

BUSINESS PLAN

For

BRAC POULTRY PROJECT

Mirearshorai

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## **EXECUTIVE SUMMARY**

The purpose of establishing BRAC Poultry Farm is to provide support to its poultry extension programme. Annually an input of 15 million Layer and 8 million Broiler day old chicks (DOC) is required for the poultry rearing activities of BRAC's Employment and Income Generation (EIG) programme for the rural poor. The DOC supply sources are six GOB owned poultry hatcheries, four private farms and BRAC owned five poultry farms. But, unfortunately, altogether these sources are capable of providing BRAC with only about 12 million Layer and 2 million Broiler DOC annually. BRAC, therefore, has planned to set up 2 Broiler Parent Stock Farms to meet shortage of Broiler DOC.

BRAC expects to set the first farm at Mirearshorai, Chittagong, operating by September 2000. This farm will produce Broiler DOC from March 2001 and will have an annual production capacity of about 3 million broiler DOC. This would be the largest and environment controlled farm in Bangladesh. In 2<sup>nd</sup> year of operation, this farm will attain 60% of production capacity and from 2002 onwards the farm will operate at a capacity of 95%.

The price per chick has been set at Taka 22, which is 10% below comparable to the quality of DOC from other farms. BRAC will be delivering the DOC at the rural locations in East and North-East regions of the country where good market exists.

The BRAC farm will be operated by a team of people qualified in veterinary science/animal husbandry and with experience in BRAC's Poultry Programme. The key personnel will be someone with specific skill training, some from abroad. The unskilled workers will be all female who will be receiving training on joining the job.

The construction and other infrastructure work will be completed by the end of 1<sup>st</sup> year and from then on the parent stock will start rearing (production not started). As a result, a loss of Taka 12 million will be incurred in the first year. From 2<sup>nd</sup> year, the farm will be making an annual profit. The break-even sale of this farm would be Taka 34.4 million.

The capital investment in the farm is Taka 105.5 million; Taka 89.5 million as fixed investment and the rest is working capital. An annual interest of 12% is levied on the capital. The return on the investment is approximately 16.0% per year. The pay back period of the capital is about 6.2 years. A summary of financial analysis is given in Annex-A.

## **1. THE BRAC POULTRY FARM**

### **▪ Background**

Broiler rearing by poor rural women is one of the major Employment & Income Generation (EIG) programme of BRAC. Under BRAC's credit scheme over 10,00,000 women have been trained so far in poultry rearing and are supplied with DOCs (day old chicks). By 1999, the annual demand of this programme stands at 15 million Layer and 8 million Broiler DOCs. Until now, the sources of DOC supply for this programme are GOB (Government of Bangladesh) poultry farms, private poultry farms and BRAC's own farms. These farms are supplying BRAC with less than 12 million Layers and 2 million Broiler DOCs a year. BRAC has decided to set up its own Broiler farms to meet the shortage of DOCs.

### **▪ Nature of the Project**

The proposed project is a Broiler Breeding Farm with hatchery with the primary objective of supplying commercial Broiler DOC for BRAC Poultry Programme. The project has two components: Broiler parent stock and hatchery. The Broiler breeder component involves rearing parent stock. The parent stock will produce fertile eggs which will be hatched in the modern hatchery.

### **▪ Broiler Parent Stock Farm (BPS)**

A BPS poultry farm is different from the commercial poultry farm that produces table-eggs and/or meat for the market. A BPS poultry farm produces Broiler DOCs for commercial farms. These poultry farms import the PS chicks from grand-parent-stock of poultry farms abroad, and in about 6 months the chicks start laying eggs that are hatched in incubators to produce Broiler DOC for commercial farms.

In every 14 weeks the PS farms import a batch of PS and 5 batches of PS are housed in 5 different sheds simultaneously. Consequently, 3 batches of PS remain in full production at any time, and roughly the same level of DOC production is maintained round the year.

There are 2 different types of PS farms, one is the Layer parent stock farm (LPS) and the other is the Broiler Parent Stock (BPS) farm. The DOCs from the LPS farms are reared to be egg Layers and the ones from the Broiler parent stock farms are reared to be sold as meat. The Proposed BRAC Poultry Farms are meant to be BPS farms and will produce only Broiler DOC.

## ▪ **Why BRAC should be involved in this project**

The project has several attractive features as follows:

- *It is proved that Broiler rearing is a good source of income for the poor women at their household level;*
- *There is an increase demand for Broiler meat in the market;*
- *Currently BRAC's demand for Broiler DOC stands at 0.7 million per month but BRAC is getting only 0.2 million. The demand is rapidly rising.*

## ▪ **BRAC Farm at Mirearshorai, Chittagong**

The proposed BPS poultry farm is planned to set up at Mirearshorai, Chittagong. About 12 acres of land has already been purchased and developed spending approximately Taka 160 million. As per plan, five prefabricated poultry sheds with environment control (all in all out systems), one hatchery building, one feed store, office, and residence will be constructed.

