BRAC perspective (ie. BRAC as an enterprise).

The basic economic and financial questions include: are these enterprises profitable for members after including loan and service charge payments?; is the planned expansion feasible?; is there appropriate integration within the subsectors?; are the associated extension services adequate?.

Since BRAC data on basic benefits (ie. net income per member enterprise) was available, a simple and effective benefit/ cost analysis was conducted. We were thus able to answer the question: if donors give Tk 1000, what is the net increase in money in rural household pockets?

The data sources include BRAC staff, field visits and discussions with enterprise owners, and information from an array of BRAC studies over the last 2 years. In addition to the Phase IV Proposal (Draft 2) and the related Five Year Strategy paper, there were already a large

number of recommendations and ideas on the table - almost breathless in scope - regarding the Sectoral Program directly or indirectly.¹ Since none of this was made available to the consultants prior the mission, there were some limitations on the Team's ability to digest all this information. There was very limited time as well to discuss issues with the direct clients of the appraisal - the donors. The mix of appraisal issues to choose from was, like BRAC's program, large and splendid.

Previous Related Reports

Of particular interest were the Ritchie report: "Micro Enterprise Programme Review" (Dec 93); and the Gibson, Havers, Shada, Chowdhury report: "Business, Innovation and Clarity: Enhancing Enterprise Development in BRAC" (Feb 95). Both these reports have TORs similar to those of this appraisal. Hence our work had the advantage of helping BRAC to build on these studies, to improve the proposal, but without adding a significant load of new recommendations.

In general we agree with the conclusions in these reports on the need for more:

- Staff innovation, creativity² and improved staff skills in business and its culture (Gibson et al)
- *Some emphasis on business skills at lower levels in the organization, and better information systems, for example on the reasons for success and failure of enterprises (Ritchie).*

The issues for improvements in these areas are the degree and the pace of change that is appropriate. Some significant aspects of a "business culture" have already been incorporated in the management of the credit programme. (See the Credit and Finance chapter of this Appraisal). Its management and information system are probably more advanced and transparent than other small credit programmes (including development banks) in South Asia. Extending this achievement to the other components of enterprise development is discussed below.

¹ For example, the Ritchie report, the Southshore team's previous reports, the 1994 Review Mission's section on sectoral programs, the Calmeadow consultancy, the Gibson/Havers consultancy, the Quality of Training review (Long/ Solomon), the RDP III Appraisal, DTW reports, semi-annual sectoral reports, numerous Monitoring Unit or RED reports on RDP activity related to this appraisal, and BRAC responses to some of these reports, etc.

² Creativity among front-line management and staff. Senior management has demonstrated significant historical achievements in macro and micro creativity in concept and delivery modes.

5.0.3 Objectives of the Sectoral Program/Enterprise Development in RDP IV: The Need for Macro Level Indicators

Although the objectives of the overall sectoral program are not stated in the proposal, the objectives of the individual sectors are. These objectives include:

- increased incomes
- improved skills
- use of higher quality breeds, seeds
- reduced poultry/livestock mortality
- optimum utilization of small land holdings
- improved nutrition
- *environmental benefits (social forestry)*
- create role models amongst rural women (REP).

While these client-focused objectives are laudable, they are too general for meaningful monitoring. Moreover there are no stated objectives and indicators of achievement on cost recovery targets, or internal management of the program, eg. "by the year 2000, BRAC will recover Tk. x or x % of the costs of the sectoral program" or "BRAC will provide high quality client service - as measured by". It is stated in the proposal (p 74) that "By the year 2001, poultry/livestock and sericulture ought to be wholly self financing ...". In fact, *the analysis of the feasibility of achieving this objective in the Financial/Credit chapter* indicates this objective is highly optimistic.

The existing semi annual reports on achievement of objectives contain much information on targets, production, land used, and very occasionally net incomes and mortality rates. These are mainly activity or output level indicators, useful at the level of mid-management, but not at the overall achievement level. BRAC and the Donors need a simpler set of macro indicators for the whole sectoral program.

Recommendation

It is recommended that BRAC choose a clearly defined and feasible objective with indicators for the overall sectoral/enterprise program. This would help integrate its management and to focus attention on measurements of success. Suggestions for indicators include:

Economic

- Total number of enterprises created compared to targets in the plan.
- Actual average net incomes compared to projected incomes particularly for the new enterprises.
- The Aging of Principle Outstanding (APO) (weeks in arrears) for each sector and for each major subsector.

- A measure of the proportion of micro enterprises that are successful.
- Planned and actual net incomes of the medium-scale BRAC-owned commercial enterprises.

Social

- The current number of people with income from the enterprises.
- Quality of life indicator, according to an appropriate index.

Institutional

- *Actual service charges received, total and by sector, compared to projections.*
- A measure of the quality of client service or improved PA/PO skills in providing micro business advice.

Environmental

- A measure of environmental benefits.

These need to be discussed further in BRAC and defined in an LFA.

Let us now consider the specific features of the BRAC RDP IV Proposal (Draft 2) according to the analytical framework required in the TORs.

5.1 Social

Sources and Methodology

The approach adopted by the Appraisal Team to assess the appropriateness of the RDP portfolio to the needs and resources of beneficiary groups, reflects time limitations and the magnitude of the requirements in the TOR. Two caveats need to be mentioned:

Firstly the sources of information have mainly been informants in BRAC, (primarily RDP, REP and RED staff), *observation and interviews with BRAC members during field work.* Some of the questions in the TOR refer to the need to adopt the "perspective of the beneficiaries". Needless to say, a comprehensive perspective of this type is unattainable for *consultants on short term assignments and we had to turn to secondary data sources for our review.* Fortunately, there are a wealth of research reports and studies which have tried to describe the beneficiaries perspective through a large number of both quantitative and qualitative methodologies. Time limitations allowed the team to read only a fraction of relevant research documents, they still constitute an important input. Particularly significant

is the Impact Assessment Study.³

Secondly; as it is seldom possible to specify directly and concretely how an activity contributes to empowerment of BRAC members, we took the view that we should investigate the preconditions for the management of the activity to be appropriate, i.e. whether the BRAC organisation and management, its training and education programmes, its staff, philosophy and its resources, are suited to the task of empowerment.

5.1.1 Appropriateness of the planned portfolio for beneficiary groups and their needs and resources

Since the primary focus of BRAC's activities are the poorest segments of the population (in particular women), the following discussion is basically concentrated on the needs and resources of women, although many of the considerations will also be relevant to men dominated by "extreme poverty, illiteracy, disease and malnutrition"⁴

An important point to make is that "poor people", "poor women" or "beneficiaries" are not homogenous groups. It is essential to disaggregate the group of people in question and make careful differentiation based on criteria such as land ownership, social status in the family and in society, age, capacity, actual and potential entrepreneurial intentions and previous experience. Very often one also has to consider not only the single women's situation, but the whole family and in particular male kin's status and position.

Considering the heterogeneous nature of the beneficiary groups then, we assume that an IGA portfolio with a variety of possible loans is more appropriate than a narrow and limited one. Indeed, the portfolio caters to many different groups of beneficiaries, and BRAC will pursue further diversity as appropriate. As a limitation to this diversity it is important for RDP to maintain a set of activities which is manageable in terms of BRAC staff qualifications and resources. The policy of BRAC in this regard seems well thought out.

According to the Five Year Strategy, the economic and social empowerment of the beneficiaries is the primary focus of all BRAC activities: "our success is defined by the positive changes we help people to make in their own lives."⁵

BRAC's Gender Team have suggested women's empowerment be defined as:

3 BRAC, Research and Evaluation Division, "Main Findings Report of the RDP Impact Assessment Study" February 1995

4 Five Year Strategy p. 7

5 "A Five Year Strategy for BRAC - Section 1.3: "A Strategy for RDP IV", p.4, from Appendix in RPD IV Proposal, Draft No. 2

"The capacity of women to be economically self-sufficient, organize for their rights, have control over decisions affecting their life options and be free from violence"

The concept of "economic self-sufficiency" is not quite clear to the present team. We propose it is equivalent to:

- increasing access to and actual use of an improved material and social resource base, (often defined in relation to goods, services, knowledge, information, jobs, income, education, capital, markets, health services and other public services)

The general impression of the appraisal team is that BRAC, through its multifaceted approach, has a concept of impact which features beneficiary interests and is consistent with these goals.

The 1993-94 Impact Assessment Study (IAS) of the RDP confirms to a large extent that positive impacts have been obtained. The IAS was carried out by BRAC's Research and Evaluation Division (RED), with assistance from the Centre for Development Studies, Swansea. The main finding of the analysis was that when RDP members receive substantial *amounts of credit over a long period, significant positive changes become measurable* in terms of level of wealth of households. The results also show that RDP is impacting on less well off households to a comparatively greater degree than better off households. (Note however that "less well off" households here not necessarily refers to the "poorest of the poor" - as will be discussed later). The study concludes that the focus on generally poorer female members is more effective in bringing benefits to BRAC's target group than would be the case with a higher proportion of male membership. The findings suggest both greater economic security and decreased seasonal vulnerability for older members of RDP.

The Impact Assessment Study reports some (more gradual) changes in female members' lives. Their status has increased within the household after receiving loans and some have experienced greater mobility. On the other hand, case studies suggest that the majority of house-bound women have few opportunities to use loans without the assistance of male family members:

"Unless BRAC provides women with necessary support services close to the bari, they have few alternatives other than to hand over part or all of their loans to male kin, which often means they cannot exercise full control over their loans and credit based resources"

The general finding that BRAC has had a positive impact on the beneficiaries situation is

confirmed by numerous studies and research reports⁷ and was verified to the present team by VO member informants and their family members.

Focusing on the needs, resources and constraints of members, there is wide recognition in RDP that the following factors should be regarded when matching a loan choice to a (female) member:

1. distance of the activity from home: this seems to be a crucial and direct criterion; if the activity takes place in socially recognised "women areas" they are more likely to be taken up by women;
2. activities which can be coordinated with household work will be more popular with women than those which overlap in time with peak home responsibilities,
3. the size of the activity counts; it should be manageable,
4. hard labour activities should be avoided,
5. the work should not force women into some sort of permanent technical dependency from outside, i.e. level of technology counts,
6. culturally defined roles should be respected in most cases in order not to marginalise or stigmatise women from their locality and family.

These factors are understood and adhered to according to BRAC informants. Some staff tended to promote a line of thinking which should be avoided; eg. IGAs that generate small amounts of profit are most suitable for women. Instead BRAC staff must be challenged to find ways and means to secure high income activities for women which are not taken over by men, or the private sector for that matter, because they are making large profits.⁸

The factors listed above are to a large extent developed for poor beneficiary households which are primarily dependent on agriculture production. Ongoing processes in BRAC, particularly articulated in RDP and RED, however, are moving and extending the criteria and show a need to balance employment issues with the adaptability of the local culture in terms of accepting changes in gender roles. Convincing impressions from the teams field trip confirmed that some of these factors are not always equally important and in some cases several of the criteria will be misleading.

7 For instance for poultry workers it was revealed "that the status of a PW has increased over time in the view of her husband, in laws, and neighbours. Her ability to earn and her financial contribution to the family was identified as the major contributing factor in this". S.M. Ziauddin Hyder 1993 p. 11. See also Shah Asad Ahmed et al. 1993 p.19

8 This information reinforces the need for BRAC to be for people. BRAC's recent plan to add 2000 female staff at the field level may also serve to adjust thinking on the potential of village women.

1 and 2: Distance from the house, and coordination with home based activities, are primarily important for women which, due to cultural norms will spend most time home. Distance becomes less relevant for landless women without small children, or for women who have climbed the ladder and are able to pay others to take over home work etc. In some instances enterprises that coordinates with home based activities mean that VO members continue with traditional womens' work; with the difference that the work load is multiplied (as has been observed in restaurants). If these women are not socially or economically empowered, the positive impact could be questioned. The team had no chance to assess this.

3. Manageability in terms of size is of foremost importance for people who can spend a limited number of hours on an IGA, for instance in agriculturally based households.

4. The hard labour intensive criterion could also often be questioned. Often hard labour is not a hindrance for women or these activities can be undertaken by other members of the household.

6. Even the criterion that the enterprise should adhere to culturally defined norms, will sometimes not be so relevant or even strategically doubtful. On the condition that appropriate support is given from BRAC (and others) many enterprises have a capacity to loosen culturally defined norms. The team interviewed female BRAC members playing new and uncommon roles; i.e. restaurant owners and carpenters. Their new roles and positions seemed to be accepted by their communities⁹. This is a development strategy where BRAC in the past has been a leading agency. BRAC has initiated processes whereby traditional barriers have been broken down and new roles and recognitions have been established for women. BRAC has enormous capabilities to pursue this strategy in the future.

An impact study of BRAC's development programme in Gurki village recognises the difficulties of meeting the dual objectives of poverty alleviation and empowerment. On the other hand the actual accomplishments represent far greater achievements than might superficially appear to be the case; such as contribution to breaking down of some of the barriers confronting women.¹⁰

The importance of VO meetings and the enterprises as an incitement to leave the bari, confront the rest of society and meet other women has often been accentuated in BRAC's policy. Overall research suggests impact in terms of creating significant changes in gender relations; of men accepting that women engage in economic activities; that women are made free to attain training courses, move within the village and beyond the village, form their

9 This is generally confirmed by observations made by Mahmuda Rahman Khan, 1993

10 Shah Asad Ahmed et al. 1993, p. 20

own relationships beyond the immediate household and handle money.¹¹

We conclude that the establishment of general and uniform participation criteria to be applied for all enterprises and VO members is unlikely to be successful. It is much more important to ensure that the interests and needs of members are taken care of in BRAC procedures for selecting enterprises in the portfolio, and that the competence and mentality of field staff is continually updated to remain appropriate.

One very important aspect has to do with staff competence and attitudes to understand the preconditions that will ensure that the enterprise portfolio will be appropriate for needs and resources of the target group. Some important competency elements would be:

- BRAC's ability to listen to beneficiaries (example: importance of increasing the number and skills of female field workers in order to have good access to poor rural women's ideas);
- BRAC's willingness and program in strengthening women's interests (example: increasing number of female staff at medium and high levels, improved staff dynamics and information flow and general gender awareness in the organisation)
- Quality of monitoring, research and evaluation and links from these to management.

The Mission is impressed by several processes taking place in order to improve the organisation; gender awareness training programmes for staff, BRAC's intention only to recruit women for a period of time and the establishment of a consultative structure within which women can air their views of the programme and their personal problems; the Women's Advisory Committee (WAC).

The effective employment and maintenance of female staff in BRAC will be challenged by numerous problems and limitations imposed by cultural and traditional norms and regulations. Working in rural areas poses personal difficulties for staff of both gender. Adjustment to the environment and problems with family relation, school etc are related both to men and women. For women these problems are more severe, however, as men are in a better position to keep their families together in a field work setting. In addition the bulk of child care responsibilities also falls on women. New approaches to these and similar obstacles are needed.

The appraisal mission strongly recommends that BRAC continues to strive to be an exemplary designer and innovator in gender thinking and gender related practices in Bangladesh.

BRAC has already contributed a lot to strengthening socio-economic research to improve the understanding of development processes and in establishing yardsticks of BRAC achievement

11 Op cit p.19

in terms of improvement of peoples' standard of living.

The important information links between research and management should be encouraged and intensified.

With these reflections the present team concludes that BRAC as an institution and in particular REP as a filtering mechanism for new enterprises, provides for quantitative and qualitative judgements which protect the interests of the VO members in regard to portfolio development.

5.1.2 Aspects related to self-employment and wage labour

The RDP IV Proposal reflects the concern that micro-credit, as provided by agencies such as BRAC is not an answer for the poorest of the poor: the destitute, widowed, and deserted women living in women-headed households. With the severe constraints on time they face, for them the need is immediate wage employment. RDP IV takes up the challenge and plans to explore and facilitate new avenues of employment creation. A new window in the credit disbursement in RDP IV will thus be financing micro enterprises having potential of multiple employment creation.

The TOR of the Appraisal Mission indicate the following categories of employment to be appraised:

- individual self-employment
- self-employment through groups
- wage labour for other members' enterprises
- wage labour in other enterprises/agricultural activities.

In reality the beneficiaries are of course not in a position to choose freely, but are more or less forced to accept what is available. Income in cash, in kind and as services normally comes from several sources in a complex and multifaceted way depending on socio-economic status, sex, age etc. and depending on season of the year, geographical location, kind of economic activity etc.

Deserted, divorced and widowed women are increasingly being forced out of the household to seek paid employment in order to support their families. The traditional female income-earning activities are characterized by insecurity and poor salary. Due to gender relations women's terms and conditions of employment is generally inferior to those of men.

What are the different benefits, from the beneficiaries' perspective, related to self-employment or wage labour? These aspects are difficult to find in the research reports available. A general impression from field work and interviews confirms the anticipation that if VO members can choose freely, they choose self-employment. For a rural family, wage

labour often is sought when all other alternatives have been tried. Peasants, who are forced to sell their labour, often are forced to reduce or give up agriculturally based production.

It is difficult generally to declare one of the forms of incomes to be more economically safe or stable than other. Labour is comparatively cheap and labourers have few rights, at least in the kinds of jobs which are normally available for poor sections of the population. Off peak season in agriculture is characterised by a lower price for labour as supply exceeds demands. On the other hand many of the enterprises within the RDP portfolio also involve "some risk" - depending on natural conditions, price fluctuation, etc. BRAC's sector staff indicated that 15 of 37 activities in the Sector Programme are characterised by "some risk involved", as the right column in the table on the following pages shows.

In addition a certain level of competence is required to embark on most of the enterprises, and an "entrepreneurial individual style" will often be an advantage. These criteria differentiate the VO member's, and some will never come to a position where they can start their own enterprise. As many studies show, people on the countryside in Bangladesh are today dependent on "a myriad" of different relations and income sources. Different traditional and new forms of exchange of labour and share cropping systems are found.

Historically, as experienced in many developing countries the question of self-employment vis a vis wage labour is not a question of choosing. Most poor people are forced to take whatever is available. BRAC's target groups are no different. Researchers from RED in 1992 reported from one village study that they were not even able to talk to the poorest members because they simply were not there - they were forced to leave the village to find work at factories, brick fields, as agricultural labourers, cutting earth etc.¹²

The same study also reported that the poorest tended to participate least in the VO group process and consequently were least empowered through the group.¹³ This is also confirmed in the Gurki village impact study where the major beneficiaries appeared to be relatively better off members of the target groups, while the poorest households largely were excluded (and a new BRAC "middle class" tended to emerge between the poles of rich and poor).¹⁴

While the "traditional" loan portfolio of BRAC often stimulated "one person enterprises" BRAC is making attempts to create new employment opportunities for the poorest. Several of the enterprises presently at the REP "experimental stage" expand this scope.

In principle and in practise this development should be encouraged. Increasing employment

12 "The BRAC Samity. Collective participation or control be a few?" Case studies from four villages. (Draft). Aleeze Sattar & Shah Asad Ahmud, BRAC August 1992, p.8

13 Aleeze Sattar & Shah Asad Ahmud, 1992, Op cit p.29

14 Shah Asad Ahmed et al. 1993, p.vi and v

opportunities is an important expansion of the scope of BRAC's development strategy. We note that, in some instances, it will be natural to employ VO members, but one should not advise or force VO member entrepreneurs with successful businesses to hire VO members only.

Observations during field visits suggested that some of the micro-enterprises actually provided income for numerous people in addition to the BRAC member and her family. The VO member and owner of a roadside restaurant, for example, had become an employer; a few months after establishing the restaurant she engaged several people outside the family on full time basis¹⁵. A very profitable vegetable growing enterprise engaged 3 agricultural workers (It was not clear whether this was on a full time or a seasonal basis).

In addition, a tree nursery run by a woman had several full time, and seasonally employed people, recruited outside the VO member family circles. One benefit is the improved social status achieved by the VO member, the other is the expansion of jobs for indirect beneficiaries - who in many instances certainly belong to the poorest segments of the population.

The present team has not come across documentation in BRAC where this has been debated in depth, or where figures for "indirect" beneficiaries have been unveiled. On the other hand the RDP IV proposal appears to endorse an increasing number of enterprises which will provide income for many more people than the VO members.

The Team recommends BRAC develop strategies and expand collection/preparation of information to highlight the number of people involved in RDP IV - both directly and indirectly. In the following table an effort has been made to present some basic data on beneficiaries. This is mainly based on information from the BRAC sector specialists.

Although very incomplete, the table indicates certain trends in the BRAC Phase IV Proposal. During RDP IV the role of poultry and livestock as the main source of employment is strengthened (the figures also include IGVGDP). Poultry programme growth will be from the present 2.5 million participants to 4.7 million by the year 2000, and in livestock from 613 thousand to 905 thousand. In other sectors: Social Forestry will increase from close to 61 to 207 thousand, but will still be a "small" sector in BRAC context. Horticulture and vegetable growing will double, while Sericulture makes a quantum jump from 113 to 770 thousand in year 2000.

The RDP IV Proposal is based on a "BRAC feeling" that a major breakthrough in the lives

15 Mahmuda Rahman Khan, 1993 p.34 indicate however that this is not always the case; out of the five restaurants studied, only one hired a person at the cost of Tk 15 per day.

of poor people may not be achieved with only traditional activities (rural trading, paddy husking etc), projects. Between 1996 and 2000, the Sector Programme will grow to about 50% of the loan portfolio from it's current 30%. The proportion of traditional activities will be correspondingly reduced from the present 70% (Proposal p. 4). The table indicates that the same process (from "traditional" to more complex and advanced enterprises) is not so clear within the Sector Programme as here both groups expand.

Table 1: Approximate Direct and Indirect Beneficiaries, June/December 1994 and end of RDP IV including Rough Assessment of Appropriateness for Poor Members

Activity	# Members June 94, or Dec. 94 (marked with "&")	# People in Member's families (x 5.5)	Labour req. (d)	Total persons benefitted 1994	Plan: # members in activity '2000, (end of RDP IV)	Total persons benefitting end RDP IV (members x 5.5)	Note regarding relative appropriateness (c)
POULTRY (see flow chart)							
Poultry Hatchery	454	2,497	0	2,497	1,964	10,802	4
Model Rearing	0	0	0	0	9,150	50,325	2
Pullet Rearing	0	0	0	0	4,575	25,163	
Chick Rearing [Day old chicks to 2 months old]	4,960	27,280	0	27,280	8,160	44,880	1,2,4
Key Rearing	424,000	2,332,000	0	2,332,000	799,000	4,394,500	
Egg Collector	2,547	14,009	0	14,009	3,000	16,500	6
Poultry Worker [vaccination]	23,030	126,665	0	126,665	32,280	177,540	2,6,7
Poultry Feed Centre/Seller	835	4,593	0	4,593	1,260	6,930	3
Total Poultry				2,507,044		4,726,640	
LIVESTOCK							
Paravets	1,680	9,240	0	9,240	2,830	15,565	
Goat Rearer	4,960	27,280	0	27,280	start 94 credit only; no target		1
Model Goat Rearer	21,040	115,720	0	115,720	70,540	387,970	1
Cow Rearing	56,070	308,385	0	308,385	start 94 credit only; no target		
Model Cow Rearing	27,685	152,268	0	152,268	77,185	424,518	1,3,4
Milk Collectors	0	0	0	0	900	4,950	6
Cattle Feed Centres	0	0	0	0	95	523	3
Fodder Production	0	0	0	0	5,000	27,500	1,4
Calf Rearing	0	0	0	0	2,475	13,613	1,4
Sheep Rearing	0	0	0	0	6,000	33,000	
A.I. Worker/Centre	42	231	0	231	107	589	2,6,7
Total Livestock				613,124		908,228	
SOCIAL FORESTRY							
Nurseries - seed based	1,799.0	9,895	1(a)	11,694	3,000	19,500	1,2,4,9
Grafting Nursery (RED)	0	0	1(a)	0	600	3,900	1,2,4,9
Agroforestry (RED)	0	0	0	0	5,000	27,500	1,2,3,4,6,9
Strip Plantation (not an enterprise - revenue sharing agreement with Forestry Dept)		0		0		0	

Mulberry Sapling Nursery (input to Sericulture)	1,815&	8,883	25	49,258	5,110	155,855	1,2,3,4,6,7,8
Total Social Forestry				60,952		206,755	
HORTICULTURE & VEGETABLE							
Vegetable cultivation (incl apices)	23,020	126,610	5	241,710	49,020	514,710	1,2,3,4,6,7
Vegetable seed production	new	0	3		2,500	26,250	1,2,3,4,6,7
Maize cultivation (A promotional activity)	7,351	40,431	10	113,941	8,700	134,850	2,3,4,8,10
Fruit cultivation	new	0	10		5,000	77,500	
Total Horticulture and Vegetable				355,651		753,310	
FISHERIES							
Small hatchery	107&	589	7.5 (b)	1,391	260	3,380	2,3,4,6,7,9,10
Carp nursery	1,018&	5,599	4.5	10,180	2,100	21,000	2,3,4,6,7,9,10
Carp polyculture	18,679&	102,735	0	102,735	42,800	235,400	2,3,5,6,7,9,10
Thai Sarputi	21,790&	119,845	0	119,845	57,380	315,590	2,3,5,6,7,9,10
Base fisheries	933	5,132	0	5,132	3,417	29,794	?
Total Fisheries				239,283		605,164	
SERICULTURE							
Mulberry tree caretakers	10,875	59,813	0	59,813	5,000	27,500	6
Chawki rearing	907	4,989	0	4,989	9,000	49,500	2,3,6
Silk worm rearer	8,581	47,196	0	47,196	90,000	495,000	6
Reeling workers - BRAC enterprises	162	891	0	891	11,000	60,500	(b), 7, 2
Silk weaving workers - BRAC enterprises	156	858	0	858	25,000	137,500	(b), 7, 4, 2
Total Sericulture				113,747		770,000	
Total Project				3,859,801		7,970,097	

Source: BRAC Rural Development Programme IV, 2nd Draft, and discussions with BRAC

Table Notes:

- (a) Each nursery needs 75 person-days, normally from the family. Still we have roughly translated need of labourers outside family to be two employees/nurses. Some nurseries are larger and employ more staff, and there is a considerable potential for growth.
- (b) BRAC staff indicated 5-10 labourers
- (c) Note regarding relative appropriateness: 10 simple and very rough criteria are used. It must be noted that this is not scientific, but based on opinions, and relative to other subsectors under the same sector. N.B. these criteria should not be used for inter-sectoral comparison.
1. Maximum land requirement normally more than 30 decimal
 2. Technologically challenging
 3. More than average investment needed
 4. Some risk involved
 5. Comparatively low return of investment (less than Tk. 5,000/year)
 6. Requires female mobility (difficult to incorporate with other domestic work, not clear to her)
 7. Culturally challenging (i.e. not appropriate for less empowered members)

- 8. Income likely not controlled by female beneficiaries
 - 9. Some hard labour involved
 - 10. Not appropriate for female headed households or single women
- (4) Average number of people required, in addition to VO member family, that/year/enterprise. Estimate by BRAC staff.

(In order to cover all beneficiaries of BRAC the tables should also include the large numbers of VO members within the traditional sectors (trading etc) as well as the about one million pupils in BRAC schools. Hence the grand total likely will come to the range of 15-20 million people).

The Poorest of the Poor

The special programme directed at rural destitute women, IGVGDP, (in cooperation with Directorate of Relief and Rehabilitation, Directorate of Livestock and the World Food Programme) is reported to be achieving many of its objectives. A research study concluded that all the beneficiaries interviewed had increased their status within the household and the community. "They are now enjoying wider mobility and interactions with different groups of people as part of their programmatic activities. Moreover they have freedom to decide what to buy and when to buy as they are also taking active part in earning money"¹⁶.

The appraisal team recommends BRAC continue and strengthen the approach to reach the poorest of the poor through two strategies; increasing wage employment in RDP; Sector Programme enterprises and to continue IGVGDP as well as other special programmes directed to these groups; (i.e. mulberry caretaking and brick fields).

A few obvious examples of child labour were observed in some of the enterprises visited during field work. In a tree nursery the children were paid 60 Taka to fill soil in 1000 polythene tubes. In a roadside restaurant children were working as waiters and helpers. At least some of the children were of school age but as the team forgot to inquire, they might as well join school. Child labour is commonly found in Bangladesh, and enterprises run by BRAC members are likely to employ child workers in the future.

The team recommends that BRAC investigates and takes up the question of child labour at the highest level and that a policy be defined regarding role of BRAC enterprises in this matter.

Potential for Beneficiaries to become Financially Independent

As the next section and other parts of this chapter show, the profitability of the enterprises

16 "Destitute Women and Sustainable Rural Development: Poultry Workers of the IGVGDP of BRAC" S.M. Ziauddin Hyder, RED, BRAC, December 1993, p.ii

varies a lot. There will also be differences in profitability within each group of enterprises. These are differences arising from individual capacities, local conditions or other factors which it will be difficult to control from the outset.

There are surprisingly profitable enterprises in restaurants and tree nurseries, as confirmed by field visits. Traditional agricultural projects, like vegetable production, can also raise income of VO members impressively quickly. The more "traditional" BRAC-enterprises in the poultry and livestock sector seem on average to need more time in order to produce the same returns. On the other hand these are not full time undertakings, and the household or even the VO members often will have other additional sources of income.

5.2 Economic

Introduction -

A Massive Program: One of the Largest in the World

The existing and planned 25 member enterprises in 4 sectors, with growth rates, are shown in Table 2, columns 1 to 3.¹⁷ There exist about 593,000 enterprises as of June 94, and another 561,000 are planned which comprise a further 95 % of the existing achievement. The enterprises include those in IGVGD. Almost all of them are single person/family enterprises, few hire wage labour. (Also shown are aging of principle outstanding (APO), Dec 94, service charges, and net incomes. This table will be used in the analysis in the next few pages.)

A large number of enterprises are not included in Table 2: those which receive credit only - an existing half million approximately; the poultry enterprises supported by the Smallholder Livestock Development Programme (SLDP) funded by IFAD outside the Consortium; and a home gardening component within the WHDP.

Based on all these numbers, plus the sericulture and fisheries sectors which are excluded, BRAC has one of the largest and most varied rural enterprise development programs in the world.

17 See the Notes to Table 2 for information on sources, definitions, and formulas.

Table 2: Member Enterprises By Sector and Sub-sector - Existing and Proposed

	1.	2.	3.	4.	5.	6.	7.
	Existing June 94 (active)	Total Plan RDP IV (additional in 5 years)	Growth %	APO % Dec 94	Service Charge per Month per Enterprise Taka	Net Income per Month per Enterprise Taka	Total Net Income in First Year of RDP IV Taka '000
	# of enterprises	# of enterprises					
POULTRY							
Sectoral Program and IGVGD		Expansion in first 3 years only in Sectoral Program		90 excl. IGVGD	none for IGVGD		
Poultry Hatchery [day old chicks]	454	1510	330		none	800	1,611
Model Rearers	0	9150	new		none	490	5,978
Pullet Rearers	0	4575	new		none	690	4,209
Chick Rearers [Day old chicks to 2 months old]	4960	3200	65	82	150	500	2,133
Key Rearers	424000	375000	88		none	150	75,000
Egg Collector	2547	453	18		none	255	154
Poultry Worker [vaccination]	23030	9250	40		none	170	2,097

Poultry Feed Centre/Seller	835	425	51		none	600	340
Sub Total Poultry	455,826	403,563	89				91,522
LIVESTOCK				85			
Paravets	1680	850	51		none	550	561
Goat Rearer	4960	starting in '94 receive credit only; no target			none		
Model Goat Rearer	21040	49500	235	95	1.7	350	20,790
Cow Rearers	56070	starting in '94 receive credit only; no target			none		
Model Cow Rearers	27685	49500	178	84	4	650	38,610
Milk Collectors	0	900	new		none	1485	1,604
Cattle Feed Centres	0	65	new		none	1565	122
Fodder Production	0	5000	new		none	300	1,800
Calf Rearers	0	2250	new		none	590	1,593
Sheep Rearers	0	6000	new		none	1020	7,344
Artificial Insemination Worker/Centre	42	65	155		none	750	59
Sub Total Livestock	111,477	114,130	102				72,483
SOCIAL FORESTRY				97			
Nurseries - seed based	1544	1450	94		12.5	1200	2,088
Grafting Nursery	0	600	new		25	1250	900

Agro Forestry	0	5000	new		12.5	735	4,410
Strip Plantation	revenue sharing agreement with Forestry Dept						
Mulberry Sapling Nursery (input to Sericulture)	1610	3500	217		62	575	2,415
Sub Total Agro Forestry	3,154	10,550	335				9,813
HORTICULTURE & VEGETABLE				97			
Vegetable cultivation (incl spices)	23020	26,000	113	97	14	1090	31,200
Vegetable seed production (contract growers)	0	2500	new		none	555	1,665
Maize Cultivation A promotional activity - includes non-BRAC farmers	targets set in acres				4		
Fruit cultivation	0	5000	new		none	695	4,170
Sub Total Veg/Hort	23,020	33,500	146		.		37,035
TOTAL	593,477	561,743	95				210,853

Source: BRAC Rural Development Programme IV, 2nd Draft, and discussions with BRAC

Notes to Table 2

Columns 1 and 2. The figures for "existing" enterprises (June 94) are an estimate of the active ones, and for "planned" (in phase IV) are taken from the proposal, and in cases where these were not in the proposal, from discussions with BRAC staff. The data in the "existing" and "planned" columns for the poultry sector includes IGVGD. Data for December 94 was not easily available for all sectors, hence the use of June 94 data. One person = one enterprise, excluding hired labour and other household members. The figures have been checked with BRAC staff. Some few members may have more than one enterprise.

Column 3. Percentage growth compares the Existing (June 1994) data to the planned output in RDP IV.

Column 4. APO = Aging of Principle Outstanding, the percentage of loans in the sector which are in arrears by zero weeks as of the end of Dec 1994, ie. % of loans where instalments are fully paid up to date. For the overall portfolio the APO for zero weeks is 92%.

Column 5. SC = Service Charge per month. Although this is collected annually or at the beginning of a production cycle, the figures shown are the average monthly amount in order to compare the SC with the net monthly income in column 6.

Column 6. Average Net profit per month, taken from BRAC subsectoral data based in some cases on a full sample of monthly field data, or on a sample, or in the case of new enterprises a pro forma estimate of net income. The formula used includes the capital and input costs, including the labour costs for other workers outside the family, loan interest and service charges. The "cost" of the members own labour is not included. In cases where the interest or service charge is not included in the calculation, these are a very small fraction of the overall costs. The figures given have been checked with BRAC staff. The income for poultry key rearers, who generate over 40% of the total net income in Year 1 (column 7), was checked with a number of internal monitoring reports. For example, the net income per month for key rearers in IGVGD (the largest proportion of rearers) in 1994 was Tk 240; for RDP, Tk 165 (BRAC, Progress Report on Poultry & Livestock Programm up to June 1994). An "average" of Tk 150 is used in the table, because in the first year of operation the returns are smaller.

Column 7. Calculated from columns 2 and 6. See text in section 5.2.1.5.

Growth Rates: Relatively Low

The growth rates (column 3), based on June 1994 data, are overstated since they exclude the numbers started in the 1.5 years to the end of 1995. The rates show almost a doubling overall, with higher growth in social forestry in particular (335%) and in horticulture (146%). This higher growth starts from a smaller base, but is driven by the higher net monthly incomes for these two sectors (column 6) and the continuing search for new options. All the growth rates are well within the limits of past BRAC growth capabilities and achievement. These slower growth rates allow BRAC the time to improve the quality of its enterprise program as intended.

Eleven New Member Enterprises: Deepening and Increasing the Impacts

In all sectors, there are new types of enterprise, 11 of the 25 shown in Table 2. These include: in poultry, model and pullet rearers; in livestock, milk collectors, feed producing centres, model rearers, and fodder production. This "deepens" these well established sectors. A visual comparison of the net incomes for the new enterprises compared to the old, shows higher returns. This result is a part of BRAC's strategy to promote investment in higher economic benefit enterprises where possible.

5.2.1 Profitability of Member Enterprises and Proposed BRAC-owned Medium-scale Enterprises

This section examines profitability of a wide variety of enterprises, using a number of different indicators. "Profits" are reviewed from the perspective of the members, BRAC, and donors.

5.2.1.1 Loan Performance as an Indicator of Profitability of Existing Member Enterprises: Generally Good, Need for Further Integration of Credit and Sectoral Reporting

A rough indication of the viability/profitability of different existing enterprises is the sectoral loan arrears history (column 4). The percentages shown are the proportion of outstanding loans with no missed payments.¹⁸ Initially it was hypothesized that these numbers might indicate significant differences in the viability of sectoral and subsectoral businesses. However on a sector basis they are all satisfactorily high - quite high in relation to the loan performance data for most NGO, "development" bank, or commercial bank performance in South Asia - where this blunt data is not used or hidden.

¹⁸ The decision by BRAC to use the APO is a bold step towards transparency. This is a more meaningful and accurate way of showing loan performance than relying on an overall recovery figure.

Some subsectoral APO data is shown, based on customized runs through the BRAC data base. These APOs are also acceptable, however some caution is warranted: the loan enterprise names used by the credit program are sometimes different from those used by the sectoral staff. Until the end of 1994, BRAC used 350 activity codes for different types of enterprises in its loan data. Since there were problems in coding all these accurately, they have started to use only 20 codes. While a reduction in the number of codes is a good idea, they now have too few to track the repayment performance of the most common enterprises at the subsectoral level or the newer ones they are promoting.

Recommendation

It is recommended that:

- BRAC review the loan coding system to assure that the same enterprise code/name is used by both sectoral and credit staff for each type of enterprise
- The APO data be integrated with sectoral reporting, and sectoral issues be included in credit program analysis.
- Sufficient subsectoral codes be used to track the loan repayment performance of the major existing enterprises and all the new ones.

These relatively simple steps would help to further the integration of the management of enterprise development with the credit performance.

5.2.1.2 Level of Service Charges Compared to Profitability: Modest and Limited Service Charges

In Phase III, BRAC started to collect charges for PA and PO advisory services ("followup" is BRAC's word for this service). After members have taken the skill training¹⁹ and received a loan for a particular enterprise, further advice is provided over a period of time, the amount of which depends on the technical complexity of the enterprise. The simpler enterprises, requiring little BRAC followup, are not charged. As shown in Table 2 (column 5), the majority of the enterprises (16 of the 25) are not charged. BRAC should be prepared to change this as they gain experience in providing followup to the new enterprises.

Comparing the service charge (SC) to the net income (columns 5 and 6), indicates that

¹⁹ There is no charge to members for the skill training.

in general the SC is a very low and modest proportion (a few %) of the net income.²⁰ (In one extreme case, outside of this sample, a woman netting Tk 10,000 a month with a restaurant was paying Tk 10 service charge a year.) In the few cases where it is a higher proportion (eg. chick rearing, 30%; mulberry nursery, 10%) the PA/PO time required is higher than average and the member has an assured market for the output by selling to other member enterprises.

Table 2 may provide for the first time a comparison of all SC and net income data by subsector. There was insufficient time to discuss the policy on setting service charges with all the Sector Heads. There may be some potential for increased SC charges which would assist in increasing internal revenue and overall financial sustainability. Average net income by subsector should be one variable in determining the level of SC, in addition to the staff time required.

Recommendation

It is recommended that BRAC review this data, update it periodically, revise its SC pricing policies as required and adjust any charges as it sees fit.

5.2.1.3 Profitability by Sectors: Higher Net Incomes for the Newer (RDP IV) Sectors, but Higher Total Impact for the Older Ones

The average net income per month (column 6) is one measure of the profitability of each enterprise.²¹ The order of profitability by sector in column 6 is roughly: highest for social forestry, then vegetables, livestock, and poultry the lowest. However, if the total numbers of enterprises in each sector are considered, the order is exactly the reverse (see sector subtotals in column 7).

Conclusion: The newer sectors (forestry and vegetables) have higher net incomes on an individual basis, but the older ones because of their much higher numbers have a greater aggregate effect on rural incomes, and probably reach a higher proportion of lower income people. This finding is in line with BRAC policy: to reach a large number of lower income people and at the same time promote higher net income enterprises.

Given the realities in Bangladesh, BRAC continues to assist both lower net profit enterprises

20 Note that conservative estimates of net income are used in the table. If the range provided by BRAC was Tk 500 to 650, Tk 500 was used.

21 The range of the net incomes in each sub-sector was not readily available in most cases, nor was there time to include it in the analysis. Such data would provide a richer analysis than the one given here.

that reach hundreds of thousands, and the higher income ones that are feasible for perhaps fewer people. BRAC wishes to continue this balanced approach. For BRAC staff, both categories of enterprise are challenging endeavours. BRAC also appears to be continually working on increasing the returns of the lower net income enterprises.

5.2.1.4 Comparison of Average Net Incomes (Profitability) to Poverty Level Data: Modest but Important Additional Income

The absolute numbers in column 6 are more meaningful if they are compared to a poverty level reference base. Some possible bases were discussed with BRAC RED and RDP staff. The reference bases of minimum income requirements (poverty levels) considered were:

- Tk 600 per person per month (based on RED nutrition studies in 1990, updated for inflation, verbal reference).
- 31 kg of wheat, or Tk 300 per household of 4 per month, or 75 Taka per person (WFP, verbal reference).
- Tk 320 to 375 per month per person, poverty and extreme poverty levels respectively (BIDS, verbal reference)

The reference base chosen in a meeting with RDP staff was Tk 320 per person per month, an extreme poverty level.

The average total income for all enterprises in Table 2, column 7, for one year is about Tk 211 million $\times 2.2 = 465$ million. (See notes to Table 2, column 7: the total income shown in the Table has been roughly halved for the purposes of the Benefit Cost analysis in the following section).

Dividing Tk 465 million by the number of enterprises formed in one year on average (560,000 from the 5 year total in column 2 / 5 $\Rightarrow$ 112,000, gives Tk 4150 per year or 346 per month per enterprise. Or about Tk 70 per month per person, assuming that the enterprise supports a household of 5.

Taka 70 per month per person is about 22% of the poverty level reference base (Tk 320) chosen above.

However the members do not depend on these enterprises alone, which require at most a few hours a day. Wage labour accounts for 40 to 50% of total cash earnings for poorer BRAC members (males and females) with less than 0.25 acres, loans less than TK 2500 and membership for less than 2.5 years.²² One other household member working as an agricultural labourer for 25 days a month at Tk 30 per day (the average wage) would earn

²² RED data from the Impact Assessment Survey.

Tk 750 per month per household, or 150 per person. The Tk 70 per person, above, is almost 50% of the income per person (Tk 150) in agricultural labour. Hence the additional income from these enterprises is a substantial increase in income for households on the margin.

Recommendation:

In order to be more thorough about relative profitability, BRAC should probably move to Tk./hour as a standard comparative indicator. The discussions on reference level base were quick and there was little time for reference to documents on economic poverty statistics. It is suggested that the RED pursue more analysis of these issues.

5.2.1.5 Benefit - Cost Analysis: "Profitability" to Donors

How does the investment of donor funds in the sectors reviewed here, compare with the benefits to members? Since the net income per enterprises is available from Table 2, and is the most straightforward measure of the benefit to members, a benefit-cost (BC) analysis is outlined here. This will answer the question: Are the benefits to members greater, the same as, or less than the donor's costs?, with sufficient accuracy for the purposes here. Since BRAC is requesting such a large amount, the answer to this question is important in an era where the efficiency of development assistance is seriously questioned.

It must be pointed out that BRAC senior management do micro level BC analysis whenever they are considering a new enterprise activity. For example, they estimate the net income to the member, and compare it with their costs of providing the service. If the benefit exceeds the cost they pursue it. This is one reason for the positive findings here. The macro model here is also presented to BRAC as an example of another possible use of the extensive amount of data they collect.

The positive impact of BRAC's program has been shown elsewhere in the Impact Assessment Study. The analysis here complements this by looking at the efficiency of the projected investment - how does the cost of achieving the benefits compare to the value of the benefits?

The simple BC model used below is closer to a financial "break-even" analysis in some respects, rather than a full blown BC analysis over a number of years, with discounting to get net present values, and calculations of internal rates of return. Since initial estimates indicated that the costs in the first year were roughly equal to the first year benefits, RDP IV comes close to "breaking even" after one year. Given the almost constant stream of costs in years 2 to 5, and the increasing stream of benefits as more enterprises are started, the BC ratio and the internal rate of return will be high. There was insufficient time to do extensive sensitivity analysis; however the benefit numbers are so large and robust that even more conservative assumptions are unlikely to change the conclusions.

The Benefit Calculations for Year 1

Column 7 in Table 2 provides an estimate of the economic benefits. The formulae for the numbers there are:

For poultry: (the total of new enterprises in column 2 / 4.5 years) x (monthly income in column 6 x 6 months). Within the Sectoral poultry program, the new enterprises are created in the first 3 years; within the IGVGD poultry program the new enterprises are assumed to be spread evenly over 5 years. In aggregate this represents about 4.5 years.

For all other sectors the formula is: (the total of new enterprises in column 2 / 5 years) x (monthly income in column 6 x 6 months).

The monthly net income in column 6 is multiplied by 6 months, not 12, to account for the few situations where there is no production some weeks, and more importantly to account for the fact that all the production will not start in the first months of the year.

The totals in column 7 are a conservative estimate of the "benefits" to members (ie. cash in the pocket) in the first year of RDP IV. Note that the biggest contributor to benefits, income to key rearers, is based on a low net income during the first year, ie. Tk 150. In the second year it climbs to Tk 200. In the cases of nurseries and vegetable production, some hired labour is used and included in the costs to the enterprise. These are benefits to labour and should, in economics, be excluded from the calculation of net benefits. Also excluded are household consumption of some of the products (eggs, milk, etc.). The overall increase in the total benefit from these two effects could range up to 10%.

The total benefits in Year 1, column 7, are Tk 210 million.

The opportunity cost of labour in the model is zero. This is reasonable for the following reasons. The majority of the enterprise activity requires only a few hours a day of work, in the context of a household where the other or younger family members can easily substitute for the "semi-skilled" work of the "owner". Thus, there are few constraints, and very low opportunity costs, on pursuing alternatives, eg. wage labour. In terms of the alternative investment options, the woman would not have access to the reasonably priced credit to begin with, without being a BRAC member. While there is a case for increasing the opportunity cost in some enterprises after year 1, this will not reduce the net present value of the benefits substantially. Also if the total benefits are reduced in the first year by 10 to 20% to factor in some opportunity cost, the conclusions will not be substantially altered.

The Cost Calculations for Year 1

The relevant cost items in the first year, taken from the RDP IV budget, are shown in Table

3.

Fisheries, sericulture and RED costs are excluded since their benefits are not included in the model.

Table 3: Relevant Costs in Year 1

Budget Item	Taka million
II. Sector Program	93
Excluding Fisheries and Sericulture; and REP.	
Included are the BRAC owned poultry hatchery, feed mill, and vegetable seed centre; and 20% of the Market Development Program.	
III. IGVGD	42
I 1.2 Branch Operating Cost 20 %	26
I 1.3 Regional Office Operating Cost 20%	3
I 1.4 Staff Training 20%	2
V 5.1 RED & Monitoring 20%	2
V 5.2 Branch Office Capital Investment 20%	19
TOTAL	187

Source: RDP IV Budget, 18 Mar 95

The costs for the Marketing Development Program and items outside the Sectoral and IGVGD programs are calculated at 20% of their respective line items, based on the fact that the Sectoral (excl. fish and silk) and IGVGD programs comprise about 20% of the overall budget. Excluded are the costs of the additional donor contribution to the loan capital (which becomes a BRAC asset), and the internal revenue to BRAC from loan interest and service charges.

The total costs in Year 1 in Table 3 are TK 187 million.

Comparing Benefits and Costs in Year 1

In Year 1, the benefit cost ratio is 1.12 (210/187). This means that a donor investment of Tk 100 yields Tk 112 in peoples' pockets in the first year. This is a very high ratio for the first year of any project - so high that the assumptions in the calculations were tested. If the number of months used in the formulae in section 2.71 is reduced from 6 months to 5, the BC ratio is reduced to 0.94; if the number is reduced further to 4 months, the BC ratio becomes 0.75. The last, and very conservative, assumption is the lower limit of what is reasonable.

Hence it is concluded that the BC ratio in the first year alone is between 0.75 and 1.00. Again this is very high for any rural development program in the first year. Seldom do programs like this approach "break-even" in the first year.

Does this make sense? How close is this to "reality"? It is generally accepted that BRAC's program achieves considerable benefits at low costs in comparison to other similar programs, *largely because they themselves are very conscious of the BC ratios in their decision making.* The BC ratio estimated here simply confirms the results of their policies.

Benefits and Costs in Years 2 to 5

Beyond year 1, the benefits increase substantially as illustrated in Table 4. Assuming 1000 new enterprises are added each year (the planned growth is roughly constant each year in the Proposal), and each year 20% of the existing enterprises drop out, the present value of the benefit stream is high. The drop-out ratio is estimated at about 2 to 10% by BRAC staff, hence the drop-out ratio used here is very high.

Table 4: Benefit Stream In Years 1 to 5

	1996	1997	1998	1999	2000
	1000 new	1000 x .80	1000 x .64	1000 x .51	1000 x .41
		1000 new	1000 x .80	1000 x .64	1000 x .51
			1000 new	1000 x .80	1000 x .64
				1000 new	1000 x .80
					1000 new
Total	1000	1800	2440	2950	3360
Discounted Totals at 20% (present value)	1000	1440	1560	1510	1370

Total Present Value of Benefits = Tk. 6,880

In contrast, the cost stream over 5 years in the budget is roughly constant for the sectors in the model. Since the benefits and costs in the first year are almost the same, over 5 years the present value of the benefits will be substantially more than the present value of the costs.

Hence a more detailed BC analysis over 5 years is highly likely to show a high BC ratio and high internal rate of return.²³

Conclusions

In answer to the question at the beginning of section 5.2.1.5, "Are the benefits greater, the same as, or less than the donor's costs?", the simple and conservative model used here indicates that the benefits are significantly more than the costs over 5 years. The BC ratios and internal rates of return will be high enough to justify donor investment in general in the sectors reviewed here. This result confirms, with added assurance, the already positive professional opinions of BRAC's enterprise development program.

Recommendation

It is recommended to RDP and RED that they use this simple model to build a more sophisticated BC analysis during RDP IV, including the fisheries and sericulture components.

5.2.1.6 Profitability of Rural Trading and Food Processing Enterprises

These simple, traditional activities receive credit only and are not included in the enterprises in Table 2. They comprise the largest number of member enterprises, ie. the largest proportion of BRAC's outstanding (RDP plus RCP) loan portfolio. As of Dec 1994, both categories comprised 58% of the portfolio (34% rural trading + 24% food processing). The rural trading category alone includes about 105 different types of micro businesses. These are only examined briefly since there is little data on them other than their loan repayment performance.

The APO (zero weeks in arrears) in Dec 1994 for rural trading was 92% (94% for 0 to 4 weeks); for food processing, 90% (with 93% for 0 to 4 weeks in arrears). For the major activity within food processing, paddy husking, the APO is 94% for 0 to 4 weeks in arrears. Hence these loans, mainly to women, perform very well.

Since these enterprises are extremely competitive, the profit margins are probably small. While there is little data on the profits to members, this information is not necessarily needed. If one takes a straight rural banking perspective, one could assume that if these small low risk loans are being repaid regularly, and there is continuing demand, that the borrowers are making enough profit (in their own opinion) and making intelligent investment decisions. Certainly there will be cases where the loan is used for purposes other than the stated one, and cases where the loan is repaid from other sources of income. The consultants agree with BRAC's strategy of limited monitoring of the impacts of these loans. There are limits to social engineering. It is likely not worth the expense to monitor actual internal household cash flows for these types of loans on a regular basis. The loans provide in effect a rural "credit card" (combined with an important savings component), a necessary service in any economy. Like VISA, the spending limit is clear, as are the expected repayments. Inquiring deeper into the actual purchases would be considered insulting to VISA members. BRAC members should be given the same respect. Hence the repayment

data is considered sufficient to monitor these loans.

Another related issue is BRAC's intent to reduce the proportion of loans in these categories from the present 70% to 50% of the total portfolio, ie. increase the proportion of sectoral program loans. The reasons for this are not entirely clear in the proposal. While there are probably greater profits for members in most of the sectoral enterprises (and service charges for BRAC), there is still a large demand from "customers" for these simpler loans which provide the majority of BRAC's interest income.

Recommendation

The consultants suggest that BRAC examine the financial implications of this portfolio restructuring, and ask itself to what extent "customer" demand should be taken into account.

5.2.1.7 BRAC-owned Rural Commercial Enterprises: Poultry Hatcheries, Poultry and Livestock Feed Mills, and Vegetable Seed Production

The proposed enterprises are shown in Table 5. These are all new initiatives. Excluded are the proposed investments in sericulture and fisheries, which in total are much larger. The pro forma financial analysis on which Table 5 is based were provided to the consultants during the appraisal. These should be included in the next draft of the proposal.

Table 5: Proposed BRAC-owned Rural Commercial Enterprises

RCE	# Planned RDP IV	Total # of Staff	Total Donor Funding Taka million	Summary of Financial Analysis According to BRAC pro forma statements
Poultry Hatchery (producing day old chicks)	3	not specified	30 (10 each)	Break even in first year Net profit per year = Tk 950,000 x 3 mills = 2,850,000
Poultry-Dairy Feed Mill	3	39	15 (5 each)	Break even in first year Net profit per year = Tk 1,640,000 x 3 mills = 4,920,000
Vegetable Seed Ctr	2	30	30	Break even in 5th year assuming 90% capacity utilization in years 3 to 5

Source: BRAC pro forma financial analysis.

To address input constraints, BRAC has proposed a number of medium-scale enterprises to provide basic inputs to member-owned enterprises: poultry and dairy feed, day old chicks, and vegetable seed. To keep the selling price low and the quality high probably requires the scale of production proposed. However there has been insufficient time to assess the individual proposals, there is insufficient detail provided, and the consultants do not have the technical expertise in these industries. A brief summary and recommendations are presented here.

Linkages within the Sectors

Each sectoral program has numerous linkages within its sub sectors. The linkages are shown in Annex 1 for all the sectoral programs, in graphics produced by BRAC during the mission. In effect, BRAC has conducted a "subsectoral" approach to analysing options for enterprise development in each sector. This has advantages in identifying input or output constraints on existing enterprises, particularly ones where significant growth is proposed, and hence in identifying new activity within sectors. This approach is one strength of the proposal both conceptually and strategically. However there is insufficient detail on the development, business and management objectives.

Strategic Dimensions

BRAC's extensive experience indicates that GOB suppliers have quality and quantity problems. Privatization of this production as proposed by the GOB, even if "successful", has uncertain effects in providing inputs for micro-scale member enterprises. New private investment to provide such inputs for very small enterprises, in an uncertain political and economic environment, is unlikely. And BRAC has the established successful experience in larger scale commercial enterprises: BRAC Printers, Cold Storage, Aarong.

Conclusion: There is a strong strategic argument for BRAC, with its existing and planned numbers of clients, to invest in Rural Commercial Enterprises. The required scale of production is well beyond any member's capabilities. Moreover these enterprises are largely justified on the need to supply inputs to member enterprises - not to generate a profit, although at minimum it is reasonable to expect them to break even.

Summary of the Proposed Investments

In all 3 enterprises in Table 5, BRAC is requesting donor funding for land, buildings, equipment, and initial working capital. The pro forma financial analysis seems to be reasonably complete. The consultants had insufficient time to assess the details. Cash flow per month would be a useful addition to clarify the financing costs.

The number of jobs created within these industries is small, but the jobs created in the micro

enterprises they feed are large.

The projected profits are modest compared to the overall RDP IV sectoral budget. The return on investment of the hatchery and the feed mills is over 17% (2.85 million net profit + 4.92 = 7.77 million/ 45 million investment = 17%, without excluding depreciation and financing costs).

Conclusions

While these investments appear to have considerable merit, more information is needed and a number of issues need to be addressed before making a recommendation.

A summary of all relevant business and financial data for all these investments (including fish and sericulture), using similar formats, would be helpful. As suggested in the Finance and Credit Review (section on Donor Funding of Commercial Enterprises) the following items/issues need to be clarified: development objectives, business plans, allocation of profits (and losses), and BRAC equity.

5.2.2 Policies for Dealing with Loss-making Investments

The only enterprises that appear to make significant losses are the DTWs which are assessed in the next section (see also footnote 9); and some of the enterprises in REP which are reviewed in general in section 5.3.3 below.

For the majority of member enterprises the dropout rate (a proxy for loss making enterprises) is low, estimated by BRAC at 5 to 10%. This is low and well within the standard norms of enterprises development programs. No additional policies appear to be needed.

Policies for dealing with potential losses of proposed BRAC-owned enterprises need to be clarified as noted in the conclusion to section 5.2.1.7 above.

5.2.3 Collective Member Enterprises²⁴: Deep Tubewells (DTWs)

24 This is the only "collective" enterprise examined in the Enterprise Development section of the Appraisal. The other major ones are 8 brick fields within the REP, and fish ponds within the Fisheries sector. There was insufficient time to review the brick fields, and the Fisheries sector was reviewed by other team members.

In the future BRAC intends to promote mainly individually owned enterprises, as it has in the past. Roughly 99% of all the enterprises are individually/family owned. There was

With a history of BRAC and donor DTW reviews going back to late 1991, there was insufficient time to examine and discuss the accumulated data on these larger member enterprises. BRAC now keeps a financial data on all 700 (approx) DTWs. There is no expansion of this type of enterprise proposed in RDP IV.

These are collective enterprises in terms of having about 100 share holding members (including BRAC), a management committee, with 3 to 4 hired operational staff. The objectives are economic (eg. increased incomes) and political-economic (ownership by the landless of a large rural asset). The latter is an important attempt to influence the political structure in rural areas, whereby the landless sell irrigation water to landowners. In the one DTW visited, it was their improved socio-political status about which the members were most enthusiastic, rather than the modest financial returns. Hence, conventional return on investment calculations can only capture part of the intent of these enterprises.

The APO data, Dec 94 (see Credit and Financial Management report), shows the DTW purchase loans at 97% with zero weeks in arrears (99%, for 0 to 4 weeks in arrears); the DTW operation loans at 86% with zero weeks in arrears (97%, for 0 to 4 weeks in arrears). These figures were roughly the same throughout 1994. This is an enormous improvement on 1991 data. While the share purchase and working capital loans are being repaid on time, this data does not indicate the economic benefit to members.

Since the current irrigation season only started in Nov 94, additional data to show recent net profit to members is not available. Hence the BRAC "Report on the Irrigation Programme (1993-94 Boro Season), Feb 95" is the basic data for the following analysis.

This report on the previous irrigation season shows:

- 615 DTWs in operation - with a command area per DTW of almost 51 acres, an increase of 11% (16% in the report summary) on the previous season
- Slightly lower aggregate yield per acre, compared to the previous year, due to acts of nature
- Significant reductions (28%) in operational costs
- 53% of the DTWs had a net profit (compared to 58% in the previous year), yielding Tk 15,840 on average per profitable DTW. (Assuming 100 shares in each DTW, this yields a modest Tk 158 per member or share per year. This return compares favourably to the member investment of Tk 500 to 1000 per share stated in the report.

insufficient time to determine the proportion of individually owned enterprises by value of the outstanding loan portfolio. This proportion is probably similarly high, if the credit only enterprises are included.

However it is modest compared to the Tk 150 per month for poultry key rearers - the lowest profitability of the enterprises in Table 1.)

- If the loss making DTWs are included, the average net profit per well for all operating wells is only Tk 1500.
- 98% of the service charges due were received, up from 81% in the previous season. (However the arithmetic of total receipts divided by the service charge per acre gives a much lower total acreage irrigated than stated at the beginning of the report).
- 60 % of the DTWs received payment from farmers in cash, rather than crops, up from 40% in the previous season.
- Financial incentives for PAs have been introduced to increase the command areas and reduce operational costs.

In summary, BRAC is taking action to improve the profitability of the DTWs to members. For example, the increasing proportion of payment in cash, transfers more of the risk to the water buyers. BRAC's own financial interests seem well protected given the high APO and high service recovery rates. However there was insufficient time to discuss BRAC's repurchase of DTW shares from members who were not repaying loans - and related issues raised in the December 1993 Monitoring Review²⁵: writing off the capitalized net operating losses, and improved DTW performance reports on profits and cash flow to members and BRAC.

One basic constraint on the return to members remains: the low command area. At 51 acres on average in the previous season, this is well below the 70 acres, cited in Consortium meetings in 1991, as the minimum area required to make these enterprises profitable. While BRAC is well aware of this issue, and has acted to increase the area, it is suggested that additional efforts include simple financial feasibility studies of investing small amounts on the margin in pipelines, or culverts under roads, to increase the total area of each DTW. The political feasibility of getting approval for culverts under "government" roads is perhaps another constraint.

The fact that these enterprises are "collective" is not a basic constraint²⁶. The command

25 Carpenter, Kellogg, "RDP III, November 1993 Monitoring Review: Credit and Financial Management", December 1993. pp 10-11

26 The general nonviability of collective production is well accepted in the trade of enterprise development, and recent international history. However, the way BRAC has

area, ie. the number of customers, is still perhaps the major issue.

Recommendation

With respect to DTWs, the only recommendation to BRAC is to improve the content and clarity of the reporting. Suggestions for improving the content of the upcoming 1994-95 Report are listed below. Since the DTWs are not part of the RDP IV Proposal, this report can be delivered separately from the revised RDP IV Proposal.

The 1994-95 Boro Season Report should include:

- A review of the DTWs not in operation: only the 615 operating ones are analysed. The total number of DTWs mentioned in other documents is 710.
- *An outline of how the losses on non-profitable DTWs are being financed, and of shareholders opinion on how to deal with losses.*
- The statistical distribution or range of net profit (loss) per member, and a comparison with net profits per member for other enterprise activities.
- A clearer outline of the management strategy and targets for the next irrigation season.

5.3 Institutional

5.3.1 IGA selection processes for participants

The appropriateness of procedures for selection of Income Generating Activities (IGA) is a function of how accurately those procedures assess the following dimensions:

- 1) VO member's needs, commitment and resources,
- 2) the growth potential and market demands;
- 3) capacity of the VO member to meet the challenge of culturally defined roles and behaviour.

Some of the preconditions for this selection process are as follows:

structured the ownership of DTWs is not far off the way General Motors is owned by a "collective" of thousands of shareholders.

Preconditions:	Assured by:
a) BRAC field staff are aware of the 3 assessment dimensions	quality of training for field staff, collection of relevant and correct information about the VO participants and the locality.
b) BRAC field staff are able and willing to present IGA options to the VOs	quality of extension methods, social atmosphere and style of BRAC's organisation
c) VO members understand relevant aspects of their situation, including the pros and cons of various enterprise alternatives	training of VOs, structure and functions of VOs and small groups, and the whole environment of information in the locality
d) The VO members are free to choose (within set limits)	empowerment of VO members, and their families, previous experiences, functioning of VO groups

What is the evidence that the dimensions and preconditions are understood and catered to?²⁷ Aspects related to training of BRAC staff and provision of services to the enterprises are discussed elsewhere in this chapter, the following discussion is primarily related to VOs.

The Village Organisations

According to BRAC's strategy and ideology, the Village Organisation (VO) is the nucleus of all RDP activities at the grassroots level. All operations are working through the VOs. The structure and function of the VOs is thus an important part of the framework by which members are enabled to identify specific income generating activities.

The importance of the VOs have been explained as follows:

27 In addition to the general BRAC criteria for admission as VO member there are certain additional criteria for involvement in different sectors and enterprises. Such criteria have been described and discussed in several research studies. Examples:

REP has formulated criteria for selecting entrepreneurs to run restaurants; such as 1) age (preferably 35-45 years), 2) marital status: preferably separated or divorced, female headed household, 3) education: preferably able to keep accounts and business sense, 4) enthusiasm, 5) hygiene, 6) respect for BRAC's norms).

Also within poultry enterprises certain resources and services are required. These might limit the scope of possibilities for VO members; Chick Rearers could need access to electricity, availability of space to set up a chick rearing unit, literacy and numerical level of the CR, physical ability and relatively freedom from family chores. (Nasreen Huq et al, "Food Aid: An Entry Point to Development? The Case of the Income Generation for Vulnerable Group Development Programme of BRAC, RED, BRAC, p. 10)

"Organisation Building is the centre piece of BRAC's Rural Development Programme (RDP) which aims at empowering the landless rural poor. Towards that end, RDP organises the landless men and women into village based organisations, separately for men and women".²⁸

The members are brought into a well planned conscientisation process including functional education, which is mandatory for all members. Some are provided with training as a tool to pursue economic activities to promote their standard of living etc.

The process of VO development is ²⁹:

1. An Area Office is set up
2. BRAC staff start identifying the target population (landless poor) through an informal survey
3. Group discussion takes place between the people identified and BRAC field staff
4. *The poor who are eligible for membership and have expressed their interest in joining the programme are motivated to form a group (takes place one or two months after the initial contact)*
5. Introduction of the basic principles and rules of VO formation and conduct of VO activities
6. Each VO is subdivided into small groups of 5-7 members, each with a secretary elected for 2 years
7. VOs are managed by a Management Committee of 7-10 members chosen from amongst the Secretaries of small groups

This step by step procedure seems to be generally applied. There are a few examples in the research literature pointing to the fact that all VO members are not always drawn from the target groups. The impact study in Gurki Village, Manikganj, showed that 3 out of 4 of the richest and most influential households were female VO members, while only 6 of 14 poor households were members.³⁰ There are also a few comments to be made regarding the sustainability of VOs.

According to the RDP IV Proposal VOs are considered necessary for several functions:³¹ Credit operations become more effective as the VOs become more strong and effective. VOs also help to generate discipline among the members as each member has to attend meetings on a fixed day and hour each week. Members are also required to deposit their savings and

28 BRAC, 1993, "Categorising Village Organisations" p.1

29 RDP IV Proposal p. 18-19

30 Shah Asad Ahmed et al 1993 (appendix map)

31 RDP proposal for 1996-2000, page 18.

pay their loan instalments on a regular basis. Punctuality and regularity are instilled in the members through this process, according to the plan.

The Impact Assessment Study findings from case studies are not very encouraging regarding the viability and general role of the VOs. However, discipline and enthusiasm seem to be more evident in the newer and female VOs, than the older organisations with male members. If the Assessment Study conclusions are correct;

*"over time, such discipline declines, ideal procedures become less common, and meeting attendance become more erratic. VOs rarely undertake additional activities in a collective manner, or independent from BRAC's initiative, suggesting that they are not progressing to semi-autonomous institutions. Moreover, the frequent rule changes, combined with the frequent transfer of staff, have created a degree of uncertainty for members"*³²

Based on input/output as well as indicators for organisational, economic, social and health factors, BRAC's Monitoring Department, in 1992 and 1993 assessed 140 VOs and divided into four standard groups where "A" is the best and "D" the worst. The results were as follows: Groups "A": 12 %, "B": 23 %, "C": 55 % and "D": 10 %. The Monitoring Department conclude that performance of female VOs appear to be better than their male counterparts, and that young VOs are better than the older ones.³³

The Assessment Study concludes that for many VOs, leadership has developed as an instrument through which field staff maintain repayment discipline. Also it is stated that the small 5-6 member groups hardly exist in older VOs.

We recommend, if the findings are confirmed, that BRAC

- either reformulates some of its main perceptions of the role of VOs and the smaller groups as instruments for local level development, or
- investigates what has gone wrong - in order eventually to change the BRAC practices.

The BRAC 1994 Review Mission from November 1994 also propose that BRAC address the issues related to the sustainability of VOs, VO federation and member participation in the RDP IV proposal.³⁴

"Listening capacity" of BRAC

32 *Impact Assessment Study, op cit page E-2*

33 BRAC, 1993 "Categorising Village Organisations" Baseline Information, p 7-13

34 BRAC 1994 Review Mission. Internal Management Review & Local and National Level Coordination, November 1994 p. 2

The BRAC 1994 Review Mission writes that it is apparent that BRAC does listen to the rural poor. The increasing use of the Rapid Rural Appraisal and Participatory Rapid Rural Appraisal techniques within BRAC hold the potential for even better listening capacities.³⁵ Nevertheless, the Review Team argue, it is difficult to detect how VO members participate in BRAC. Referring to the Strategy Plan's focus on the fact that BRAC has detected some resistance to its current transfer of knowledge and training to VOs, the Review Mission notes that the strategy is silent on the potential of broader and deeper participation of the poor in BRAC. The 1994 Mission questions whether the notion of VO federation has been abandoned by BRAC and what the current thinking on this issue is.

The present team agree that the concern of the 1994 Mission is crucial for understanding how BRAC works in general and also for the processes by which specific income generating activities are identified. It is naturally hard to identify a precise and general balance between participant preferences for enterprises and BRAC's criteria which might be more based on technical experience and factual knowledge of the PAs. Ideally these concerns match, but in practise there must be some sort of process and discussion from which finally a decision is made, loan disbursed and activity started.

"Recent trends in extension technology research indicate that rural people and peasants are far more knowledgeable than was previously assumed in extension programmes like T&V and they learn very fast about relevant techniques which they believe are useful."³⁶ The implication of this for extension work and BRAC field level workers is that sense of partnership and "both way learning" are even more important than before.

The extent to which a VO member is able to decide freely on which activity she should pursue, will naturally depend on many factors. One is other external interests and their impact on the decision (for instance rich people in the village who continually are "imposing their priorities on the entire community"³⁷)

The RDP IV Proposal emphasises that it is an absolutely necessary condition to use the participatory approach if the programmes are to be effectively implemented. However, in relation to the findings of the Impact Assessment Study that male kin of the female VO participants in a majority of cases are the practical implementors of the enterprise, there is good reason to believe that the decision is taken on a family basis, which again in practical sense will mean a relatively large impact of the husband/other male kin. Also an impact study in Gorki village reported that "...many (loans) appear to have been directed into mens' pockets, thereby negating the bias which BRAC has shown in favour of the womens' VO in

35 BRAC 1994 Review Mission, page 43

36 Op cit p. 52

37 RDP Proposal 1996-2000, p 2

recent years.³⁸ The present team has not been in a position to pursue this point in detail.

Although outside of the activities selected for the present study, one finding from a study of IGVGDP from 1993 indicate that participants were not given any choice and were not asked whether they would like to rear HYV poultry. For this particular programme, however, there are no other alternative activities - thus the "selection procedure" might be different from mainstream BRAC practices.³⁹ It should also be mentioned that all the respondents showed positive attitude towards HYV poultry rearing and almost every respondent showed positive attitudes towards the POs of the program (but relations were not so good with the UP Chairmen and members).

Conclusion

The conclusion of the Appraisal Team is that the BRAC system to a very large extent performs well in terms of securing income generating activities for the VO participants. The Team is also impressed by BRAC's willingness to investigate and research critical matters. Considering the very difficult and intricate social structure, and the *traditionally low status of women in rural areas of Bangladesh*, BRAC has many more contributions to make, but is on the right track.

5.3.2 Technical Support and Training for Sectoral Enterprises

This section reviews some aspects of BRAC's training, and extension ("follow up", or "counselling") services to sectoral program members. From the wide range of these activities, the chosen few are new initiatives in financial training, simple business management, and internal entrepreneurship. As well the communication skills of PAs and POs, and the quality of their advisory services are briefly examined. Excluded are the many technical skill training courses for staff and members.

Three recent initiatives support improved skills in "entrepreneurship", first in the sense of more extensive financial management skills for staff; secondly in the sense of innovation, entrepreneurship, and developing an internal business culture; and thirdly in training members in selecting and managing micro-enterprises. Comments on these initiatives are presented below.

Financial Management

BRAC, with some assistance from the Calmeadow Foundation, has written a 3 module

38 Op cit Shah Asad Ahmed et al. 1993, p. 19

39 S.M. Ziauddin Hyder 1993 p.6

financial management training course - each module one week in length. The three modules are accounting, financial management, and advanced financial management. Designed for Area, Regional, and Zonal Managers and Head Office staff, it will start in April 94. A brief overview of the contents and discussions with some of the authors, indicates that it is an excellent beginning. BRAC will modify the modules based on operational experience.

Three items could be addressed more clearly as the training progresses:

- Integration with BRAC's social objectives needs to be more clearly articulated. BRAC's size and success rests largely on its unique ability to combine socio-economic, and financial dimensions. This basic reality should be incorporated more clearly into the objectives of the course. Simulations, case studies and role plays to combine these two aspects would strengthen the course.
- The course does not include some key target groups and participants: the PAs and POs - and BRAC clients. Ultimately the Area Managers will have to practice these new skills in collaboration with the PAs, and they have to practice and test the new skills/messages in discussions with clients. A range of articulate clients from the woman making 11,000 net a month with a nursery to the woman making 500 a month as a duck rearer could be incorporated as resource persons. A more holistic approach to the full spectrum of the "target group" appears to be warranted - also this would be in line with strategic objectives⁴⁰ to show "greater responsiveness to the target group needs and expectations", and to "improve the internal culture" of BRAC.

Recommendation

A version of the financial management course for Area, Regional and Zonal Managers, with selected and simpler content should be considered for PAs and POs, so that the whole organization is acquiring these skills at the same time. In addition, integration with BRAC's social objectives needs to be more clearly articulated in the course.

This material will lay the groundwork for addressing many of the issues BRAC will face over the next 5 years (eg. financial sustainability combined with development and entrepreneurial vision and practice at all levels of the organization)

"Enhanced Enterprise Activities"

40 BRAC, "A 5 Year Strategy for BRAC".

Based on a consultancy⁴¹ in Feb 1995 supported by ODA, it has been proposed to "to enhance the business knowledge, skills, attitudes, and behaviours" of RDP staff; and "to meet RDP's need for a more innovative and enterprising internal culture".

Based on our own discussions and findings it is evident that there is some merit, and a desire, to improve staff skills in these areas particularly those of field staff. The questions are the degree to which this is desirable, the pace of change, and its influence on other non-economic programs. What are the likely effects on the overall corporate culture of BRAC? It could be argued that BRAC has already gone further down the road of development entrepreneurship than most other (all other?) large NGOs. It uses a sound mix of social, economic and financial dimensions, and possesses a most innovative skill - its ability to manage large multidimensional programs.

This initiative is in early stages of discussion. Some integration of it with the course above and the one below is merited.

"IGA Selection and Management Training Manual"

This new course written last year will start in May for members prior to their applying for loans. The contents include the most basic and important issues (translated from the Bangla table of contents):

- ways to survive
- how to start a profitable business
- would I be able to do this, and sell the product in the market?
- will it earn a profit?
- how much money do I need to start and operate it?
- is it sufficient to meet regular and irregular family expenses?
- what activity am I going to select?
- planning for implementation
- how will I repay the loan?
- how will I keep the capital intact?
- how do I face and deal with the risks?
- key items to remember in operating the chosen business

BRAC is to be commended for designing what appears to be a well conceived course that addresses the most fundamental issues in enterprise development.

The Quality of Advisory/"Follow Up" Services

41 Gibson, Havers, Shada, Chowdhury "Business, Innovation and Clarity: Enhancing Enterprise Development in BRAC" (Feb 95).

The consultants conducted wide ranging discussions with BRAC staff on the issue of how to assure the quality of the advisory services PAs and POs provide to clients. Additional reviews and studies were also consulted⁴². BRAC now has excellent performance indicators for the credit component. What about the other major component of enterprise development? Do they (and how) assess the quality of advisory services after the skill training and loan is disbursed?

The findings, in summary, of some of the existing and potential methods used were illuminating:

- net profit data, animal mortality rates, and service charge payments are examples of proxy indicators used
- the recall by trainees of key messages in the training is (or will be?) monitored on a sample basis
- the NFPE program uses methods to assess the communication skills of the teachers that could be applied to the sectoral PAs, eg. the opinions of the clients: students and the community
- most of the training on communication skills is embedded in the existing Training of Trainers courses, and Approach to Development courses for PAs
- senior staff have an improved understanding of some of the class and gender

42 The 1994 Review Mission, p 50 : BRAC's field team needs to develop capabilities to recognize and identify which members are in a position to undertake larger size economic activities, and explicitly help these members to graduate to a large size economic activity....

Result from a study of IGVGD in 1993; "In many instances, the Poultry workers (para vets) felt that they do not get the adequate time to discuss different issues with the BRAC staff, and therefore, the BRAC staff should allocate more time for them to discuss urgent important issues. RED 1993 p. iii

"Poultry Rearing by Rural Women; Cases from Five Villages" Nurul Amin, RED, BRAC, October 1994, page iv: It seemed that the Poultry and Livestock PAs at the branch level were overburdened with work and responsibilities.

Recommendation from Deborah Chaba, 1994 : Provide appropriate business and gender awareness training for BRAC field staff. Field staff should be equipped with skills to identify business opportunities and provide small business owners with appropriate support. They should also understand the social and economic constraints women face in operating their own businesses.

Other sources suggest the need for more emphasis on the process of women's entrepreneurship development: encouraging women to start small and gain experience and confidence.

- communication issues because they have the worked in the field
- pre-service training addresses some issues in the "educated" communicating with the villagers
 - the Training Division discusses client service quality issues with Area Managers and POs.

Communication across the gender divide is seen by staff to be improving (most of the sectoral PAs and POs are men, most of their clients are women). Questions regarding the PA or POs awareness of the limitations of their knowledge and experience, and able to articulate these (an important advisory skill), was not addressed by the consultants in sufficient depth to draw any conclusions.

The monitoring unit and senior trainers are quite articulate on the quality issues. While quality communication and service are more difficult to assess than loan performance, the conclusion here is that sufficient BRAC staff are aware of the issues to progressively address them.

Recommendation

BRAC should emphasize more clearly its own expectations on the quality of PA/PO advisory/follow up services to members, and report internally and externally on progress in this area. As noted above in section 5.1, some service quality objectives and indicators should be specified for the Sectoral Program.

5.3.3 Rural Enterprise Project (REP)

REP is the enterprise R&D unit within RDP which identifies and tests new options for enterprise investment.

Recommendation

BRAC has available a list of 67 REP enterprises - past, present and planned. BRAC should present this in the revised RDP IV Proposal, along with a note on each enterprise stating its status, size, numbers, and ownership. An even more detailed set of data would be useful to REP management in assessing its existing performance, and plans for RDP IV. The status would include: experimental, pilot or program stage, and note the experimental projects which have been terminated. For each enterprise, the length of time in each stage would also be helpful, as well as the number of enterprises now in the pilot and program stage. The size of enterprise could be specified in terms of the fixed and working capital required, the number of employees (one in the case of a single member/family enterprise), and the ownership and management structure (sole owner, shareholders, etc), and its suitability for women entrepreneurs. Actual net income data for each type of enterprise would also be useful. The consultants had hoped to assist REP to assemble this basic data, but there was insufficient time. This data is needed

prior to assessing the REP component of RDP IV in any depth.

Short discussions with BRAC staff, a few REP enterprise owners, and a survey of recent REP and other reports⁴³, indicate that after about 10 years of operation REP is at a transition stage. A variety of enterprise size, loan size, ownership, and management model issues have already been raised, and BRAC is beginning to address them. There is also no shortage of new ideas: REP staff now have about 100 rough proposals/suggestions from the field for new enterprises. The consultants have therefore chosen to focus on a macro issue - the management of REP itself.

Innovative R&D is a difficult but vital activity. BRAC has had some considerable success in introducing new technologies and enterprises, and of course some "failures". The rough "success/failure" ratio for new ideas was quoted by one informant at 1 to 10 - a ratio that is well within reality of R&D. (For major consumer product multinationals the ratio can approach 1 to 50. And the "experiments" in international development projects probably have a ratio at best of 1 to 5). An essential skill that would assist BRAC in making REP more efficient is improved management of the risks of R&D. The consultants are not up-to-date on the current literature in this area, a field that has expanded enormously in the last decade. Recent research⁴⁴ indicates that the risks of producing outstanding "products" can be planned and managed to a considerable extent; project based teams including links with clients are very useful; and time-wasting, endless experimentations can be avoided with strong leadership and clearer decision making tools. One basic theme in modern management particularly relevant to REP is to "support fast failures", ie. learn quickly, and make reasonably quick decisions on which enterprises are the most promising.

For REP, it would be helpful if they had clearer criteria for selecting projects, and making decisions on moving the project to the next stage. Some projects appear to get stuck in a stage for a number of years. Perhaps 5 stages are needed, rather than the existing 3: preliminary selection, final selection, experimental phase, pilot phase and program/mainstream phase - but without bureaucratizing what has to be a flexible process. Given the large number of project "ideas", more staff might be allocated to assessing projects in the early selection phases, and be expected to use clearer selection criteria. BRAC has some selection criteria, but they need to be updated to match the current objective of REP.⁴⁵

43 For example, Ritchie, "Micro Enterprise Program Review" Dec 1993, pp 22-26; Gibson et al, "Business, Innovation and Clarity", Feb 1995.

44 See for example a recent outline of the literature in The Economist, March 4, 1995, p 74.

45 The written criteria for selecting "new business ideas" appear to be limited to: 1) the ratio of capital investment to employment created, 2) replicability (simple technology, easy operating skill, and market demand), and 3) total employment opportunities in this type of business.

A simple short R&D "plan" for each project would be helpful, stressing the criteria that the project has to satisfy before deciding to move it to the next stage, as well as some limits on the time it spends in a particular phase.

Also helpful for the overall management of REP would be a few simple objectives and indicators regarding its management; for example, the success/failure ratio, the time/resources spent on R&D on a particular project compared to the expected benefits to members and/or BRAC, the length of time from the idea stage to the program stage.

Recommendation

BRAC should mobilize an internal team to analyse the existing REP experience, to clarify project selection and decision making criteria, and to adopt some simple measures of management efficiency. The periodic assistance of external consultants familiar with the management of R&D in a "BRAC" context should also be funded if BRAC wishes.

5.4 Environmental

Improving the "physical environment by taking up relevant programmes" is mentioned among the immediate objectives of RDP (Proposal p 14). The Proposal does not explain further what is meant by "physical environment". The present mission recommends that such an explanation should include both positive and negative impacts on the environment.

As generally agreed internationally, sustainable development meets the needs of today without compromising the ability of future generations to meet their needs⁴⁶. The present enterprise portfolio, with its thousands of small scale activities does not give rise to serious concern, since these use simple and traditional technologies.

However two factors should be considered;

- one is related to the scale of RDP activities. If polluting or otherwise harmful practices were introduced, the BRAC coverage and extension system could become an vital force in extending the impact.
- the other has to do with the fact that BRAC is increasing the size of some enterprises, and embarking on medium-scale enterprises, and thus will need to be more environmentally sensitive.

46 The World Commission on Environment and Development; "Our Common Future", April 1987

The high population density along with strong dependence on agriculture make Bangladesh specially vulnerable if "nature hits back" after years of maltreatment. One alarming signal is the recent information that more and more artificial fertilizer is needed to produce the same yields of rice, due to exhaustion of the soil.

Several of the RDP sectors certainly have a positive environmental impact. Social forestry's tree plantation programmes and the roadside plantation of Mulberry trees, increased maize production on behalf of rice, development of pit latrines etc are examples of this.

On the other hand the mission is more unsure about the possible negative impact of:

- pesticides in poultry enterprises
- artificial fertilizers in vegetable production
- DTW on waterlogging and salinisation of soil as well as lowering on the water table
- risk for increased spread of water-borne diseases in aquaculture.

The Research and Evaluation Division states that it lacks expertise in areas of the environment⁴⁷.

The appraisal mission recommends that BRAC employ an environmentalist (consultant on periodical basis or regular employment) with a mandate to monitor regularly the program activities. As this might take time the mission also recommends a short term consultancy:

- to undertake a general environmental impact assessment of a few sectors
- to assess how environmental considerations are covered in education of BRAC staff in training programmes for VO members and in the NFPE programme
- to review how the planned expansion of enterprises will affect environment
- to propose an environmental research programme in connection with the expansion of RED with one environmental expert

5.5 Conclusions and Recommendations

The Team concludes:

1. In general the Team agrees with the conclusions in recent reports on the need for more:

- Staff innovation, creativity and improved staff skills in business and its culture (Gibson et al)
- Some emphasis on business skills at lower levels in the organization, and better

47 "Building Research Capacity, A Proposal for BRAC's Research and Evaluation Division, RED, BRAC, December 1994 p. 9

information systems, for example on the reasons for success and failure of enterprises (Ritchie).

2. The newer sectors (forestry and vegetables) have higher net incomes on an individual basis, but the older ones because of their much higher numbers have a greater aggregate effect on rural incomes, and probably reach a higher proportion of lower income people. This finding is in line with BRAC policy: to reach a large number of lower income people and at the same time promote higher net income enterprises.

3. The Team concludes that the establishment of general and uniform participation criteria to be applied for all enterprises and VO members is unlikely to be successful. It is much more important to ensure that the interests and needs of members are taken care of in BRAC procedures for selecting enterprises in the portfolio, and that the competence and mentality of field staff is continually updated to remain appropriate.

4. The present team concludes that BRAC as an institution and in particular REP as a filtering mechanism for new enterprises, provides for quantitative and qualitative judgements which protect the interests of the VO members in regard to portfolio development.

5. The Benefit/Cost ratio in the first year of the RDP IV Enterprise Program is between 0.75 and 1.00. This is very high for any rural development program in the first year. Seldom do programs like this approach "break-even" in the first year.

6. In answer to the question at the beginning of section 5.2.1.5, "Are the benefits greater, the same as, or less than the donor's costs?", the simple and conservative model used here indicates that the benefits are significantly more than the costs over 5 years. The BC ratios and internal rates of return will be high enough to justify donor investment in general in the sectors reviewed here. This result confirms, with added assurance, the already positive professional opinions of BRAC's enterprise development program.

7. There is a strong strategic argument for BRAC, with its existing and planned numbers of clients, to invest in Rural Commercial Enterprises. The required scale of production is well beyond any member's capabilities. Moreover these enterprises are largely justified on the need to supply inputs to member enterprises - not to generate a profit, although at minimum it is reasonable to expect them to break even. While these investments appear to have considerable merit, more information is needed and a number of issues need to be addressed before making a recommendation.

A summary of all relevant business and financial data for all these investments (including fish and sericulture), using similar formats, would be helpful. As suggested in the Finance and Credit Review (section on Donor Funding of Commercial Enterprises) the following items/issues need to be clarified: development objectives, business plans, allocation of profits (and losses), and BRAC equity.

8. For the majority of member enterprises the dropout rate (a proxy for loss making enterprises) is low, estimated by BRAC at 5 to 10%. This is low and well within the standard norms of enterprises development programs. No additional policies appear to be needed.

9. The conclusion of the Appraisal Team is that the BRAC system to a very large extent performs well in terms of securing income generating activities for the VO participants. The Team is also impressed by BRAC's willingness to investigate and research critical matters. Considering the very difficult and intricate social structure, and the traditionally low status of women in rural areas of Bangladesh, BRAC has many more contributions to make, but is on the right track.

It is recommended that:

1. BRAC choose a clearly defined and feasible objective with indicators for the overall sectoral/enterprise program. This would help integrate its management and to focus measurement of success. Suggestions for indicators include:

Economic

- Total number of enterprises created compared to targets in the plan.
- Actual average net incomes compared to projected incomes particularly for the new enterprises
- The APO (0 weeks in arrears) for each sector and for each major subsector.
- Some measure of the proportion of micro enterprises that are successful.
- Planned and actual net incomes of the medium-scale BRAC-owned commercial enterprises.

Social

- The current number of people with income from the enterprises
- Quality of life indicator, according to an appropriate index

Institutional

- Actual service charges received, total and by sector, compared to projections.
- A measure of the quality of client service or improved PA/PO skills in providing micro business advice.

Environmental

- A measure of environmental benefits.

These need to be discussed further and defined in the proposed BRAC/donor workshops to construct an LFA.

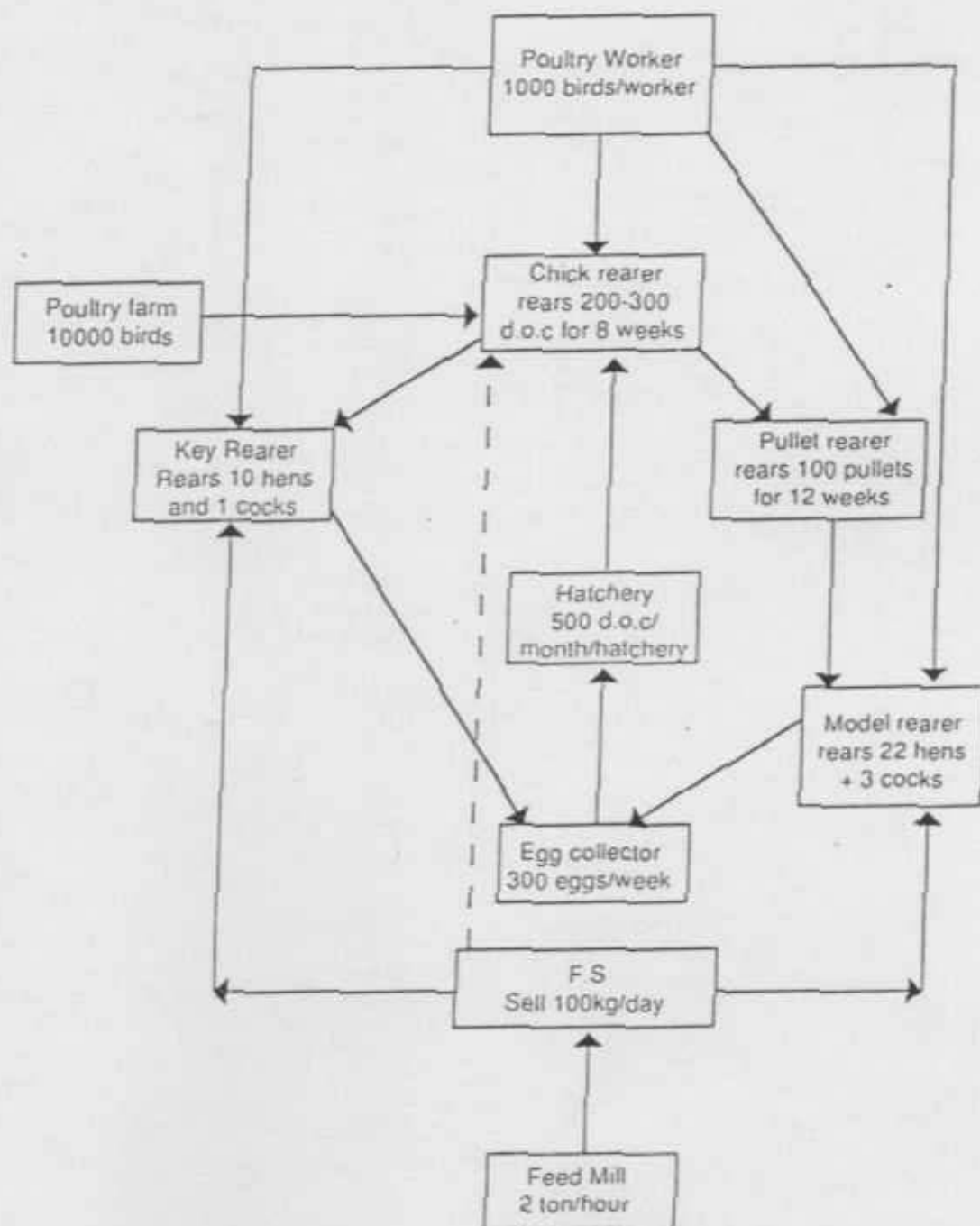
2. BRAC continues to strive to be an exemplary designer and innovator in gender thinking and gender related practices in Bangladesh.

3. BRAC develop strategies and expand collection/preparation of information to highlight the number of people involved in RDP IV - both directly and indirectly.