All construction work of the farm is expected to be over by August 2000. The farm is scheduled to supply Broiler DOC from March 2001. The production capacity of the farm is about 3,100,000 DOC per year. The farm is expected to operate at 60% operation capacity in 2nd year. It will attain 95% production capacity in 3<sup>rd</sup> year, and subsequent years.

## ▪ **The Production Process**

DOC of the Broiler parent stock will be imported. These chicks are to be reared in prefabricated houses within controlled environment. Depending upon the breed, the hens will start laying fertile eggs between 24-26 weeks. The laying period will end after approximately 64-66 weeks. The parent stock will produce fertile eggs, which will be set in the incubators for hatching DOCs. This is the main part of the production process.

Not all fertile eggs can be set in the incubators. A portion of the eggs will be sold for table consumption. Finally, at the end of the laying period, the parent stock will be disposed off as poultry meat.

## ▪ **Poultry Farms in Bangladesh**

There are about 34 privately owned BPS and LPS poultry farms in Bangladesh. The annual production of these farms is about 20 million Layer and 40 million Broiler DOC. There are different types of farms operated in the country. Some farms are very large and they rear more than 5,000 Broilers at a time. Some are medium and small sized. BRAC organized farms are mostly of small-scale in operation, the rearers rear about 100 to 500 Broiler DOC from day old upto 5 weeks and sell to local market. At present, due to shortage of supply of DOC the small rearers are not getting enough number of chicks.

## **2. FARM PRODUCT: THE BROILER DOC**

### ▪ **Production Capacity**

The BRAC farm at Mirearsorai, Chittagong is designed for approximately 32,000 BPS. A BPS farm of this size is capable of producing 3,100,000 DOC annually. The farm will start production from March 2001, and the expected production for that year is 1,800,000 DOC. The production for 2002 and the subsequent years are 3,100,000 annually.

There are two important by-products of this farm: the eggs that are not selected for hatching and the chickens that are not used for laying. These by-products will be sold out in the local graders. Roughly, about 480,000 eggs and 21,600 culled chicken will be sold annually.

### ▪ **Product Quality**

The proposed BRAC Poultry Farm at Mirearshorai, Chittagong will import parent-stock from abroad. The farm will deliver the DOC to the rearers at their location.

### **3. DOC MARKETING**

#### **▪ Market Description**

The market for DOC from BPS farms is small and concentrated mainly in the two biggest cities of the country, Dhaka and Chittagong. Most BPS farms are located around these cities and their customers i.e. the commercial farms are concentrated in and around these two cities. The DOC must reach from the producer to the user within approximately 24 hours of production otherwise would perish. The BPS farms and the commercial farms, therefore, need to be near each other and linked closely. This is one of the reason why poultry farming has not spread in the rural areas.

The market for the Broiler DOC from the BRAC farm comprises about 10,000 rearers around the District towns of the country. These rearers have been trained and supplied with DOC, balanced feed, medicine and vaccine by BRAC's Poultry and Livestock Programme. The DOC will be distributed to the rearers from the Mirearshorai farm through this poultry and livestock extension network. After 6 weeks of rearing the rearers will sell the Broilers directly to the market and/or through Agent to the market.

#### **▪ Pricing**

The price of the BRAC farm DOC will be close to that of the commercial DOC of comparable quality. At present, the price of commercial DOC is Taka 24 per chick. The price of the BRAC farm DOC on the other hand, is fixed at Taka 22.

A delivery and handling charge of Taka 2 per chick has been added in the calculating the cost to covering long distance transportation cost and delivery at numerous locations in different areas. This brings the cost of DOC to Taka 24 per chick at the delivery point. The DOC of commercial farms are generally not available in remote areas, and where they are available the price is higher than that of the BRAC product.

#### 4. FARM MANAGEMENT

##### ▪ Professional & Technical Manpower

The management of a BPS poultry farm calls for a group of well-trained and experienced people. BRAC has a large number of university graduates (in Veterinary Medicine and Animal Husbandry) as well as poultry technicians with long working experience in the poultry extension work of RDP (Rural Development Programme). A group is selected out of that pool, and following more training (in some cases overseas training), are given the responsibility of the farm management. The professional and technical manpower of the Mirearshorai farm is as follows:

Manager.....	1
Farm Supervisor.....	1
Production Assistant.....	2
Hatchery Supervisor.....	1
Hatchery Technician.....	3

In addition to these trained persons in poultry farming, the farm employs the following salaried staff:

Accountant.....	1
Guard.....	4

##### ▪ Labour Force

The labour force of the poultry farm will be all female and locally recruited. They need to have no special skill and can be trained on the job. The Mirearshorai farm employs the following female workers:

Poultry-Shed Workers.....	24
Hatchery-Cleaner.....	4
Hatchery Attendants.....	3

The details of the manpower and their salary and wages are given in Annex-A.



## 5. FINANCIAL ASPECT

### ▪ Investment

BRAC has planned investment of Taka 89.5 million on land, building, machinery, etc. for the BPS poultry farm at Mirearshorai. The requirement of the working capital of the farm calculated as 12% for a year's production cost is about Taka 16 million. The total investment therefore, comes to Taka 105.5 million.