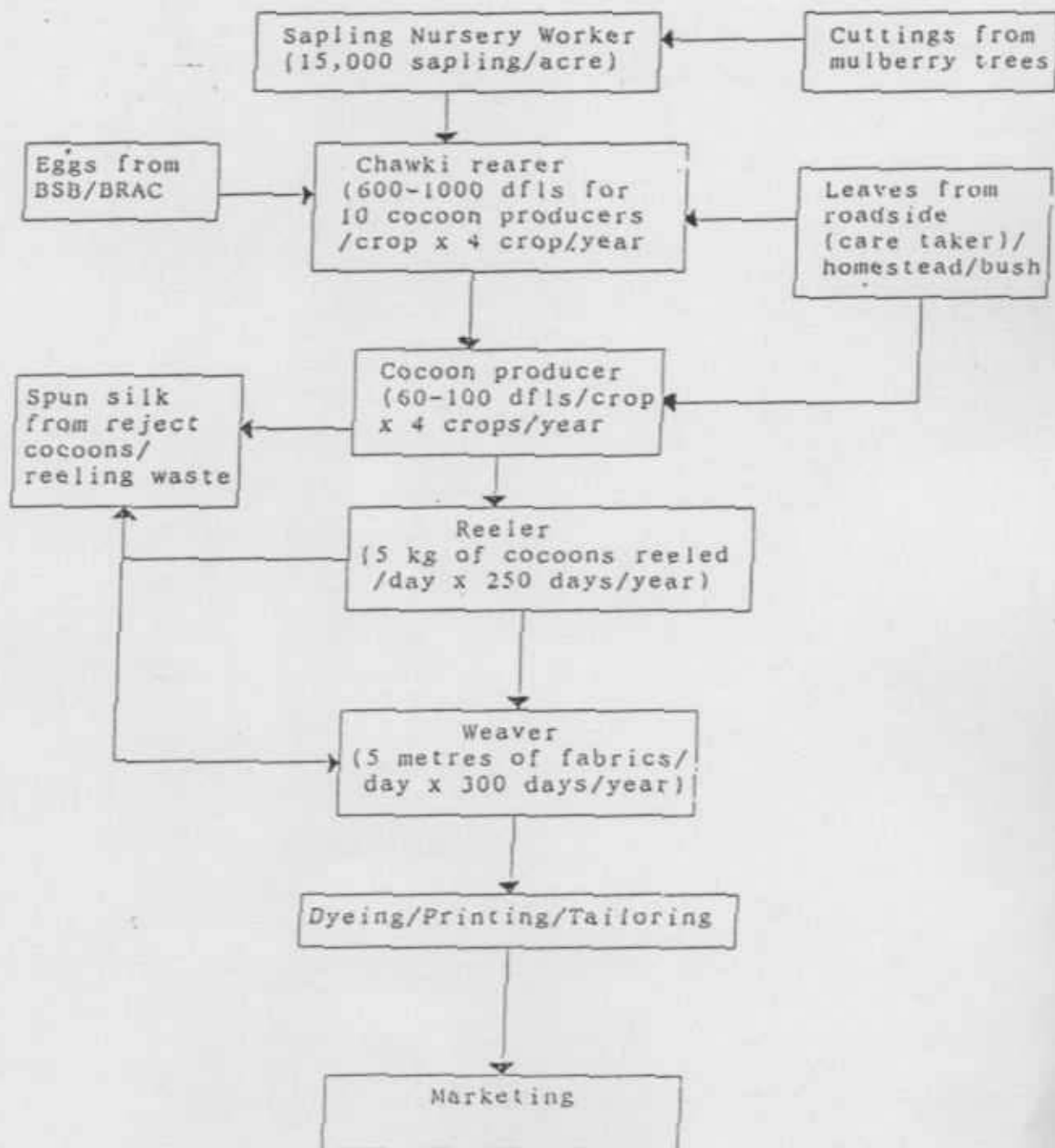
4. BRAC continue and strengthen the approach to reach the poorest of the poor through two strategies; increasing wage employment in RDP; Sector Programme enterprises and to continue IGVGDGP as well as other special programmes directed to these groups (i.e. mulberry caretaking and brick fields).
5. BRAC investigates and takes up the question of child labour at the highest level and that a policy be defined regarding role of BRAC enterprises in this matter.
6. BRAC review the loan coding system to assure that the same enterprise code/name is used by both sectoral and credit staff for each type of enterprise.
7. The APO data be integrated with sectoral reporting, and sectoral issues be included in credit program analysis.
8. Sufficient subsectoral codes be used to track the loan repayment performance of the major existing enterprises and all the new ones. This would help to further the integration of the management of enterprise development with the credit performance.
9. BRAC periodically review the data on service charge collection, update it, revise its SC pricing policies as required and adjust any charges as it sees fit.
10. In order to be more thorough about relative profitability, BRAC should probably move to Tk./hour as a standard comparative indicator. The discussions on reference level base were quick and there was little time for reference to documents on economic poverty statistics. It is suggested that the RED pursue more analysis of these issues.
11. It is recommended to RDP and RED that they use this simple model to build a more sophisticated BC analysis during RDP IV, including the fisheries and sericulture components.
12. BRAC examine the financial implications of portfolio restructuring, and ask itself to what extent "customer" demand should be taken into account.
13. With respect to DTWs, BRAC should improve the content and clarity of the reporting. Suggestions for improving the content of the upcoming 1994-95 Report are listed in the text.
14. BRAC prepare a summary of all relevant business and financial data for BRAC owned rural commercial enterprises (including fish and sericulture), using similar formats. As suggested in the Finance and Credit Review (section on Donor Funding of Commercial Enterprises) the following items/issues need to be clarified: development objectives, business plans, allocation of profits, and BRAC equity.
15. The Assessment Study concludes that for many VOs, leadership has developed as an instrument through which field staff maintain repayment discipline. Also it is stated that the small 5-6 member groups hardly exist in older VOs.

BRAC RDP

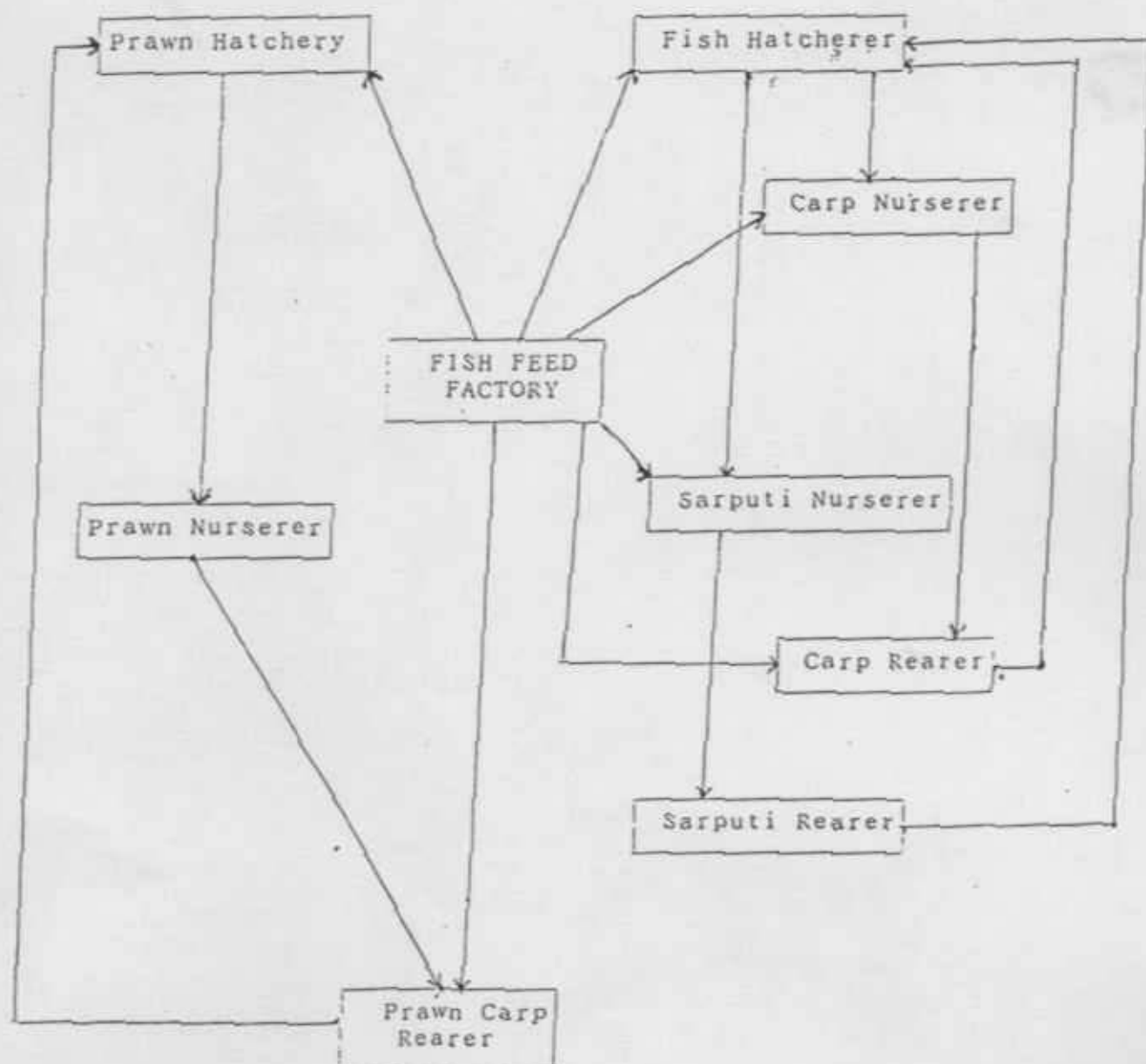
Poultry Programme Flow Chart



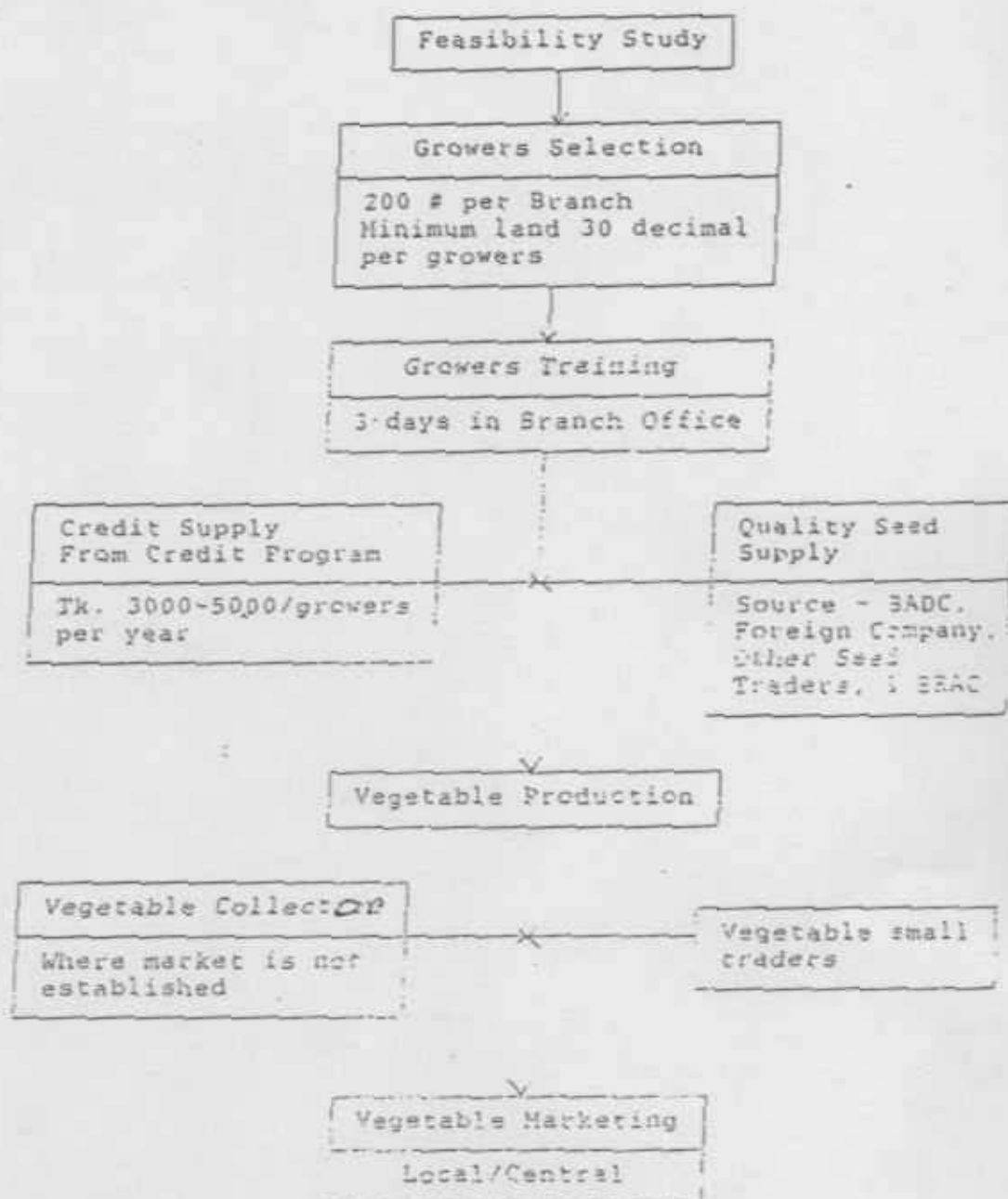
BRAC/RDP
Flow chart of the Sericulture Programme



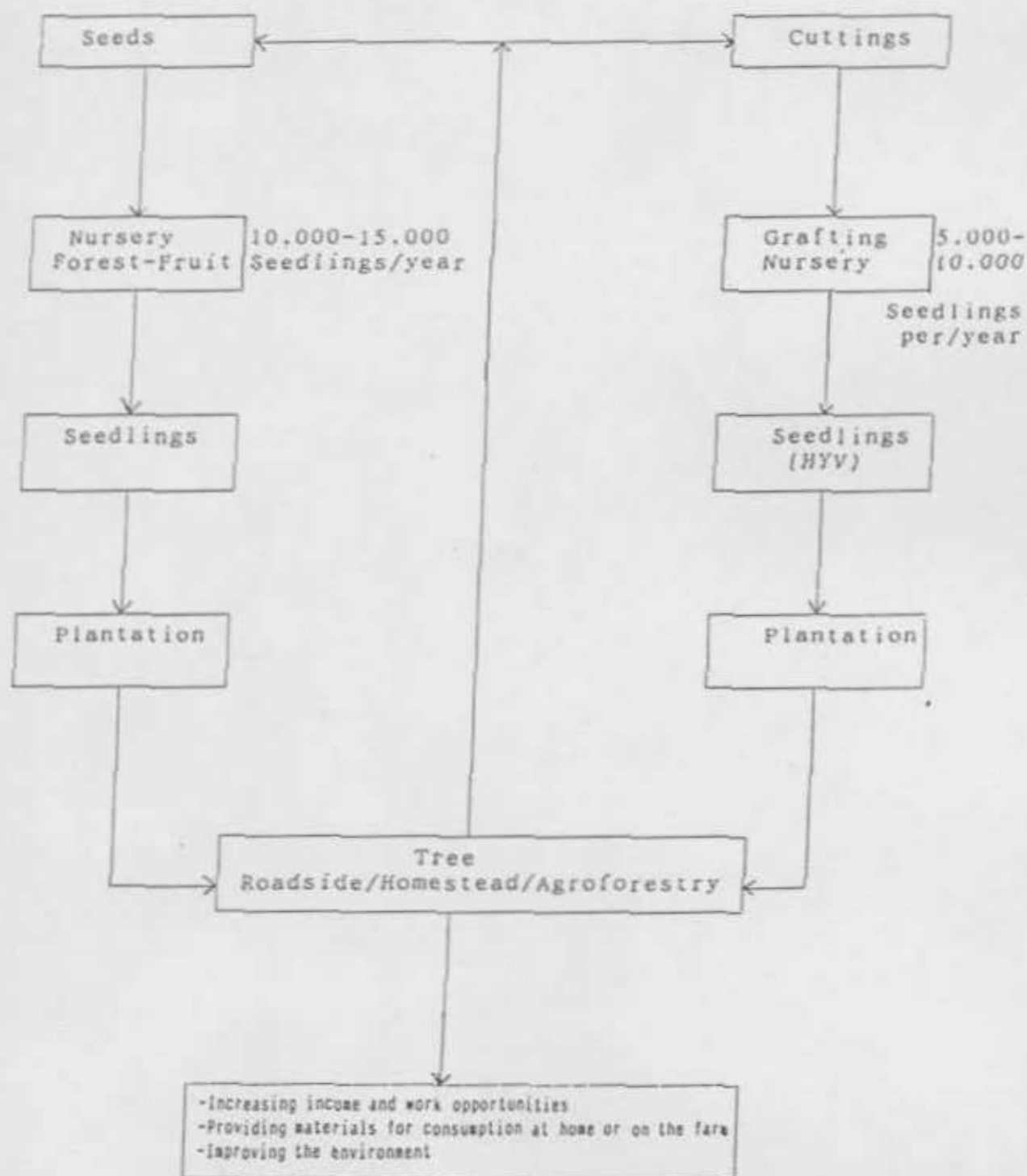
BRAC - RDP
Flow Chart of Fisheries Programme



BRAC/RDP - IV
VEGETABLE CULTIVATION PROGRAM :
Flow Chart of the Program :



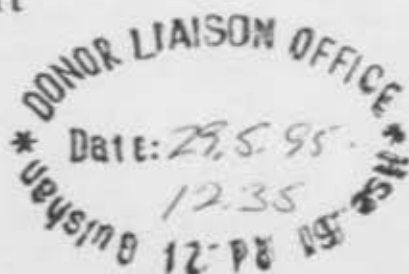
BRAC - RDP
Flow Chart of BRAC's Social Forestry Programme



BRAC RDP IV APPRAISAL MISSION:

Spring, 1995

Financial Consultants Report



Clifton G. Kellogg
Janney Bretz Carpenter

Shorebank Corporation
Chicago, Illinois

May, 1995

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33	6.2.3.	Review the latest status and composition of the loan portfolio of RDP/RCP, and the impact on the portfolio of such changes as may be proposed during RDP IV, e.g., in respect of loans for specific purposes such as housing, livestock and DTW.
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42	6.2.6.	Review the level of branch operating costs and the likely changes in these costs as a

result of the recent changes in VO numbers and membership, and any further changes proposed under RDP IV

- 42 6.2.7. Review the system and achievements to date to recover the costs of the technical inputs to the sector programs, and consider what changes should be introduced to ensure full recovery of all such sectoral expenses by the end of RDP IV.
- 50 6.2.8. In order to ensure sufficient operating capital for a BRAC Bank or credit program, assess whether there will be sufficient funds available from members savings to increase loans outstanding to the targeted levels, or whether additional external capital is likely to be required.
- 50 6.2.9. In the event of a shortfall of credit capital, explore the various mechanisms available to BRAC to access funds from commercial banks, private sector sources and/or GOB at concessional rates of interest.
- 51 6.2.10. Review the consequences of the proposed raise in weekly savings from Tk. 2 to Tk 5 for (potential) beneficiaries.

6.3. INSTITUTIONAL

- 51 6.3.1. Review BRAC's policies and proposals in respect of loans outstanding, in light of the latest and likely future levels of loss and VO closures.
- 55 6.3.2. Review and assess capability of BRAC staff at Head Office, Regional and Branch levels, and the instruments available to monitor, analyze and manage credit and finance.
- 56 6.4.1. Working with the other consultants, assess likely costs and/or savings involved in proposed program interventions in order to make them more environmentally sustainable.

Appendices

- A. BRAC Loan Portfolio Sectorwise Analysis (January - December 1994) of Loans Outstanding and Aging of Principal Outstanding (APO)
- B. BRAC Housing Loan Portfolio Analysis (January - December 1994)
- C. RDP + RCP Members Admission & Dropout During 1994
- D. RDP IV Sector Budget Analysis (Analysis of the Sector Support Programs)
- E. BRAC Loan Disbursement Forecast
- F. RDP/RCP Model Branch: Assumptions v. Actual: Table Format
 - Number of Loans
 - Loans Outstanding
 - Average Loan Size
 - Year-End Savings
- G. RDP/RCP Model Branch: Assumptions v. Actual: Graph Format
 - Number of Loans
 - Loans Outstanding
 - Average Loan Size
 - Year-End Savings
 - Branch Operating Expenses
- H. Members Own Savings: 1994 and 1993 Data
- I. Effect on RDP of Lease v. Buy
- J. Financial Projections: Scenarios 1, 4, 5, 7, 8
- K. BRAC Credit Products

EXECUTIVE SUMMARY

The Executive Summary highlights the most salient points of our study, without regard to the sequence of the Terms of Reference (TOR). The body of the report tracks the TOR point-by-point.

CURRENT STATUS

- BRAC's loan portfolio has continued to grow at a rapid pace, with 1994 disbursements over Tk 2.1 billion (equal to US \$50 million). This is up 60% over 1993 totals; excluding the branches newly opened in 1994, the existing branches increased disbursements by 53%.
- Loan repayment has achieved extraordinary improvements, with December 1994 APO showing that 92% of the loans outstanding have missed no payments (this does not include Housing loans, which register the lowest performance, with just 62% up-to-date). See Appendix A and B.
- BRAC has appointed a Program Manager of Credit and Savings, as well as an RDP MIS unit, indicating a true commitment to seeing the credit program succeed. We recommend that BRAC maintain a strong independent Monitoring and Audit Department, to provide cross-checks to report accuracy and to help in providing program transparency to outsiders.
- Membership loss continues at an unexpectedly high pace of 10% of average membership. We recommend that BRAC monitor the reasons for this loss, to help both the Donors and themselves better understand the development process. See Appendix C.

SUMMARY OBSERVATIONS AND CONCLUSIONS

The most significant features of the RDP IV budget request are:

- Continued expansion of RDP/RCP through the addition of 95 branches, bringing the total number of branches to 330 (30 more than the original plan of 300 branches);
- Major funding requests to (1) increase the scale of its sectoral programs throughout RDP/RCP branches, and (2) establish several commercial enterprises that sell to or buy from other sector schemes (particularly in Sericulture, Poultry, and Fisheries);
- Addition of an Essential Health Program to the current social development activities and significant expansion of Human Rights and Legal Education;
- Continuance of NFPE schools in RDP IV, and then transferring funding to other sources after 2000;

BRAC hopes to move towards financial sustainability during RDP IV, and plans to develop a Sustainability Workplan over the next several years. The original objectives of complete self-sufficiency by the year 2001 has been softened to a more prudent approach of gradual progress towards reducing dependence on external funding sources to ensure that cost-cutting measures do not threaten the quality and development impact of BRAC's development programs.

We recommend that the Donors fund the expansion and deepening of BRAC's credit, sector, and social development activities that are already part of RDP's programs. Based on the financial and business analysis that was available to us in March of 1995, we have several reservations about parts of the budget that are either large capital investments in unproven commercial activities or large amounts earmarked for purposes

that are as yet not well-defined. BRAC has responded to some of those concerns by scaling back certain investments and committing to the development of more thorough business plans for those areas seeking large investments. BRAC has revised the RDP IV Budget to reflect most of the recommendations from the Appraisal Team.

Our principal observations are:

- **Self-Sufficiency:** The financial information we have received to date does not demonstrate that BRAC's Social Development Programs, Special Programs, or internal Support Services can receive sufficient cross-subsidy from RCP to be self-sustaining. RCP itself is just beginning to emerge from two difficult years financially. In addition, the Sector Cost Recovery plan appears to be sufficient for recovering direct staff costs, but not the costs of ongoing member training, new product development or market development. While the goal of financial self-sufficiency is designed to strengthen BRAC, we worry that BRAC's development mandate would not be served if development services suffered in the rush to meet a self-imposed deadline. We strongly support BRAC's more incremental approach of developing a sustainability workplan based on the experience of the next few years to identify which programs will need ongoing subsidy and external support.
- **Cost Recovery in Sector Programs:** BRAC now has some historical experience with the costs of providing sectoral technical assistance. There is, however, less history on which to judge the service charges that contribute to the cost recovery forecast. Our experience in working through this proposal with BRAC staff suggests that the fundamental program building blocks are just now being thought through. Many of these projections are just being developed, and appear to be designed to fit the cost-recovery objectives rather than based on field experience. We recommend that the Donors be prepared for a slower path towards service charge contribution to RDP's self-sufficiency.
- **New Investments in Rural Commercial Enterprises (or Productive Support Enterprises):** Insufficient information is available about the new product development line items and the Rural Commercial Enterprises (the name for the capital investment projects meant to start immediately as for-profit businesses). Although BRAC has provided slightly more detail when asked, we believe BRAC should prepare thorough business plans that will rationalize these requests and will guide BRAC's own implementation.
- **Management Depth:** BRAC's difficulty in assembling this complex proposal indicates that they are still assembling the management depth to undertake multiple new business ventures simultaneously. We recommend postponement of discussions about the number of new commercial enterprises it undertakes, until specific business plans and management are in place. Any organization that has grown as quickly as BRAC must focus on developing a strong second tier of managers. We recommend that BRAC further increase its efforts to cultivate potential managers from within BRAC's ranks and to recruit available outside talent. It may be that the most difficult obstacle to BRAC's continued innovation is the ability to find the talent to implement the ambitious plans.
- **Organizational and Management Issues:** RDP IV proposes several Related Commercial Enterprises (RCEs) that would be larger scale for-profit businesses in the industry sectors where BRAC has encouraged local membership activity. These investments raise the question of management oversight and structure, structuring Donor participation and investments, and the use of any surplus funds. We did not receive sufficient information to determine the RCE's commercial viability, and therefore our comments speak only to the broad choices these investments present for the Donors. Once the RCE business plans are prepared, we believe funding for these RCE operations should be structured in two or three tranches with releases tied to realistic performance objectives.

SUMMARY RECOMMENDATIONS

RDP IV Budget

- We recommend that the Donors fund this budget for US\$ 87.5 million, although disbursement of funds for investments in rural commercial enterprises might be staged and tied to the completion of business plans and identification of management.
- We believe the current version of the RDP IV proposal does not provide sufficient business information to evaluate the RCEs in Sericulture, Fisheries, and Poultry/Livestock. We recommend that the Donors seek a clear development justification, business plan and proposal for the handling of future earnings. A business plan is important for Sericulture.
- We recommend that the Donors consider several options for handling future earnings streams from the commercial enterprises once BRAC presents a well-reasoned business plan for each sector. We recommend that the use of any surplus should be highly transparent to minimize the temptation to use it as a slush fund.
- Unless BRAC is able to offer some contrary reasoning, requiring BRAC to contribute some of its own equity appears to an appropriate policy for RCEs as much as traditional commercial enterprises. We recommend that the Donors ask BRAC to share in the equity investment in these RCEs. We recommend a minimum BRAC investment of 5% to 10% of the total project.
- While these capital projects in the production, market development, and distribution of silk may be strategic investments, we believe BRAC should support the sericulture investment requests with a more thoroughly developed business plan and budget, as well as clear projected development outputs. This would help the Donors understand and evaluate such projects.
- We recommend that BRAC develop a more detailed business plan for REP to justify the scale of the Donor investment requested and to give them the management tools to evaluate REP's performance against those business objectives.
- We recommend that BRAC prepare more detailed proposal identifying its major market development priorities for the sector programs and their relative costs. At present, there is not sufficient detail in the Market Development Program line item to justify the Donor's investment.

Loan Portfolio:

- We recommend that BRAC managers pay special attention to the DTW, Livestock and Fisheries sectors. Historically, these were problem areas and therefore merit special ongoing monitoring.
- Add the housing sector to the APO report for visibility. BRAC should appoint a special task force to investigate and recommend action for improving the repayment rate on housing loans, including any adjustments to the policy for disbursing new housing loans.
- During the RDP IV project, the total sector portfolio is to grow up to 50% of all loans outstandings (The preliminary projections of the Accounts Staff and the Program Staff do not reconcile -- See Appendix E). Therefore, the APO sectorwise report should breakdown the portfolio by each of the sector areas. Separate reporting for sectors that are small and not relevant to program staff, such as Services, should be discontinued.

- We endorse BRAC management's plan to produce a 2-page APO report that includes housing loans together with General Loans, and a second APO schedule for the new sector loan portfolios: Enterprise Loans, Poultry/Livestock, Fisheries, Social Forestry, Sericulture, Vegetable and REP.
- We urge caution and careful monitoring of the volume of the new six-month, seasonal loans in the loan portfolio so BRAC can identify its impact on growth of the loan portfolio. Note: Grameen introduced Seasonal Loans in 1993 and loan volume increased dramatically.
- We endorse BRAC's written policy of ending the availability of grace period loans and strongly discourage any deviation from this policy unless a pilot program is monitored separately. Encourage pilot project with careful evaluation before starting a similar experiment system-wide.

Long Term Financial Viability

- Balancing the cost of ongoing financial support to achieve the sustainability of RCP, and the lowest cost method of achieving this, we recommend the Donors accept BRAC's proposal that RCP lease branches from RDP. This inflates the RDP IV budget by Tk 227 MM. With this additional financial support, the low assumptions indicated that RCP financial patterns can sustain themselves.
- RCP's current financial situation emphasizes the importance of generating a sufficient local deposit base. To improve record keeping, we recommend that the Accounts Department begin to track the two different savings types (*compulsory 5% of disbursements and voluntary*) separately.
- We recommend that BRAC adopt a written policy for how to determine interest rates. We suggest several elements to be included in such a written policy (see page 40).
- *We recommend that BRAC monitor the reasons for members' expulsion or retirement.* The membership turnover suggests that more information about the development process is needed. This would assure BRAC that its membership policies are not inadvertently forcing out members for the wrong reasons. We have no information as to whether this is the case, however, this pace of membership turnover is important to watch.

Cost Recovery in the Sector Programs

- Set a more realistic target than full cost recovery by 2001 to provide some cushion in case targets cannot be met. Although BRAC and the other sector consultants will decide on the best forecasts for each sector, we advise BRAC to set conservative targets in case the plans need to adjust.
- Develop a cost recovery model that will be able to produce a final product similar to the table above so BRAC can adjust key variables and still forecast the full amount of cost recovery going forward. This might be developed with assistance of some consultants at the next review, however, we believe BRAC should focus on how these variables change and have better tools for forecasting and tracking cost recovery progress.
- Develop a collection sheet for service charges at the branch level. This will ensure that there is information from both the accounts department and the Program side on what service charges are collected and from whom. Most monitoring is done verbally, at this point.
- For the Sector Revolving Loan Funds, there should be clear responsibility for collection of these loans in the Field. The Sector PAs and POs should have clear responsibility for collection of these

amounts. An early warning system should also be in place to ensure that these loans are monitored and do not fall through the cracks. Two suggestions might be:

- (1) Include all Sector RLFs, Enterprise loans, and REP loans on the second page of the APO report to allow senior management to review repayment performance (see loan section)
- (2) Maintain a cap on how much can be outstanding at any time in an RLF.

- Appoint a senior manager responsible for all sector programs: Just as credit now has an accountable senior manager who oversees all credit and savings, the sector programs also need the focused attention of a single manager. Although the sector specialist are very technically competent, the growth in the sector programs warrant stronger business management and coordination.

Management and Organizational Issues

- Maintain separate Program Managers for Credit and Sector Programs, to protect the integrity of credit decision making from line-reporting relationships in the Sector Programs. Management of the RDP functions (Credit and Sector Programs) should be independent from other BRAC-managed enterprises that supply or purchase goods from VO members.
- Manage the commercial entities separately from programs that are wholly grant-funded, in order to protect managers from financial conflicts of interest that would impair their business judgments in repaying bank debt.
- BRAC's sophisticated and delicate balance between commercial and grant-funded activities should be honored, as much as possible, through formal policies concerning cross-subsidy and movement of funds among different BRAC entities.
- BRAC is one of the few development organizations in the world that will groom managers who must balance the need for financial viability while achieving development results with its target group. Human and community development cannot be adequately captured in financial results. Managers (from the branch level up) deserve annual performance review that would summarize both financial efficiency and development impact.
- The seeming "objectivity" of financial statements, and the temptation to use them as an easy performance gauge causes some to fear that BRAC will lose sight of its development mission. Because of BRAC's strong organizational ethic of working in the program areas and visiting the field offices, we are less concerned. However, BRAC should address this head-on by formulating some development criteria or other nuanced methods of documenting impact. We believe half-yearly reporting is sufficient.
- BRAC should maintain a strong financial monitoring capability outside the program area. Currently, aggregate financial records can be cross-checked by comparing the Collection Sheets (from Program Area) and the Revenue and Expense ledger (from Accounts). However, the Program area would be best served by also having independent, frequent monitoring audits of this information. This would ensure (i) the Program Collection Sheets are not misrepresented by field staff who want to please superiors, (ii) better transparency of the program to outside consultants, and (iii) shorter time lag in correcting data errors than awaiting accounting reconciliation.

FINANCIAL CONSULTANTS REPORT - RDP IV APPRAISAL MISSION

6.1. SOCIAL

6.1.1. Assess to what extent the credit and financial management plans are appropriate for the needs and resources of the target groups, paying particular attention to socioeconomic status and gender.

RDP IV's credit and financial management objectives for the year 2000 are:

1. The credit programs will achieve full financial self-sustainability going forward;
2. Sectoral programs will have provided sufficient start-up training to members, and the programs will be widely accepted as valuable by the members, so that service charges will fully cover ongoing program costs (refer to the Cost Recovery Section for explanation of which costs will be covered);
3. The Essential Health Care Program will collect service charges to cover some portion of its total costs;
4. Other social development programs, such as NFPE and IGVGD, will be expanded and will continue to be offered without charge; at the conclusion of RDP IV, these programs will be funded from outside the RDP Donor Consortium;
5. BRAC expenses such as RED and other Support Services will not generate revenue and therefore require ongoing Donor funding.

BRAC proposes that by the year 2000, the credit program and the sectoral programs will be financially self-sustaining, meaning that the beneficiaries will pay program costs in the same period that they receive the services. The credit and sector programs must each recover their own costs: interest on loans to pay for credit program operations, and each sector's service charges to pay for that sector's program operations. BRAC's motivation is to increase its cost efficiency and its accountability, not to transition away from its target group.

For BRAC's development mission, this plan presents three issues:

- First, is this an appropriate strategy for a development organization? Achieving 100% cost recovery is a reasonable measure of (1) whether recipients recognize the value of BRAC's service and (2) whether BRAC's expense corresponds to the wealth created. It is a disciplined approach to operational efficiency. Business development organizations in many different countries have recognized that the more their own organizations operate on the same principles as their customers, the more likely they are to succeed. From the beneficiaries' perspective, experience across cultures suggests that beneficiaries value and accept business advice more readily when they pay for it. BRAC's avowed goal in its interventions is to create wealth for VO members. Services directly designed to promote beneficiaries' economic wealth (distinguished from those directly targeting social development) seem especially appropriate for cost recovery.
- Second, as a matter of development, can BRAC reach the target group with a fee-for-service structure? In our discussions, BRAC management was quite aware and sensitive to the need to provide special outreach to the target group, both for credit and sector programs. It is logical that some beneficiaries may be so income poor and so needy of current cash, that any user fee

hurts their current welfare. This would apply to loan repayments as well.

BRAC operates some programs with special subsidized efforts to reach the poorest villagers, but always with the goal of mainstreaming them into the fee-for-service model. For example, the IGVGD Food-for-Work program, jointly funded by the GOB and BRAC, explicitly targets the poorest 10% of women. BRAC estimates that more than 200 women at each branch participate in IGVGD. Women receive 20 kg of wheat for work, in order to prevent starvation. For three years, the IGVGD program subsidizes and channels women towards the poultry sector. After three years, participants should be able to join the regular RDP programs. Another example is the recent change to the weekly savings plan, increasing target savings from Tk 2 per week to Tk 5 per week. While HO has increased the weekly average target, HO expects that 10% to 15% of members will continue at Tk 2, in order to assure that members are not unintentionally priced out.

Third, is BRAC capable of designing and delivering services that create enough member wealth so that they can pay user fees to cover the program costs? Ultimately, this is an empirical question to be demonstrated in the field. Over the last 12 months, BRAC has implemented service charges in all sectors, but to our knowledge, there are no existing branches that have achieved 100% cost recovery. As financial consultants, we can say whether BRAC's future cost recovery projections are internally consistent, meaning that if achieved, then cost recovery is possible. Some parts of the cost recovery system are out of BRAC's control, such as the market price for rice, poultry, etc. Whether the projections can be achieved is a question better appraised by enterprise experts, and ultimately tested by practical experience.

A commitment to 100% cost recovery (or financial sustainability) means measuring the costs of a program versus its revenue. To evaluate whether BRAC's commitment to cost recovery will alter its programs, one must know what costs are included and what revenues are included. Simplistically, it is akin to the dynamic of a simple balance scale, placing the revenues on one side and the expenses on the other. As charted below, BRAC does not intend to recover the costs of NFPE, Human Rights Training, or any of its Support Services.

Program	Revenues	Expenses	Related Costs Not Included
Credit Program (after graduation into RCP)	Interest Income Rent Income	Personnel: - Regional - Branch Some ongoing training All Operating Costs All Real Estate Costs HO/RO Allocation	Human Rights Training
Sectoral Program	Service Charges	Personnel: - POs and PAs Staff Training Direct Operating Costs HO/RO Allocation	Member Training Stationaries Occupancy Accountant

BRAC's philosophy is to implement its development mission while also holding some of its programs to the test of financial viability. BRAC must accomplish both development and financial viability to achieve organizational success. The benefit of this approach is that some of BRAC's programs should become financially independent. Running more cost efficiently is essential for BRAC to operate eventually as a Bank. If BRAC were ever to place a disproportionate emphasis on financial success, it might lead BRAC to overlook opportunities for grant-funded enhancements to its development programs. However, when BRAC achieves these financial goals in the year 2000, management fully expects to develop new programs and continue existing ones (e.g., NFPE) that will require ongoing Donor support.

At the end, BRAC hopes to have created an organized infrastructure of VO's and trained BRAC staff in place to deliver other development services. The discipline of cost accountability for the Credit and Sector Programs should improve operating efficiency. BRAC management finds that well-organized credit and savings programs improve the other development programs.

6.1.2. From the perspective of the beneficiaries, different sources of financial support, both formal and informal, will be compared with BRAC's support.

To our knowledge, there are few, if any, attractive alternative sources of financial support. By reputation, money lenders' usurious loans are the only widely available alternative. BRAC management reports that some agricultural banks have begun to consider smaller loans in more rural locations, but there are no substantial programs. The major NGOs and GOB programs (Grameen, Proshika and RD-12) are essentially similar in program requirements and generally do not compete in the same villages.

We have no reason to believe that beneficiaries would find alternative financial sources to be more appealing than BRAC's programs.

- 6.1.3. Assess the appropriateness of financial support, credit and technical assistance BRAC provides from the point of view of the beneficiaries. In particular, attention will be paid to the potential of the interventions to reduce external dependency among beneficiaries.

The possibility of reduced beneficiary dependency depends both on higher wage-earning activities and social change that enhances women's social situation. Several aspects of BRAC's programs suggest this possibility, although there is no additional hard data on this point aside from the various BRAC impact studies. Promising aspects of BRAC's credit and technical assistance programs include (i) Sector concentration which improves the possibility of unplanned economic improvements, (ii) related commercial enterprises (RCEs) that are of a larger commercial scale, and (iii) experimental Enterprise Loans that are larger than previously available BRAC loans.

BRAC's credit is increasingly channeled to sectoral programs. Today, approximately 1/3 of all loan principal is in sector programs, and BRAC management hopes to reach 1/2 by the year 2000. The sectoral lending and technical assistance focuses on links in the supply chain, in order to assemble a vertically integrated industrial chain. For example, in the poultry sector lending and training begins with the chick rearers, then to key rearers, combined with the assistance of paravets and egg collectors. In the sericulture sector, the mulberry tree monitor sells to the chowki rearer, who sells either to village reelers or to the reeling center, and so on. BRAC borrowers are not restricted from buying and selling with non-members. This sector concentration and the high number of microenterprises provides a more fertile base from which higher order economic activities may emerge: for example, distribution improvements in poultry, more diverse sericulture weaving and design activities, and the attraction of other non-BRAC resources to the sector.

The success of BRAC's sectoral programs also creates openings for new Related Commercial Enterprises (RCEs). These RCE's -- such as Poultry Feed Mill, Pisciculture Feed Meal Processing Center, Prawn Hatchery, Sericulture Weaving Centers, Vegetable and Social Forestry Seed Production Center -- supply inputs to or purchase outputs from members' sectoral activities. RCE's also buy and sell from the private market. The proposal to start these RCE's indicates that the previous microenterprise activities have become large enough to outstrip the existing supply of inputs or outputs. This is a measure of the microenterprises' success.

In RDP IV, BRAC proposes to expand its experiment with Enterprise Loans. These are loans up to Tk 25,000 for VO members who might graduate to larger economic enterprises. Providing credit, prudently, is a proven method for accelerating economic growth. This is a clear indication that some members are ready to move to slightly larger business activities.

BRAC tries to ensure the "appropriateness" and success of its programs through RED pilot tests. The high repayment track record is good, indicating that the members can succeed in these activities. BRAC field tests new sector programs in a three-step way:

- | | | |
|----|--------------------------|------------------------|
| 1. | Rural Enterprise Project | Experimental R&D |
| 2. | Sector Loan Funds | Pilot field tests |
| 3. | General Loan Fund | Rollout to all members |

This gradual introduction of credit, and allowing for the adjustment of loan terms is a good trial-and-error method of ensuring good "fit" for the beneficiaries. BRAC's use of credit aims at altering the social status of the poor and of women. It is "appropriate" by the measure of improved economic well being and more equal social standing with men and with local village elites, but this directly challenges social status quo.

BRAC management stated that credit can be understood as the organizing cornerstone of social development as well. Controlling an asset and believing that one can earn an income creates self-esteem. When savings and credit programs are successful, there is an immediate increase in economic wherewithal. A member is therefore less dependent on the social mores to provide economic sustenance. The ultimate effect of these social changes would be determined by more intensive field studies.

6.1.4. Review the relative importance of savings and credit for beneficiaries, and the role of savings and access to savings in poverty alleviation.

Savings and credit are one essential input, or "raw material", of economic enterprise. Savings cushion the effects of unforeseen calamities: illness, death in the family, natural disaster, crop failure. Therefore, increased savings enable a poor person to weather the external life forces that could otherwise destabilize both the individual and the family. Without savings, a person survives "hand-to-mouth" on whatever current income generating capacity he or she possesses.

Savings permit a person to change income sources and to live off of accumulated savings while waiting for the new activity to generate income. For example, waiting for mulberry trees to mature and produce leaves for sale. Knowledge that one controls savings reduces anxiety and fear of the future. Thus there is a psychic health that comes from possessing savings.

Both savings and credit permit a person to invest, that is, to deploy funds in another's enterprise. For example, investing in a fisheries pond. The shareholder may not participate actively in the day-to-day scheme management, but still shares in the end-of-season profits. BRAC members could use their savings to purchase shares, although typically VO members do not have enough savings and so must borrow to purchase shares.

Borrowing enables one to control a larger asset and therefore generate larger earnings. For example, by purchasing a cow with a BRAC loan, a woman can earn more money than in simple manual labor. Borrowing enables a person to participate in trading, an available economic activity that can introduce women into the market. For example, purchasing goods wholesale in the urban markets and reselling them retail locally; or by purchasing rice paddy and milling it in the home for local sale.

To the extent that poverty alleviation means the ability to generate income and control one's own economic choices, savings and credit are irreplaceable ingredients.

6.2. ECONOMIC

- 6.2.1. Undertake a budget review of the overall proposal. Review the main categories of expenditure to date and the proposed categories and levels of expenditure under RDP IV, and assess the appropriateness of the budget.

In the Draft RDP IV Proposal dated February, 1995, BRAC requested US\$95 million to fund the operations of RDP for the five year period beginning in 1996 and ending in 2000. After reviewing the proposal with the Appraisal Team, BRAC is now requesting US\$87.6 million for this funding period.

While certain RDP activities are able to generate internal revenue and perhaps reach self-sufficiency, others require annual subsidy to perform their important role in social development and empowerment. The latter activities are essential to BRAC's development mission and goals. Although BRAC has set the goal of overall sustainability of RDP by the year 2001, it recognizes that many of its social development programs will need continuing subsidy. The question is how much of that subsidy should come from within BRAC and how much from outside sources, specifically the Donor Consortium.

The RDP IV Budget is organized into six parts, reflecting the different types of activities within RDP:

- I. Organizational Development and Credit Program (43% of total RDP IV funding);
- II. Sector Programs, or income-generating activities (21% of total RDP IV funding);
- III. Social Development Programs (26% of Budget);
- IV. Special Programs, targeting the poorest or other specific groups (4% of Budget);
- V. Support Services, including BRAC's internal functions (1% of Budget);
- VI. Capital Investments (5% of Budget).

The overhead costs of Regional Managers and Head Office staff and support functions (including Accounts, Monitoring, Personnel) are allocated to these areas as 10% of their individual budgets. Internally-generated revenue is shown at the bottom of the budget section as a credit against the Total Project Cost. In addition, BRAC shows the revenues paid by RCP to RDP (each branch is "sold" to RCP at the end of its fourth year) as a credit. Total project income equals 41% of the Total Project Cost and BRAC is requesting Donor funding for the other 59%.

The major elements of the RDP IV funding request are:

- Horizontal expansion of BRAC's existing development package through credit and sector programs. This includes the expansion of RDP through establishing 60 new branches and absorbing 30 branches that were previously funded by other sources (the Small Livestock Development Program, or SLDP, branches). These SLDP branches are a net benefit to RDP because they enter as year 3 branches with loan portfolios that are generating positive income and because RDP sells its branches to RCP, bringing more cash into RDP. However, this increases the total funding needs of RCP by raising the total number of branches to 330 from the 300 branches originally planned. This requires RCP to seek additional resources from RDP, which must be approved by the Donors (see discussion under RDP Budget - Capital Investment and under Long Term Financial Viability).

- The broadening and deepening of the sector programs: The primary costs of the sector programs are personnel salary and expenses, member training expense, R&D (new income generating activities and market development), and capital investments to allow BRAC to provide key inputs and outputs for certain income-generating activities. We endorse BRAC's deepening of the sector programs through increasing its ability to provide key inputs and improved technical supports, however, certain capital investments and large investments in R&D must be carefully evaluated. After discussions with the Appraisal Team, BRAC has agreed that certain capital investments should wait until more detailed business planning and analysis can take place to justify the investments. In addition, while some resources for new product and market development are essential in certain sectors, BRAC has reduced some of the R&D budget to match forecasted needs.
- Continuance and expansion of Social Development Programs: These include Non-Formal Primary Education (NFPE), Human Rights and Legal Education (an expanded legal awareness training), the new Essential Health program, and the pilot program in environmental health and sanitation. These programs generate minimal revenue yet are an essential component to BRAC's development objectives. The largest element is the highly successful NFPE, which will wind down during RDP IV and then continue with a separate source of funding thereafter.
- Continuance of existing and new Special Programs: The Vulnerable Group Development Program targets the poorest 10% of the rural poor in a program in which training and help in income generating activities is supplemented by a daily ration of wheat from the government. This program is being expanded since BRAC believes this program helps those members make the transition to successful RDP membership. In addition, BRAC will provide some assistance to small NGOs and Community-Based Organizations. (The often-discussed Urban Development Program has been deferred to some point in the future).
- Ongoing Support Services and Investment: We recommend that Donors fund these project costs because they are an essential component of BRAC's RDP and RCP operations. However, we have recommended that BRAC develop internal management mechanisms to ensure that Research and Evaluation is held accountable for its operating costs and the quality of its products. Capital expenditures include those for new branches and regional offices, plus about US\$1 million for the new Head Office Building.

Recommendation: We recommend that the Donors fund this budget for US\$ 87.5 million, although disbursement of funds for investments in rural commercial enterprises might be staged and tied to the completion of business plans and identification of management.

Although the RDP activities all require continuing significant subsidy through the year 2000, BRAC has planned steady progress towards substantial self-sufficiency by the year 2001. As expansion stops, the maturing branches should cover most of their credit delivery costs through interest income. Similarly, the sector programs should reach near cost recovery as costs drop sharply due to fewer new members being trained and increased service charge collection. The Social Development Programs and Special Programs will continue to need subsidy each year. In addition, additional investment in the sector programs will require additional funding. The question will be how much of that subsidy will come from within BRAC versus outside sources.

A. Budget Overview

The five-year budget for RDP IV reflects BRAC's five-year strategy and projects funding needs for five major activities. Based on its experience of the last several years, BRAC believes that a disciplined credit

program is the foundation upon which further empowerment of VO members will grow. Village Organization (VO) development is therefore included as a cost of the credit program. This section summarizes the major expenditures in each of the five budget categories. A detailed line-by-line analysis follows.

As shown in the Summary Budget Table on the following page, the main RDP IV Budget categories are:

- I. *Expansion of Credit - 43% of total RDP IV expenditures:* RDP will expand by opening 95 additional branches and increasing the level of loans outstanding at each branch: RDP will open 30 new branches in 1996, 35 in 1997, and will absorb [30] "3rd year" branches from the non-RDP funded SLDP program. After 1997, no new branches will be opened and the number of branches in RDP will reduce as year Five branches transfer into RCP. At the end of RDP IV, RDP will have 0 branches and RCP will have 330. Institution-building activities have been streamlined and are viewed as necessary re-requisites for the credit program and are therefore part of the credit program's costs.
- II. *Sectoral programs -- 21%:* Although much of the methodology for the sector programs is the same as in RDP III, sector programs are being refined and expanded to a larger number of branches. For example, BRAC is adding a new income-generating activity in poultry and livestock programs, called calf-rearers and pullet-rearers, to improve the mortality rates and economic benefits to BRAC members. In addition, BRAC is training members to become key suppliers for the production chain currently in place (e.g. egg producers and artificial insemination centers). Fisheries, vegetable cultivation, and social forestry are all being expanded to a larger scale. Sericulture will see both increased numbers of participants and major BRAC investments in a grainage center (silk worm egg production) and a reeling factory.
- III. *Social Development Programs -- 26 %:* More than 17% of the budget will fund NFPE to operate 14,000 schools during RDP IV and prepare for its transfer out of RDP after the year 2000. In addition, these programs include Human Rights and Legal Education (expanded paralegal training for all members), the new Essential Health program to be delivered through a mini-clinic at each RDP branch, and a pilot program in environmental health and sanitation.
- IV. *Special Programs -- 4%:* As part of BRAC's renewed focus on serving the poorest 10% of the Bangladeshi population, the Vulnerable Group Development Program (or IGVD) will expand from 36 to 56 thanas. In this program, the Government finances the credit program costs and BRAC provides sectoral technical assistance in poultry-rearing, staff, and office space. These women receive 30 Kg. of wheat through the Government of Bangladesh's Food-for-Work Program and engage in small scale income generating activities, such as poultry rearing, to move towards self-sufficiency. BRAC has found the program to be very effective in reaching this most disadvantaged group and in preparing them to be RDP members. In addition, BRAC will begin a pilot program in Urban Development and is now budgeting for ongoing assistance to small NGOs and Community-Based Organizations in Bangladesh.
- V. *Support Services -- 1%:* This includes Research, Evaluation and Development (RED). RED's operating budget is usually about 1.5% of the total RDP annual operating budget, but RDP management is beginning to take steps to reduce that cost and ensure that the products from RED are closely tied to RDP priorities.
- VI. *Capital Investments -- 5%:* Capital investments includes those for credit operations and the new BRAC Headquarters Building. Capital investment includes the costs of building new branches and

BRAC
RURAL DEVELOPMENT PROGRAMME PHASE IV
BUDGET SUMMARY: 1996-2000

Draft # 3

Dated 29-Apr-95

	1996	1997	1998	1999	2000	Total	%
I. Organisation Development & Credit Programme							
1.1 Organisation Development	6,043,538	5,248,176	6,112,260	7,059,660	7,412,643	31,876,277	0.5%
1.2 Branch Operating Cost	135,967,356	165,486,794	122,880,597	69,144,559	39,093,270	532,572,576	9.0%
1.3 Regional Office Operating Cost	14,914,655	18,465,257	13,527,282	7,502,654	4,241,885	58,651,732	1.0%
1.4 Staff Training and Development	10,446,781	12,745,808	9,570,943	5,535,736	3,129,820	41,429,089	0.7%
1.5 Loan Fund Requirement	504,300,000	523,917,656	399,941,028	266,288,099	199,766,977	1,894,213,760	32.0%
Sub total	671,672,330	725,863,690	552,032,110	355,530,708	253,644,596	2,558,743,434	43.2%
II. Employment and Income Generation Programme							
2.1 Poultry and Livestock	55,933,555	62,469,213	45,794,771	37,848,336	36,054,086	238,099,962	4.0%
2.2 Fisheries	34,036,175	36,317,982	38,489,474	31,929,988	30,718,668	171,492,287	2.9%
2.3 Social Forestry	18,063,623	17,535,759	17,972,591	17,516,515	18,350,223	89,438,710	1.5%
2.4 Sericulture and Silk Development	88,120,891	92,011,237	141,738,586	27,222,478	30,106,563	379,199,754	6.4%
2.5 Rural Enterprise Programme	17,595,270	21,776,139	34,325,433	42,726,989	44,161,384	160,585,216	2.7%
2.6 Horticulture and Vegetable	17,743,110	23,645,593	31,650,046	31,987,749	26,567,588	131,594,086	2.2%
2.7 Market Development Programme	13,644,708	15,867,039	14,695,503	5,673,400	0	49,880,650	0.8%
Sub total	245,137,331	269,622,961	324,666,405	194,905,455	185,958,512	1,220,290,664	20.6%
III. Social Development Programme							
3.1 Non-Formal Primary Education	329,358,616	321,974,300	224,848,473	163,152,678	35,724,360	1,075,058,427	18.1%
3.2 Human Rights and Legal Education	30,950,308	32,869,392	37,338,960	41,851,813	44,797,336	187,807,789	3.2%
3.3 Essential Health Care	49,139,937	49,179,195	55,540,069	53,605,284	56,049,692	263,514,177	4.4%
3.4 Environment Development Programme	2,100,000	3,307,500	4,630,500	6,077,531	7,657,689	23,773,221	0.4%
Sub total	411,548,861	407,330,388	322,357,983	264,687,306	144,229,076	1,550,153,614	26.2%
IV. Special Programmes							
4.1 Vulnerable Group Development	42,326,130	38,924,424	42,144,033	42,914,177	43,655,977	209,964,741	3.5%
4.2 Assistance to Small NGO and CBO	2,500,000	7,500,000	10,000,000	10,000,000	10,000,000	40,000,000	0.7%
Sub total	44,826,130	46,424,424	52,144,033	52,914,177	53,655,977	249,964,741	4.2%
V. Support Services							
Research and Evaluation	7,500,000	10,000,000	10,000,000	7,500,000	5,000,000	40,000,000	0.7%
VI. Capital Investment							
	86,216,550	89,659,710	95,388,300	19,934,303	14,039,097	305,237,960	5.2%
Total Project Cost in Taka US \$	1,466,901,201 36,672,530	1,548,901,174 38,722,529	1,356,588,831 33,914,721	895,471,949 22,386,799	656,527,258 16,413,181	5,924,390,413 148,109,760	100.0%
VII. Project Income							
7.1 Net Interest Income on loan	106,456,500	159,074,130	153,855,295	100,373,427	67,786,294	587,545,645	9.9%
7.2 Service charge realized	16,532,670	24,031,800	31,556,440	37,418,020	39,924,225	149,463,155	2.5%
7.3 RCP Financing	173,020,000	226,470,000	441,276,000	523,503,000	319,831,500	1,684,100,500	28.4%
Total Project Income in Taka US \$	296,009,170 7,400,229	409,575,930 10,239,398	626,687,735 15,667,193	661,294,447 16,532,361	427,542,019 10,688,550	2,421,109,300 60,527,733	40.9%
Net Requirement in Taka	1,170,892,031	1,139,325,244	729,901,096	234,177,503	228,985,239	3,503,281,113	59.1%
Net Requirement in US \$ (Exchange rate US \$ 1=Taka 40)	29,272,301	28,483,131	18,247,527	5,854,438	5,724,631	87,582,028	

regional offices, motorcycles for new staff, and about US\$1 million for furniture and fixtures for the new HO building in Dhaka.

For the first time, BRAC is requesting a five-year funding cycle, rather than a three-year funding period. The annual funding requirement falls from US\$30.3 million in 1996 to US\$6.6 million in 2000. For comparison, the total funding requirement in 1994 was US\$36 million.

RDP will operate the following number of branches during RDP IV:

<i>RDP IV Proposal</i>	<i>1996</i>	<i>1997</i>	<i>1998</i>	<i>1999</i>	<i>2000</i>	<i>2001</i>
# of new branches (Year 1 branches)	30	30	0	0	0	0
# of SLDP* branches (Year 3 branches)	17	13				
Less: Year 4 branches sold to RCP	20	25	47	53	30	35
Total # of branches - RDP	142	165	118	65	35	0
Total # of branches - RCP	150	170	195	242	295	330

* Small Livestock Development Program branches will enter as Year 3 branches.

At the end of their fourth year, RDP branches are "sold" to the Rural Credit Program (RCP) and become part of the permanent credit institution. RCP was prefunded by the Donors to acquire 300 branches from RDP and to become a self-sustaining credit program. The addition of the 30 SLDP branches that had been started with non-RDP funding will require RCP to acquire 330 branches, rather than 300. While this will increase RCP's loan portfolio and should improve its financial performance, it also requires additional funding for RCP to buy those branches in the near term. BRAC has proposed that those additional resources be "given" to RCP by a change in how RCP pays RDP for branches, therefore increasing the cost of RDP by Tk. 227 million. This additional cost appears in the RDP funding request to the Donors.¹

During RDP IV, the number of RDP branches goes up slightly and then drops sharply as branches mature to their fifth year and are sold to RCP increases each year. RCP pays cash for most of those assets, and the sale generates the strong positive cash flow for RDP shown under the line item RCP Financing in the Summary Budget.

In each of the five budget categories, the programs have different level of attainable cost-recovery and self-sufficiency. The credit program generates interest income sufficient to cover all operating costs of credit delivery (excluding the cost of capital or the loan fund requirement). Sector programs are forecasted to reach a significant level of cost recovery, with service charge income covering most of the costs of ongoing delivery (staff salary, transportation, and training costs). As mentioned above, the social development programs have no or limited income sources and will always require subsidy. These, as well as the Special Programs, perform an important "pump-priming" function that enables BRAC members to participate in sustainable sector and credit programs. The table below shows internal revenues relative to project costs.

¹Discussions of BRAC's credit operations must include both RDP and RCP, since they are merely the first stage and second stage of the credit program. The entire credit program will be in RCP after the year 2000 once all branches are transferred. RDP and RCP are two accounting entities within BRAC.

RDP IV BUDGET: Internally-Generated Revenues as a Percentage of Total Project Costs
(Taka millions)

<i>Program</i>	<i>Sources of Revenue</i>	<i>% of Costs 1996</i>	<i>% of Costs 1997</i>	<i>% of Costs 1998</i>	<i>% of Costs 1999</i>	<i>% of Costs 2000</i>
1. Credit: (Operating costs only, excludes RCP proceeds)	Interest income	65%	81%	105%	116%	128%
2. Sector Programs: (excluding RCE Investments)	Service Charges	10%	14%	19%	28%	29%
3. Social Programs: NFPE HR & LE Health.	None None Minimal fees**	2%	2%	2%	2%	2%
4. Special Programs	IGVGD: Poultry Service Charges	--	--	--	--	--
5. Support Services	None	0%	0%	0%	0%	0%
Operating Revenues as % of Operating Costs		8.4%	12%	15%	16%	18%
Proceeds from sale of branches to RCP		173.0	226.5	441.3	523.5	319.8
Investments in Rural Commercial Enterprises*		65.5	70.5	78.0	80.5	60.5
Total Revenues as % of Total Project Cost		20%	26%	48%	70%	62%

* Excluded from the Sector costs because they are one-time investments and there are no earnings/losses from those investments in the budget.

** Shown as a percentage of Health Costs, only.

We draw three major observations from the above Table:

- (1) *Credit delivery is largely self-sustaining.* When the loan fund requirement is subtracted (a 100% cost of capital that is due to RDP's grant funding status; RCP will fund loans from capital and deposits), interest income covers operating costs as branches mature and their loan portfolios grow in size. Once in RCP, the interest income should cover operating costs plus the cost of capital, according to the long term financial projections (see discussion under Long Term Financial Viability).
- (2) *Sector programs can make significant progress towards cost recovery, but will continue to need*

additional investment to develop new products or make investments. The sector programs serve both RDP and RCP branches. The highest costs for the sector programs are (1) training of new members, a high expense as the programs expand to all of the RDP and RCP branches, and (2) investments in commercial enterprises in sericulture, poultry, fisheries, and vegetable cultivation and general R&D. The first type of expenses will drop sharply when the programs are in place at all 330 branches and BRAC only has to train new members each year. The second type will continue to be important and will need outside funding. Service charge income will cover a high percentage of the ongoing operating costs of the sector programs once they are in place. However, these two expenses will need additional funding. BRAC management believes that profits from the Rural Commercial Enterprises should be able to fund those investments in the future. Cost Recovery is discussed in greater detail under Section 6.2.7.

- (3) *IGVGD and the Social Development programs will continue to need ongoing subsidy.* BRAC may choose to cross-subsidize those areas or seek outside funding for operations beginning in 2001. For example, BRAC plans to seek government or other ongoing funding for NFPE at that time.

Universal Budget Assumptions

This RDP IV Budget includes only cash expenditures that BRAC is seeking from the Donors. It therefore excludes non-cash expenses (e.g. depreciation) and does not contain items for which BRAC is not seeking funding (e.g. the Irrigation sector program). All RDP branches are assumed to graduate into RCP after 4 years and become part of an ongoing BRAC-owned credit institution. Other general assumptions are:

- *Annual inflation rate:* Project costs are calculated in 1995 Taka for each year of RDP IV. The totals are increased 5% per year to reflect annual inflation and the higher amount of Donor funding required for that year's operations. This is based on the actual 1994 inflation rate in Bangladesh of 4.9%.
- *Head Office overhead:* A charge equal to 10% of project costs is added to each program's budget to reflect Head Office Logistics and Overhead. Actual expense has been 8-9%. Beginning in RDP IV, this overhead allocation will include: Monitoring (previously budgeted as part of Support Services) and the cost of Head Office and Zonal level staff for both credit and sector programs. There is one program manager or sector specialist at HO and usually 3 Zonal level managers who oversee the regions. The Accounts (Finance), Personnel, and other operating support functions are covered by the 10% overhead allocation.
- *Staff travel and transportation expense:* Primarily the cost of fuel for PO motorcycles, this is budgeted at 30% of salary and benefits for Area Managers, Pos, and Accountants. Program Assistants ride bicycles. Previously budgeted at 35% of salary, this figure has been consistently lower than budget. Given the sensitivity of this number to fuel prices, 30% is conservative yet reasonable.
- *Staff training and development:* Budgeted at 10% of salary and benefits, up from 7.5% in RDP III. Staff training costs have been high due to a high drop-out during early training of new POs and PAs. Actual 1994 expense was about 9% of staff salary and benefits. For RDP IV, training will include credit and basic financial accounting for Credit POs, sectoral program training for Sector PAs and POs, and some common training (e.g. gender training) for both.

BRAC builds a contingency cushion into its budget through both the inflation assumption and individual cost assumptions, rather than as a separate line item. For example, staff training costs have been over budget due

to the rapid growth of programs, but the cost per person is probably between 7.5% and 10% of salary. The financial consultants have tried to identify where such assumptions are reasonable and have discussed them with BRAC to ensure they match actual experience.

B. Line-By-Line Budget Review

This section is organized around the five major sections of the budget. The numbers and sub-numbers correspond to the detailed budget produced by BRAC. The revenue line item is also discussed within the relevant section.

1. Credit

The budget for credit operations has five major components, each of which are discussed below. The credit program currently bears 100% of operating costs for branch and regional offices. Loan volume, and therefore interest income, is driven by loans outstanding.

Regarding the overall credit operations, the revenue from the sale of branches to RCP provide more cash than RDP needs to lend through its shrinking # of branches. Therefore, the credit-related operations contribute a positive cash inflow beginning in 1999 because of the RCP branch purchases.

Projected Loan Fund Requirement - RDP IV
Taka millions

<i>Millions of Taka</i>	<i>1994A</i>	<i>1996</i>	<i>1997</i>	<i>1998</i>	<i>1999</i>	<i>2000</i>
General Loan	168	472	447	301	176	102
Housing Loan - Members		59	47	34	19	14
Housing Loan - Staff	21		8.8	44.5	45.8	58.7
Enterprise Loan		10	20	20	25	25
Total Loan Requirement	168	504	524	400	266	200
Less: Sale of Yr. 4 branch loan portfolios to RCP		160	210	415	491	292
Net Loan Fund Requirement	168	344	314	(15)	(225)	(92)

As shown in the earlier table RDP credit operations reach breakeven without the RCP financing even sooner when the capital required for the loan fund is excluded.

1.1 Organizational Development (VO Organizing and Institution Building)

BRAC has adapted the Village Organization organizing activities and institution-building activities into a six-week training program activities into a more streamlined, and lower cost, six-week orientation and a series of issues-based meetings. In 1994, Institution Building included Functional Education, Paralegal, and

Leadership training (all under the name Social Awareness Education, or SAE) at a cost of Tk. 41.5 million. From 1995 onwards, BRAC categorizes the upfront VO organizing and annual VO workshops as part of the cost of delivering credit. Annual costs are projected to be Tk. 6.0 million, Tk. 5.2 million, Tk. 6.1 million, Tk. 7.1 million, and Tk. 7.4 million during RDP IV. These costs total Tk. 32 million during RDP IV and reflect the cost of organizational development with Village Organizations in RDP and RCP.

In the original RDP IV budget, BRAC assumed a flat Tk. 25,000 for the five-year period. During the financial consultants mission, BRAC refined this into a more specific plan and assumption, raising the total cost during RDP IV to Tk. 30.4 million.

1.2 Branch Operating Costs

The budget includes cash operating expenses for each branch multiplied by the number of branches each year (each branch is in RDP for a full year, since new branch openings and sales to RCP occur January 1). Branch expenses here include overhead and credit staff only. All sector program staff are reported under the Sector program budgets. Depreciation (non-cash) and interest on BRAC funds (an internal accounting adjustment) are not shown in this budget.

Branch Operating Costs - Per Branch in RDP

<i>Category</i>	<i>1994 Actual</i>	<i>1995 Forecast*</i>	<i>1996 -2000 Budget</i>
Salaries & Benefits: - Manager - 2 Program Organizers(Credit) - 1 Accountant - 10 Program Assistants(Credit) - 1 Service/Cook	Tk. 609,788	Tk. 595,000	Tk. 607,000
Travelling & Transportation (30% of AM, PO, Acct. salaries)	Tk. 61,895 (20% of salaries)	Tk. 82,800 (30% of salaries)	Tk. 86,400 (30% of salaries)
Travelling & Transportation (10% of Program Assistant salaries)			Tk. 30,000 * (10% of salary)
Recurring Expenses: - Rent, if needed, utilities - Office stationary - Maintenance - Gen'l expenses	Tk. 88,400	Tk. 72,000	Tk. 72,000
Head Office Overhead (10%)	Tk. 14,355	Tk. 86,760	Tk. 76,560
Total Cash Expenses Per Branch	Tk. 834,864	Tk. 786,000	Tk. 875,160

* Source: Accounts Department

Although salary levels have remained the same as in RDP III except for annual inflation increases, BRAC is reducing the number of POs at RDP branches from 3 to 2 (effective late 1994). Each Credit PA will now

visit 3 VOs per day. The average size of a VO has dropped, however, so the number of members per PA will stay the same (about 110). In addition, Travelling & Transportation is now budgeted at 30% of salary, not 35%, reflecting revised travel patterns implemented in 1994 to reduce costs. These revised branch operating costs are reflected in the 1995 forecast. The total cost in 1996 is projected to be slightly more than a 5% increase over 1995 due to recognizing travel and transportation expense for Program Assistants (budgeted at 10% of salary, or Tk. 30,000 per branch). Subsequent years' expense growing only at the rate of inflation.

Although BRAC has had difficulty maintaining low branch operating costs in recent years, the budgeted levels appear reasonable if they can achieve the 1995 cost reduction and reassign staff quickly. However, if RDP no longer opens new branches, the average salary level may increase as fewer young POs and PAs are being introduced. Therefore, BRAC may face additional pressure on average staff costs. Overall, BRAC is focused on controlling branch operating expenses, but time will tell whether these costs remain low enough to maintain RCP's financial viability.

1.3 Regional Office Operating Costs

This table compares actual regional office operating expense to budget amounts in RDP IV.

Millions of Taka	1994A	1995F	1996B	1997B	1998B	1999B	2000B
RO Operating Cost	6.16		14.9	18.4	13.5	7.5	4.2

Regional Office operating expense is projected to be Tk. 949,000 per office per year starting in 1996, compared to Tk 616,000 in 1994. The annual cost will be higher than current levels due to the addition of 3 new credit PO staff at the regional office level. With only two PO staff per branch, additional staff are needed to fill in during staff vacations, training, and other absences. The total expenditure grows and then declines due to the falling number of branches in RDP. The number of regions is projected to be 14, 17, 12, 7, and 4 between 1996 and 2000. Of these, slightly less than 50% pay rent for temporary space. In addition to the Accountant and Auditor, BRAC plans one computer operator and one computer in each Regional Office during RDP IV to help with data entry (for the sector programs, in particular). Other office costs are projected to remain constant.

1.4 Staff Training and Development

As mentioned under Universal Assumptions above, staff training and development is budgeted at 10% of salary and benefits for Program Assistants, Program Organizers, Area Managers, and Accountants and is therefore driven by the number of those staff in a given branch or region. This number will reappear for staff in each Sector program, the Social Programs, and the Special Programs. Including the 10% allocation for Head Office and inflation adjustments these amounts range from Tk. 10.4 million in 1996 to Tk. 3.1 million in 2000, reaching a total of Tk. 41.4 million.

1.5 Loan Fund Requirement:

Shown in the Table at the beginning of this section, the loan fund requirement is the amount needed to finance the lending program in RDP. It is estimated by the forecasted growth in loan loans outstanding for all branches during the year. This captures the increase in loans outstanding and the additional amount of funding required above money available through loan repayments. The Loan Fund includes three types of loans:

- *General Loans²*: Nearly 95% one year loans, these include all loans for sectoral activities and traditional income-generation (e.g. paddy husking, rural trading, rural transport). Loans outstanding per branch are forecasted based on the assumed growth of the model branch which, for Years 1 - 4, has been relatively consistent with actual loans outstanding. The effective interest rate is about 25%.
- *Housing Loans³*: Housing loans to members are forecast separately because they are 1 - 3 year loans and carry only a 10% interest rate (since they are not income generating investments). Although growth has been much lower than projected in RDP III, management would like housing loans to be 10% of disbursements.⁴ Most housing loans will be disbursed in RDP branches, since people usually upgrade their roof or home only once.
- *Enterprise Loans*: A new component, Enterprise Loans are meant to provide a pool of loans for those members who have demonstrated significant success in their income-generating activities and who are ready to establish a micro-business that may employ other workers. These loans will be slightly larger and perhaps of longer term than General Loans and will require approval of the Program Manager. The objective of this loan product is to help selected members move to higher level economic activities, or running micro-businesses. The interest rate is expected to be the same as for General Loans.

The projected amounts by loan type are shown above in the table on Projected Loan Requirement at the beginning of the credit section (page 11). The total loan fund requirement is Tk. 1.89 billion, or 32% of the total project costs. The Net Loan Fund Requirement is much smaller (as shown on page 11) due to the sale proceeds from RCP and interest income on loans. We believe the loan volume assumptions are reasonable. The Model Branch assumptions for loans outstanding have been met by year 1-4 branches in 1994 and the forecast of loan volume is consistent with that history. Note: Loan volume has been far below forecast for RCP branches (years 5-10) and is discussed in detail under Long-Term Financial Viability.

2. Sectoral Programs

BRAC encourages members to invest their loans in five sector programs that BRAC believes provide higher income-generating potential than traditional activities of paddy-husking, rural transport, and rural trading. Although about 70% of the loan portfolio is currently for traditional income generating activities, BRAC hopes to grow these sector activities to 50% of the loan portfolio by the year 2000. (During our visit, the Program Staff and the Accounts Staff had not reconciled the financial objective -- to grow the sector activities to 50% of the portfolio -- with the program activity goals. See Appendix E.) The total sector program budget has the following components, each discussed in detail below.

²The types of General Loans and loan policy changes adopted by BRAC are discussed in the Status of the Loan Portfolio section.

Housing loans are described in detail under Status of the Loan Portfolio.

⁴The repayment rate on housing loans has improved. See discussion of housing loans in the Status of the Loan Portfolio section.

	<u>Sector</u>	<u>Total Taka - RDP IV</u>	<u>% of Total Project Cost</u>
2.1	Poultry & Livestock	Tk. 238.1 million	4.0%
2.2	Fisheries	Tk. 171.5 million	2.9%
2.3	Social Forestry	Tk. 89.4 million	1.5%
2.4	Sericulture and Silk Devel.	Tk. 379.2 million	6.4%
2.5	Rural Enterprise Program	Tk. 160.6 million	2.7%
2.6	Horticulture and Vegetable	Tk. 131.6 million	2.2%
2.7	Market Development	Tk. 50.0 million	0.8%
	Total Sector Programs	Tk. 1,220 million	20.6%

Please also refer to Appendix D. The sector programs are expected to achieve long term cost-recovery after the year 2000. The concept is that after its fourth year of engaging in a type of activity, a branch's service charges should cover the ongoing operating costs of providing ongoing technical assistance, an allocation of Head Office and Regional Office overhead, and a small budget for ongoing staff training and refresher courses for members. Service charges are not projected to cover training of members, rent, occupancy expense, or other shared costs with the credit program, or any future new program development. Therefore, the cost of new market and product development and investments will need to be raised from other sources. This budget anticipates BRAC's funding needs for those purposes through the year 2000. After the end of RDP IV, however, BRAC management believes the profits from the Rural Commercial Enterprises will finance additional investments in each sector. (See Cost Recovery for a more detailed discussion.)

Each sector program budget has five main components:

- (1) *Staff costs for providing technical support:* There are sector PAs at the branch level and a sector PO covering a certain number of branches (usually 10, or all the branches in a given Region). This includes salaries, travelling and transportation, and staff training expense.
- (2) *Training Costs for Group Members:* Driven by the number of new members trained per branch, the number of branches where the activity shall occur, and the cost per training. In addition, this includes refresher courses given to group members who received the training a year ago and who are currently engaged in the activity.
- (3) *R&D and New Product Development:* For RDP IV, BRAC has budgeted a certain amount in every sector program (and in REP for all non-sector activities) for experimental project materials and a revolving loan fund. This pilot activity is funded from the sector Experimental Materials budget and the test loans are funded from the sector Revolving Loan Fund (or REP, if non-sector activities) until it has been proven in the field. Once proven, it is available to all members through the general loan portfolio.
- (4) *Investments in Rural Commercial Enterprises:* Equity investments in certain business activities that provide essential inputs to the sector program (e.g. 1 day old chicks) or key outputs (e.g. a reeling factory for silk). These are a new and important part of BRAC's strategy to build market demand and supply. BRAC is requesting Donor funding for the upfront capital -- operating losses and/or profits will be the responsibility of BRAC. The total amount of funds for these investments is Tk. 355 million, of which Tk. 290 is for sericulture. According to the Director of Field Operations, profits from these investments will stay within the sector programs to fund future market development and growth.

- (5) *Service charge income:* Fees paid by members for the technical assistance support they receive from BRAC staff. Service charges were introduced by BRAC in 1993 as a way to allow BRAC to provide sector training to members on a sustainable basis.

Overall, growth in staff costs and member training costs are driven by expansion of the sector program and by RDP opening new branches. Areas 3 and 4 are a significant portion of the RDP IV budgets. For R&D and new product development, these large investments result from several developments:

- BRAC now budgets a certain pool of funds in each sector for experimental project materials and a sector revolving loan fund from which loans for pilot projects can be made. These sector RLFs reflect the transfer of REP's previous R&D responsibility into the individual sector programs where it can benefit from its location in the field and the presence of full time sectoral expertise. REP will now focus on non or new-sector activities, particularly small enterprises (like carpentry shop, mechanics shop, women-owned restaurants). In some sectors, this budget item is quite large in expectation of future growth.
- A major part of the RDP IV strategy is that several sectors will invest in Rural Commercial Enterprises to remove constraints on key inputs for member income-generating activities. Examples of such constraints include the limited supply of 1 day-old chicks from the government-owned hatchery, the poor quality and limited supply of silkworm eggs from the government source, and scarce supply of fish meal to support the expanding fish culture activities. See the table showing Sector Capital Investments in RDP IV (at the end of this section).
- BRAC is now budgeting for market development activities, particularly within sericulture and silk development. The Market Development line item for all sector programs is Tk. 50 million, however, BRAC believes the majority of these funds would be used for sericulture.

While the financial analysts have reviewed and revised these numbers with BRAC staff, we depend upon the Sector Program Consultants to review the underlying assumptions about growth and program design. BRAC has revised its original RDP IV Budget to delay some of the large capital investments in sericulture (the silk spun mill, modern weaving factory, and Dyeing and Printing Factory) and to change the financing assumptions for the Grainage Center and Reeling Factory (both originally planned to be 70% bank financed, now 100% BRAC financed). In addition, BRAC has reduced the REP RLF by Tk. 30 million at the Financial Consultants' request.

2.1. Poultry & Livestock

The growth in Poultry & Livestock is due to (1) higher number of members participating in each branch, and (2) growth through newly opened branches. A well-proven development tool for BRAC, the program is now benefitting from several improvements based on RDP III experience:

- To improve survival rates of 8 week-old chicks and of young calves, BRAC has introduced both the pullet rearer and the calf rearer training. These women buy the chicks/calf and raise them until they are adults before selling them to Key Rearers or Model Cow/Goat Rearers. (see Sector Chart in Appendix).
- BRAC is focusing on Model Rearers who can raise up to 15 birds or three cows or goats. The Model Rearers achieve better profitability and can pay the service charges to BRAC.
- BRAC has organized the production of 150,000 chicks per month through member-owned

mini-hatcheries and a few BRAC-owned small hatcheries. The member-owned mini-hatcheries, made of rice husks, have been very successful and many members want to participate in the activity. This also addresses BRAC's shortage of 1 day old chicks for the entire Poultry program and reduces its dependence on the irregular supply Government and the few private hatcheries.

- Artificial Insemination centers have been created where BRAC has trained experienced paravets to do the AI procedure. These appear to be profitable to the paravets, who charge Tk. 10 per insemination, and will be expanded.

Total inflation-adjusted cost in RDP IV is Tk. 238 million. Staff costs and training represent 52% of the total five year Budget. Member training is 14% of total expenditures, and declines as the last new branches are opened. Capital investments are 22% of the budget, including 3 poultry farms for Tk. 10 million each and a feed mill for Tk. 15 million. Both types of capital investments appear to be essential inputs for the BRAC members' income generating activities. Therefore, these investments will leverage BRAC's existing investment in the chain of poultry and livestock related activities.

Budgeted service charge income is based on the sector-wise analysis and forecasting conducted by each sector specialist. The financial consultants and the Accounts Department verified these calculations and have inserted them into the budget. The service charge forecasts are discussed in detail under Cost Recovery on page 42.

2.2 Fisheries

Total RDP IV Budget is Tk. 171.5 million. The Fisheries program is expanding to bring more decimeters of water under cultivation. The basic program has stayed the same, but the number of branches covered and the number of fish pond farmers per branch have increased. Staff-related costs are more than 50% of the budget, while member training is about 7%. In RDP IV, the Fisheries program plans to serve many more branches and to collect more service charges. The newer items for RDP IV are:

- a line item for new product development and experimentation with new sector activities;
- The addition of a second Fisheries PA at each branch due to the high number of members per branch engaging in fish culture (based on the recommendation of the Fisheries Consultants with the Appraisal Mission);
- Tk. 20 million in capital investments for a five feed meal processing plants and five prawn hatcheries (as can be seen in the Fisheries Consultants' Report, these prawn hatcheries and feed meal centers are expected to break even relatively quickly and turn a profit);

The Fisheries Program is discussed in greater detail under the Fisheries Consultants' Report.

2.3 Social Forestry

Total RDP IV Budget: Tk. 89.4 million. While smaller than many of the other sectors, Social Forestry has begun a rapid expansion to approximately 175 branches (those with arable land suitable to cultivation). During RDP III, this category included vegetable cultivation, which has become a separate sector activity in 1995. Social Forestry includes three member activities:

- **Nursery:** Growing saplings and young trees of various food-producing varieties (lemon, mango, banana, etc) and selling these young plants to local farmers and villagers to plant near their homes. The growing season is winter and spring and most sales occur during the planting season of July and August. Members take a loan to buy the seed stock or grafted varieties and to finance the growing period.
- **Grafting Nursery:** More recently introduced, BRAC is training members in grafting of certain high export quality or cash crop fruit trees (e.g. mango and lemon) that are not widely cultivated throughout Bangladesh. For example, the mango trees of a certain region produce the best fruit, but they are not widespread in the country.
- **Agroforestry:** For an individual farmer or village member, this allows them to cultivate a plot of land with a planned mix of short-term (vegetables), medium-term, and long-term crops to spread cash flow throughout the year. BRAC has developed a model plot layout and mix of crops that optimize the land available and income earned.

Like other sector programs, the largest costs are a Program Organizer at each Regional Office and a Program Assistant at each branch that will be engaged in the activity. The PAs focus on mulberry plantation at present, and their cost should probably be under the sericulture program. BRAC's sector specialist also anticipates implementing the Social Forestry program into only 175-200 branches based on the soil conditions and availability of land, rather than in all 330 branches. The current budget reflects a PA at all 330 branches and thus overstates this amount slightly.

In addition to staff costs, the Social Forestry Program will establish a Mother Tree Center as the basis for their grafting program at a cost of Tk. 450,000. This is budgeted for 1996.

2.4 Sericulture and Silk Development

Total RDP IV Budget: Tk. 379.2 million. Sericulture is by far the largest sectoral program, representing 6.4% of the total RDP IV Budget. The text of the Project Proposal describes the program, but does not describe the number of members participating, their ability to repay loans with the cash flow from their enterprises, or their ability to pay service charges. The number of members is found through the member training line item and the service charge forecast is again discussed under Cost Recovery.

Staff Expense

Sericulture is item 2.4 in the Budget. In addition, it may share a large part of item 2.7, Market Development. Items 4.1 through 4.10 are staff expenses. The staffing includes: A Sector Specialist and three Zonal specialists at Head Office (their costs are part of the 10% Head Office overhead allocation); Regional Program Organizer who cover multiple area offices and is usually based at the Regional Offices (33); Program Assistants who monitor the participating member activities at the Branch. Two new positions are: Rearing Managers (item 4.4), Program Organizer - Seed Zone (item 4.5), and Grainage Assistants (item 4.6), who have monthly salaries of Tk. 6,000 and Tk. 3500, respectively.

Staff Training and travelling and transportation expenses are at the standard rates of 10% and 30% of salary and benefits, respectively. In addition, BRAC has budgeted Tk. 630,000 over the five years for overseas training (to be spent in 1998, 1999, and 2000).

Replacement Mulberry Trees

At the recommendation of the Sericulture consultants, BRAC has eliminated the Tk. 85 million line item for the planting of replacement mulberry trees.

Member Training

This is training of group members in the various types of cocoon production activities. It is driven by the number of new members being trained, not existing participants, times cost per trainee. The training and member activities are:

- Progressive Silk Farmer
- Chawki Rearing (early stages of silk worm rearing)
- General (or Silk Worm) Rearing (later stages, to cocoon production)
- Reeling workers (few in number, but Tk. 10,000 per trainee)
- Sapling Nursery (Nursery and roadside plantation of mulberry trees)
- Bush plantation (ditto, but in acres rather than roadside)

Of the above, the Rearing and mulberry tree sapling growers take loans from the RDP credit program.

R&D and Market Development

BRAC budgets Tk 2 million per year on R&D during RDP IV. There is no line item specifically for market development in sericulture, but the Market Development Program for all sectors (item 4.7) has a Tk. 50 million budget. A significant portion of that budget is earmarked for sericulture. In addition, BRAC has budgeted Tk. 2 million for a consultancy in 1996.

Capital Investments

As shown in the table below, the sericulture budget for RDP IV originally included seven types of large capital investments. The Grainage Center, Sericulture Resource Centers, and Chawki Centers are necessary inputs to improve the quality of silk production (better quality Disease Free Layings, or DFLs, and better rearing practices). The numbers of each were reduced, however, based on input from the Appraisal Team. The Reeling Centers were argued to be an essential production capacity to produce market viable silk. The Silk Spun Mill, Modern Weaving Factory, and Dyeing and Printing Centers were all significant capital investments for which BRAC has not yet developed a full business plan. BRAC has decided to eliminate those latter investments from the RDP IV budget because the need for them was not yet well defined and the financial costs were not fully estimated. The table below summarizes the sericulture-related capital investments, now all forecast to be 100% financed by BRAC.

Sericulture Capital Investments/Rural Commercial Enterprises - RDP IV

<i>Investment</i>	<i># of Units - RDP IV</i>	<i>Unit Cost</i>	<i>Total Investment</i>
1. Chawki Centers	400	Tk. 50,000	Tk. 20 million
2. Sericulture Resource Center	3	Tk. 5 million	Tk. 15 million
3. Grainage Center	10	Tk. 10 million	Tk. 100 million
4. Modern Reeling Centers	10	Tk. 10.0 million	Tk. 100 million
5. Silk Spun Mill DELAYED	1	Tk. 25 million	Tk. 25 million (70% bank financed)
6. Modern Weaving Factory DELAYED	3	Tk. 30 million	Tk. 90 million (70% bank financed)
7. Dying and Printing Factory DELAYED	1	Tk. 50 million	Tk. 50 million (70% bank financed)
Total Investment (excluding #5, #6, and #7)			Tk. 235 million
Total Funding Request (100% of items 1 -4)			Tk. 235 million (US\$ 5.9 million)

We have not seen any pro formas for these investments to show capital costs, working capital required, cash flow statements, or project break-even. Importantly, no losses or income streams are shown in the Budget. BRAC is asking Donor funding for its upfront investment only.

Service charge income is projected to be relatively small for sericulture, totalling only Tk. 17.0 million over five years. The cost recovery assumptions are discussed in detail under Cost Recovery (page 42).

Recommendation: While these capital projects in the production, market development, and distribution of silk may be strategic investments, we believe BRAC should support the sericulture investment requests with a more thoroughly developed business plan and budget, as well as clear projected development outputs. This would help the Donors understand and evaluate such projects.

2.5 Rural Enterprise (and Craft Development) Project

Total RDP IV Budget: Tk. 160.6 million. REP's role is to develop non-sectoral, experimental income generating activities and to conduct pilot programs to fully evaluate an activity before RDP and RCP distribute loans on any scale. With the creation of the Sector Revolving Loan Funds, REP will focus particularly on small-scale enterprises and micro businesses. This suggests that REP should get smaller in size and have fewer staff. In 1994, the budget was about Tk. 6 million, but

was overspent and totalled Tk. 19 million. During RDP IV, REP forecasts a budget of Tk. 16.8 million in 1996, a dramatic increase from actual expense in 1994. For the 5 year funding period, REP has Tk. 169 million, but has not detailed how these amounts will be spent other than in general categories. After discussions with the Appraisal Team, BRAC reduced this budget to better reflect the anticipated activities of REP.

BRAC forecasts 20 REP Program Organizers and 40 Program Assistants. In addition, there is a budget line item for local and international consultants for Tk. 1 million per year. The other budget sub-categories are:

Local and International Consultants	Tk. 5 million
Experimental Project Materials	Tk. 50 million (increasing from Tk. 5 million to Tk. 15 million in 2000).
Rural Craft Centers	Tk. 30 million
Crafts Training (and supplies)	Tk. 18 million

When pressed, BRAC could not provide detailed rationales for these estimates, as they are far higher than historical costs. It would appear that this item is front-loading the possible costs BRAC may need to incur after the year 2000 to continue developing the sector programs. Because BRAC has vowed to reach full cost recovery by the end RDP IV, it is building a large buffer into the REP budget for anticipated future funding needs. BRAC anticipates receiving no service charges from REP participating members because these are pilot programs not yet well developed.

Recommendation: We recommend that BRAC develop a more detailed business plan for REP to justify the scale of the Donor investment requested and to give them the management tools to evaluate REP's performance against those business objectives.

2.6 Horticulture and Vegetable

Total RDP IV Budget: Tk. 131.6 million. The vegetable sector has been very successful in nurturing small scale businesses and encouraging a large number of BRAC members to participate in vegetable cultivation. The rapid expansion of this activity has lead BRAC to separate it from the Social Forestry sector effective in 1995. This program encourages both cultivation of a plot of land (for which members often borrow), or as smaller scale cultivation around the family home. BRAC has also promoted this program heavily to increase the supply and consumptions of fruits and vegetables among the rural landless to improve nutrition. According to BRAC, the only constraints on the growth of this sector are the availability of land and program staff. BRAC plans for this activity to be in 260 branches (again due to the availability of arable land).

Training of members includes training for farmers, fodder crop cultivation, crop diversification, and seed production. The significant capital cost is the construction and operation of a Seed Production Center in which hybrid seeds will be cultivated and then sold to those farmers raising seeds to multiply the supply. Two seed production centers are planned at a cost of Tk. 15 million each.

2.7 Market Development Program

The purpose of the Market Development Program is to create a pool of funds to finance the development or new market development strategies. According to BRAC management, most of this will be used for sericulture, but the details of how these funds might be spent is not yet determined. The necessary investment in Market Development is discussed under the Sericulture Report.

Major components of this budget item include: salaries for one marketing manager, three designers, seven quality controllers, seven senior marketing managers and 14 marketing officers; working capital of Tk. 5 million in 1996 and Tk. 7.5 million in 1997 and 1998; and BRAC has budgeted nearly Tk. 6 million for foreign consultancies and foreign travel cost.

Recommendation: Again, we recommend that BRAC prepare more detailed proposal identifying its major market development priorities for the sector programs and their relative costs. At present, there is not sufficient detail in this line item to justify the Donor's investment.

III. Social Development Programs

Both NFPE and the Essential Health Program were reviewed by independent consultants as part of the RDP IV Appraisal Mission. This section summarizes the major elements of the budget for each, but defers to each independent report for more detailed analysis of the budget and revisions that may have been negotiated with BRAC.

3.1 NFPE

Non-Formal Primary Education (NFPE), BRAC's village-level primary school program, is funded both in RDP and as a separately funded program. In RDP, BRAC runs about 15,000 schools and will continue to run them through RDP IV. To deliver the NFPE program after the year 2000, BRAC will approach the government as the logical resource to fund ongoing education efforts.

In the Budget, NFPE within RDP IV will operate 14,000 schools in 1996, 14,000 in 1997, 9,202 in 1998, 6,068 in 1999, and 3,034 in the year 2000. Recognizing that NFPE will continue to require significant subsidy, BRAC has chosen to reduce the number of schools per year such that all RDP schools will have completed their three-year cycle by 2000. While the arithmetic and calculations in the Budget are internally consistent and appear accurate, the financial consultants have relied upon the NFPE Consultant for a qualitative evaluation of the program's budget and growth forecast. The recommended change we are aware of was to increase the costs of supplies per school to reflect the actual cost in 1994, resulting in a Tk. 18 million increase in the total budget. Total cost during RDP IV is projected to be Tk. 1.07 billion, or US\$26.8 million. Please see the NFPE Consultant report for greater details.

3.2 Human Rights and Legal Education

BRAC has revised its paralegal course for all new members to cover familiar issues more deeply and introduce people to the concepts that are part of the Bangladeshi constitution, etc. The HR & LE is one course with several in-depth modules. It appears to be the same amount as the former Functional Education, leadership training, and paralegal courses offered in the past. However, it is separate and will get its own materials and information for dissemination to members.

Actual expenses include a PO in every region and a PA at every branch to provide these services, and a small amount for teaching materials and workshops. All BRAC members are anticipated to participate in this revised training. Total program cost for RDP IV is Tk. 187.8 million, or nearly 3.2% of total expenditures.

3.3 Essential Health Care

As part of RDP III, BRAC will create a streamlined version of the existing WHDP program to run

through the RDP and RCP branches. Like WHDP, the program will rely on the Shebikas in the villages to buy medicines from the branch and sell them at a slight profit (with no salary from BRAC). In addition, the health worker will promote clean water and sanitation and help distribute and sell concrete slabs and rings. Although BRAC originally envisioned a structure with a medical doctor in every region, the health consultant encouraged them to address more basic care and test the medical clinics concept at the branch level as a pilot program. BRAC plans to implement 300 clinics at an additional cost of Tk. 37 million. The complete impact of the program design changes are described fully in the Health consultants report. The overall budget impact is to revise the cost of the Essential Health program to Tk. 263 million (US \$6.7 million), or 4.4% of the total RDP IV Budget.

Any significant cost recovery in the Essential Health program is unlikely, according to the Health Consultant. BRAC is considering internal funding sources from elsewhere in BRAC. For example, one source of revenue could be the difference between the 25% interest rate on RDP and RCP loans and the effective average interest rate of 27%-29% that is actually realized. This 2-4% interest could pay for up to a third of the annual budget for the health program.

3.4 Environment Development Program

The main thrust of this new program is water sanitation. Formerly buried within the WHDP programs, this program is basically the water sanitation effort that BRAC has been promoting across Bangladesh through WHDP. This involves the establishment of nearly 1000 rural water and sanitation centers with a revolving loan fund for the purchase of the equipment. According to BRAC, WHDP has had significant experience in implementing these centers and has good control over both costs and revenues. This program will expand this same activity to more locations in which RDP operates. Total cost during RDP IV is Tk. 23 million, or US\$575,000.

IV. Special Programs

4.1 Vulnerable Group Development

As part of BRAC's renewed focus on serving the poorest 10% of the Bangladeshi population, the Vulnerable Group Development Program (or IGVGD) will expand from 36 to 56 thanas. In this program, the Government finances the credit program costs and BRAC provides sectoral technical assistance in poultry-rearing, staff, and office space. These women receive 30 Kg. of wheat through the Government of Bangladesh's Food-for-Work Program and engage in small scale income generating activities, such as poultry rearing, to move towards self-sufficiency. The wheat supplement lasts for two years. BRAC has found the program to be very effective in reaching this most disadvantaged group and in preparing them to be RDP members.

This program started in the 1980s as a joint venture between BRAC and the Government of Bangladesh. Women join an IGVGD branch as IGVGD members. There are perhaps 3-5 per village, so IGVGD travel longer distances for a single branch than in RDP.