#### Source of Finance

<i>Application of Funds</i>	<i>Taka</i>
Fixed Capital	89,507,500
Working Capital	16,000,000
Total Project Cost	105,507,500

<i>Sources of Funds</i>		
BRAC's Equity	13,500,000	12.8%
Bank Loan	92,007,500	87.2%
Total Funds	105,507,500	100%

An annual interest @ 12% on the investment is added at the cost of production of the farm. After paying this interest the farm makes 20.5% return on investment. The farm pays back the investment in about 7.6 years.

### ▪ Cost & Revenue

The biggest cost element of the farm is the poultry feed of Taka 23 million per year. To calculate this cost, the following assumptions are made:

Average PS Flock sizes	(5 x 6,400) 32,000
Feed consumption	60 kg/bird (12 kg for rearing + 48 kg for laying period)
Average Feed Costs	Taka 16 per kg.
Mortality	10%

The second biggest cost element is the price of the imported PS. The PS is imported in batches of 6,400 hens after every 14 weeks. The estimate the annual cost of PS, the following assumptions are made:

No. of batches imported	3 per year
Price of PS	Taka 200 per hen

The revenue of Taka 68.5 million will come mainly from the sale of DOCs, eggs and culled birds. To estimate the revenue, the following assumptions are made:

Average No. of Hens in farm (6,400 x 4)	32,000
No. of Layer hen	24,000
Average egg production by laying hens	182
Settable unsettable eggs ratio	90:0
Average hatchability	80%
Chick production per hen housed	130 per year
No. of culled bird	21,600 per year
Price of a DOC (Taka)	22
Price of an egg (Tk)	2.50
Price of a culled bird (Tk)	100
Mortality per flock	10%

- **Break-even Profitability**

The farm's break even point is at sale of Taka 34.4 million, which is about 50% of its production. The net profit margin is about 24.6%. These estimates are, however, for the full production scale. The farm produces 0% in 1<sup>st</sup> year and consequently makes a net loss of Taka 12.6 million. It will be in 60% production in 2<sup>nd</sup> year and is expected to get profit of about Taka 3.2 million. From 3<sup>rd</sup> year, the farm will make Taka 16 million net profit.

The break-even and profitability analyses are presented in Annex-A.

**POULTRY FARM -MIRARSORAI**

(Capacity: 300,000 DOCs per Month, Broilers)

**Profitability Analysis**
**Capacity Utilisation**

	Year 1 0%	Year 2 60%	Year 3 95%	Year 4 95%	Year 5 95%
	Taka	Taka	Taka	Taka	Taka
Revenue					
1. D O C	-	41,184,000	65,208,000	65,208,000	65,208,000
2. Unsetable Egg	-	720,000	1,140,000	1,140,000	1,140,000
3. Culling Birds	-	1,296,000	2,052,000	2,052,000	2,052,000
4. Others	-	60,000	95,000	95,000	95,000
<b>Total Revenue</b>	-	<b>43,260,000</b>	<b>68,495,000</b>	<b>68,495,000</b>	<b>68,495,000</b>

**Expenditure**

1. Direct Inputs					
1.1 Parent Stock Hens	-	4,800,000	4,800,000	4,800,000	4,800,000
1.2 Feed	-	13,824,000	23,040,000	23,040,000	23,040,000
1.3 Litter	-	90,000	150,000	150,000	150,000
1.4 Medicine	-	1,440,000	2,400,000	2,400,000	2,400,000
1.4 Vaccine	-	1,008,000	1,680,000	1,680,000	1,680,000
Cost of Goods Sold	-	<b>21,162,000</b>	<b>32,070,000</b>	<b>32,070,000</b>	<b>32,070,000</b>

**2. Direct Labours**

2.1 Poultry Shed Worker	57,600	345,600	345,600	345,600	345,600
2.2 Hatchery Cleaner	9,600	57,600	57,600	57,600	57,600
2.3 Hatchery Assistant	15,000	90,000	90,000	90,000	90,000
Sub Total	<b>82,200</b>	<b>493,200</b>	<b>493,200</b>	<b>493,200</b>	<b>493,200</b>

**3. Othets Direct Cost**

3.1 Electricity	333,333	1,320,000	2,000,000	2,000,000	2,000,000
3.2 Spares and maintenance	-	66,000	100,000	100,000	100,000
Sub Total	<b>333,333</b>	<b>1,386,000</b>	<b>2,100,000</b>	<b>2,100,000</b>	<b>2,100,000</b>

**Total Direct Cost**

	<b>415,533</b>	<b>23,041,200</b>	<b>34,663,200</b>	<b>34,663,200</b>	<b>34,663,200</b>
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**Gross Profit**

	<b>(415,533)</b>	<b>20,218,800</b>	<b>33,831,800</b>	<b>33,831,800</b>	<b>33,831,800</b>
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**4. Overheads**

4.1 