The total RDP IV budget for IGVGD is Tk. 210 million. Staffing includes Thana program managers, IGVGD PAs, and Poultry PO and PAs in the field to provide technical assistance. There is little overlap between the RDP poultry sector staff and the IGVGD poultry sector staff, since the IGVGD staff spend more time with individual borrowers. BRAC plans to continue the IGVGD program because it appears to be an effective way of reaching the poorest 10% of Bangladesh's landless.

4.2 Assistance to Small NGOs and Community-Based Organizations (CBOs)

Budgeted at a total of Tk. 40 million during RDP IV, this line item is important to BRAC for two reasons. First, BRAC is receiving an increased number of inquiries from small NGOs and CBOs in Bangladesh who seek BRAC assistance or want to implement a school program similar to NFPE and needs to cover those costs. Second, BRAC needs to build stronger relationships with the smaller Bangladeshi NGOs who often have criticized BRAC for not sharing information or of being aloof.

In the original budget, BRAC also included Tk. 100 million for an Urban Development Program. According to BRAC management, BRAC has been considering the addition of a development program that would target the urban neighborhoods of Dhaka. The Director of Field Operations has visited the Proshika program in Dhaka and several other NGOs to gain a better understanding about how all they manage these programs. Given the uncertainty of when BRAC might start an urban program and the as yet undetermined scale, BRAC has reduced this line item from Tk. 100 million to zero.

V. Support Services

In RDP III, Support Services included the cost of Research and Evaluation, the Monitoring Department, and capital investments in bricks and mortar and vehicles. For RDP IV, the Monitoring Department has become a part of the Internal Audit Department and is now an expense covered by the 10% overhead allocation for Head Office Logistics and Support. BRAC needs to maintain some of its internal cost centers, like Monitoring and RED, to provide needed information and services to internal audiences (both Monitoring and RED) and external audiences (perhaps just RED). Monitoring, for example, is a key part of the internal checks and balances and gives the program staff valuable insight into what variations are happening in the field. However, the costs of these internal departments must also be watched carefully since they face less "market pressure" to be cost-effective.

5.1 Research, Evaluation, & Development (RED)

This internal department evaluates current programs and produces research papers on various topics relevant to BRAC's development activities (mostly within RDP). In 1994, RED's budget was about 1.5% of the annual RDP operating budget, but the actual Taka expenditures increased sharply in 1994. RED is technically under the oversight of the RDP Director of Field Operations, but seems to have operated as a relatively autonomous unit for many years. Because RED is a support function with no exposure to the discipline of market forces, it must be careful to balance its costs with the benefits it provides to the rest of RDP.

In January 1995, BRAC senior management met with RED and the Monitoring Department (part of Internal Audit and Monitoring, a cost covered by the 10% Head Office Logistics and Management Support) to ask them to refocus their monitoring and assessment activities to credit, savings, and membership. In addition to asking them to focus in those areas during the year, senior management asked them to "cost" their products so the department "buying" their services can evaluate whether the price is worth the end product. A frequently used management technique to control internal cost centers, this approach creates some internal accountability to their peers to encourage cost reduction. It is important to note, however, that BRAC may have made a policy decision that RED will also provide information for external audiences and that the full price of their products must therefore include the costs of those other services. The Financial Consultants assume that the budgeted costs for RED are for the most part reasonable, based on 1994 expense. However, we recommended that BRAC management consider internal mechanisms to create accountability and constructive pressure

to control costs.

VI. Capital Investment

Total capital investment during RDP IV is budgeted to be Tk. 305 million, or US\$7.6 million, less the sale proceeds and lease income from assets sold to RCP. There are several components:

Branch Building Costs: The cost of building a new branch is Tk. 1.6 million (including land for Tk. 230,000, building for Tk. 1.2 million, and furniture, fixtures and equipment for Tk. 120,000). and BRAC plans to build 95 new branches in 1996 through 1998. In addition, new motorcycles for new POs totals Tk. 20 million.

Regional Office Costs: About 50% of the Regional Offices are in rented space because they may shift location as they cover different combinations of branches. Fixed capital costs are furniture and fixtures and vehicles (budgeted for 10 in 1996).

Head Office Costs: The investments for Head Office include (1) Tk. 40 million for furniture and fixtures for the new HO building in Dhaka; (2) Tk. 15 million for vehicles (10 in 1996), and (3) adding computers to the Field level (the Regional Offices) is projected to cost Tk. 33 million. Total Head Office costs total Tk. 88 million during RDP IV..

These expenses appear reasonable and are based on historical costs. These amounts are reduced by (1) the sale proceeds of fixed assets from RCP (Tk. 52 million over 5 years), and (2) lease income on the land and buildings of the branches sold to RCP (Tk. 64 million). This is the accounting change referred to earlier and under the discussion of Long Term Financial Viability. During RDP II and III, RCP purchased the land and buildings of branches from RDP for cash. To avoid the squeeze on RCP resources imposed by buying 330 branches rather than 300, and to save cash at RCP, these transactions are now structured as a 20 year lease. This effectively spreads the cost of buying those assets over a longer time frame and saves RCP a significant amount of cash during 1998 and 1999, when high numbers of branches are transferring to RCP. This is discussed further under Long Term Financial Viability.

Offsetting Revenue: Net Interest Income and 2% Loan Loss Reserve

We agree with BRAC's forecast of loans outstanding in RDP based on a review of actual performance in 1994 relative to internal targets. The 25% nominal interest rate produces an effective interest rate significantly higher than 25% (27%-29%) when a member pays off their loan in 46 weeks rather than taking the full 52 weeks allowed on account of holidays and other days when no VO meetings occur.

BRAC is continuing its practice of allocating a loan loss provision equal to 2% of disbursements. This amount builds the un-allocated portion of the loan loss reserve for unexpected problems. This practice reflects conservative management and is a good way to build the loan loss reserve during a period of high loan growth. Because the quality of BRAC's loan portfolio has improved greatly over the past several years, we recommend that BRAC and the financial consultants revisit this assumption during RDP IV to ensure that this assumption is not overly conservative.

- 6.2.2. In collaboration with the other consultants, suggest possible alternative budget scenarios based on likely assumptions, program modifications, or funding possibilities.

Several different budget scenarios were tested, as described in the section discussing Long-term Financial Projections (6.2.4.). Other modifications to operating assumptions were developed side-by-side with BRAC staff involvement. These changes are reflected in the various drafts that have been produced during the consultants' on-site work.

6.2.3. Review the latest status and composition of the loan portfolio of RDP/RCP, and the impact on the portfolio of such changes as may be proposed during RDP IV, e.g., in respect of loans for specific purposes such as housing, livestock and DTW.

From January through December 1994, RDP and RCP disbursed Tk. 2.1 billion in new loans for microenterprise and housing (equal to US \$50.9 million). This is a 60% increase over 1993's total disbursements of Tk. 1.3 billion. RDP started 20 new branches in 1993 which disbursed Tk 98 million of the total. Excluding the new branches (in order to compare the performance of the same branches from 1993 to 1994), disbursements increased from Tk. 1.3 billion to Tk 2.0 billion, a 53% increase.

At the end of 1994, the term mix was 91% short term, 7% medium term and 2% long term. This continues the trend over the last few years of a greater proportion of short-term (1-year) loans. In 1989, BRAC anticipated a term mix of 57% short term, 37% medium term, and 6% long term. BRAC has had lower loans outstanding figures in recent years than expected in the 1989 Project Document, and this is due, in part, to this shift towards shorter term loans. Long-term loans build up the outstandings faster than short-term loans because they are not paid back so quickly. The experience with one-year loans suggests that borrowers receive sufficient economic benefit that they are able to repay in one year. Historically, BRAC's experience is that loans over one year have poorer repayment histories. In the last year, repayment discipline and information tracking systems have improved markedly, so there is reason to believe that it will not return as a problem. In this regard, BRAC has adapted its lending practices to the lessons in the field.

BRAC disbursed Tk 40.9 million in Irrigation loans, which is the reselling of shares in the Deep Tube Wells. BRAC repurchased these DTW shares because of low profitability of each DTW, and issues of how best to organize members to manage the schemes. At the time of the repurchase, these loans were particularly slow in repayment. The other sectors with many loans over one year were Livestock (mentioned below) and Fisheries.

Recommendation: We recommend that BRAC managers pay special attention to the DTW, Livestock and Fisheries sectors. Historically, these were problem areas and therefore merit special ongoing monitoring.

At December 1994, RDP + RCP loans outstandings stood at Tk 1.5 billion (including housing loans). This is an increase of 50% from the end of 1993. Of the total loans outstanding, 33% were for activities for which BRAC provided special sector supports. These activities are Agriculture and Horticulture, Fisheries, Sericulture, Poultry and Livestock and Irrigation. The major activities are in the traditional areas of Rural Trading (30%) and Food Processing (22%), although these two areas declined 6% as a portion of the portfolio in 1994. The areas with special sector supports increased by 4% as a portion of the portfolio in 1994, with most of the increase due to Agriculture, which rose from 9% of December 1993 outstandings up to 13% at end of December 1994. See Appendix A.

(2) Repayment of the Loan Portfolio:

BRAC's dramatic success in improving the collection of its loans is an ideal example of management direction translated into action. See Appendix A. During 1994, BRAC continued to reduce the portion of

the portfolio with any payments past due, from 20% to 8% at the end of 1994. For comparison, in early 1992, the portfolio showed over 65% with at least one payment past due. This improvement stems from BRAC management's willingness to deal with the issue head on. All observers of this organizational transformation should recognize this signal achievement.

The most stubborn poor paying sector does not regularly show on the APO report: Housing. This sector finished the year on the improvement trend, but still only 61% of the loans were up-to-date as of December 1994. At this point, 19% of the housing loans had missed over 50 weeks. During 1994, housing loans increased 200%, from Tk 43 million outstanding to Tk 123 million. Housing loans currently bear a 10% interest rate, so BRAC suspects that some members may be diverting the funds to other income-generating activities. See Appendix B.

Recommendation: Add the housing sector to the APO report for visibility. BRAC should appoint a special task force to investigate and recommend action for improving this situation, including any adjustments to the policy for disbursing new housing loans.

At December 1994, the sector with the highest late payments continued to be Livestock: taken as a whole, Livestock is 9% of loans outstanding, but it represents 23% of loans that are over 26 weeks past due. The program staff is already devoting special attention to collecting investigating the causes of this anomaly. As an example of program changes, Livestock loans were 2 to 3 years long in the past, but in 1994 BRAC shortened the term to one year. Of the Tk 169 million in 1994 livestock loan disbursements, only 10% were for a period over one year.

Today, there are Tk. 3.7 million in loans outstanding in Sericulture, only 0.3% of the entire portfolio. Given the proposed RDP IV sector emphasis on Sericulture, it must be mentioned that this sector is not currently a strong performer. Whereas 92% of the total portfolio is up to date in payments, only 83% of the Sericulture sector is. This indicates sub-par performance that should be watched for any signs of weakness during the next few years as this sector grows.

Recommendation: During the RDP IV project, the total sector portfolio is to grow up to 50% of all loans outstanding (The preliminary projections of the Accounts Staff and the Program Staff do not reconcile -- See Appendix E). Therefore, the APO sectorwise report should breakdown the portfolio by each of the sector areas. Separate reporting for sectors that are small and not relevant to program staff, such as Services, should be discontinued.

Recommendation: We endorse BRAC management's plan to produce a 2-page APO report that includes housing loans together with General Loans, and a second APO schedule for the new sector loan portfolios: Enterprise Loans, Poultry/Livestock, Fisheries, Social Forestry, Sericulture, Vegetable and REP.

(3) BRAC Loan Policies - Effective in January, 1995

The following summarizes BRAC's loan policies in place at the time of the Appraisal Mission. Please see Appendix K for a chart summary.

- **Loan Sizes:** The first loan can be up to Tk. 4,000 (increased from Tk. 3,000), second loan up to Tk. 6,000, and third loan up to Tk. 10,000. Members must have savings equal to 2%, 5%, 10%, and 20% for the first, second, third, and fourth loans, respectively. Members are eligible for housing loans only if they have saved an amount equal to 25% of the loan.

- **Elimination of Group Trust Fund and Insurance Holdbacks:** Based on dissatisfaction voiced by members about the mandatory deduction of 4% of any loan disbursement for deposit into a group savings account, BRAC will no longer deduct either 4% for GTF or the 1% previously deducted for insurance. Five percent will continue to be deducted from disbursements as compulsory savings for individuals. The net result is that borrowers receive 95% of a loan amount in cash upon disbursement, rather than 90%.
- **Interest Rate:** Effective January 1, 1995, BRAC has increased its interest rate from 20% to 25%. In the field, weekly payments are calculated on 15% flat rate (which assumes weekly repayments over 46 weeks). Payments are calculated on a 46 week basis, but BRAC assumes that VOs will not meet every week and the actual number of payments will occur over a 52 week period. Result: For the borrower, the weekly payment amount increased from Tk. 22 per week to Tk. 25 per week on a Tk. 1,000 loan. Because the number of payments are calculated on a shorter term (46 weeks), the effective interest rate for the borrower is actually 29%. For BRAC, the total amount of interest collected on a Tk. 1,000 loan is Tk. 150 versus Tk. 118. In conclusion, the higher interest for the borrower remains small relative to the income generated with the loan. For BRAC, the additional income is crucial to its financial self-sufficiency.
- **Loan Approvals:** Loan requests are approved by the Branch Manager, unless more than 1 year in maturity or if borrower is a late payer on previous or existing loan, or if loan size is larger than loan ceiling.
- **Seasonal Loans:** Offering 26 week loans for vegetable and fish cultivation (calculate at 10% flat rate), no grace period. Borrowers pay 100 taka interest on a Tk. 1000 loan, or two-thirds of the interest due on a one year loan.

Recommendation: We urge caution and careful monitoring of the volume of the new six-month, seasonal loans in the loan portfolio so BRAC can identify its impact on growth of the loan portfolio. Note: Grameen introduced Seasonal Loans in 1993 and loan volume increased dramatically.

- **Grace periods:** Given for loans starting in 1994 for loans where activity did not generate income right away. Given grace periods of 3-6 months for fish cultivation and vegetable cultivation. Estimated at 5-10% of portfolio, but no way to segregate those loans. Appear to have had a poor collection experience, because are curtailing program in 1995.

Recommendation: We endorse BRAC's written policy of ending the availability of grace period loans and strongly discourage any deviation from this policy unless a pilot program is monitored separately. Encourage pilot project with careful evaluation before starting a similar experiment system-wide.

- **Enterprise Loans:** Special purpose loans up to Tk. 25,000. Any loan over Tk. 10,000 requires Nobi's approval. Objective: To grow certain borrowers into more complex economic activities or create job opportunities (e.g. Dairy farms, reeling centers). Customers would be of 3 types: (1) experienced BRAC VO members with ability to manage larger business, (2) employers of the landless, and (3) non-Members who are the near landless. Estimate that maybe 15% of BRAC VO members may be able to grow into larger enterprises.

For enterprise loans, borrowers will need more technological support from BRAC and these businesses will be charged higher service charges (for Fisheries Hatcheries, for example, service

charges will be Tk. 1,000 per year). Reeling centers and dairy farms will also need larger volume of activity and more technical assistance. BRAC management noted that a big challenge will be for BRAC staff to think of these customers as businesses, not as beneficiaries.

- Housing loans are now on the sector-wise list that the Manager of Credit and Savings, Mr. Nabi, tracks and he now is holding AO Managers accountable for General Loan and Housing Loan.
- Sericulture loans should be identified as a separate sector on the sector-wise APO report. Although this sector uses fewer loans to members than others, it is growing rapidly and any slow repayment cannot be tolerated.
- Restaurants are currently recorded as Rural Trading. This represents Tk. 16 MM as of end of 1994, so BRAC will break it out as a separate sector. Services is not large enough to warrant a separate category of the sector-wise portfolio analysis.
- Portfolio Analysis: There is evidence that BRAC is using the tools of sector-wise analysis to better identify problem areas in the loan portfolio. For example, the head of RDP focused on the lower repayment rate/high delinquency rate on livestock loans and questioned why repayment was so slow. The sector specialist went to Mr. Nabi, the Credit Program Manager, for help. Nabi asked for computer print out of all Livestock borrowers branch-wise to see who were late payers and to identify which branch managers to speak to.
- Workout and problem loans: (1) Branch Managers can request an additional PA in their branch to help with collection of bad loans or late payers. We encourage BRAC to develop a specialist capacity to handle difficult loans, since regular PAs will not have time to focus on problem borrowers. (2) the Program Manager of Savings and Credit produces a Defaulters List that allows him to identify where the worst defaulters are located and which branches are responsible.

Other BRAC Policy Revisions

- Weekly Savings: Weekly savings are now Tk 5, up from Tk. 2. Although this higher level is the target and is strongly encouraged, savings contributions of Tk. 2 will be permitted to ensure that the poorer beneficiaries can continue to participate. BRAC estimates that 10-15% of any branch's members may save at the lower rate. See Appendix H for actual 1994 data.
- Membership Fees: No longer charging a Tk 10 closing fee to cover "closing costs," BRAC now charges a flat Tk 10 annual membership fee per year. Use of this amount is unclear. According to the Accounts Department, it will be used by the VOs for materials for meetings, therefore showing not as income but as a liability on the branch's balance sheet. Alternatively, program staff are considering using those funds as part of the Emergency Fund to cover life insurance. This would generate Tk 57,000 for each 3rd year branch, for example, in a year, an amount equal to more than 5% of branch operating costs per year.
- BRAC has several pools of funds and income sources at the branch level:
 - 50% of GTF (the portion not refunded);
 - Difference between 25% official interest rate and an effective rate of 27-29% creates a possible source of funds for cross-subsidy;
 - Membership fee of Tk. 10 per year (income or held for their account?);
 - Existing Insurance Fund previously collected and now held by BRAC (now totals Tk 49

million compared to an average annual cost of about Tk 5 MM in payments.

BRAC is considering how to use these funds on an ongoing basis and whether some of these sources would be used to cross-subsidize the Essential Health Program, for example.

6.2.4. Review projected financial performance during RDP IV, in particular levels of savings, likely loans outstanding, and overall profitability.

RCP is only just emerging from a difficult two-year financial period. Beginning in 1993, it was clear that branches suffered both revenue shortfalls and expense overruns from:

1. Low loans outstanding, which diminished interest income;
2. High branch operating expenses, due to limited management attention and the need for more staff to collect slow paying loans;
3. Savings are behind targets, which reduces the available funding for RCP.

In 1994, branches improved in all regards. Nonetheless, to preserve RCP's financial health, BRAC did not charge RCP the discretionary 9% annual debenture that was built into the original model.

We incorporated recent changes in operating policy into the RCP long-term financial projections with BRAC Accounts department, and tested the sensitivity of future projections on key variables. The Base case assumptions include the following modifications from earlier models:

- Loan interest rate increase from 20% to 25%;
- Savings deposit interest rate decrease from 9% to 6%;
- 1994's term mix of short/medium/long term loans;
- Higher branch operating expenses;
- Expected savings withdrawal rate; and
- Elimination of GTF and return to members.

The most important variables tested, and the different values for each are listed in the table:

Variable	Appendix for further analysis	High Assumption	Consultants Assumption	Low Assumption
Loans Outstanding	Appendix F & G	1994 Targets (See attachments and graphs)	1994 Actuals (See Attached graphs)	20% below 1994 Actuals (See Attached graphs)
Savings (Members Own)	Appendix H	1994 Targets = Tk 5 / week	1994 Actuals = Tk 2 / week	1994 Actuals = Tk 2 / week
How RCP pays for the real estate in the branches that come from RDP	Appendix I	Leased	Bought	Bought
Number of Branches		330	300	300

The variables were tested in different combinations, and their effect on RCP's financial health is displayed below. The full printouts are in Appendix J:

Scenario	Loans O/S Assumption	Savings Assumption	Lease/Buy Assumption	Number of Branches	Incremental Effect on RDP IV Budget	Weakest Year of RCP (with balance in Investment acct)
1	High	High	Lease	330	+ Tk 227 MM	1995 Tk 105 MM
4	Low	Low	Buy	330	None	2001 (Tk 427 MM)
5	Low	Low	Lease	330	+ Tk 227 MM	1999 Tk 151 MM
7	Low	Low	Buy	300	None	2001 (Tk 204 MM)
8	Low	Low	Lease	300	+ Tk 227 MM	1999 Tk 345 MM

Together with BRAC staff, we examined eight scenarios. The five scenarios that provide the most information are presented here. We used the original numbering from our records and from BRAC's records, which explains why the table lists Scenarios # 1, 4, 5, 7 and 8. The full printout of these scenarios is attached as the final Appendix.

For RCP to maintain a positive Investments account (which allows it some financial buffer), some incremental funding must come into RCP. The last two columns show that incremental additional funding could be wrapped into the RDP IV request (to be described momentarily), or could conceivably go directly to RCP. The long-term financial projections predict that RCP requires a small additional subsidy to ensure an adequate financial cushion for RCP's health as a permanent development finance institution.

The first scenario is the RDP IV Proposal. So far, the targets established in 1994 for loans outstanding and savings are above historical performance (see Appendix F and G). There is not yet demonstrable evidence that branches can perform at these levels. The second two variables must be decided with Donor consultation. The RDP IV proposal takes the high version of each of the above assumptions. Under such a scenario, RCP is financially sustainable.

BRAC proposes that the RCP branches lease the land and building of the graduating RCP branches, rather than purchasing it outright. RCP would still purchase the loan portfolio and the savings per the original plan. The 1989 RCP Project Document dictated that RCP would purchase RDP assets, including land and building, when the branches "graduated" after their 4th year. If the land and building are leased instead, then RDP will not receive the expected up-front cash from RCP. The proposed leases will run 20 years (straight-line paydown), equal to 5% of the asset price annually. Therefore, by proposing that RCP will lease the RDP land and building, the RDP IV proposal implicitly benefits RCP by saving it the purchase cost of the branches' fixed assets. This keeps extra money in RCP and allows RCP to earn interest on it as well. This also inflates the necessary RDP IV request by the amount of the foregone purchase revenue. The cumulative additional cost to RDP of the lease arrangement is Tk 227 MM from 1995 through 2000. See Appendix I.

If, however, the high targets for Loans O/S and Savings are not achieved and instead, future performance follows the 1994 pattern, the donors may choose (i) to fund RDP the extra amount to permit RCP to lease branches from RDP, or (ii) to fund RCP directly. Taking the lowest of the above four assumptions, RCP will have a capital need of Tk 467 million, incurred in the years 1999 through 2002. The lowest assumptions are

close to the original 1989 RCP Project Document. That Document contemplated a fixed asset purchase for RCP and only 300 branches.

Recommendation: Balancing the cost of ongoing financial support to achieve the sustainability of RCP, and the lowest cost method of achieving this, we recommend the Donors accept BRAC's proposal that RCP lease branches from RDP. This inflates the RDP IV budget by Tk 227 MM. With this additional financial support, the low assumptions indicated that RCP financial patterns can sustain themselves.

Recommendation: RCP's current financial situation emphasizes the importance of generating a sufficient local deposit base. To improve record keeping, we recommend that the Accounts Department begin to track the two different savings types (compulsory 5% of disbursements and voluntary) separately.

- 6.2.5. Review the consequences of the proposed increase in the interest rate on loans from 20% to 25%, and recommend the policy and criteria which should in future serve to determine the appropriate rate of interest on loans. This will be assessed both from the perspective of the beneficiaries and their capacity to pay interest, and from the point of view of recovering costs for BRAC.

Current Situation

Beginning in January 1995, BRAC raised its interest rate from 20% to 25% on a declining balance calculation. BRAC instituted several other changes at the same time that reduce the out-of-pocket expense to the borrower. Here is a comparison showing the effect of all the changes:

	Old System	New System
Sample Loan	Tk 1000	Tk 1000
Size of Weekly Installment	Tk 22	Tk 25
# Payments	52	46
Total Collected (after refund for any surplus)	Tk 1118	Tk 1150
Expected Repayment Period	56 weeks	52 weeks
Effective Declining Interest Rate (if paid in min. time)	23.3%	33.2%
Effective Declining Interest Rate (if paid over max. time)	21.6%	29.3%
Group Trust Fund	Tk 40 (4% of the loan)	None
Insurance Fund	Tk 10 (10% of the loan)	None

Total Paid by Member during life of the loan	Tk 1118 Realizable	Tk 1150 Realizable
	Tk 50 Savings	<u>Tk 50 Savings</u>
	Tk 40 GTF	
	<u>Tk 10 Insurance</u>	
	Tk 1218 TOTAL	Tk 1200 TOTAL

Two administrative items:

- Under the old system, BRAC expected to receive 52 payments, but would allow borrowers up to 56 weeks to pay (due to holidays). The new system contemplates receiving full payment within 52 weeks, but in order to account for holidays, BRAC now calculates 46 payments. The effective interest rate depends upon whether the borrower pays in the minimum or the maximum allowable time period. The longer time period decreases the effective interest rate.
- Under the old system, BRAC would collect Tk 22 per week for 52 weeks, for a total of Tk 1144. At maturity, BRAC would rebate Tk 26 to bring the total collected down to Tk 1118. This rebate was difficult to track, especially when borrowers were often delinquent on their regular payment. The new system dispenses with this process.

In the above example, the rate hike increases the weekly installment by Tk 3 per week. This is partially offset by the elimination of both GTF (automatic 4% of the loan) and the Insurance Fund (automatic 1% of the loan). With those eliminations, over the life of the loan, the borrower now pays Tk 12 less.

Other international micro-credit institutions charge more than this rate. Banku Rakyat Indonesia (BRI) charges its borrowers an effective rate above 35% annually; BKK in Indonesia charges above 50% in annual interest. A recent World Bank study comparing micro-credit institutions urged BRAC and other Bangladeshi micro-credit institutions to increase their rates to achieve financial sustainability.

While BRAC's policy making in this regard must account for local perceptions, this rate increase reflects the true costs of delivering credit. RDP requires grant funding to cover its costs, and RCP has been only slightly profitable over its life.

Future rate increases

BRAC (and other Bangladeshi NGO's) originally set their interest rates at 16% because this was the prevailing rate of the Bangladeshi Bank. To our knowledge, this rate did not give primary consideration to the cost of the program.

Since that time, BRAC and other NGOs have become more conscious and more experienced in managing their program costs. Interest rates have been set with an eye towards both the long-term financial viability of the programs and the members' ability to repay the loans. Balancing these objectives is ultimately the responsibility of BRAC management and the BRAC board of directors.

Recommendation: We recommend that BRAC adopt a written policy for how to determine interest rates. We suggest the following elements of a written policy:

1. At a minimum, interest revenue (and therefore interest rates) should be sufficient to cover:
 - credit staff salaries,

Total Paid by Member during life of the loan	Tk 1118 Realizable	Tk 1150 Realizable
	Tk 50 Savings	Tk 50 Savings
	Tk 40 GTF	
	Tk 10 Insurance	
	Tk 1218 TOTAL	Tk 1200 TOTAL

Two administrative items:

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While BRAC's policy making in this regard must account for local perceptions, this rate increase reflects the true costs of delivering credit. RDP requires grant funding to cover its costs, and RCP has been only slightly profitable over its life.

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Recommendation: We recommend that BRAC adopt a written policy for how to determine interest rates. We suggest the following elements of a written policy:

1. At a minimum, interest revenue (and therefore interest rates) should be sufficient to cover:
 - credit staff salaries,

- training,
- direct costs (travel and stationeries),
- depreciation on offices, furniture and real estate used by the credit staff
- a fixed taka amount for RO and HO management of the branch.

This equals the cost of delivering credit at the branch level plus a fixed taka amount for oversight. If the oversight is a percentage of RO and HO costs, then overhead may become bloated

- 2 Changes to rates should be submitted to the BRAC board for their formal approval and to the Donors for their approval (if the change comes in the middle of a program period). After the program period, the BRAC Board should assume full responsibility for these decisions.
- 3 Changes to the interest rate should include a written justification in order to provide a rationale and prevent arbitrariness. The written justification should include and be based upon the annual budget approved by the Board (and the Donors if during a project period).

6.2.6. Review the level of branch operating costs and the likely changes in these costs as a result of the recent changes in VO numbers and membership, and any further changes proposed under RDP IV.

We flagged the problem area of high branch operating costs in December 1993 and again in October 1994. Since that time, BRAC has appointed a cost review committee comprised of senior staff from Accounts and from Program area. Implemented changes that began to be introduced in late summer 1994 include:

1. VO can be formally constituted with 30 members, rather than delaying until 50 villagers join. This speeds the process of lending to those members as well.
2. With the smaller number of VO members, PA's now visit 3 VOs per day, rather than two.
3. Traveling routes have been rationalized to reduce travel costs.
4. The Annual Operational Plan with the BM's is more formalized and the BM's are held more accountable for achieving it.
5. Variable costs under the BM's control are his responsibility to control

6.2.7. Review the system and achievements to date to recover the costs of the technical inputs to the sector programs, and consider what changes should be introduced to ensure full recovery of all such sectoral expenses by the end of RDP IV.

BRAC has further refined its commendable strategy to achieve consistent cost recovery on the sectoral program technical assistance it provides to its members. In preparing the RDP IV proposal, RDP sector programs have had to reach greater clarity on the "model branch" assumptions and how the multiple branches of RDP will attain their cost recovery goal by 2001. We have several observations:

- BRAC has wisely reviewed the service charges currently in place and reduced their application to one or two member activities where the borrower can straightforwardly recover or pay the service charge from selling her product. For example, poultry service charges will only be collected from the chick rearers who pay a Tk 1.5 service charge when they buy one-day old chicks. This cost can be passed on in the price she charges to the Key and Model Rearers. In addition, BRAC is trying to concentrate the number of participants in a particular activity in a branch territory in order to increase operating

efficiency.

Most service charges are paid in cash and collected by the Credit PA at the branch. If the fee is not paid, it is the responsibility of the Sector PA to revisit the member to collect payment. Although deductions from a project account at the branch or area office usually yield a higher collection rate (e.g. for Irrigation loans), payments in cash encourage the borrower to accept business and development responsibility for payment and BRAC to provide quality service to earn the fee. Across many cultures, the experience has been that group members value technical assistance more if they have to pay something for it; in turn, this forces the service provider to provide quality service.

(1) Overview

The costs and revenues of providing sector technical assistance for all RDP and RCP branches are part of the RDP Budget. Service charges paid by members were introduced by BRAC in 1993 to help the technical assistance program cover its operating costs. BRAC's plan is to increase the amount of service charges and streamline the costs of delivering the technical support by the year 2000 so that each branch is able to cover the costs of personnel and all regional office and head office overhead by the fourth year of each sector's operations at the branch. Overhead costs include the technical support by sector specialists and general management overhead (Accounts Department, Personnel, etc). Note: The credit program continues to bear the shared costs at the individual branch, with no allocation to the Sector programs. Service charges will not cover the costs of developing new programs or products, or of developing new markets (mostly for sericulture) and that cost will continue to require subsidy. BRAC hopes that internally generated revenues from the Rural Commercial Enterprises in each sector will pay these costs in the future.

Most service charges are collected in the field by the Credit PAs at the weekly VO meeting. Irrigation service charges, which are deducted from the project account at the branch, have a very high rate of collection. Similarly, the charge per chick in poultry is collected as part of the price of the chick paid by the chick rearers and deposited directly into the branch. If someone does not pay, the Credit PA reports it to the Sector PA who is responsible for revisiting the member to collect payment. There are no collection sheets for service charges at this time, so all service charge collections are reported through the Accountant when the Credit PA deposits the morning's collections. Each Sector Specialist at Head Office tracks the cost recovery performance in their sector. The cost recovery targets are based on the model branch assumptions of how many members are engaged in a certain activity multiplied by the service charge fee structure.

(2) Cost Recovery in 1994:

Cost recovery in 1994 was better than in 1993. Amounts varied from target due to slower or faster expansion of the program, supply constraints, and poor crop yields by members.

<i>Sector</i>	<i>1994 Target</i>	<i>1994 Actual</i>	<i>Variance</i>
Poultry and Livestock	Tk. 5.9 million	Tk. 4.9 million	- 18%
Irrigation	Tk. 4.97 million	Tk. 3.48 million	- 30%
Fisheries	Tk. 1.7 million	Tk. 2.86 million	+ 65%
Social Forestry and Vegetable	Tk. 5.2 million	Tk. 4.0 million	- 23%

Sericulture	Tk. 3.3 million	Tk. 1.8 million	- 47%
REP	Tk. 0	Tk. 0.05 million	
IGVGD	0	Tk. 1.5 million	

Poultry and Livestock: Poultry & Livestock service charges were below target primarily due to a shortage of chicks and therefore fewer chicks purchased by the Chick rearers. Through the end of 1994, service charges were collected at several points: from the Chick rearers (Tk. 1 per chick), from the goat rearers and cow rearers, and by selling the rearers a Vaccination Card which listed the 6 vaccinations needed from the paravets. Beginning in 1995, service charges will be collected only from chick rearers and model goat and cow rearers only (model rearers raise 3 or more cows or goats, rather than 1 or 2, and benefit from more technical assistance from BRAC). BRAC has found that key rearers (only 20% of whom take a loan for this purpose), goat rearers, and cow rearers do not need training and therefore should not pay service charges.

Irrigation and DTWs: Cost recovery continued to go well for this sector, primarily because service charges are deducted from the VO's Project Account at the branch. In 1994, BRAC revised its service charges to Tk. 120 per acre for the Boro cultivation (changed from a sliding scale of Tk. 100, Tk. 125, and Tk. 150 depending on the year of operation). According to the internal Irrigation Report: 1993-94 Boro Season, the rate of service charge recovery was 98% for Tk. 2.8 million, compared to 88% in the 1992-93 Boro season. However, much of this was paid in crop rather than in cash and the price of rice was very low. Therefore, the profits to the DTWs were minimal. Going forward, BRAC has said that it will require service charges to be paid in cash.

Fisheries: Charging Tk. 5 per decimal of water body, the fisheries service charges are collected when the fish are harvested and paid in cash by the members. This service charge will continue through RDP IV. Collection was over the target amount because the fisheries program has expanded more rapidly than expected and there were more water bodies under cultivation (because members find fisheries very profitable and more members borrowed for this purpose).

Social Forestry and Vegetable: Service charges for vegetables have been charged at Tk. 2 per decimal for the summer crop and Tk. 3 per decimal for the winter crops, or Tk. 5 per year per decimal. These will continue at this rates. IN 1994, collection for Vegetable cultivation was very good, however, BRAC set the target on the assumption that all payments would occur before December 31 when the winter crop is not actually harvested until January or February. Therefore, it appears as far below target. Social forestry has been a small sector until 1995 and RDP IV. It included nurseries (Tk. 150 per decimal per year).

Beginning in 1995, social forestry will have 3 activities that each generate service charges:

- | | |
|-------------------|--|
| Nursery | Raising small trees and bushes for sale to private farmers and village members (including lemon, mango, and other fruit trees). The service charge is Tk. 150 per year and is collected in July and August, which is the peak planing (and therefore selling) season. Customers are village members and farmers. |
| Grafting Nursery: | A newer activity, grafters raise trees and shrubs that require grafting to expand a high quality supply of certain fruit trees that in the past have only been cultivated in certain regions. These include mangoes, litchee, and hybrid lemons. Service charges are Tk. 300/year because these require more focused attention from the Social Forestry PAs. |

Agroforestry: The highest number of members engage in this activity and raise a diversified set of crops within a certain area. These are designed to include vegetables (short-term crops), medium-term crops, and longer-term crops so the farmer receives income several times through the year and can therefore pay a loan. Service charges are Tk 3/decimal per year.

Vegetable will become a separate sector in 1995. The service charges are the same for all activities, including vegetables, spices, and a new maize program where seeds are provided by the government to increase production.

Sericulture: Up through 1994, service charges in sericulture have been collected from the mulberry tree caretakers depending upon the age of the trees. This reflects BRAC's focus on tree plantation during RDP III because trees take 4 years to mature and become good producers of mulberry leaves. Collection was below target because (1) members would lie about how old their trees were to pay a lower service charge, and (2) the quality of DFLs has been very poor and caretakers sold fewer leaves (and generated less income) than BRAC had originally forecast.

Beginning in 1995, BRAC will charge service charges only from cocoon rearers and also for technical assistance to mulberry rearers. Most mulberry caretakers will also become chawki rearers and general rearers, so service charges will only be paid on the basis of DFL produced (Disease Free Laying, or one batch of eggs from a butterfly and one batch of cocoons). Rearers usually buy 50 DFL on a single rearing tray. Chawki rearers raise the silk worms through the first several stages of development that require a certain amount or type of mulberry leaf and then sell them to General Rearers. General Rearers will raise the worms through the final stages of producing cocoon and then sell those cocoons to a reeling center or, if damaged, to a local hand spinner. The amount of service charge will increase from year 1 through year 3 because a Rearer's production quality increases with experience and they can produce higher quality, and more valuable, cocoons. Mulberry tree production is directly related to sericulture and has been moved to this sector from Social Forestry. It focuses on sapling producers (mostly roadside) and bush plantation (farm production which yields higher quality leaves for better quality silk production).

Rural Enterprise Project: REP shows a very small amount of service charges generated from some of the experimental projects and is not part of the calculation of Service Charge Targets.

IGVGD: IGVGD members participate in the poultry rearing program and chick rearers pay service charges. Those should be netted against the costs of managing the IGVGD program because IGVGD does not use the Poultry sector field staff to provide technical support. This amount should increase as IGVGD expands to 56 thanas.

The service charges that will be charged from 1995 forwards are:

Agroforestry:

The highest number of members engage in this activity and raise a diversified set of crops within a certain area. These are designed to include vegetables (short-term crops), medium-term crops, and longer-term crops so the farmer receives income several times through the year and can therefore pay a loan. Service charges are Tk 3/decimal per year.

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The service charges that will be charged from 1995 forwards are:

<i>Sector</i>	<i>Activities</i>	<i>Types of Service Charges</i>	<i>Characteristics/ Comments</i>
Poultry/Livestock	Chick Rearing Pullet Rearing Key Rearing Model Rearing Poultry Worker Egg Collector Feed Producer Calf Rearer Cow Rearer Model Cow Rearer Goat Rearer Model Goat Rearer	Chick Rearing Tk. 1.5/ per chick Model Cow Rearing Tk. 50 per year Model Goat Rearing Tk. 20 per year	Higher price than in 1994, paid upon purchase of chick. Model rearers need more training because they rear 3 or more animals. All branches.
Irrigation	Per Deep Tube Well	Tk. 120 per acre irrigated per year.	Flat rate started in 1994 Cash payment only. 700 DTWs in operation.
Fisheries	Hatcheries Carp Nursery Fish Farmers (carp, Thai Sarputi)	Carp- Tk 3 per/dec. TS - Tk. 8/dec/yr Tk. 1000/hatchery/year Tk.	Same as in 1994. Most branches.
Social Forestry	Nurseries Grafting Nurseries Agroforestry (avg. 50 acres)	Tk. 150/year/decimal Tk. 300/year/decimal Tk. 5/yr/decimal	Will expand, but limited to perhaps 170 branches due to limited availability of land.
Sericulture	Tree caretakers Chawki Rearing General Rearing Reeling Center Worker Progressive Silk Farmer Sapling Nursery Bush Plantation	Rearers: Yr. 1 Tk. 30 per DFL Yr. 2 Tk. 40 per DFL Yr. 3 Tk. 50 per DFL	
Vegetable	Vegetable and spices Maize cultivation	Tk. 5/decimal/yr.	Maize roll out in RDP IV. Expansion in numbers of members.

(3) Implications for RDP IV

According to BRAC, most members now accept the concept of service charges and most of them pay them. The service charge forecast for RDP IV is driven by three factors: the number of members participating per branch, the number of branches participating in the sector, and the type and amount of service charges collected.

1. # of members per branch: Increasing the number of members participating per branch or the number of chicks produced over time. The number of members engaged in a sector activity increases in the branch during its first four years of activity. During RDP IV, BRAC also plans to increase the participation rate per branch.
2. # of branches: In RDP IV, BRAC is expanding with the 95 new branches and among the existing branches. Although poultry can be undertaken everywhere, many sectors are not going to be active in all branches.
3. The service charges collected: RDP will benefit from BRAC's focusing its service charges on key producers within the production chain and from those who benefits the most from, and require the most, technical assistance. This has been refined over time through experience (e.g. more flat rates rather than graduated because members don't like to pay an increase).

A branch has fixed costs of personnel and overhead allocations for delivering technical assistance to members. The biggest variable costs are training of new members to undertake the activity. Once members are trained, they then receive refresher courses each year. Therefore, total costs decline over time and settle at a certain annual level. Revenues increase steadily over the first 4 years of the activity in a branch and then level off. The number of members involved and the efficiency of their production increases over the first 3-4 years of the branch's life in the sector. Therefore, BRAC has forecasted a Model Branch for each sector in which revenues gradually increase and cover the costs of delivering the services by year 4 of its activity. BRAC wants all of its branches to be Year 3 or Year 4 branches in the sector programs by the year 2001. At the financial consultants' request and using a standard format, each sector specialist prepared a Model Branch forecast (see Appendix).

As a second step, the Sector Specialists forecast how many Year 1, year 2, year 3, and year 4 branches would exist in each year of RDP IV to generate a budgeted amount of service charges to be collected each year. The Cost Recovery targets for RDP IV are included in the Budget and in a summary table on the following page.

Based upon the Model Branch for each sector and the progress of each branch to their "maturity" in all sectors, BRAC forecasts that each sector will progress towards Cost Recovery during RDP IV. Total funding needs are projected to fall to Tk. 7.7 million in 2001.

*Projected Sector Program Cost Recovery During RDP IV, excluding capital investments costs
(Taka millions)*

<i>Sector</i>	<i>1996</i>	<i>1997</i>	<i>1998</i>	<i>1999</i>	<i>2000</i>	<i>2001</i>
1. Poultry/Livestock:						
Total costs*	42.3	47.5	33.7	26.9	24.7	16.8
Service charges Realized	5.9	9.6	13.2	15.4	16.4	19.7
Net fund requirement	36.4	37.9	20.5	11.5	8.3	(2.9)
2. Fisheries						
Total costs	14.6	18.1	21.4	17.1	18.0	15.1
Service charges	4.4	6.4	7.9	9.3	10.1	12.1
Net fund requirement	10.1	11.7	13.5	7.8	7.9	3.0
3. Social Forestry:						
Total costs	17.4	19.7	20.4	20.7	21.6	17.5
Service charges Realized	0.5	0.8	1	1.2	1.4	1.7
Net fund requirement	16.9	18.8	19.4	19.4	20.3	15.9
4. Sericulture:						
Total costs	60.1	71.9	72.6	34.7	34.4	16.5
Service charges Realized	3.3	9.2	16.4	20.6	22.9	27.5
Net fund requirement	56.8	62.7	56.2	14.1	11.5	(11.0)
5. Horticulture & Vegetable						
Total costs	14.7	17.8	18.6	18.3	19.2	14.9
Service charges Realized	6.6	7.9	9.1	9.9	10.2	12.3
Net fund requirement	8.0	9.9	9.5	8.3	9.0	2.7
TOTAL NET FUND REQUIREMENT	128.2	141.0	119.1	61.1	57.0	7.7

* Inflation adjusted costs that grow 5% per year.

This table reflects the following assumptions which are shown for each sector in the Budget:

Revenues:	Service charges (see appendix for calculations)
Costs:	Staff salaries and benefits at the branch (PAs) PO salary and benefits (usually 1 PO per 10 branches) Traveling & transportation (30% of PO salary) Staff training and refresher courses for members (5% of above total) HO and RO overhead (10% of all of the above, though it may fall to 5%) Training of Group Members Motorcycles for new POs
Costs do not include:	Capital investments Experimental or new product development costs Accumulated losses from previous year's operations

The Model Branch calculations in the Appendix show staff training and refreshers at 5% and do not show the cost of training new group members after year 4 on the assumption that branches would reach an equilibrium in the number of members participating. This assumption is highly unlikely given the annual dropout rate faced currently of 10% of members per year. Training of new members may continue as a significant cost if those trends continue.

Our conclusion is that BRAC does have a plan for steady improvement towards cost recovery in sector programs, but that some sectors are unlikely to reach full cost recovery (such as social forestry). Also, if BRAC finds a need to increase the member:staff ratio in fisheries, the cost recovery of that sector will fall unless higher service charges can be charged. Finally, the projection for sericulture seems optimistic, even though the budget shows revenue at 90% of actual projected service charges. This will be covered more thoroughly in the Sericulture Report.

We have several recommendations related to Cost Recovery for the Sector Programs:

Recommendations:

- Set a more realistic target than full cost recovery by 2001 to provide some cushion in case targets cannot be met. Although BRAC and the other sector consultants will decide on the best forecasts for each sector, we advise BRAC to set conservative targets in case the development plans need to adjust. Sericulture, for example, appears to be optimistic forecast given how far away it is and BRAC's minimal experience with new high producing DFLs.
- Develop a cost recovery model that will be able to produce a final product similar to the table above so BRAC can adjust key variables and still forecast the full amount of cost recovery going forward. This might be developed with assistance of some consultants at the next review, however, we believe BRAC should focus on how these variables change and have better tools for forecasting and tracking cost recovery progress.
- Develop a collection sheet for service charges at the branch level. This will ensure that there is information from both the accounts department and the Program side on what service charges are collected and from whom. Most monitoring is done verbally, at this point.

- For the Sector Revolving Loan Funds, there should be clear responsibility for collection of these loans in the Field. The Sector PAs and POs should have clear responsibility for collection of these amounts. An early warning system should also be in place to ensure that these loans are monitored and do not fall through the cracks. Two suggestions might be:
 - (1) Include all Sector RLFs, Enterprise loans, and REP loans on the second page of the APO report to allow senior management to review repayment performance (see loan section)
 - (2) Maintain a cap on how much can be outstanding at any time in an RLF.
- Appoint a senior manager responsible for all sector programs: Just as credit now has an accountable senior manager who oversees all credit and savings, the sector programs also need the focused attention of a single manager. Although the sector specialist are very technically competent, the growth in the sector programs warrant stronger business management and coordination.

6.2.8 In order to ensure sufficient operating capital for a BRAC Bank or credit program, assess whether there will be sufficient funds available from members savings to increase loans outstanding to the targeted levels, or whether additional external capital is likely to be required.

These issues are discussed in detail in the long-term financial projections, Section 6.2.4, and is presented in full in Appendix J.

6.2.9. In the event of a shortfall of credit capital, explore the various mechanisms available to BRAC to access funds from commercial banks, private sector sources and/or GOB at concessional rates of interest.

In RDP IV, BRAC has proposed to increase indirectly RCP's capital base by leasing new RDP branches rather than purchasing them outright. This is discussed in Section 6.3.4, and is analyzed in Appendix I. In the event that outside capital is necessary to support RCP, BRAC management has identified the following sources:

- The GOB has established the PKSf Foundation to receive outside donor funding and lend it to micro-credit institutions at 2%. To date, the PKSf fund has lent \$10 million (??). Therefore, if BRAC were to seek additional capital through PKSf, the fund would have to grow substantially. PKSf constitutes an available institutional channel, but without the current resources to satisfy a BRAC capital need.
- If BRAC were to receive a bank charter, it could access a low-interest borrowing window at the Bangladesh Bank at 4%. However, the trade-off is that the BB would require BRAC to comply with a government cap on rates for agricultural loans.
- Finally, BRAC could borrow directly from commercial banks at the prevailing market rate.

6.2.10. Review the consequences of the proposed raise in weekly savings from Tk. 2 to Tk 5 for (potential) beneficiaries.

In January 1995, BRAC increased the mandatory weekly savings level from Tk. 2 to Tk. 5. This change partly responds to the need for higher savings to support the expected loan volumes. For this reason, the new savings policy is important to RCP's long-term financial viability.

At the same time, BRAC eliminated the GTF and the Insurance payments; both were previously levied at loan disbursement. BRAC reports that in January and February, it has not been difficult to collect the larger amount, but too little time has passed to judge this.

Although some members save more than Tk. 2 per week voluntarily, the average for all BRAC members in 1994 was Tk 1.8 per week (see Appendix H). This includes the effect of some members leaving during the year. There appear to be large differences among branches of different ages, with notable low savings in Branch Years 3, 6 and 9. BRAC should investigate this further.

BRAC management has directed that each VO may have up to 20% of its membership saving at the Tk. 2 weekly level, so that no extremely poor members are forced out through this new savings policy. This policy change bears further investigation once there is a longer track record.

6.3. INSTITUTIONAL

6.3.1. Review BRAC's policies and proposals in respect of loans outstanding, in light of the latest and likely future levels of loss and VO closures.

After the major membership consolidation in late 1992, BRAC has continued to shed both inactive members and multiple members from the same family. Although RDP and RCP together recruited 279,337 new members, they lost 105,553. This loss equals 10% of the average 1994 membership. Inactive or non-participating members lose their interest in the VO for some reasons. Apparently, not all VO members stay for a lifetime; do they use VO membership -- under what circumstances do people join and do they leave? What happens during their membership? Collecting and analyzing these reasons could help BRAC maintain and improve its relevancy to the needs profile of new and older members.

- * **Recommendation:** We recommend that BRAC monitor the reasons for members' expulsion or retirement. The membership turnover suggests that more information about the development process is needed. This would assure BRAC that its membership policies are not inadvertently forcing out members for the wrong reasons. We have no information as to whether this is the case, however, this pace of membership turnover is important to watch.

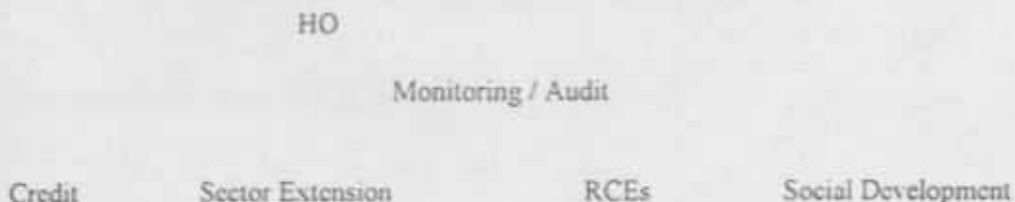
BRAC's Sector Programs include several interrelated enterprises that buy and sell from each other (For example, in Sericulture, the proposed Grainage Center would sell to the VO members, who in turn, sell to Reelers, Spinners, Weavers and Printers). As envisioned, each BRAC-managed enterprise will have different financial resources and financial obligations. In this complicated mix of business units, principles of sound management and prudent financial supervision require (1) that each business unit receive clear organizational incentives for its performance (e.g., stand-alone financial statements), and (2) that each business unit's independent decision making be protected from the influence of other BRAC operating units.

In practice, we recommend that BRAC:

1. Maintain separate Program Managers for Credit and Sector Programs, to protect the integrity of credit decision making from line-reporting relationships in the Sector Programs. Credit judgments (such as determinations about ability to pay, and the profitability of the proposed scheme) should be insulated from program areas (which should provide market knowledge and perhaps references on the skills of particular applicants). As a permanent development finance institution, the Credit Program's judgment as to creditworthiness and ability to repay must be independent and respected. If the reporting lines are blurred between the two programs, then neither program will operate to maximum potential. Each program's goals and achievements must be given the resources to succeed and the room to accomplish these goals.
2. Manage of RDP functions (Credit and Sector Programs) should be independent from other BRAC-managed enterprises that either supply or purchase goods from VO members. Compared to the BRAC-managed larger scale enterprises, the Credit and Sector Programs work in a village setting. Managers in both areas will, of course, be responsive to the other's needs, however, their first loyalty should be to their home enterprise. The Credit and Sector Programs should represent the interests of VO members, while the RCEs will be run with primary goal of making their enterprise financially viable and producing its own range of positive development effects.
3. Manage the commercial entities separately from programs that are wholly grant-funded, in order to protect managers from financial conflicts of interest that would impair their business judgments in repaying bank debt. BRAC commercial enterprises that require outside bank financing should be

legally isolated from Donor-funded enterprises, and managed and financed apart from other BRAC activities. This ensures that the commercial managers will have independent revenue and expense records to control their operations, and will be fully responsible for meeting bank obligations. BRAC should seek in-country legal advice on how to protect BRAC assets and Donor contributions from any bank claims in the event an RCE fails.

In discussions with BRAC, we sketched out a possible structure:



We support this structure, emphasizing that there must be strong, autonomous managers in each division; if not, then the structure suffers from over-centralization. To achieve growth, BRAC must continue to develop another tier of senior managers. Too much centralization may be as damaging to an organization's efficiency and accuracy as too much management diffusion.

Recommendation: BRAC's sophisticated and delicate balance between commercial and grant-funded activities should be honored, as much as possible, through formal policies concerning cross-subsidy and movement of funds among different BRAC entities.

Recommendation: BRAC is one of the few development organizations in the world that will groom managers who must balance the need for financial viability while achieving development results with its target group. Human and community development cannot be adequately captured in financial results. Managers (from the branch level up) deserve annual performance review that would summarize both financial efficiency and development impact.

Recommendation: The seeming "objectivity" of financial statements, and the temptation to use them as an easy performance gauge causes some to fear that BRAC will lose sight of its development mission. Because of BRAC's strong organizational ethic of working in the program areas and visiting the field offices, we are less concerned. However, BRAC should address this head-on by formulating some development criteria or other nuanced methods of documenting impact. We believe half-yearly reporting is sufficient. This might include personal stories or other nontraditional information. We share in the general consensus that the Quarterly Statistical Report is less helpful than it might be.

Donor Funding of Commercial Enterprises

The successful introduction of new income-generating activities for BRAC's 1,000,000 members opens up new business opportunities for related commercial enterprises (RCE). For example, by increasing vegetable cultivation, BRAC creates a demand for higher quality seeds. By increasing the production of silk cocoons, BRAC creates an source that can supply a more automated silk production process. In RDP IV, BRAC requests that Donors help the start-up of several commercial ventures that would buy or sell to other Sector enterprises. As proposed, the RCEs would be started with 30% Donor funding and 70% commercial bank financing.

We recommend that the Donors consider the following issues in deciding whether to fund an RCE:

How do these RCEs serve BRAC's development objectives? BRAC's activities in traditional microenterprise, which target the landless poor, are more familiar to most Donors. In expanding its economic development activities to new frontiers, BRAC could help the Donors by listing the development outputs from the RCEs, such as:

- Human Development Effects: number of jobs created, salary scale for new jobs, transferability or "ladder" of learned job skills;
- Community Development Effects: peripheral external benefits;
- Physical Development Effects: improved physical surroundings, renovated buildings, recovered land, road improvements, etc.

Which RCEs are highest priority? Possible criteria include:

- "Multiplier Effects": In BRAC's targeted sectors, there are certain key enterprises that will have "multiplier" effects in assisting other businesses. Typically, these are businesses that buy from or supply many others (e.g., a single Grainage Center that provides silkworm eggs to an entire region). An RCE with "multiplier effects" stimulates others' economic activities and should therefore be a high priority RCE.
- Release pent-up demand or supply: As business sectors grow, the supplier-customer links may occasionally get out of balance. For example, producers may make too much of one ingredient (e.g., too many cocoons and not enough reelers), or producers may demand more of an ingredient than is available (e.g., not enough day-old chicks to supply all the Poultry Key Rearers). An RCE that releases these bottlenecks can have important positive impact.
- Linkages to the Target Group: In the supply chain of a business sector, RCEs that are either immediate suppliers or customers of the beneficiaries will have the greatest positive impact on beneficiaries' income. For example, a fish processing center could purchase fisheries' output and therefore directly affect members' welfare, but a hypothetical new Dhaka grocery store that sells processed fish may be too distant from benefiting the members.
- Unique Supplier Effects: RCEs that offer a unique and essential business input are important to the business sector's success. For example, without silkworm eggs, the whole Sericulture sector suffers. On the other hand, an RCE that offers an improvement that is already widely available (an enhancement effect) -- for example, an improved fish food that increases fish production but does not change the fundamental economics of the business -- is not as strategic an investment.

RCEs should be evaluated as businesses, and as such, require sufficient business plan and financial projections. During our visit, BRAC did not present adequate explanation and support that would be necessary to raise money from a private commercial bank. A well-presented business plan would include description of the market, customers, competitors, costs, proposed managers and their background, and three years of financial projections, including a monthly cash flow until the enterprise breaks even.

Recommendation: We believe the current version of the RDP IV proposal does not provide sufficient business information to evaluate the RCEs in Sericulture, Fisheries, and Poultry/Livestock. We recommend that the Donors seek a clear development justification, business plan and proposal for the handling of future earnings. This business plan is especially important for Sericulture.

How should future earnings be handled? If these RCEs are commercially successful, then BRAC may generate earnings. The Donors options include (1) to allow BRAC to spend the earnings in a pre-agreed upon manner, (2) to structure the Donor investment as a preferred stock or recoverable grant that entitles the Donors to recover any available surplus, or (3) to structure a more formalized Donor review to provide veto-power only over the use of any available surplus.

Recommendation: We recommend that the Donors consider several options for handling future earnings streams once BRAC presents a well-reasoned business plan, since the available cash flow will depend upon the nature of the RCE. We recommend that the use of any surplus should be highly transparent to minimize the temptation to use it as a slush fund.

Should BRAC contribute some of its own equity? It is customary for the funder of a commercial venture to ask the business operator to invest some of his own funds in the project. This owner's equity provides some assurance that the operator will look after the investor's interests as carefully as the operator's own.

Recommendation: Unless BRAC is able to offer some contrary reasoning, requiring BRAC to contribute some of its own equity appears to an appropriate policy for RCEs as much as traditional commercial enterprises. We recommend that the Donors ask BRAC to share in the equity investment in these RCEs. We recommend a minimum BRAC investment of 5% to 10% of the total project.

6.3.2. Review and assess capability of BRAC staff at Head Office, Regional and Branch levels, and the instruments available to monitor, analyze and manage credit and finance.

Since 1992, the RDP Program Staff has become more involved and responsible for credit and savings performance. Late paying loans (and to a lesser degree, low savings) are actively managed in discussions between HO and the field. Two important organizational changes merit special notice:

1. As of December 1, 1994, RDP/RCP has appointed its first Program Manager for Credit and Savings, Mr. Atiq Nabi. Mr. Nabi's career with the RDP Program give his opinions important weight with field staff. We think Mr. Nabi brings credibility to the position and his appointment indicates the importance that BRAC places on this task.
2. RDP has created an internal information-tracking unit named RDP-MIS. This is a healthy improvement insofar as it indicates a new level of seriousness about receiving information that is immediately useful to program staff. The unit is currently designing a quarterly branchwise report, which we believe will (and should) include both APO data and monthly financial statements. Branchwise reporting and branch-level accountability is essential for BRAC to sustain fast growth.

In this regard, we are encouraged by BRAC's evolution, although the requisite reports are not designed and the concept not yet tested in the organizational culture.

Recommendation: BRAC should maintain a strong financial monitoring capability outside the program area. Currently, aggregate financial records can be cross-checked by comparing the Collection Sheets (from Program Area) and the Revenue and Expense ledger (from Accounts). However, the Program area would be best served by also having independent, frequent monitoring audits of this information. This would ensure (i) the Program Collection Sheets are not misrepresented by field staff who want to please superiors, (ii) better transparency of the program to outside consultants, and (iii) shorter time lag in correcting data errors than awaiting accounting reconciliation.

6.4. ENVIRONMENTAL

- 6.4.1. Working with the other consultants, assess likely costs and/or savings involved in proposed program interventions in order to make them more environmentally sustainable.

We defer to the recommendations of the other consultants in this area.

BRAC LOAN PORTFOLIO SECTORWISE ANALYSIS
January - December 1994

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Taka (million)	970	1,016	1,016	1,034	1,057	1,081	1,112	1,135	1,152	1,209	1,269	1,318
Social Forestry	10%	11%	11%	11%	11%	11%	11%	11%	12%	12%	13%	14%
Vegetable	4%	4%	4%	4%	4%	5%	5%	5%	5%	6%	6%	6%
DTW Operation	1%	1%	1%	1%	1%	1%	1%	1%	1%	0	0%	0%
DTW Purchase	6%	7%	7%	7%	7%	7%	7%	7%	6%	4%	5%	5%
Fisheries	2%	2%	2%	2%	2%	1%	3%	4%	4%	4%	4%	4%
Livestocks	10%	10%	9%	10%	8%	8%	8%	8%	7%	8%	8%	8%
Poultry	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Cottage Industry	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	4%
Sericulture	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Services	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Rural Transport	3%	3%	3%	3%	3%	3%	3%	3%	4%	4%	4%	4%
Rural Trading	35%	34%	34%	34%	34%	35%	35%	35%	35%	35%	34%	34%
Food Processing	28%	26%	26%	26%	26%	26%	25%	25%	25%	25%	24%	24%
Health	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Miscellaneous	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NIBL**									3%	3%	2%	2%
Total	104%	105%	104%	105%	103%	104%	105%	106%	106%	105%	105%	105%

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
APO												
Total												
Past due												
0 wks	80%	81%	80%	80%	83%	86%	85%	86%	85%	88%	88%	92%
1-4 wks	5%	6%	6%	6%	5%	4%	5%	4%	4%	4%	4%	2%
5-12 wks	3%	4%	6%	4%	4%	3%	3%	3%	4%	3%	2%	1%
13-25 wks	4%	3%	3%	3%	3%	3%	3%	3%	3%	2%	2%	2%
26-50 wks	5%	3%	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%
> 50 wks	4%	3%	3%	2%	1%	1%	4%	1%	1%	1%	1%	1%
NIBL**									3%	2%	2%	2%
	101%	100%	101%	98%	99%	100%	103%	100%	102%	100%	99%	100%

NIBL:

These are Non-Interest Bearing Loans, which are those loans that BRAC managers believe are not collectable during this time period. When a loan is on non-accrual, no interest charges are building up; this is an appropriate method of making sure that the income statement does not show interest revenue that, in fact, will never be collected. NIBL loans should include those from borrowers who will never pay for reasons such as: extreme poverty, defiance, death, migration, family death, or physical incapacity.

BRAC provided us this information only from September 1994 onward.

APO Social Forestry Past due	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0 wks	88%	89%	90%	90%	92%	95%	94%	94%	95%	95%	95%	97%
1-4 wks	4%	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	1%
5-12 wks	2%	2%	3%	3%	2%	1%	1%	1%	1%	1%	1%	1%
13-25 wks	2%	1%	1%	2%	2%	1%	1%	1%	1%	1%	1%	1%
26-50 wks	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
>50 wks	2%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%
	100%	98%	99%	100%	100%	101%	100%	100%	100%	100%	100%	101%

APO Vegetable Past due	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0 wks	97%	97%	97%	97%	97%	97%	96%	96%	96%	96%	96%	97%
1-4 wks	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
5-12 wks	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
13-25 wks	1%	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%
26-50 wks	1%	1%	1%	1%	1%	0%	0%	1%	1%	1%	1%	0%
>50 wks	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	100%	101%	100%	100%	101%	100%	99%	100%	100%	100%	100%	100%

APO DTW Operation Past due	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0 wks	95%	92%	93%	93%	93%	91%	94%	95%	98%	89%	89%	86%
1-4 wks	1%	4%	2%	1%	0%	0%	1%	1%	0%	8%	4%	11%
5-12 wks	1%	2%	3%	4%	3%	0%	0%	2%	1%	2%	5%	2%
13-25 wks	0%	2%	1%	1%	3%	3%	2%	1%	0%	1%	1%	1%
26-50 wks	0%	0%	0%	1%	1%	3%	1%	0%	0%	0%	0%	0%
>50 wks	0%	0%	0%	0%	0%	2%	2%	1%	0%	0%	0%	0%
	97%	100%	99%	100%	100%	99%	100%	100%	99%	100%	99%	100%

APO												
Poultry	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Past due												
0 wks	88%	82%	83%	82%	82%	86%	84%	83%	84%	84%	85%	90%
1-4 wks	1%	8%	5%	4%	4%	4%	4%	3%	3%	3%	3%	2%
5-12 wks	2%	2%	6%	7%	5%	3%	4%	5%	4%	3%	3%	2%
13-25 wks	2%	2%	2%	2%	4%	4%	4%	4%	4%	4%	4%	2%
26-50 wks	3%	3%	2%	3%	3%	2%	2%	3%	3%	3%	3%	3%
>50 wks	3%	3%	3%	2%	2%	1%	1%	2%	2%	2%	1%	1%
	99%	100%	101%	100%	100%	100%	99%	100%	100%	99%	99%	100%

APO												
Cottage Industry	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Past due												
0 wks	89%	88%	88%	88%	89%	90%	89%	89%	90%	89%	90%	94%
1-4 wks	3%	5%	5%	4%	3%	4%	4%	4%	3%	4%	3%	2%
5-12 wks	1%	2%	3%	4%	3%	2%	3%	3%	2%	3%	2%	1%
13-25 wks	2%	2%	1%	2%	3%	2%	2%	2%	3%	2%	2%	2%
26-50 wks	2%	2%	2%	2%	1%	1%	1%	2%	2%	2%	2%	1%
>50 wks	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%
	98%	100%	100%	101%	100%	99%	99%	100%	100%	100%	99%	100%

APO												
Sericulture	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Past due												
0 wks	98%	83%	76%	76%	72%	74%	73%	74%	74%	76%	78%	83%
1-4 wks	0%	15%	10%	5%	6%	5%	5%	3%	3%	3%	2%	2%
5-12 wks	0%	0%	14%	16%	10%	6%	7%	6%	5%	5%	4%	1%
13-25 wks	0%	0%	0%	2%	11%	11%	10%	8%	7%	6%	5%	4%
26-50 wks	0%	0%	0%	0%	1%	2%	3%	7%	8%	9%	9%	8%
>50 wks	0%	0%	0%	0%	0%	1%	2%	2%	3%	2%	2%	1%
	98%	98%	100%	99%	100%	99%	100%	100%	100%	101%	100%	99%

APD												
DTW Purchase	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Past due												
0 wks	96%	96%	97%	96%	97%	96%	95%	96%	99%	98%	98%	97%
1-4 wks	1%	1%	0%	1%	0%	1%	1%	0%	0%	0%	0%	2%
5-12 wks	1%	1%	0%	1%	1%	0%	1%	1%	0%	1%	1%	0%
13-25 wks	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
26-50 wks	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%
>50 wks	2%	1%	1%	0%	1%	1%	1%	1%	0%	0%	0%	0%
	101%	100%	100%	100%	101%	100%	100%	100%	100%	100%	100%	100%

APD												
Fisheries	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Past due												
0 wks	80%	79%	81%	83%	85%	92%	93%	94%	94%	95%	95%	96%
1-4 wks	1%	4%	2%	2%	2%	1%	1%	1%	1%	0%	1%	1%
5-12 wks	2%	1%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%
13-25 wks	3%	3%	2%	2%	2%	1%	1%	1%	1%	1%	1%	0%
26-50 wks	10%	10%	9%	8%	7%	2%	1%	1%	2%	1%	1%	1%
>50 wks	4%	4%	3%	3%	3%	1%	1%	1%	2%	1%	1%	1%
	100%	101%	99%	100%	101%	99%	98%	99%	101%	99%	100%	100%

APD												
Livestocks	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Past due												
0 wks	62%	63%	66%	65%	66%	71%	71%	71%	75%	76%	77%	85%
1-4 wks	5%	5%	6%	7%	6%	5%	6%	5%	5%	5%	5%	3%
5-12 wks	4%	4%	5%	5%	5%	4%	4%	4%	4%	4%	4%	3%
13-25 wks	5%	5%	5%	5%	5%	4%	4%	4%	4%	4%	3%	2%
26-50 wks	9%	8%	8%	8%	7%	6%	6%	5%	5%	4%	4%	3%
>50 wks	15%	14%	11%	11%	11%	10%	10%	10%	9%	7%	7%	5%
	100%	99%	101%	101%	100%	100%	101%	99%	102%	100%	100%	101%

APO Services	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Past due												
0 wks	71%	72%	74%	73%	74%	79%	79%	79%	81%	81%	86%	91%
1-4 wks	8%	9%	5%	5%	4%	4%	4%	5%	4%	4%	5%	3%
5-12 wks	4%	4%	7%	7%	4%	3%	3%	2%	2%	2%	2%	1%
13-25 wks	4%	5%	4%	4%	7%	6%	6%	5%	5%	3%	2%	2%
26-50 wks	6%	5%	4%	4%	4%	4%	4%	5%	5%	6%	3%	2%
>50 wks	6%	6%	6%	6%	7%	4%	4%	4%	4%	4%	1%	1%
	99%	101%	100%	99%	100%	100%	100%	100%	101%	100%	99%	100%

APO Rural Transport	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Past due												
0 wks	70%	74%	79%	79%	81%	85%	86%	87%	89%	89%	90%	94%
1-4 wks	5%	4%	5%	6%	4%	3%	4%	3%	3%	3%	3%	1%
5-12 wks	3%	3%	3%	3%	3%	2%	2%	2%	2%	1%	1%	1%
13-25 wks	4%	4%	3%	3%	3%	2%	2%	2%	2%	2%	1%	1%
26-50 wks	8%	7%	5%	5%	4%	4%	3%	3%	3%	2%	2%	2%
>50 wks	10%	8%	5%	5%	5%	4%	4%	4%	3%	3%	1%	1%
	100%	100%	100%	101%	100%	100%	101%	101%	102%	100%	98%	100%

APO Rural Trading	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Past due												
0 wks	82%	81%	81%	80%	82%	85%	84%	85%	87%	87%	88%	92%
1-4 wks	5%	7%	7%	7%	6%	5%	5%	5%	4%	5%	4%	2%
5-12 wks	3%	3%	5%	6%	5%	3%	3%	3%	3%	3%	2%	1%
13-25 wks	3%	3%	3%	3%	4%	3%	3%	3%	3%	3%	3%	2%
26-50 wks	3%	4%	3%	3%	3%	1%	3%	3%	3%	3%	3%	2%
>50 wks	6%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%
	102%	99%	100%	100%	101%	98%	99%	100%	100%	101%	100%	99%

APO

Food Processing

Past due

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0 wks	78%	80%	81%	79%	81%	84%	82%	83%	85%	83%	84%	90%
1-4 wks	7%	6%	7%	9%	7%	6%	7%	6%	6%	7%	6%	3%
5-12 wks	4%	4%	4%	4%	4%	3%	4%	4%	4%	4%	3%	2%
13-25 wks	5%	4%	4%	4%	4%	3%	3%	3%	3%	3%	3%	2%
26-50 wks	5%	4%	4%	4%	4%	3%	3%	3%	3%	3%	3%	2%
>50 wks	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%
	100%	99%	101%	101%	101%	100%	100%	100%	101%	100%	99%	99%

APO

Health

Past due

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0 wks	91%	93%	91%	91%	89%	91%	90%	89%	89%	84%	83%	88%
1-4 wks	1%	2%	4%	4%	5%	3%	4%	5%	4%	6%	7%	5%
5-12 wks	1%	0%	0%	0%	1%	1%	1%	1%	1%	3%	3%	2%
13-25 wks	1%	1%	1%	1%	0%	0%	1%	1%	1%	1%	1%	1%
26-50 wks	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%	2%	2%
>50 wks	4%	3%	3%	3%	3%	3%	4%	3%	3%	3%	3%	2%
	99%	100%	100%	100%	99%	99%	101%	100%	99%	99%	99%	100%

APO

Miscellaneous

Past due

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0 wks	70%	73%	75%	71%	74%	80%	67%	72%	73%	73%	73%	83%
1-4 wks	9%	9%	9%	10%	9%	9%	18%	10%	7%	6%	6%	3%
5-12 wks	7%	7%	6%	6%	6%	3%	8%	10%	9%	6%	5%	3%
13-25 wks	5%	4%	3%	6%	4%	3%	3%	3%	5%	8%	9%	6%
26-50 wks	8%	7%	6%	6%	6%	3%	3%	3%	4%	4%	5%	4%
>50 wks	2%	1%	1%	1%	0%	2%	2%	2%	2%	3%	3%	2%
	101%	101%	100%	100%	99%	100%	101%	100%	100%	100%	101%	101%

BRAC HOUSING LOAN PORTFOLIO ANALYSIS

(January - December 1994)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Total (Tk millions)	43	43	42	45	48	54	60	n/a	81	95	109	123
Past Due												
0 wks	41%	30%	30%	35%	40%	45%	49%	n/a	56%	58%	60%	61%
1-4 wks	33%	6%	6%	6%	6%	5%	6%	n/a	8%	8%	9%	11%
5-12 wks	5%	5%	5%	4%	3%	3%	3%	n/a	4%	4%	5%	4%
13-25 wk	1%	8%	7%	6%	5%	4%	3%	n/a	3%	2%	2%	2%
26-50 wk	2%	16%	16%	15%	14%	12%	9%	n/a	6%	4%	3%	3%
51-100 w	8%	19%	20%	19%	17%	16%	15%	n/a	13%	19%	9%	14%
>100 wks	10%	16%	16%	15%	15%	15%	15%	n/a	10%	5%	9%	5%
Total	100%	100%	100%	100%	100%	100%	100%	n/a	100%	100%	97%	100%

RDP + RCP Members Admission & Dropout During 1994

Branch	12/31/93	January		February		March		April		May		June	
Age	Members	New.	Loss	New.	Loss	New.	Loss	New.	Loss	New.	Loss	New.	Loss
Total	833,894	30,827	6,075	29,927	7,014	27,125	8,179	25,501	8,826	21,238	7,392	22,861	14,074
Yr 9	57,997	465	283	859	753	509	4,356	698	498	593	313	396	1,222
Yr 8	109,868	1,097	1,601	1,342	1,408	1,317	724	1,380	937	1,206	1,201	1,207	2,422
Yr 7	110,983	1,224	1,372	1,206	1,317	1,014	696	471	1,630	714	1,750	1,230	2,037
Yr 6	107,012	1,672	668	2,216	917	1,417	398	1,301	1,971	926	1,445	980	3,619
Yr 5	109,820	2,983	1,090	2,362	1,107	1,795	558	1,186	1,321	1,026	880	1,440	2,156
Yr 4	152,115	3,391	602	3,345	588	5,959	902	2,746	1,797	2,515	1,399	2,336	1,851
Yr 3	105,282	4,658	106	3,431	101	2,051	79	2,836	84	2,129	126	2,691	187
Yr 2	72,715	15,172	348	4,661	823	3,353	457	4,207	580	2,551	268	3,277	535
Yr 1	0	0	0	9,995	0	10,220	0	10,054	2	9,278	1	9,062	0
PCRDP	8,104	165	5	510	0	390	9	529	6	302	9	248	45

Branch	July		August		September		October		November		December		Total	Total	12/31/94	Loss to New
Age	New.	Loss	New.	Loss	New.	Loss	New.	Loss	New.	Loss	New.	Loss	New	Loss	Members	Member Ratio
Total	18,230	7,952	18,255	7,031	17,363	8,785	26,270	9,064	27,042	10,758	14,698	10,383	279,337	105,533	1,007,698	18%
Yr 9	523	662	607	501	1,158	930	1,556	621	1,221	540	687	842	9,272	11,521	55,748	124%
Yr 8	1,379	935	1,049	859	1,270	1,147	2,258	1,210	1,637	1,425	1,362	1,787	16,594	15,656	110,716	95%
Yr 7	696	1,301	939	723	1,478	1,274	3,537	1,244	1,839	1,610	1,173	648	15,521	15,602	110,002	101%
Yr 6	1,056	1,369	855	1,329	1,650	1,239	2,548	1,358	3,970	1,517	1,658	1,754	20,252	17,584	109,680	87%
Yr 5	1,126	920	2,095	1,046	1,561	1,056	3,698	1,351	1,808	922	1,860	2,074	22,943	14,484	118,279	63%
Yr 4	2,139	1,629	1,936	1,687	2,033	1,849	3,583	2,236	5,542	2,100	2,613	1,870	37,230	18,510	170,833	50%
Yr 3	1,866	499	1,916	321	1,879	231	2,406	364	2,292	1,892	1,357	515	29,512	4,505	130,289	15%
Yr 2	2,174	573	2,607	463	1,622	745	1,926	553	2,564	623	2,123	586	46,327	6,554	112,488	14%
Yr 1	6,952	3	5,906	8	4,507	9	4,561	59	6,028	38	1,752	277	78,315	397	77,918	1%
PCRDP	319	61	345	94	202	305	197	65	141	91	113	30	3,461	720	10,845	21%

Sector Budget Analysis
Composition of Total RDP IV Budget 1986-2000
(Tk millions)

Sector	Staff Salary & Training	%	Member Training	%	New Product Dvpm	%	Capital Investment	%	HO & RO Allocation	Total Budget*	Service Charges	% Cost Recovery
Poultry/Livestock	109.5	53%	28.7	14%	4.0	2%	45.0	22%	19.0	206.2	60.4	29.3%
Fisheries	60.5	47%	10.6	8%	17.5	14%	20.0	16%	11.8	129.0	38.1	29.5%
Social Forestry	75.9	82%	1.7	2%	5.0	5%	5.0	5%	6.4	92.8	4.9	5.3%
Sericulture - Core	154.0	48%	34.7	11%	10.0	3%	175.0	54%	29.4	323.0	72.3	22.4%
Sericulture - RCE	0	0%	0	0%	0	0%	117.0	100%	0.0	117.0		
Sericulture - Total	154.0	35%	34.7	8%	10.0	2%	292.0	66%	29.4	440.0	72.3	16.4%
REP	15.6	11%	27.0	19%	85.0	59%	0.0	0%	15.4	143.0		
Vegetable	50.1	49%	5.7	6%	5.0	5%	30.0	30%	10.6	101.4	43.7	43.1%
Mkt Dvpm Program	0.0	0%	0.0	0%	50.0	100%	0.0	0%	0.0	50.0		
TOTAL	619.6	35%	143.1	8%	186.5	11%	684.0	39%	122.0	1,755.2	291.7	16.6%
H.Rights & L.Ed.	91.7		62.0		20.0		0.0		15.3	189.0	?	

* Total BUDget may not equal sum of columns due to exclusion of small budget items.

8% new tax → direct benefit
92% BPRC devlpt → indirect benefit.) is this an
account
integrated.

BRAC LOAN DISBURSEMENT FORECAST (1996-2000)

Sector Loans:	Target	Actual	1996	1997	1998	1999	2000	Total
		1994						
Poultry	Disbursements (in million Taka)	169 (Ptry + Lysk)	56	68	76.7	86.9	65.8	353.4
	% of Total	8%	1%	1%	1%	2%	1%	1%
	Number of loans							
Livestock	Disbursements (in million Taka)	(above)	143.3	162.7	234.3	175.5	245.6	961.4
	% of Total		4%	4%	5%	3%	4%	4%
	Number of loans							
Fishery	Disbursements (in million Taka)	85	200.1	257.8	328.3	382.7	412.2	1581.1
	% of Total	4%	5%	6%	6%	7%	7%	6%
	Number of loans							
Sericulture	Disbursements (in million Taka)	n/a	25	37.5	50	62.5	50	225
	% of Total		1%	1%	1%	1%	1%	1%
	Number of loans		5,000	7,500	10,000	12,500	10,000	
Vegetable & Horticulture	Disbursements (in million Taka)	275 (Veg + S.F.)	200	225	250	275	300	1250
	% of Total	13%	5%	5%	5%	5%	5%	5%
	Number of loans		40,000	45,000	50,000	55,000	60,000	
Social Forestry	Disbursements (in million Taka)	(above)	16.1	24.5	32	38.8	45	156.4
	% of Total		0%	1%	1%	1%	1%	1%
	Number of loans		3,500	5,000	6,400	7,550	8,600	
Total Sector Loan Disbursements			640.5	775.5	971.3	1021.4	1118.6	4527.3
% of Total Disbursements			20%	20%	23%	22%	22%	22%
Loans for Traditional Activities:			3,125	3,805	4,210	4,678	5,010	20,829
% of Total Disbursements			83%	83%	83%	82%	82%	82%
Total Disbursement Target (Tk millions)			2,137	3,766	4,581	5,182	6,129	25,357
% of Total Disbursements			100%	100%	100%	100%	100%	100%

Note:

These figures do not include Irrigation (which amounted to 3% of disbursements in 1994) and Housing (which was 5% of 1994 disbursements).

Conclusion:

* In the RDP IV document, BRAC states its intention to make sector loans 50% of the portfolio. These preliminary data from BRAC are not consistent with that objective.

BRAC LOAN DISBURSEMENT FORECAST (1996-2000)

Supporting Schedules

No. of Branches	1996	1997	1998	1999	2000
Branch Age					
1	30	35	0	0	0
2	40	30	35	0	0
3	47	55	30	35	0
4	25	47	55	30	35
5	20	25	47	55	30
6	30	20	25	47	55
7	21	30	20	25	47
8	19	21	30	20	25
9	20	19	21	30	20
10	20	20	19	21	30
11	10	20	20	19	21
12		10	20	20	19
13			10	20	20
14				10	20
15					10
Total	282	330	330	330	330

Disbursements for Model Branch (Tk 000)

Branch Age	1996	1997	1998	1999	2000
1	3,750	3,750	3,750	3,750	3,750
2	6,600	6,600	6,600	6,600	6,600
3	9,800	9,800	9,800	9,800	9,800
4	12,425	12,425	12,425	12,425	12,425
5	14,000	14,000	14,000	14,000	14,000
6	16,000	16,000	16,000	16,000	16,000
7	18,000	18,000	18,000	18,000	18,000
8	20,000	20,000	20,000	20,000	20,000
9	22,000	22,000	22,000	22,000	22,000
10	22,000	22,000	22,000	22,000	22,000
11	22,000	22,000	22,000	22,000	22,000
12	22,000	22,000	22,000	22,000	22,000
13	22,000	22,000	22,000	22,000	22,000
14	22,000	22,000	22,000	22,000	22,000
15	22,000	22,000	22,000	22,000	22,000

Total Projected Disbursements (= # of Branches x Model Branch Disbursements)

Branch Age	1996	1997	1998	1999	2000
1	112,500	131,250	0	0	0
2	264,000	198,000	231,000	0	0
3	460,600	519,400	294,000	343,000	0
4	310,625	583,975	658,525	372,750	434,875
5	280,000	350,000	658,000	742,000	420,000
6	480,000	320,000	400,000	752,000	848,000
7	378,000	540,000	360,000	450,000	846,000
8	380,000	420,000	600,000	400,000	500,000
9	440,000	418,000	462,000	660,000	440,000
10	440,000	440,000	418,000	462,000	660,000
11	220,000	440,000	440,000	418,000	462,000
12	0	220,000	440,000	440,000	418,000
13	0	0	220,000	440,000	440,000
14	0	0	0	220,000	440,000
15	0	0	0	0	220,000
Total	3,765,725	4,580,625	5,181,525	5,699,750	6,128,875

BRAC SECTOR LOAN DISBURSEMENT FORECAST (1996-2000)

SECTOR.WK1

Supporting Schedules

Sector	Targets	1996	1997	1998	1999	2000
Poultry	No. of Poultry Worker	1,500	1,750	0	0	0
	Key Rearers	35,000	32,500	17,500	0	0
	Chick Rearers	700	650	350	0	0
	Pullet Rearers	1,245	1,245	1,245	0	0
	Model Rearers	2,490	2,490	2,490	0	0
	Hatchery	410	410	410	0	0
	Feed Seller	30	35	0	0	0
	total no. of borrowers	41,375	39,080	21,995	0	0
	Loan disbursement (Tk million)	56.0	68.0	76.7	86.9	65.8
Livestock	No. of Cow rearers	21,500	37,600	44,700	49,500	49,500
	No. of Goat rearers	21,500	37,600	44,700	49,500	49,500
	Total no. of borrowers	43,000	75,200	89,400	99,000	99,000
	Loan disbursement (Tk million)	143.3	162.7	234.3	175.5	245.6
Fishery	Carp/prawn polyculture	156.3	201.6	256.5	297.0	320.8
	Sarputi culture	25.1	30.8	37.3	41.0	43.0
	Carp nursery	14.0	17.5	21.0	24.5	28.0
	Prawn	2.9	7.1	12.9	19.0	20.4
	Small hatchery	1.8	0.9	0.6	0.6	0.0
	Loan disbursement (Tk million)	200.1	257.9	328.3	382.1	412.2
Sericulture	No. of Silkworm Rearers	5,000	7,500	10,000	12,500	10,000
	Avg. loan size (Taka)	5,000	5,000	5,000	5,000	5,000
	Loan disbursement (Tk million)	25.0	37.5	50.0	62.5	50.0
Social Forestry	Forest fruit nursery					
	Number of Borrowers	2,400	2,800	3,000	3,000	3,000
	Avg. loan size (Taka)	4,000	4,000	4,000	4,000	4,000
	Loan disbursement (in 000 Tk)	9,600	11,200	12,000	12,000	12,000
	Grafting Nursery					
	Number of Borrowers	100	250	400	550	600
	Avg. loan size (Taka)	5,000	5,000	5,000	5,000	5,000
	Loan disbursement (in 000 Tk)	500	1,250	2,000	2,750	3,000
	Agroforestry					
	Number of Borrowers	1,000	2,000	3,000	4,000	5,000
	Avg. loan size (Taka)	6,000	6,000	6,000	6,000	6,000
	Loan disbursement (in 000 Tk)	6,000	12,000	18,000	24,000	30,000
Total for Social Forestry		16.1	24.5	32	38.8	45
Vegetable & Horticulture	No. of borrowers (in 000)	40,000	45,000	50,000	55,000	60,000
	Avg. loan size (in 000 Tk)	5,000	5,000	5,000	5,000	5,000
	Loan disbursement (Tk million)	200	225	250	275	300
Total Sector Disbursements (Tk millions)		640.5	775.6	971.3	1,020.8	1,118.6

RDP/RCP MODEL BRANCH
Assumptions v. Actual

RCPMIC

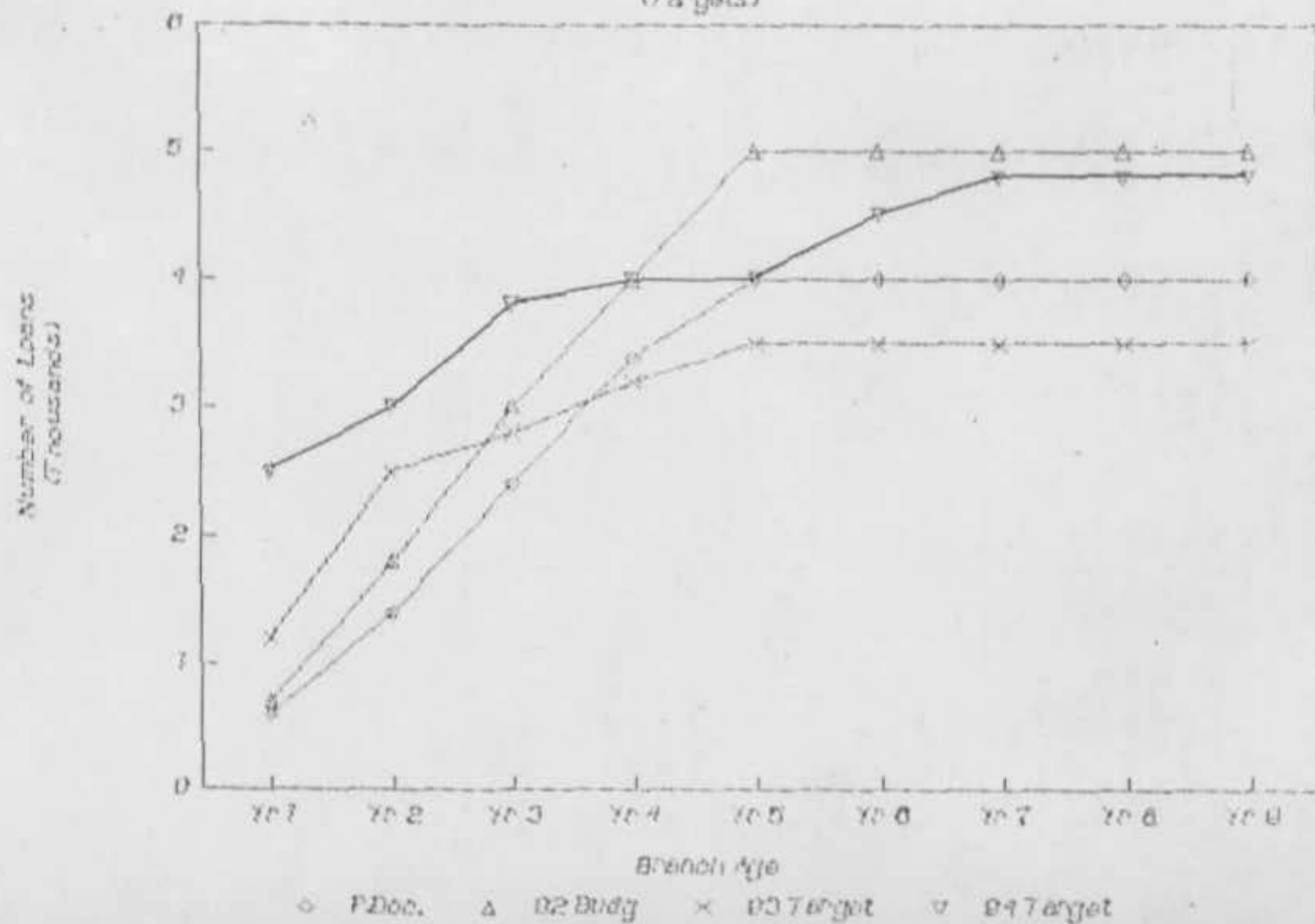
		1989	91/92	1993	1994			
		Proj.	Rev'd	Int'l	Int'l	1993	1994	Consult.
Age	Characteristic	Doc.	Budget	Targets	Targets	Actual	Actual	Estim.
Yr 1	# of Members	2,500	2,500	2,500	3,200	3,333	3,122	
	# of Loans	600	700	1,200	2,500	954	1,595	
	Avg Loan Size (Tk)	1,600	1,600	1,200	1,500	1,705	2,045	
	Yr-End O/S (Tk)	612	679	851	2,053	1,317	2,483	
	Disb. (Tk)	960	1,120	1,440	3,750	1,627	3,262	
	Savings (Total)	150	156	192	284	414	553	
	Savings (Own)				86			
	Group Fund	38	45	57	-	95	114	
Yr 2	# of Members	5,500	5,500	5,500	4,800	4,211	4,606	
	# of Loans	1,400	1,800	2,500	3,000	2,282	2,795	
	Avg Loan Size (Tk)	1,857	1,833	1,800	2,200	2,034	2,265	
	Yr-End O/S (Tk)	1,858	2,192	2,853	3,946	2,735	4,034	
	Disb. (Tk)	2,600	3,300	4,500	6,600	4,642	6,331	
	Savings (Total)	575	641	777	786	968	1,392	
	Savings (Own)				337			
	Group Fund	1,424	177	237	-	171	288	
Yr 3	# of Members	6,000	6,000	6,000	6,000	5,070	5,752	
	# of Loans	2,400	3,000	2,800	3,800	3,117	4,382	
	Avg Loan Size (Tk)	2,100	2,100	2,500	2,600	2,241	2,366	
	Yr-End O/S (Tk)	3,832	4,475	4,815	6,063	4,345	5,987	
	Disb. (Tk)	5,040	6,300	7,000	9,800	6,986	10,368	
	Savings (Total)	1,150	1,436	1,667	1,587	1,443	2,139	
	Savings (Own)				690			
	Group Fund	344	429	517	-	397	530	
Yr 4	# of Members	6,000	6,000	6,000	6,000	5,491	5,947	
	# of Loans	3,400	4,000	3,200	4,000	3,542	4,283	4,000
	Avg Loan Size (Tk)	2,394	2,443	2,800	3,100	2,594	2,781	2,781
	Yr-End O/S (Tk)	6,457	7,306	6,493	7,937	6,347	7,008	6,937
	Disb. (Tk)	8,140	9,770	8,960	12,425	9,188	11,910	10,860
	Savings (Total)	1,750	2,404	2,656	2,432	2,129	2,592	
	Savings (Own)				1,012			
	Group Fund	665	820	875	-	591	797	
Yr 5	# of Members	6,000	6,000	6,000	6,000	5,350	6,043	
	# of Loans	4,000	5,000	3,500	4,000	3,540	4,297	4,000
	Avg Loan Size (Tk)	2,715	2,692	2,800	3,500	2,511	3,040	3,260
	Yr-End O/S (Tk)	9,050	10,461	7,442	9,220	7,413	8,362	8,220
	Disb. (Tk)	10,860	13,460	9,800	14,000	8,888	13,065	12,800
	Savings (Total)	2,350	3,557	3,685	2,803	2,064	3,054	
	Savings (Own)				1,673			
	Group Fund	1,104	1,358	1,268	-	658	889	

RDP/RCP MODEL BRANCH Assumptions v. Actual

(Cont'd)

Age	Characteristic	1989	91/92	93	94	1993	1994 Consultants	
		Proj. Doc.	Rev'd Budget	Int'l Targets	Int'l Targets	Actual	Actual	Estimate
Yr 6	# of Members	6,000	6,000	6,000	6,000	5,549	6,000	
	# of Loans	4,000	5,000	3,500	4,500	3,355	3,854	4,000
	Avg Loan Size (Tk)	3,130	2,910	3,000	3,600	3,113	3,065	3,400
	Yr-End O/S (Tk)	10,949	11,666	8,131	10,640	8,968	8,556	8,911
	Disb. (Tk)	12,523	13,750	10,500	16,000	10,445	11,813	18,000
	Savings (Total)	2,956	4,725	4,750	3,948	2,799	2,664	
	Savings (Own)				2,202			
	Group Fund	1,605	1,908	1,688	-	1,034	701	
Yr 7	# of Members	6,000	6,000	6,000	6,000	5,493	5,755	
	# of Loans	4,000	5,000	3,500	4,800	3,599	3,772	4,000
	Avg Loan Size (Tk)	3,395	3,230	3,100	3,750	3,119	3,587	3,600
	Yr-End O/S (Tk)	12,223	12,954	8,523	12,056	9,201	9,558	9,497
	Disb. (Tk)	13,580	15,050	10,850	16,000	11,227	13,532	14,400
	Savings (Total)	3,550	5,958	5,832	5,220	3,241	3,388	
	Savings (Own)				2,626			
	Group Fund	2,148	2,510	2,122	-	1,024	1,105	
Yr 8	# of Members	6,000	6,000	6,000	6,000	5,799	5,891	
	# of Loans	4,000	5,000	3,500	4,800	2,878	4,203	4,000
	Avg Loan Size (Tk)	3,500	3,430	3,200	4,200	2,734	3,919	3,600
	Yr-End O/S (Tk)	12,879	13,760	8,839	13,461	9,486	11,302	9,615
	Disb. (Tk)	14,000	15,750	11,200	20,000	7,868	16,473	14,400
	Savings (Total)			6,932	6,452	2,487	4,279	
	Savings (Own)				2,965			
	Group Fund			2,570	-	683	1,195	
Yr 9	# of Members	6,000	6,000	6,000	6,000	N/A	6,162	
	# of Loans	4,000	5,000	3,500	4,800		3,279	4,000
	Avg Loan Size (Tk)	3,500	3,430	3,200	4,600		3,586	3,600
	Yr-End O/S (Tk)	12,879	13,760	8,839	14,859		9,766	9,655
	Disb. (Tk)	14,000	15,750	11,200	22,000		11,759	14,400
	Savings (Total)			6,932	7,790		2,882	
	Savings (Own)				3,235			
	Group Fund			2,570	-		571	

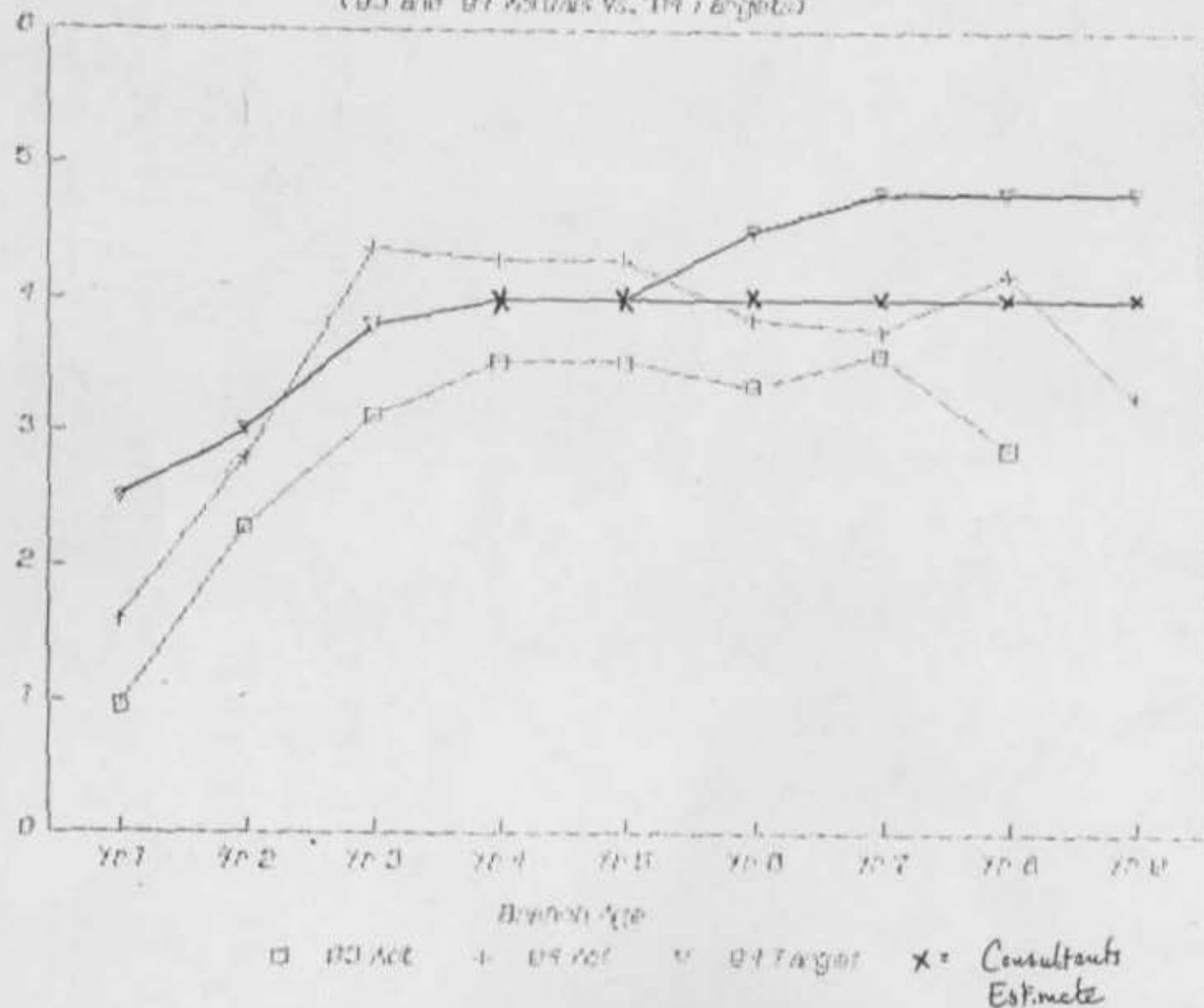
Projected Number of Loans (Targets)

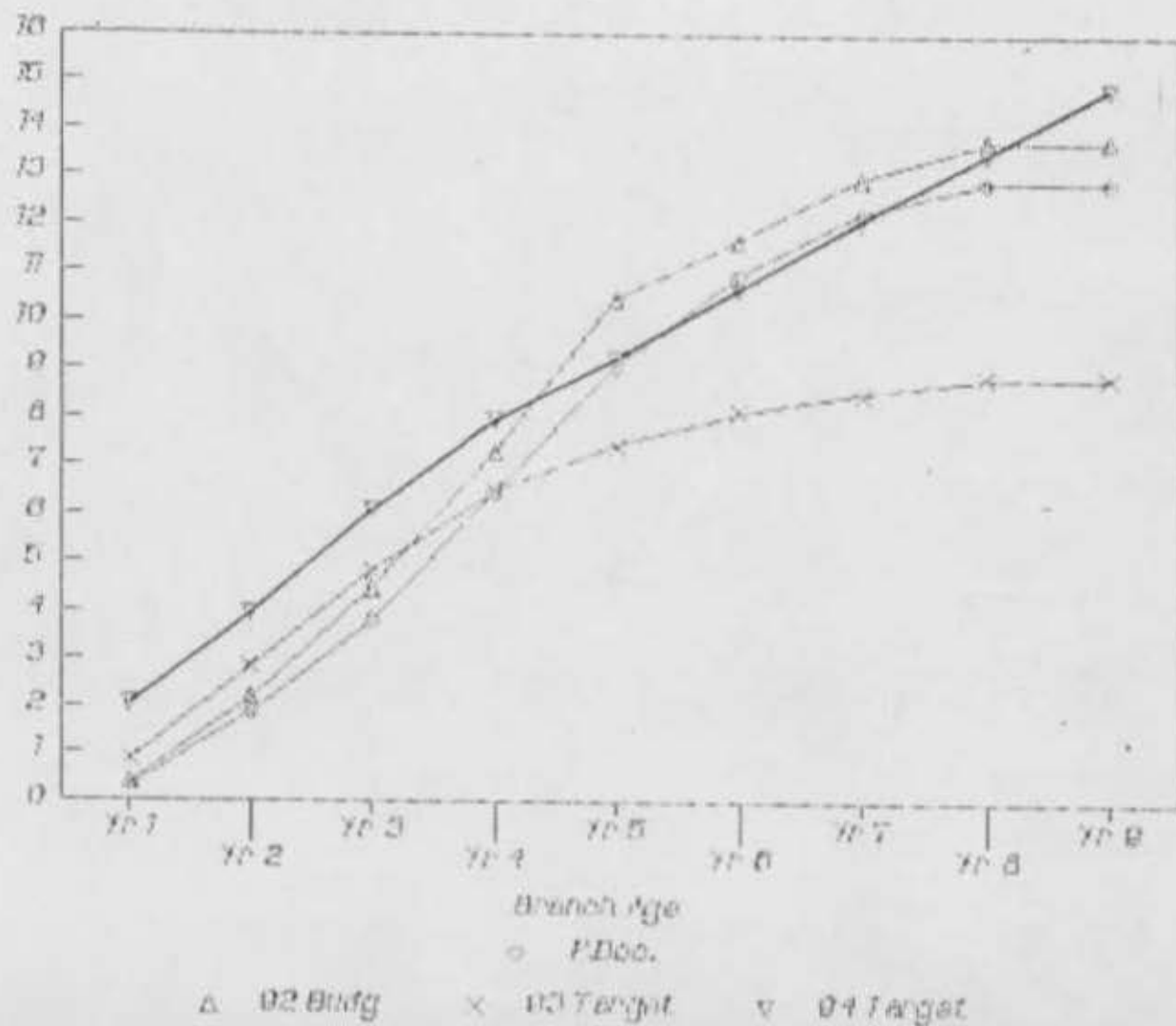


Number of Loans
(Thousands)

Projected Number of Loans

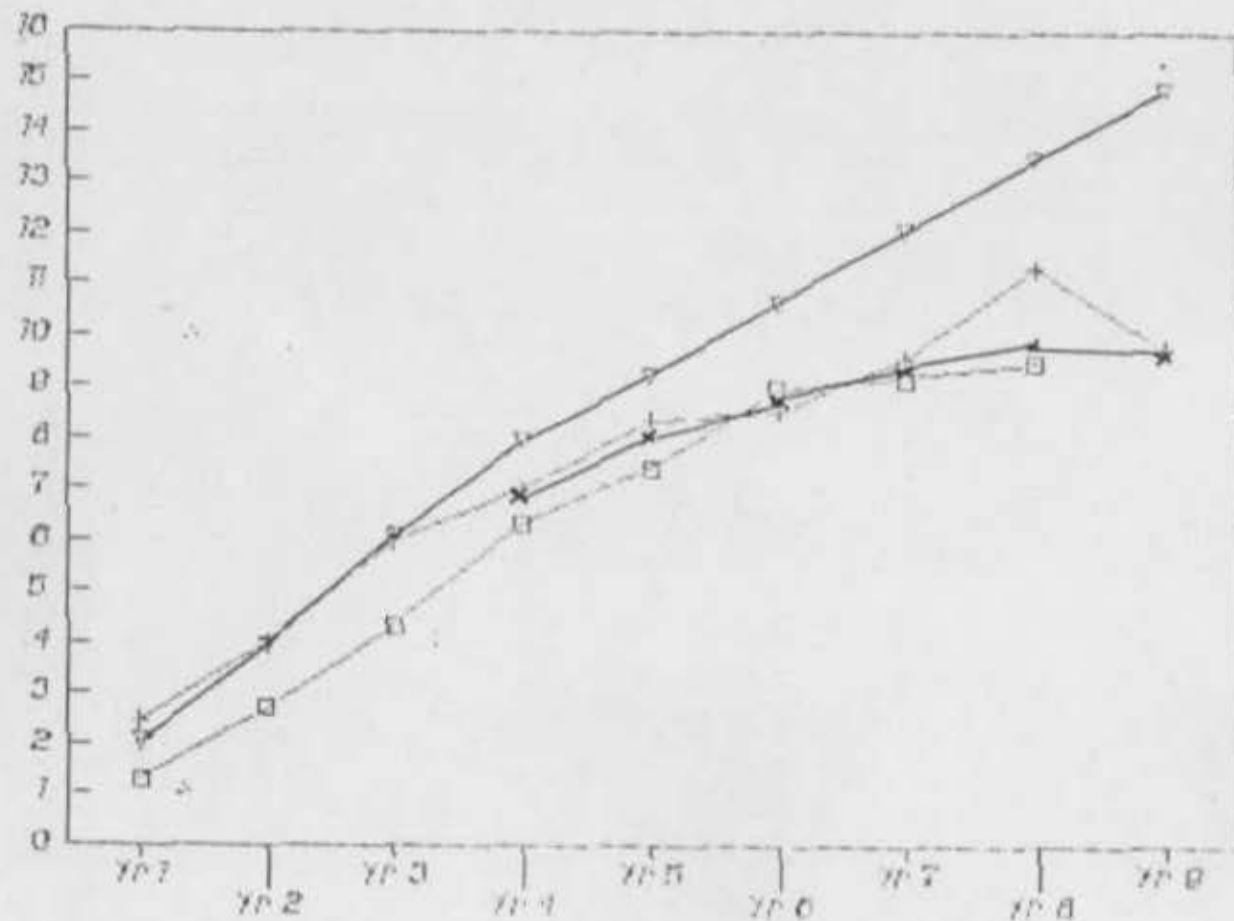
(D3 and D4 Actuals vs. D4 Target)



Loans Outstanding
(Thousands)Projected Loans Outstanding
(Targets)

Projected Loans Outstanding

(03 and 04 Actuals vs. 04 Targets)



Breton Age

□ 03 Act

+ 04 Act

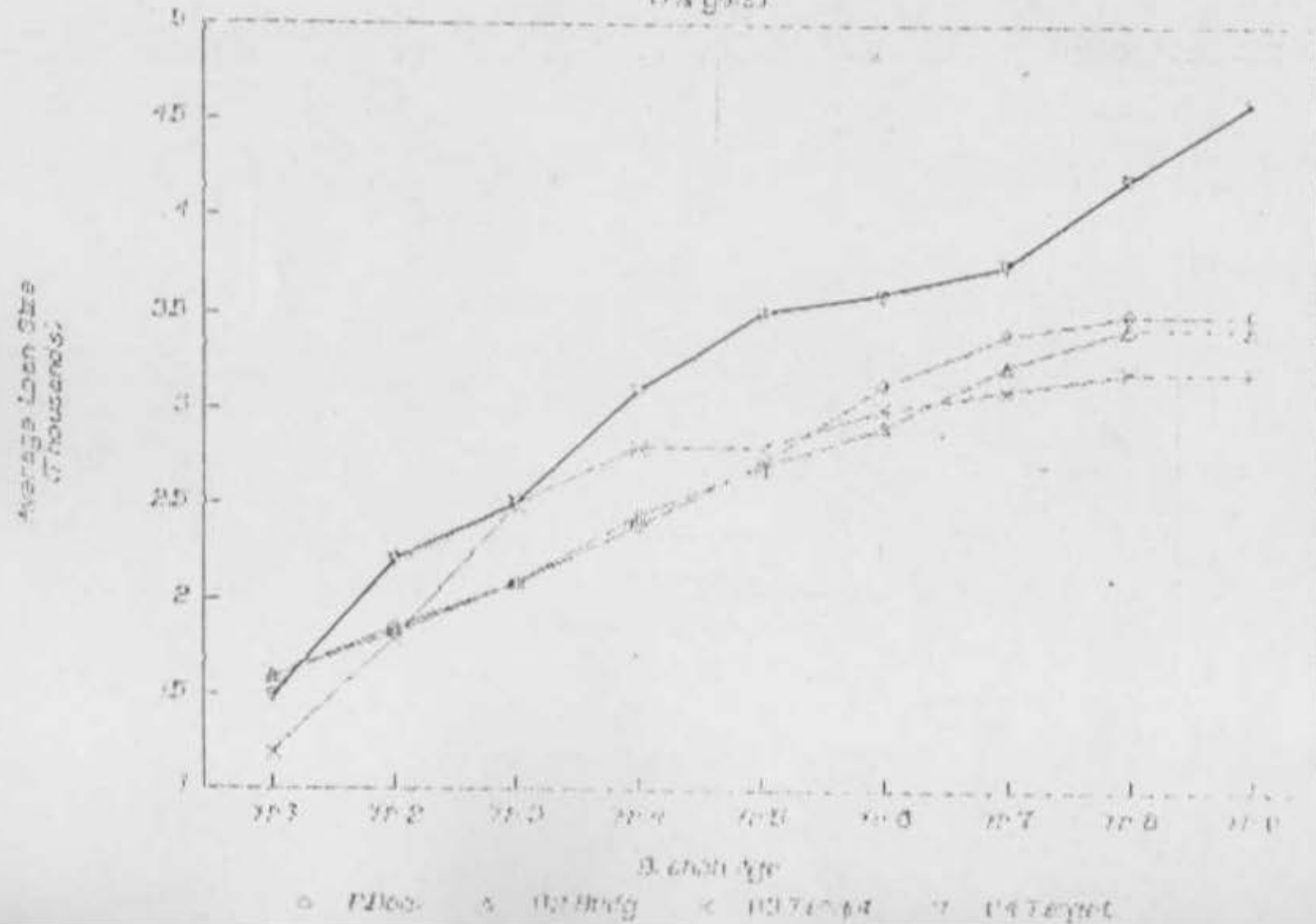
△ 04 Target

X = Consultants' Estimate

Loans Outstanding
(Thousands)

6.4

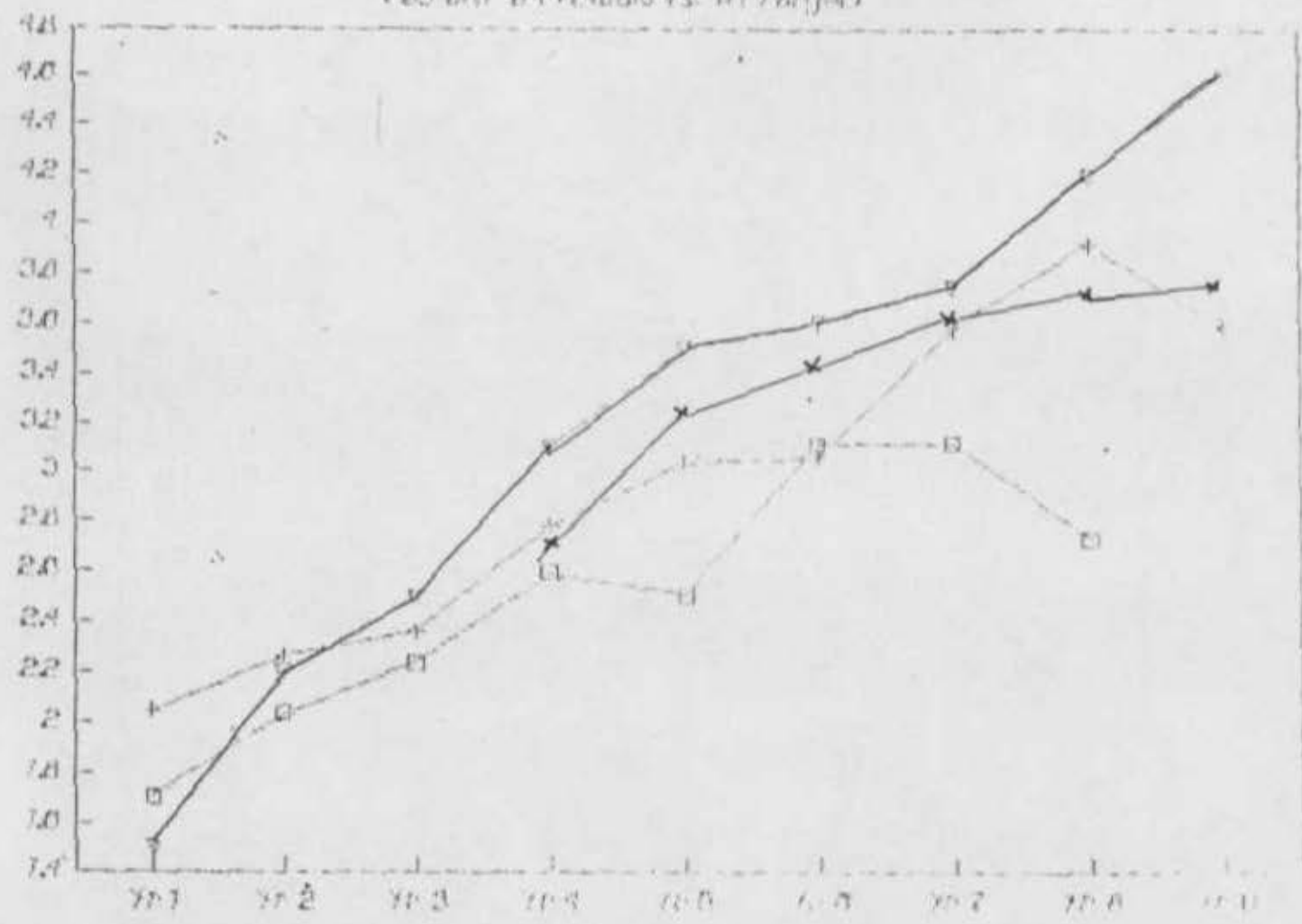
Projected Average Loan Size (Thousands)



Projected Average Loan Size

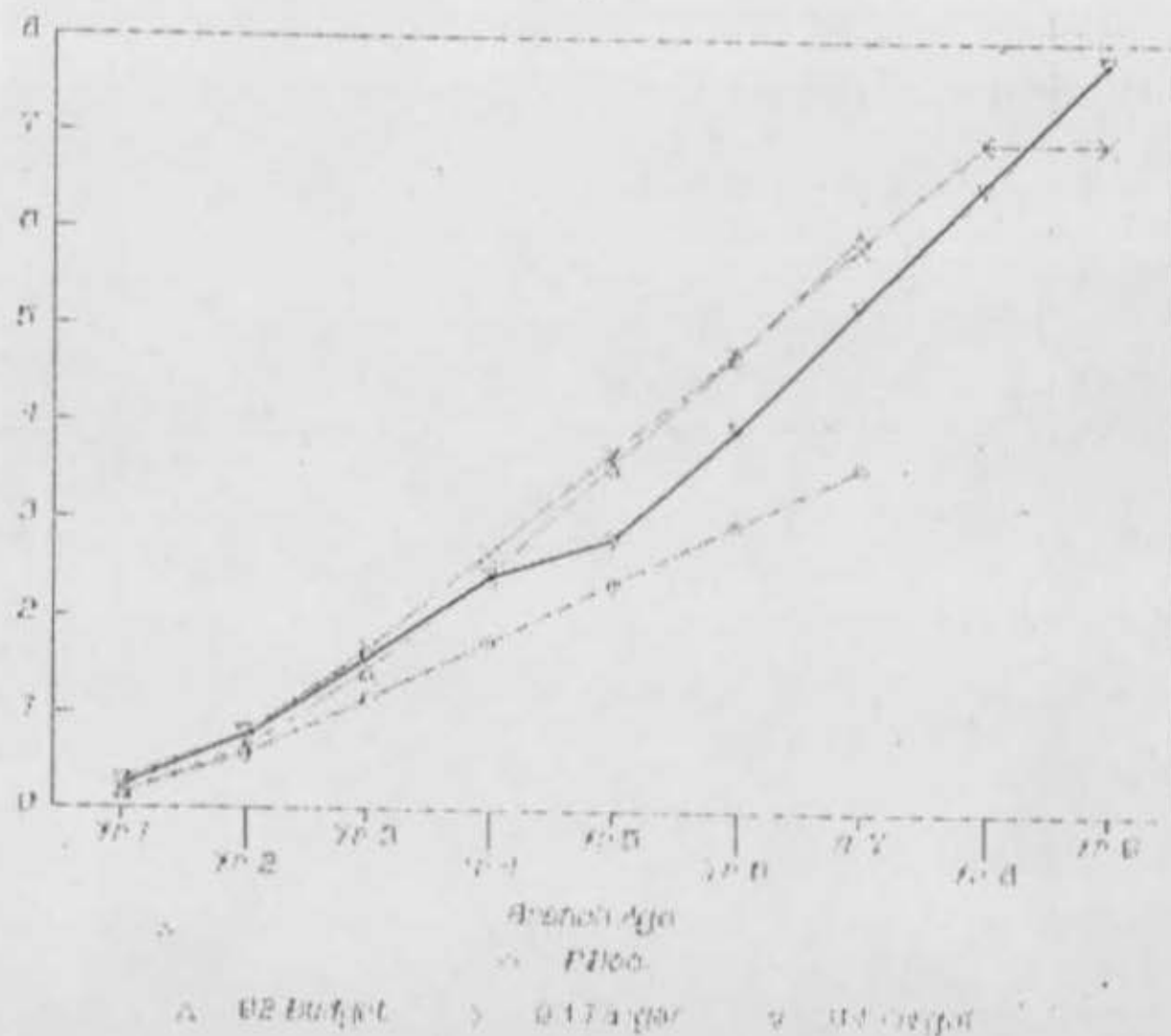
CBS and HA Actuals vs. HA Target

Average Loan Size
Thousands



O CBS Actual □ HA Actual △ HA Target x Consultants' Estimate

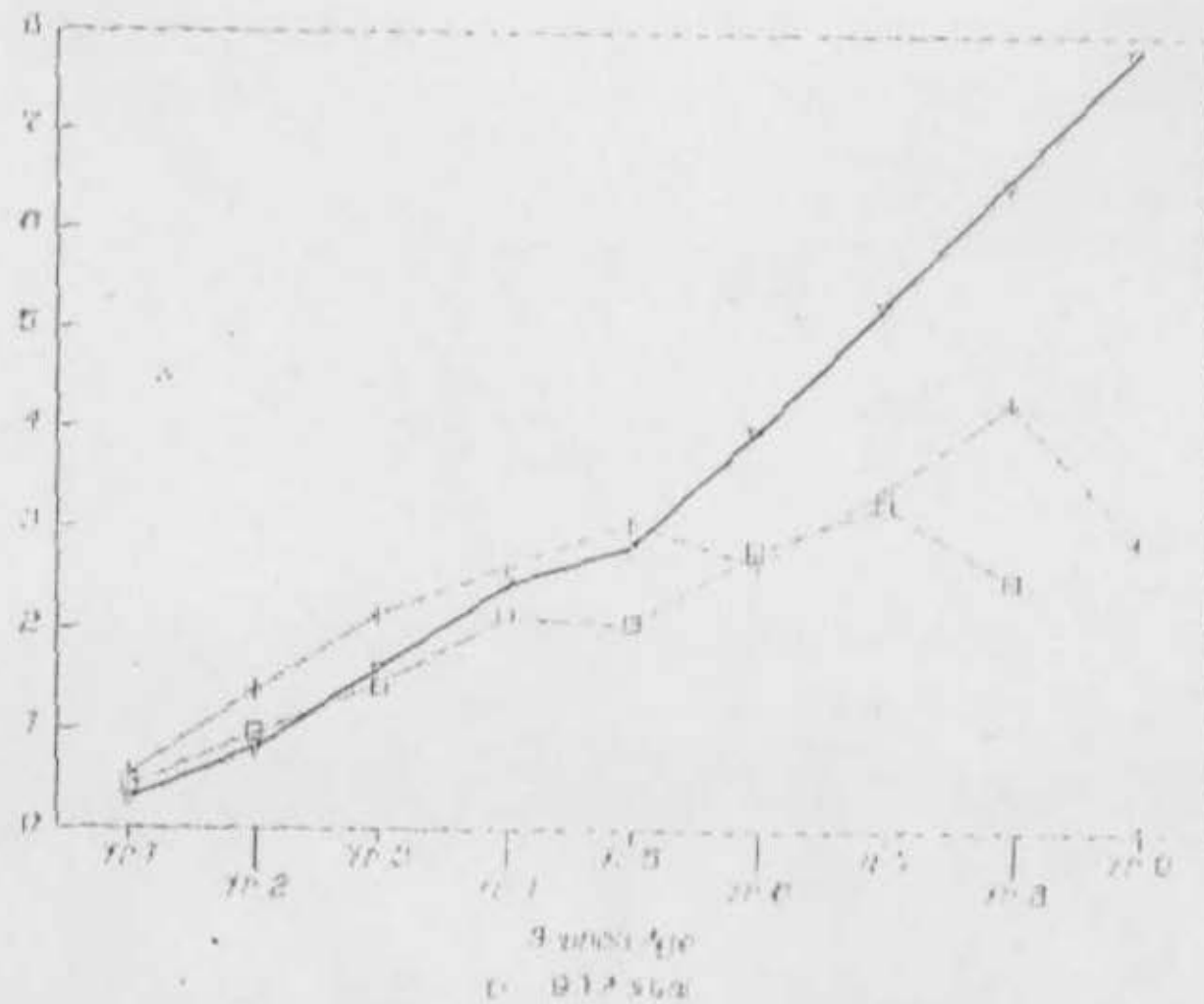
Projected Year-End Savings (Targets)



Projected Year-End Savings

Projected Year-End Savings

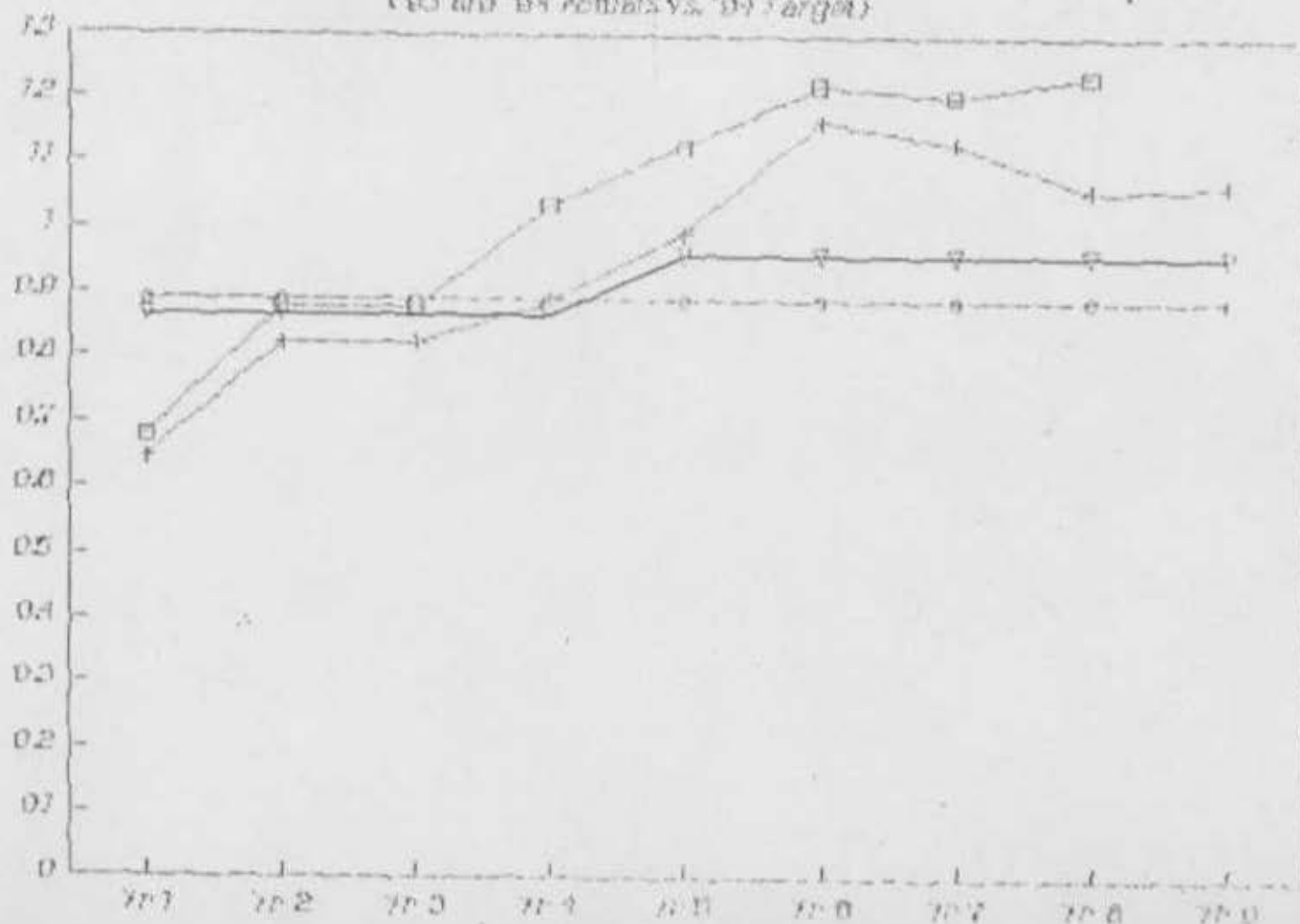
(B1 and B4 Savings vs. B4 Taxpayers)



Projected Branch Operating Expenses

('83 and '84 Actuals vs. '84 Target)

Branch Operating Expense
(Thousands)



Members Own Savings: 1994 and 1993 Data

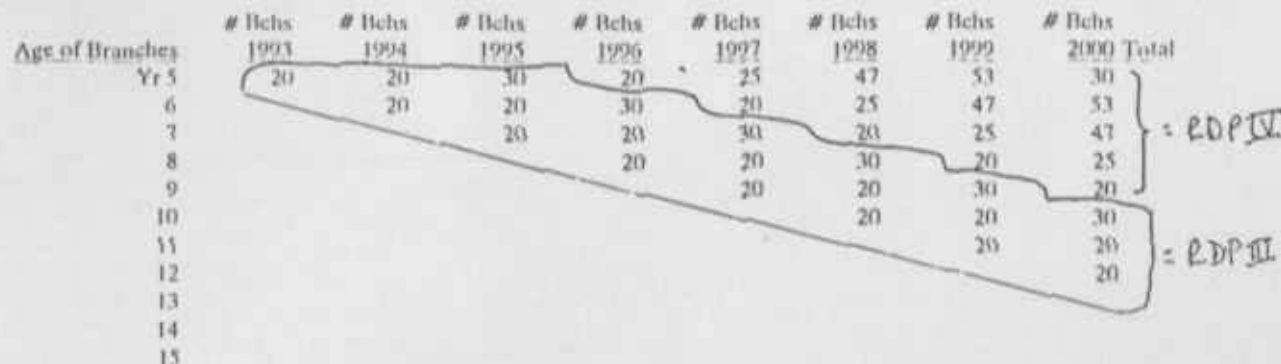
SB wk1

Branch Age	1994 Average Members	Closing Bal. 1993 Actual Own Savings	Net Change During 1994 Members Own	1994 Members Own Per Member	1994		1994 Closing Bal. Members Own Savings	1994 Closing Bal. Members Own Per Branch	1993		1993 Closing Bal. Members Own Per Branch
					Members Own Contributed Per Week	Branches			Members Own Own Savings	Branches	
Total	920,796	184,610,941	82,318,310	89.40	1.79	527,895,160	195	2,707,153	184,610,941	165	1,118,854
Yr 9	56,873	---	794,126	13.96	0.28	14,822,599	10	1,482,260	---	---	---
Yr 8	110,292	14,028,473	8,869,328	80.42	1.61	44,373,807	20	2,218,690	14,028,473	10	1,402,847
Yr 7	110,943	35,504,479	5,981,531	53.92	1.08	36,209,435	20	1,810,471	35,504,479	20	1,775,225
Yr 6	108,346	30,227,511	4,148,073	38.29	0.72	26,129,905	19	1,385,784	30,227,511	20	1,511,376
Yr 5	114,050	22,181,832	10,848,569	95.12	1.90	36,148,551	21	1,721,360	22,181,832	20	1,109,092
Yr 4	161,473	25,299,982	18,110,720	112.16	2.24	46,561,558	30	1,552,052	25,299,982	20	1,261,999
Yr 3	117,788	28,450,838	5,660,240	48.11	0.96	28,128,230	20	1,406,412	28,450,838	30	948,361
Yr 2	92,802	22,461,991	13,892,047	171.62	3.43	22,147,882	25	893,915	22,461,991	20	1,121,100
Yr 1	38,959	6,455,835	5,131,850	131.72	2.63	12,007,273	30	400,242	6,455,835	25	258,233

Conclusion:

In 1994, the average contribution weekly into Members Own Savings was Tk. 1.8.
This calculated by taking 1994 Closing Balance of Members Own Savings, less the 1993 Closing Balance, divided by the number of members, and then divided by 50 weeks per year.
This calculation is based on ending balances, and therefore it's conceivable that the savings of members who were later expelled during 1994 would have increased the averages.
However, for projecting RCP's financial position at year end, the per member figure is sufficient, since this is the basis of the modelling assumption.

Effect on RDP of Lease v. Buy
(thousands of taka)



Total Branches (RDP III + RDP IV)

Total Branches (RDP IV only)

BRAC Proposal (RDP III + RDP IV)

Sales Price / Branch = Land and Building at Cost

Potential Sale Revenue to RDP = Yr 5 Bchs x Price / Bch

Proposed Lease Revenue/Yr

Proposed Lease Revenue to RDP = Total Bchs x Lease Price

Foregone Revenue = Potential Sales Rev - Lease Rev

Cumulative Foregone Revenue = Effective Increase in RDP IV Request

Consultants Proposal (RDP IV only)

Sales Price / Branch

Potential Sale Revenue to RDP = Yr 5 Bchs x Price / Bch

Proposed Lease Price/Yr

Proposed Lease Revenue to RDP = Total Bchs x Lease Price

Foregone Revenue = Potential Sales Rev - Lease Rev

Cumulative Foregone Revenue = Effective Increase in RDP IV Request

20	40	70	90	115	162	215	245	
			20	45	92	145	175	
1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	
30,000	30,000	45,000	30,000	37,500	70,500	79,500	45,000	
75	75	75	75	75	75	75	75	
1,500	3,000	5,250	6,750	8,625	12,150	16,125	18,375	
28,500	27,000	30,750	23,250	28,875	58,350	63,375	26,625	295,125
0	0	39,750	63,000	91,875	150,225	213,600	240,225	
1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	
0	0	0	30,000	37,500	70,500	79,500	45,000	
75	75	75	75	75	75	75	75	
0	0	0	1,500	3,375	6,900	10,875	13,125	
0	0	0	28,500	34,125	63,600	68,625	31,875	226,725
0	0	0	28,500	62,625	126,225	194,850	226,725	

Conclusion:

BRAC proposes that RCP should lease branches from RDP, rather than purchase them outright. BRAC proposes to implement this for both RDP III and RDP IV branches, for a total net increase in the RDP IV budget of Tk 296 million.

Consultants propose that this option should apply only to the RDP IV branches, for a total net increase in the RDP IV budget of Tk 227 million.

Big MAC Model
In millions of taka
File Name: BCT2001

15-Mar-05

	Actual 1990	Actual 1991	Actual 1992	Actual 1993	Actual 1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
ASSETS																					
Cash	2.3	2.9	5.5	6.3	21.2	17.4	21.3	25.4	31.1	37.5	45.7	50.9	57.4	64.2	71.1	78.3	85.4	92.0	101.0	109.1	117.2
Investments	91.4	203.2	550.5	595.1	546.7	564.1	585.7	585.3	594.5	516.5	511.7	536.5	556.4	565.5	556.5	555.5	552.3	555.0	555.5	560.3	565.4
Statutory Investment at 2.51	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Investment in building at 01	0.0	0.0	0.0	21.8	50.2	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0
Statutory deposits	0.0	0.0	0.0	0.0	0.0	0.0	29.7	41.5	55.8	75.5	98.1	117.5	137.4	155.5	171.4	187.2	202.9	218.3	233.4	248.8	278.9
Current assets	4.7	19.4	15.9	38.8	58.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
One Year loans	59.7	201.8	292.2	348.8	808.1	1372.5	1612.5	1995.5	2473.9	2885.4	3157.5	4038.5	4255.4	4611.9	4518.0	4572.5	4795.0	4801.0	4661.2	4664.0	4881.2
Medium/Long term loans	25.4	36.2	137.2	36.2	51.6	84.4	102.9	124.7	157.9	197.0	225.8	257.8	291.5	281.4	298.4	291.9	293.3	293.7	293.8	293.9	293.9
Total Loans	85.1	238.0	429.4	485.0	859.7	1456.9	1715.4	2120.2	2631.8	3082.4	3383.3	4296.3	4546.9	4893.3	4816.4	4864.4	5088.0	5094.7	4955.0	4957.9	5175.1
Less Loan Loss Reserve	-1.6	-14.8	-10.5	-32.4	-85.7	-97.2	-149.4	-212.6	-272.7	-372.4	-501.8	-637.0	-773.4	-914.8	-1058.9	-1204.3	-1350.1	-1495.8	-1641.7	-1787.7	-1933.0
Net Loans	83.5	223.2	418.9	452.6	774.0	1359.7	1566.0	1907.6	2359.1	2710.0	2881.5	3659.3	3773.5	3978.5	3757.5	3659.5	3737.9	3600.9	3313.3	3170.2	2982.1
Reserve for	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Statutory	13.2	18.4	19.8	114.9	154.1	67.7	81.7	105.9	134.7	169.9	197.0	231.1	274.3	312.2	357.4	395.2	438.0	478.3	515.1	549.1	589.1
Loan Association	-1.7	-4.1	-8.5	-13.0	-19.0	-32.0	-48.2	-65.9	-87.2	-113.1	-140.5	-172.7	-212.3	-252.2	-292.4	-332.3	-372.7	-412.7	-452.7	-492.7	-532.7
Net Fixed Assets	11.5	14.5	41.2	101.0	135.1	34.0	33.5	40.1	48.9	54.0	55.4	58.4	61.4	61.0	64.0	62.5	64.3	62.7	60.4	57.4	54.4
TOTAL ASSETS	198.5	478.5	1077.2	1330.4	1505.0	1794.7	2124.2	2557.8	3110.9	3748.9	4375.3	5008.4	5743.4	6420.5	7117.1	7810.7	8560.7	9306.0	10104.4	10923.7	11740.0
LIABILITIES																					
Net Member's own contribution	11.7	49.2	96.7	101.9	200.5	304.9	429.7	549.8	693.2	950.1	1057.4	1293.4	1248.8	1203.5	1111.8	1224.4	1252.4	1347.1	1578.7	1387.9	1795.5
Net Grant Tax Deposits	5.5	24.7	41.7	41.1	81.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net compulsory savings	4.1	27.9	37.9	85.0	98.6	289.2	415.0	567.2	716.4	1051.4	1290.2	1588.1	1861.4	2145.9	2432.0	2722.8	3014.3	3305.7	3597.2	3888.7	4180.1
Net Total Deposits	21.3	101.8	176.3	228.0	380.2	594.1	844.7	1117.0	1409.6	2001.5	2347.6	2881.5	3109.2	3450.4	3783.8	4147.2	4566.7	4950.8	5285.9	5576.6	5955.6
TOTAL LIABILITIES	21.3	171.8	353.0	249.9	380.2	594.1	844.7	1117.0	1409.6	2001.5	2347.6	2881.5	3109.2	3450.4	3783.8	4147.2	4566.7	4950.8	5285.9	5576.6	5955.6
Current liabilities	4.7	12.4	37.8	55.4	44.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BPAS loan	149.5	518.3	715.5	940.2	940.4	1029.1	1124.7	1232.2	1340.3	1475.4	1614.4	1746.5	1873.0	1915.2	2014.5	2110.2	2211.3	2302.5	2398.0	2491.0	2581.2
Share capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Retained earnings	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Loan, Net Profit/loss	0.0	-5.2	12.0	54.7	84.7	137.0	122.0	144.0	209.7	252.9	317.0	409.1	529.8	700.0	874.4	1054.5	1237.0	1418.5	1597.5	1882.8	2088.2
Current Net Profit/loss	-5.2	18.0	41.9	37.0	51.1	-4.9	31.8	43.9	44.3	59.0	97.1	120.2	176.2	176.0	180.0	181.1	180.7	179.0	204.2	204.5	177.4
Stock holder equity	-5.2	12.8	54.7	84.7	137.8	132.0	144.0	209.7	257.9	312.0	409.7	529.8	700.0	874.4	1054.5	1237.0	1418.5	1597.5	1882.8	2088.2	2181.7
TOTAL LIABILITIES AND EQUITY	198.5	478.5	1077.2	1330.4	1505.0	1794.7	2124.2	2557.8	3110.9	3748.9	4375.3	5008.4	5743.4	6420.5	7117.1	7810.7	8560.7	9306.0	10104.4	10923.7	11740.0

[illegible]

ASSUMPTIONS TABLE		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
New RCP Branches		10	20	20	19	21	30	20	25	47	53	30	35	0	0	0	0	0	0			
Input Disk Growth = (100% = Table 1 base case)		100%																				
Branch Operating Cost Is/1000 (100% = Table 3 base case)		100%																				
Annual Inflation		0%																				
RDP Loan = (Additional RDP investment in 1996 (connects to Balance Sheet))		0%																				
Y Rate on RDP Loan = (connects to Income Statement)		0%																				
Y Rate on Deposits = (connects to Income Statement)		4%																				
Y Rate of Interest on Excess (connects to Income Statement)		0%																				
Y Rate of Interest on Loan = (connects to Income Statement)		2%																				
Withdrawal Rate (Bch Yr 5 +) =		20%																				
Withdrawal Rate (Bch Yr 1-4) =		10%																				
(for Group Tax and Forced Savings: Table 1)																						
Savings Rate		0%																				
(for Own Savings: Table 1)																						
Yr 1/yr		1 from 1995																				
(for Own Savings: Table 1)																						
Yr 2/yr		2 from 1996																				
(for Own Savings: Table 1)																						
Loan Loss Reserve (Table 4)																						
Method 1 or Method 2?		1																				
Method 1 = 1/1000 =		2%																				
Method 2 = Max 1/1000 =		5%																				
MODEL PARAM		Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	Yr 11	Yr 12	Yr 13	Yr 14	Yr 15	Yr 16	Yr 17	Yr 18	Yr 19	Yr 20	
Term Mix:	Let:	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
	Debt:	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
	Share:	94%	94%	94%	94%	94%	94%	94%	94%	94%	94%	94%	94%	94%	94%	94%	94%	94%	94%	94%	94%	94%
Scheduled Recovery of Friction		10%	20%	20%	20%	20%	10%															
	Mod/yr	1%	3%	3%	3%																	
	Share:	10%	10%																			

ASSUMPTION TABLE	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
New HCP Branches	10	20	10	19	21	30	20	25	47	52	50	35	0	0	0	0	0	0			
Input Disk Growth : (1001 = Table 1 base case)	1001																				
Branch Operating Cost Factor: (1001 = Table 1 base case)	1001																				
Annual Inflation	01																				
2002 Loan : (Additional GPOC Investment in 1994 (connects to Balance Sheet)	Y1																				
1 Rate on GPOC Loan : (connects to Income Statement)	Y1																				
1 Rate on Deposits : (connects to Income Statement)	01																				
1 Rate of Interest on Assets (connects to Income Statement)	01																				
1 Rate of Interest on Loans : (connects to Income Statement)	201																				
Withdrawal Rate (Sch Yr 3 +) : Withdrawal Rate (Sch Yr 1-4) : (for Group Tax and Forward Savings: Table 3) Savings Rate (for Own Savings: Table 1) Yaka/90 (for Own Savings: Table 1)	201 101 101 001 5 From 1995																				
Yaka/91 (for Own Savings: Table 1)	7 From 1990																				
Loan Loss Reserve (Table 4) Method 1 or Method 2? Method 1 : 1 Disk : Method 2 : Max 1 0/1 :	1 21 51																				
MODEL RESULTS	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	Yr 11	Yr 12	Yr 13	Yr 14	Yr 15	Yr 16	Yr 17	Yr 18	Yr 19	Yr 20	
Term Div:	1001	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	
Debt/Ch	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	
Share	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	
Scheduled Recovery of Principal:	101	201	201	201	201	201	201	201	201	201	201	201	201	201	201	201	201	201	201	201	
Debt/Ch	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	
Share	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	

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FISCAL YEAR		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440	2441	2442	2443	2444	2445	2446	2447	2448	2449	2450	2451	2452	2453	2454	2455	2456	2457	2458	2459	2460	2461	2462	2463	2464	2465	2466	2467	2468	2469	2470	2471	2472	2473	2474	2475	2476	2477	2478	2479	2480	2481	2482	2483	2484	2485	2486	2487	2488	2489	2490	2491	2492	2493	2494	2495	2496	2497	2498	2499	2500	2501	2502	2503	2504	2505	2506	2507	2508	2509	2510	2511	2512	2513	2514	2515	2516	2517	2518	2519	2520	2521	2522	2523	2524	2525	2526	2527	2528	2529	2530	2531	2532	2533	2534	2535	2536	2537	2538	2539	2540	2541	2542	2543	2544	2545	2546	2547	2548	2549	2550	2551	2552	2553	2554	2555	2556	2557	2558	2559	2560	2561	2562	2563	2564	2565	2566	2567	2568	2569	2570	2571	2572	2573	2574	2575	2576	2577	2578	2579	2580	2581	2582	2583	2584	2585	2586	2587	2588	2589	2590	2591	2592	2593	2594	2595	2596	2597	2598	2599	2600	2601	2602	2603	2604	2605	2606	2607	2608	2609	2610	2611	2612	2613	2614	2615	2616	2617	2618	2619	2620	2621	2622	2623	2624	2625	2626	2627	2628	2629	2630	2631	2632	2633	2634	2635	2636	2637	2638	2639	2640	2641	2642	2643	2644	2645	2646	2647	2648	2649	2650	2651	2652	2653	2654	2655	2656	2657	2658	2659	2660	2661	2662	2663	2664	2665	2666	2667	2668	2669	2670	2671	2672	2673	2674	2675	2676	2677	2678	2679	2680	2681	2682	2683	2684	2685	2686	2687	2688	2689	2690	2691	2692	2693	2694	2695	2696	2697	2698	2699	2700	2701	2702	2703	2704	2705	2706	2707	2708	2709	2710	2711	2712	2713	2714	2715	2716	2717	2718	2719	2720	2721	2722	2723	2724	2725	2726	2727	2728	2729	2730	2731	2732	2733	2734	2735	2736	2737	2738	2739	2740	2741	2742	2743	2744	2745	2746	2747	2748	2749	2750	2751	2752	2753	2754	2755	2756	2757	2758	2759	2760	2761	2762	2763	2764	2765	2766	2767	2768	2769	2770	2771	2772	2773	2774	2775	2776	2777	2778	2779	2780	2781	2782	2783	2784	2785	2786	2787	2788	2789	2790	2791	2792	2793	2794	2795	2796	2797	2798	2799	2800	2801	2802	2803	2804	2805	2806	2807	2808	2809	2810	2811	2812	2813	2814	2815	2816	2817	2818	2819	2820	2821	2822	2823	2824	2825	2826	2827	2828	2829	2830	2831	2832	2833	2834	2835	2836	2837	2838	2839	2840	2841	2842	2843	2844	2845	2846	2847	2848	2849	2850	2851	2852	2853	2854	2855	2856	2857	2858	2859	2860	2861	2862	2863	2864	2865	2866	2867	2868	2869	2870	2871	2872	2873	2874	2875	2876	2877	2878	2879	2880	2881	2882	2883	2884	2885	2886	2887	2888	2889	2890	2891	2892	2893	2894	2895	2896	2897	2898	2899	2900	2901	2902	2903	2904	2905	2906	2907	2908	2909	2910	2911	2912	2913	2914	2915	2916	2917	2918	2919	2920	2921	2922	2923	2924	2925	2926	2927	2928	2929	2930	2931	2932	2933	2934	2935	2936	2937	2938	2939	2940	2941	2942	2943	2944	2945	2946	2947	2948	2949	2950	2951	2952	2953	2954	2955	2956	2957	2958	2959	2960	2961	2962	2963	2964	2965	2966	2967	2968	2969	2970	2971	2972	2973	2974	2975	2976	2977	2978	2979	2980	2981	2982	2983	2984	2985	2986	2987	2988	2989	2990	2991	2992	2993	2994	2995	2996	2997	2998	2999	3000	3001	3002	3003	3004	3005	3006	3007	3008	3009	3010	3011	3012	3013	3014	3015	3016	3017	3018	3019	3020	3021	3022	3023	3024	3025	3026	3027	3028	3029	3030	3031	3032	3033	3034	3035	3036	3037	3038	3039	3040	3041	3042	3043	3044	3045	3046	3047	3048	3049	3050	3051	3052	3053	3054	3055	3056	3057	3058	3059	3060	3061	3062	3063	3064	3065	3066	3067	3068	3069	3070	3071	3072	3073	3074	3075	3076	3077	3078	3079	3080	3081	3082	3083	3084	3085	3086	3087	3088	3089	3090	3091	3092	3093	3094	3095	3096	3097	3098	3099	3100	3101	3102	3103	3104	3105	3106	3107	3108	3109	3110	3111	3112	3113	3114	3115	3116	3117	3118	3119	3120	3121	3122	3123	3124	3125	3126	3127	3128	3129	3130	3131	3132	3133	3134	3135	3136	3137	3138	3139	3140	3141	3142	3143	3144	3145	3146	3147	3148	3149	3150	3151	3152	3153	3154	3155	3156	3157	3158	3159	3160	3161	3162	3163	3164	3165	3166	3167	3168	3169	3170	3171	3172	3173	3174	3175	3176	3177	3178	3179	3180	3181	3182	3183	3184	3185	3186	3187	3188	3189	3190	3191	3192	3193	3194	3195	3196	3197	3198	3199	3200	3201	3202	3203	3204	3205	3206	3207	3208	3209	3210	3211	3212	3213	3214	3215	3216	3217	3218	3219	3220	3221	3222	3223	3224	3225	3226	3227	3228	3229	3230	3231	3232	3233	3234	3235	3236	3237	3238	3239	3240	3241	3242	3243	3244	3245	3246	3247	3248	3249	3250	3251	3252	3253	3254	3255	3256	3257	3258	3259	3260	3261	3262	3263	3264	3265	3266	3267	3268	3269	3270	3271	3272	3273	3274	3275	3276	3277	3278	3279	3280	3281	3282	3283	3284	3285	3286	3287	3288	3289	3290	3291	3292	3293	3294	3295	3296	3297	3298	3299	3300	3301	3302	3303	3304	3305	3306	3307	3308	3309	3310	3311	3312	3313	3314	3315	3316	3317	3318	3319	3320	3321	3322	3323	3324	3325	3326	3327	3328	3329	3330	3331	3332	3333	3334	3335	3336	3337	3338	3339	3340	3341	3342	3343	3344	3345	3346	3347	3348	3349	3350	3351	3352	3353	3354	3355	3356	3357	3358	3359	3360	3361	3362	3363	3364	3365	3366	3367	3368	3369	3370	3371	
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[illegible]

[illegible]

Big Bang Model
In millions of Rials
File Name: RCP2001

15-Mar-95

	Actual 1990	Actual 1991	Actual 1992	Actual 1993	Actual 1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
ASSETS																					
Cash	2.3	2.9	5.5	4.3	21.2	15.4	17.7	20.0	23.0	24.3	29.6	33.2	34.4	29.2	43.2	46.9	50.1	54.9	57.1	61.7	68.7
Investments	98.4	287.2	558.5	599.3	414.7	375.1	386.8	392.4	212.2	151.5	204.0	269.4	344.7	828.3	1229.1	1759.2	2213.1	2732.3	2111.0	3248.8	4322.9
Statutory Investment at FSI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Investment in building at SI	0.0	0.0	0.0	31.9	50.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Statutory deposits	0.0	0.0	0.0	0.0	0.0	21.1	21.4	55.4	41.1	49.9	71.1	83.1	91.4	101.4	117.9	131.4	131.1	147.5	117.1	144.8	176.1
Current assets	4.7	21.4	15.9	20.0	50.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Total Assets	59.7	291.0	797.1	548.8	896.3	1030.7	1216.5	1415.7	1510.9	1749.1	1944.7	2192.5	2467.8	2993.1	3999.5	5000.6	6002.5	7007.7	5611.9	7007.8	7002.8
Reduction from taxes	25.4	81.2	127.3	36.3	55.4	45.0	77.0	92.3	117.3	146.3	145.4	191.4	189.4	191.1	191.5	191.1	191.4	191.7	171.7	191.7	191.7
Total Assets	85.1	372.2	924.5	605.2	951.7	1075.7	1293.5	1508.0	1628.2	1895.4	2090.1	2383.9	2657.2	3184.2	4191.0	5191.7	6193.9	7199.4	5783.6	7199.5	7194.5
Less Total Loss Reserve	-0.4	-14.9	-30.5	-32.4	-81.7	-87.3	-124.3	-112.9	-112.0	-791.9	-189.1	-487.5	-577.0	-637.0	-747.1	-842.1	-951.1	-1012.7	-1211.3	-1742.3	-1211.3
Net Assets	84.7	357.3	894.0	572.8	870.0	988.4	1171.2	1395.1	1516.2	1816.5	1901.0	2196.4	2080.2	2547.2	3443.9	4349.6	5242.8	6186.7	4572.3	6007.2	5983.2
Reserve from	0.0	0.0	0.0	0.0	0.0	110.0	130.0	150.0	170.0	200.0	230.0	260.0	300.0	340.0	380.0	420.0	460.0	500.0	540.0	580.0	620.0
Fixed Assets	15.2	21.4	19.0	114.9	154.1	67.7	85.3	105.9	156.2	169.9	197.0	275.1	234.1	253.3	277.4	291.2	309.8	312.1	311.1	312.1	312.1
Less Depreciation	-1.7	-4.1	-8.5	-13.0	-19.0	-22.0	-40.3	-45.9	-47.3	-113.1	-140.1	-177.7	-177.7	-177.7	-177.7	-177.7	-177.7	-177.7	-177.7	-177.7	-177.7
Net Fixed Assets	13.5	17.3	10.5	101.9	135.1	45.7	45.0	60.0	108.9	56.8	56.9	97.4	56.4	75.6	100.0	113.5	132.1	134.4	133.4	134.4	134.4
TOTAL ASSETS	108.2	474.5	1024.5	1336.4	1505.0	1544.1	1790.2	2041.4	2157.4	2424.9	2142.7	2374.8	2646.4	2979.2	4218.8	4885.6	5874.0	7496.3	5744.3	6371.1	6071.8
LIABILITIES																					
Net Members own contribution	17.7	49.7	94.7	101.9	200.5	341.1	191.5	212.0	274.9	277.0	422.9	481.5	499.7	511.4	524.7	533.3	543.0	546.8	551.3	553.2	558.2
Net Group Tax Benefits	5.5	24.2	46.7	41.3	85.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Compulsory savings	4.1	27.9	37.9	85.4	96.4	214.8	343.1	484.7	457.7	841.4	1042.1	1215.8	1452.7	1642.8	1812.9	2022.8	2215.0	2401.1	2515.2	2701.1	2815.4
Net Total Liabilities	27.3	101.8	179.3	228.6	381.9	655.9	534.6	746.7	732.6	1115.4	1465.0	1697.3	1952.5	2154.2	2337.6	2566.1	2734.1	2958.0	3116.3	3356.4	3583.6
TOTAL LIABILITIES	29.7	121.6	181.3	240.1	386.7	421.9	536.3	717.7	742.4	1218.1	1461.0	1745.7	1951.9	2154.2	2337.6	2566.1	2734.1	2958.0	3116.3	3356.4	3583.6
Current liabilities	4.7	15.4	37.8	55.4	46.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bank loan	149.5	128.3	753.1	946.2	940.4	1029.3	1124.1	1212.7	1349.3	1475.4	1614.4	1744.5	1813.8	2113.7	2314.3	2532.1	2774.1	3012.5	3111.3	3471.0	3911.2
Share capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Retained earnings	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Con. Net Profit/Loss	0.0	-5.1	11.4	54.7	84.7	117.8	109.1	81.4	55.5	4.8	-54.5	-116.7	-161.0	-244.4	-380.7	-551.3	-481.1	-451.1	-474.2	-544.4	-510.1
Current Net Profit/Loss	-1.7	18.6	41.9	32.0	51.1	-20.7	-21.5	-29.1	-11.8	-65.2	-54.2	-70.1	-57.4	-55.1	-57.1	-54.4	-47.4	-44.7	-17.5	-49.7	-34.6
Stock holder equity	-1.7	12.9	54.7	86.7	137.8	109.4	87.6	52.3	4.0	-50.4	-116.7	-187.0	-244.4	-380.7	-551.3	-481.1	-451.1	-474.2	-544.4	-510.1	-574.9
TOTAL LIABILITIES AND CAPITAL	108.2	474.2	1027.1	1336.5	1505.0	1544.1	1790.2	2041.4	2157.4	2424.9	2142.7	2374.8	2646.4	2979.2	4218.8	4885.6	5874.0	7496.3	5744.3	6371.1	6071.8

INCOME STATEMENT	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
INTEREST REVENUE																					
Investment income	1.8	21.2	26.8	51.9	42.7	35.4	30.4	31.2	27.8	22.4	18.2	18.9	21.4	19.8	98.4	125.5	158.9	181.6	200.8	247.7	225.1
Loan interest income	8.7	80.8	89.7	189.3	159.2	222.9	222.5	217.8	286.4	485.2	563.8	629.5	650.8	617.8	617.8	594.4	571.8	547.4	633.8	617.8	626.2
Interest on floating loan d/l	0.0	0.0	0.0	0.0	0.0	1.3	7.2	8.4	9.8	11.3	22.8	14.7	16.8	15.8	18.8	18.8	18.8	15.8	18.8	18.8	18.8
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LOAN INTEREST REVENUE	10.5	102.0	116.5	241.2	201.9	259.6	259.9	256.4	324.0	525.7	599.8	653.1	668.0	634.4	716.0	738.7	709.4	742.8	854.2	887.3	870.1
INTEREST EXPENSE																					
Interest on deposits	1.5	8.8	17.4	21.2	15.9	24.2	29.5	34.1	49.7	44.8	88.3	91.2	110.9	122.2	135.4	147.4	159.3	171.3	182.8	194.5	206.1
Interest on debt/inflow	2.7	0.0	0.0	0.0	0.0	88.8	97.8	104.1	114.1	127.1	129.8	152.1	166.5	187.2	199.3	218.1	238.7	245.2	285.8	312.7	347.7
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TOTAL INTEREST EXPENSE	4.2	8.8	17.4	21.2	15.9	113.0	127.3	138.2	163.8	171.9	218.1	243.3	277.1	309.4	334.7	365.5	398.0	416.5	468.6	507.2	553.8
NET INTEREST INCOME	6.3	93.2	99.1	220.0	186.0	146.6	132.6	119.2	160.2	353.8	381.7	409.8	426.9	405.0	381.3	373.2	360.5	326.3	385.6	380.1	316.3
OPERATING EXPENSES																					
Branch operating expenses	7.7	24.2	35.4	37.1	30.9	111.8	120.2	133.4	157.1	248.4	224.3	206.8	206.8	201.8	206.8	206.8	206.8	206.8	206.8	206.8	206.8
Regional operating expenses	4.7	1.4	5.8	5.8	4.8	8.2	9.4	11.3	14.1	18.2	20.2	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6
Head office operating expenses	0.8	2.3	2.7	2.3	4.7	6.2	6.7	5.2	6.7	4.8	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
Branch depreciation	0.9	1.3	1.9	2.3	4.8	7.4	9.2	12.2	13.3	12.4	18.2	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
Regional office depreciation	0.0	0.2	0.2	0.3	0.3	2.3	2.8	2.4	6.4	5.5	6.1	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9
Head office depreciation	0.2	0.2	0.9	0.9	1.7	8.9	8.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9
Loan loss provision	1.4	4.9	7.9	15.4	24.2	33.2	39.2	46.4	56.2	72.9	82.7	95.4	94.5	95.8	95.8	95.8	95.8	95.8	95.8	95.8	95.8
Staff training	0.1	0.7	2.3	2.4	1.8	2.7	9.4	10.4	12.4	17.8	18.9	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2
TOTAL OPERATING EXPENSE	14.5	35.1	44.4	100.1	116.4	175.7	205.2	241.5	286.8	385.0	429.5	479.9	481.8	484.4	485.8	487.7	487.5	474.5	458.8	414.7	385.5
NET OPERATING PROFIT (LOSS)	-5.2	58.0	54.7	119.9	69.6	-29.1	-72.6	-122.3	-126.6	-131.2	-147.8	-170.1	-154.9	-179.4	-204.4	-214.3	-227.5	-248.2	-273.2	-297.1	-337.5
Less income tax 51%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NET PROFIT	-5.2	58.0	54.7	119.9	69.6	-29.1	-72.6	-122.3	-126.6	-131.2	-147.8	-170.1	-154.9	-179.4	-204.4	-214.3	-227.5	-248.2	-273.2	-297.1	-337.5
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NET RATIOS																					
Total deposits to Total Assets	15%	18%	18%	19%	21%	27%	31%	36%	42%	46%	49%	52%	54%	56%	58%	59%	59%	59%	59%	59%	59%
Total loans to Total Deposits	23%	22%	22%	22%	20%	24%	24%	24%	26%	27%	27%	27%	27%	27%	27%	27%	27%	27%	27%	27%	27%
Investments/Total deposits	33%	22%	20%	20%	12%	8%	7%	5%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
External debt/Int. Investments	20%	22%	19%	19%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Total capital/Total liabilities	-18%	1%	3%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Total capital/assets	-3%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Capital/ROAC/assets	8%	8%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%
Liquid assets/Total liabilities	4%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Expense Income/Total Assets	5.3%	9.4%	12.2%	12.1%	11.4%	10.4%	12.5%	12.3%	12.4%	12.9%	12.9%	12.9%	12.9%	12.9%	12.9%	12.9%	12.9%	12.9%	12.9%	12.9%	12.9%
Interest Expense/Total Assets	2.3%	1.3%	1.3%	1.4%	1.4%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
Net Interest Margin	1.2%	7.9%	10.9%	10.7%	12.3%	9.1%	10.4%	10.4%	11.1%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%
Operating Expense/Total Assets	5.2%	5.2%	6.3%	8.1%	6.9%	11.2%	11.4%	12.1%	12.4%	14.4%	14.3%	14.3%	14.3%	14.3%	14.3%	14.3%	14.3%	14.3%	14.3%	14.3%	14.3%
Net Profit/Total Assets	-2.4%	7.7%	6.3%	7.4%	2.4%	-1.8%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%

[illegible]

#7
Big BAC Model
In millions of taka
(taka = 100 BDT)

11-Mar-95

	Actual 1990	Actual 1991	Actual 1992	Actual 1993	Actual 1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
ASSETS																					
Cash	7.3	2.9	5.3	4.3	21.2	25.1	27.3	29.4	22.4	24.7	24.8	29.4	31.9	34.3	37.0	40.0	43.3	46.8	50.4	54.7	59.3
Investments	99.4	289.7	550.5	589.3	464.2	385.7	352.8	380.3	31.2	-109.9	-151.7	-214.4	-3.0	282.3	406.1	961.3	1344.3	1770.8	1845.8	2201.6	2232.2
Statutory Investment at 7.5%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Investment in Building at 8%	0.0	0.0	0.0	31.8	50.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Statutory deposits	0.0	0.0	0.0	0.0	0.0	21.3	27.8	35.4	44.9	56.4	47.8	30.7	90.1	99.4	104.5	117.4	126.3	135.4	144.3	153.1	161.8
Current assets	4.7	29.4	15.9	32.8	30.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
One Year loans	59.7	301.0	297.1	544.8	808.3	1026.7	1219.5	1445.7	1309.4	2055.4	2234.0	2677.8	2696.8	2720.7	2726.4	2720.7	2725.5	2729.7	2729.8	2729.8	2729.8
Medium/Long Term loans	25.4	86.2	127.3	36.3	31.6	45.8	37.8	92.3	189.1	123.7	149.0	157.2	127.1	125.7	126.0	126.2	126.2	126.2	126.2	126.2	126.2
Total loans	85.1	387.2	424.5	621.2	846.9	1072.5	1257.3	1538.0	1498.8	2179.1	2383.0	2835.0	2823.6	2846.4	2852.4	2846.9	2855.2	2859.5	2859.6	2859.6	2859.6
Less Loan Loss Reserve	-2.4	-14.8	-30.5	-32.6	-85.7	-87.3	-116.5	-127.9	-227.7	-293.6	-368.1	-412.1	-539.0	-425.4	-711.8	-395.7	-684.4	-971.0	-1483.7	-1145.8	-1210.7
Net Loans	82.7	372.5	394.0	588.6	761.2	985.2	1140.8	1410.1	1271.1	1885.5	2014.9	2422.9	2284.6	2421.0	2040.6	2451.2	2170.8	2888.5	2315.9	1713.8	1648.9
Reserve loan	0.0	0.0	0.0	0.0	0.0	110.0	120.0	130.0	130.0	100.0	230.0	240.0	300.0	300.0	300.0	300.0	300.0	300.0	300.0	300.0	300.0
Fixed Assets	12.2	28.4	49.8	114.9	124.3	247.7	215.3	211.4	420.9	500.7	319.8	419.4	620.4	483.7	701.1	717.7	721.5	724.4	724.4	724.4	724.4
Less Depreciation	-1.7	-4.1	-8.5	-13.0	-19.0	-28.4	-40.8	-64.2	-115.1	-150.5	-188.8	-227.0	-237.0	-237.0	-237.0	-237.0	-237.0	-237.0	-237.0	-237.0	-237.0
Net Fixed Assets	10.5	24.3	41.3	101.9	105.3	219.3	174.5	147.2	305.7	160.2	131.0	192.4	483.4	446.7	464.1	480.7	484.5	487.4	487.4	487.4	487.4
TOTAL ASSETS	198.5	678.5	1027.3	1230.6	1508.0	1550.8	1723.4	1957.4	2163.8	2422.5	2640.0	2944.0	3108.5	3417.7	3269.7	4007.3	4332.7	4887.9	5863.9	5497.3	5936.8
LIABILITIES																					
Net Members own contribution	12.2	49.2	94.7	181.9	200.5	341.1	191.5	232.0	277.3	315.4	384.2	429.4	455.2	467.8	477.9	485.9	492.4	497.4	501.7	505.0	507.7
Net Group Tax Deposits	5.5	24.3	46.2	17.1	85.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Compulsory savings	6.1	27.9	37.9	85.0	76.3	218.8	343.1	486.7	420.1	791.4	970.9	1170.2	1344.9	1510.7	1670.5	1845.3	2032.1	2220.9	2383.7	2556.3	2729.5
Net Total Liabilities	23.8	101.4	178.8	284.0	361.9	559.9	534.6	718.7	697.4	1107.8	1355.1	1609.6	1806.1	1989.5	2170.4	2331.2	2530.5	2708.3	2885.4	3061.4	3237.8
TOTAL LIABILITIES																					
Current Liabilities	4.7	15.4	37.0	55.4	46.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BAC Loan	149.5	576.3	751.3	946.2	940.4	1027.1	1174.1	1237.7	1310.1	1475.4	1614.4	1744.5	1933.0	2115.2	2314.5	2537.7	2771.3	3032.5	3318.3	3631.0	3975.2
Share capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Classed saving	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gen. Net Profit/Loss	0.0	-5.2	17.8	24.7	86.7	137.3	91.8	50.0	-7.3	-21.9	-180.3	-277.9	-347.8	-444.7	-564.7	-777.2	-830.8	-971.4	-1055.5	-1147.3	-1227.8
Current Net Profit/Loss	-5.2	18.0	41.9	22.0	51.1	-42.0	-45.1	-50.1	-74.4	-98.4	-149.4	-227.0	-274.0	-310.8	-310.5	-317.7	-344.0	-377.9	-414.9	-453.1	-491.3
Stock holder equity	-5.7	12.8	54.7	84.7	137.8	95.8	54.8	-7.3	-81.4	-180.3	-289.9	-477.9	-547.8	-644.7	-777.2	-876.8	-971.4	-1055.5	-1147.3	-1227.8	-1311.9
TOTAL LIABILITIES AND CAPITAL	198.5	678.5	1027.3	1230.6	1508.0	1550.8	1723.4	1957.4	2163.8	2422.5	2640.0	2944.0	3108.5	3417.7	3269.7	4007.3	4332.7	4887.9	5863.9	5497.3	5936.8

INCOME STATEMENT	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
INTEREST REVENUE																					
Investment Income	1.0	21.3	34.0	51.9	42.2	26.1	17.5	10.1	5.3	-5.1	-10.4	-14.2	-9.2	11.3	27.4	42.3	92.2	131.4	149.4	181.9	227.9
Loan Interest Income	0.7	40.0	49.7	109.5	119.7	222.9	272.5	217.0	249.5	435.5	501.0	507.2	507.0	570.0	517.2	534.7	515.5	491.0	519.2	497.1	479.1
Interest on Floating loan 41	0.0	0.0	0.0	0.0	0.0	3.2	3.2	0.4	0.4	11.1	12.9	14.3	16.0	18.0	17.0	18.0	18.0	18.0	18.0	18.0	18.0
TOTAL INTEREST REVENUE	10.5	61.3	125.7	161.3	261.4	252.5	272.3	235.5	264.4	481.5	562.4	567.7	595.4	694.1	612.8	637.4	625.7	636.4	687.0	697.1	695.1
INTEREST EXPENSE																					
Interest on Deposits	1.5	0.0	17.4	21.2	15.9	24.2	27.5	30.1	40.3	40.3	34.5	49.1	102.5	113.7	124.2	125.4	146.4	157.2	167.0	170.4	169.0
Interest on Intention/loan	1.7	0.0	0.0	0.0	0.0	80.4	97.0	106.1	116.1	127.1	136.0	157.1	164.5	182.2	177.3	216.1	210.7	251.2	285.0	312.7	347.2
TOTAL INTEREST EXPENSE	3.2	0.0	17.4	21.2	15.9	104.6	124.5	146.2	166.4	167.4	210.5	266.2	319.0	295.9	324.1	355.8	368.1	410.3	455.0	483.1	516.2
NET INTEREST INCOME	7.3	55.3	108.3	140.1	245.5	147.9	147.8	89.3	98.0	314.0	351.9	301.5	276.4	398.2	288.7	281.6	257.6	226.1	232.0	217.0	178.9
OPERATING EXPENSES																					
Branch operating expenses	1.3	14.2	45.4	71.1	90.9	111.4	126.2	115.4	121.7	218.5	216.4	217.9	216.9	216.9	271.9	271.9	218.9	218.9	218.9	216.9	215.9
Regional operating expenses	0.3	1.4	5.0	5.4	4.8	8.2	9.4	11.1	15.2	16.1	15.1	20.5	20.5	20.5	22.5	20.5	20.5	20.5	20.5	20.5	22.5
Head office operating expenses	0.0	2.3	2.3	2.3	4.7	4.2	0.7	5.2	4.2	4.0	3.3	2.7	3.3	3.3	7.3	3.7	3.7	3.7	3.7	3.7	3.7
Branch depreciation	0.4	1.1	1.9	3.5	6.4	13.2	15.4	18.2	21.5	21.9	22.2	22.4	23.0	23.0	22.2	22.0	22.0	22.0	22.0	22.0	22.0
Regional office depreciation	0.0	0.2	0.3	0.3	0.3	2.5	2.9	3.4	4.3	4.9	5.5	6.2	6.2	6.2	6.2	6.4	6.4	6.4	6.4	6.4	6.4
Head office depreciation	0.2	0.3	0.9	0.9	1.2	0.9	1.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Loan loss Provision	1.4	4.9	7.9	15.4	24.3	33.3	27.2	46.4	54.5	65.4	34.7	44.0	45.0	46.4	74.4	44.4	44.4	44.4	44.4	44.4	44.4
Staff training	0.1	0.7	2.3	3.4	1.0	1.7	9.0	10.4	12.5	15.1	17.0	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2
TOTAL OPERATING EXPENSE	31.5	25.3	66.4	108.1	154.8	180.3	221.9	209.4	230.5	254.0	269.5	430.3	432.4	426.9	577.2	545.1	515.2	580.3	616.0	655.8	712.6
NET OPERATING PROFIT (LOSS)	-24.2	30.0	41.9	32.0	90.6	-32.4	-74.1	-81.1	-34.4	-96.3	-109.5	-128.8	-135.0	-117.7	-117.4	-163.5	-157.6	-184.0	-187.9	-198.4	-193.7
Less Income Tax 100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NET PROFIT	-1.2	18.0	41.9	32.0	90.6	-32.4	-74.1	-81.1	-34.4	-96.3	-109.5	-128.8	-135.0	-117.7	-117.4	-163.5	-157.6	-184.0	-187.9	-198.4	-193.7
	171	221	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111
KEY RATIOS																					
Total Assets to Total Deposits	151	151	100	195	250	277	220	311	411	471	511	521	521	501	591	591	501	501	501	501	551
Total Assets to Total Deposits	1991	2242	2171	2250	2642	3042	2741	3110	1941	1811	1771	1652	1662	1291	1171	1072	971	871	871	671	611
Investments Total Deposits	1501	2371	3041	2621	1221	641	271	141	31	-101	-111	-121	81	141	281	411	531	631	441	301	1001
External Assets/Total Assets	1001	2251	1701	1001	1011	1011	1101	1911	-7101	-7101	-1011	-1011	-1011	14001	7401	5001	1941	1941	1941	1941	2211
Total capital/Total liabilities	-101	11	301	31	341	211	91	-11	-91	-141	-211	-211	-101	-341	-341	-371	-301	-301	-401	-401	-401
Total capital/Assets	-31	21	51	71	91	41	31	81	-41	-71	-111	-101	-171	-191	-211	-231	-231	-231	-231	-231	-231
(Capital+K+K)/Assets	811	891	791	771	771	771	691	611	591	521	491	451	431	431	431	431	431	431	431	431	431
liquid assets/Total liabilities	81	21	31	31	41	41	41	41	71	71	71	71	71	71	71	71	71	71	71	71	71
Interest Income/Total Assets	5.31	9.01	12.21	12.11	13.41	14.31	17.91	17.31	17.41	18.31	18.81	18.71	17.11	17.11	14.11	15.41	16.41	15.11	15.11	17.71	18.11
Interest Income/Total Assets	1.11	1.21	1.31	1.41	1.11	1.31	1.21	1.41	1.41	1.81	1.61	1.61	1.41	1.41	1.11	1.21	1.31	1.11	1.11	1.41	1.41
Net Interest Margin	1.21	1.91	10.31	10.31	17.31	9.41	1.41	9.11	10.21	10.41	16.41	16.91	10.21	9.01	7.71	6.41	5.41	4.71	4.71	5.91	2.41
Operating Income/Total Assets	5.41	5.21	6.31	8.31	8.91	11.91	12.21	12.91	14.41	14.41	14.91	12.21	12.41	12.41	12.71	9.71	7.91	6.41	6.71	5.71	2.41
Net Profit /Total Assets	-1.41	2.71	4.11	2.41	1.41	-1.91	-1.11	-1.41	-1.41	-4.11	-4.41	-5.41	-5.41	-5.41	-7.91	-2.11	-2.11	-2.11	-2.11	-2.11	-2.11

ASSUMPTIONS 101:		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
New PEP Brackets		10	20	20	19	21	30	30	25	30	40	30	35	0	0	0	0	0	0			
Super Nick Report = (1001 = Table 1 rate case)		1001																				
Branch Operating Cost Inflation (1001 = Table 9 rate case)		1001																				
Annual Inflation:		01																				
BNAI loan = (Additional BNAI Investment in 1996 (connects to Relative Sheet)		91																				
1 Rate on BNAI Loan = (connects to Income Statement)		91																				
1 Rate on Deposits = (connects to Income Statement)		41																				
1 Rate of Interest on Investment (connects to Income Statement)		01																				
1 Rate of Interest on Loan = (connects to Income Statement)		211																				
Withdrawal Rate (101 to 1-4) =		701																				
Withdrawal Rate (101 to 1-4) = (for Group Fee and Forced Savings: Table 1)		101																				
Savings Rate (for Own Savings: Table 1)		001																				
Take/ok (for Own Savings: Table 1)		2 From 1995																				
Take/ok (for Own Savings: Table 1)		1 From 1996																				
Loan Loss Reserve Table 4)																						
Method 1 as Return 27		1																				
Method 1 = 1 (101)		21																				
Method 2 = Max 1.1%		50																				
MODEL BRANCH		101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121
Term 101:		Long	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
		Medium	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
		Short	901	901	901	901	901	901	901	901	901	901	901	901	901	901	901	901	901	901	901	901

Big Bear Hotel
in millions of \$
Firm Name: BBH2000

15-Mar-95

Assets	1990	1991	1992	Actual	Actual	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Cash	2.1	7.9	5.5	6.1	21.2	15.6	17.2	20.0	27.7	25.7	26.8	28.0	32.2	35.1	38.5	41.5	45.0	48.7	52.7	56.8	61.7	66.0
Receivables	98.4	201.2	558.5	599.3	466.2	373.1	304.8	292.5	394.2	385.2	387.8	385.2	432.7	482.9	504.8	482.9	482.9	482.9	482.9	482.9	482.9	482.9
Inventory	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prepayment in building at 7.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prepayment in building at 7.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Statutory deposits	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Current assets	4.7	79.6	15.9	38.8	58.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Year Loans	59.7	101.0	297.1	548.8	1010.7	1279.5	1445.7	1709.6	2055.6	2350.0	2650.0	2950.0	3250.0	3550.0	3850.0	4150.0	4450.0	4750.0	5050.0	5350.0	5650.0	5950.0
Medium/Long Term Loans	75.6	86.7	127.3	161.3	211.8	271.8	341.8	411.8	481.8	551.8	621.8	691.8	761.8	831.8	901.8	971.8	1041.8	1111.8	1181.8	1251.8	1321.8	1391.8
Total Loans	135.3	187.7	424.5	695.2	1281.9	1681.5	1981.5	2281.5	2581.5	2881.5	3181.5	3481.5	3781.5	4081.5	4381.5	4681.5	4981.5	5281.5	5581.5	5881.5	6181.5	6481.5
Less Loan Loss Reserve	-1.6	-14.8	-30.5	-52.6	-85.7	-126.5	-172.9	-223.7	-277.1	-340.3	-408.5	-481.1	-559.0	-641.9	-729.8	-823.8	-923.8	-1023.8	-1123.8	-1223.8	-1323.8	-1423.8
Net Loans	133.7	172.5	394.0	632.6	1196.2	1555.0	1808.6	2057.8	2304.4	2541.2	2771.2	2990.4	3232.5	3439.6	3651.7	3857.7	4057.7	4257.7	4457.7	4657.7	4857.7	5057.7
Mortgage Loan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fixed Assets	15.2	28.6	49.8	116.9	156.1	47.7	85.3	105.9	138.4	156.2	183.3	209.4	236.8	264.8	290.8	316.8	342.8	368.8	394.8	420.8	446.8	472.8
Less Depreciation	-1.7	-4.1	-8.5	-12.0	-19.0	-48.2	-85.9	-105.9	-138.4	-156.2	-183.3	-209.4	-236.8	-264.8	-290.8	-316.8	-342.8	-368.8	-394.8	-420.8	-446.8	-472.8
Net Fixed Assets	13.5	24.5	41.3	104.9	137.1	38.7	49.4	60.0	49.0	49.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Total Assets	198.5	408.5	1027.5	1350.6	1566.8	1684.1	1770.2	2065.4	2265.1	2567.4	2877.2	3188.1	3513.0	3855.2	4215.8	4595.8	4985.8	5385.8	5785.8	6185.8	6585.8	6985.8
Liabilities	29.3	121.8	181.5	248.1	308.2	425.9	538.5	712.2	897.4	1127.1	1355.1	1614.6	1910.0	2115.2	2318.5	2520.8	2722.1	2923.4	3124.7	3326.0	3527.3	3728.6
Net Total Deposits	29.3	121.8	181.5	248.1	308.2	425.9	538.5	712.2	897.4	1127.1	1355.1	1614.6	1910.0	2115.2	2318.5	2520.8	2722.1	2923.4	3124.7	3326.0	3527.3	3728.6
Net Current Savings	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Group Tax Deposits	5.5	26.7	66.7	111.1	161.1	211.1	261.1	311.1	361.1	411.1	461.1	511.1	561.1	611.1	661.1	711.1	761.1	811.1	861.1	911.1	961.1	1011.1
Net Members and Contribution	17.7	68.2	104.8	161.1	211.1	261.1	311.1	361.1	411.1	461.1	511.1	561.1	611.1	661.1	711.1	761.1	811.1	861.1	911.1	961.1	1011.1	1061.1
Current Liabilities	4.7	15.4	32.8	46.5	66.5	86.5	106.5	126.5	146.5	166.5	186.5	206.5	226.5	246.5	266.5	286.5	306.5	326.5	346.5	366.5	386.5	406.5
Total Liabilities	29.3	121.8	181.5	248.1	308.2	425.9	538.5	712.2	897.4	1127.1	1355.1	1614.6	1910.0	2115.2	2318.5	2520.8	2722.1	2923.4	3124.7	3326.0	3527.3	3728.6
Share Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Retained Earnings	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Current Net Profit/Loss	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Shareholder Equity	-5.7	18.0	41.9	81.1	127.8	171.1	211.1	251.1	291.1	331.1	371.1	411.1	451.1	491.1	531.1	571.1	611.1	651.1	691.1	731.1	771.1	811.1
Total Liabilities and Capital	198.5	408.5	1027.5	1350.6	1566.8	1684.1	1770.2	2065.4	2265.1	2567.4	2877.2	3188.1	3513.0	3855.2	4215.8	4595.8	4985.8	5385.8	5785.8	6185.8	6585.8	6985.8

INCOME STATEMENT	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
INTEREST REVENUE																					
Investment income	1.8	21.3	36.0	51.7	42.7	33.4	30.4	31.2	31.5	29.6	29.3	32.3	45.4	70.1	99.9	120.4	163.7	199.4	164.8	164.1	155.9
Loan interest income	8.7	40.0	89.7	109.3	159.7	222.9	273.3	317.0	349.5	435.3	501.0	600.7	587.0	574.8	557.7	536.7	515.5	494.0	573.4	557.3	479.3
Interest on Housing Loan at	0.0	0.0	0.0	0.0	0.0	3.3	7.3	8.4	9.6	11.1	12.9	14.7	16.8	18.0	18.0	18.0	18.0	18.0	18.0	17.7	18.0
TOTAL INTEREST REVENUE	10.5	61.3	125.7	161.7	202.4	259.6	310.1	356.6	410.6	476.7	543.2	607.7	649.2	647.8	634.5	605.1	607.2	711.4	767.8	819.1	743.1
INTEREST EXPENSE																					
Interest on deposits	1.5	8.0	17.4	21.7	31.9	24.2	29.5	38.1	48.3	40.7	34.5	89.1	102.5	113.7	124.7	135.4	146.4	157.2	167.8	178.4	189.0
Interest on Securities/Loan	2.7	9.9	9.9	9.9	9.9	30.3	97.9	100.1	110.1	123.3	139.9	152.1	164.5	182.7	199.3	218.1	238.7	261.2	285.8	312.7	342.2
TOTAL INTEREST EXPENSE	4.2	8.0	17.4	21.7	31.9	117.8	174.5	148.2	168.4	164.0	213.5	241.2	267.0	295.9	324.1	353.8	385.1	418.3	453.6	491.1	531.1
NET INTEREST INCOME	6.3	53.3	108.3	140.1	165.5	149.8	165.7	212.4	246.1	265.4	229.7	366.5	380.2	367.0	350.7	331.3	321.1	295.1	304.2	324.7	216.0
OPERATING EXPENSES																					
Branch operating expenses	7.7	24.7	45.4	77.1	90.9	111.4	130.2	153.4	181.3	218.5	244.4	278.5	278.9	278.9	278.9	278.9	278.9	278.9	278.9	278.9	278.9
Regional operating expenses	0.7	1.6	5.0	5.4	6.8	8.2	9.4	11.3	13.3	16.1	18.1	20.3	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5
Head office operating expenses	0.8	2.3	7.7	7.7	4.7	4.2	4.7	5.2	6.2	6.8	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
Branch depreciation	0.4	1.1	1.5	2.1	4.4	1.4	8.7	10.2	12.1	14.4	16.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4
Regional office depreciation	0.0	0.2	0.3	0.3	0.3	2.5	2.9	2.4	4.1	4.9	5.5	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
Head office depreciation	0.2	0.3	0.8	0.9	1.2	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Loan Loss Provision	1.4	4.9	7.9	15.4	24.3	32.3	37.2	46.4	54.8	45.9	74.7	84.8	85.8	86.4	86.4	86.4	86.4	86.4	86.4	86.4	86.4
Staff training	0.1	0.7	2.3	3.4	1.8	7.7	9.0	10.6	12.5	15.1	17.0	17.7	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3
TOTAL OPERATING EXPENSE	11.5	35.7	64.4	100.1	124.4	175.7	205.7	241.5	285.2	342.7	384.8	434.9	434.0	427.7	401.4	381.4	359.4	327.6	336.5	324.3	271.8
NET OPERATING PROFIT (LOSS)	-5.2	18.0	43.9	32.0	31.1	-28.7	-21.5	-29.1	-39.0	-54.3	-57.1	-70.4	-57.7	-55.7	-53.7	-50.3	-47.4	-44.5	-32.2	-49.3	-35.8
Less Income tax 10%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NET PROFIT	-5.2	18.0	43.9	32.0	31.1	-28.7	-21.5	-29.1	-39.0	-54.3	-57.1	-70.4	-57.7	-55.7	-53.7	-50.3	-47.4	-44.5	-32.2	-49.3	-35.8
	222	222	222	222	222	222	222	222	222	222	222	222	222	222	222	222	222	222	222	222	222
PEY RATIOS																					
Total Deposits to Total Assets	151	181	181	192	211	271	311	341	401	441	471	521	511	521	571	521	571	511	511	511	491
Total Loans to Total Deposits	2299	2248	2191	2155	2045	2615	2145	2155	1965	1805	1555	1455	1465	1295	1555	1615	915	835	1055	515	515
Investments/Total Deposits	2362	2355	2042	2425	1255	885	795	555	945	515	755	315	545	535	645	185	895	1015	455	1255	1255
External Debt/Total Investments	2021	2251	1701	1991	7811	3991	4731	4731	5702	7541	7642	7811	5311	5912	3141	2662	2311	2111	2401	1801	1491
Total capital/Total Liability	-161	111	301	551	161	261	161	81	21	-31	-31	-161	-171	-141	-151	-161	-171	-171	-181	-191	-191
Total capital/assets	-31	21	-31	71	91	11	31	31	11	-11	-31	-11	-61	-31	-81	-81	-91	-91	-91	-91	-91
(Capital+D&C)/Assets	931	801	751	511	711	151	651	141	651	561	531	561	991	881	481	481	481	491	491	501	511
Liquid assets/Total Liability	81	71	31	31	61	91	81	81	81	71	71	71	71	71	71	71	71	71	71	71	71
Interest Income/Total Assets	5.31	9.99	12.21	12.11	13.41	16.61	17.31	17.81	18.31	18.31	18.91	18.91	19.31	15.31	16.71	15.71	14.51	15.51	14.51	15.51	15.51
Interest Expense/Total Assets	2.11	1.21	1.21	1.41	1.11	7.71	7.11	7.11	7.31	7.11	7.41	7.11	7.71	7.71	7.81	7.81	7.81	7.91	8.01	8.01	8.11
Net Interest Margin	5.51	5.51	16.51	16.51	13.31	5.51	16.51	16.51	16.51	11.31	11.31	11.31	11.31	9.41	8.91	7.91	6.61	7.61	6.61	7.61	7.61
Operating Expense/Total Assets	5.81	5.71	4.51	6.11	8.91	11.71	11.61	12.11	12.41	12.31	12.41	13.61	12.31	11.81	9.71	8.31	7.41	6.41	7.41	6.41	4.11
Net Profit/Total Assets	-2.61	7.71	4.11	2.41	5.41	-1.81	-1.21	-1.51	-5.71	-2.11	-2.81	-2.191	-1.441	-1.462	-1.291	-1.121	-0.971	-0.841	-0.571	-0.811	-0.811

[illegible]

BRAC CREDIT PRODUCTS

Category	Loan Amount (Tk)	Weekly Pmt (Tk)	Total Pmt(Tk)	Uses	Eligibility
General Loans					
1st Loan	Tk.1000 upto max 4000 example: Tk.1,000 Tk.4,000	15% flat rate over 46wks Tk.25 per week Tk.100 per week	Tk. 1,115 Tk. 4,600	funds economically viable microenterprises; to increase the self-sufficiency of the entrepreneur VO members	* VO members with 20+ membership * Saving equal to 2% of the loan amount
2nd Loan	up to max Tk.6,000 example: Tk. 6,000	15% flat rate over 46 wks Tk. 50 per week	Tk. 6,900		* Savings equal to 5% of the loan amount * Savings equal to 10% of the loan amount
3rd Loan	up to max Tk.10,000 example: Tk. 10,000	15% flat rate over 46 wks. Tk.250 per week	Tk. 11,500		
Housing Loans	Tk.2,500 up to Tk.6,000	weekly payment calculated based on 10% annual interest rate		fund to construct house occupied by VO members	*Savings equal to 6 months equal to the loan instalments for the same period *only one loan per household
Enterprise Loans	up to Tk. 25,000	weekly payment based on 15% flat rate over 46 wks.		*enterprise expansion * employment creation	experienced VO members with proven record
Seasonal Loans	26 week loans	weekly payment based on 10% flat rate		vegetable/fish cultivation	

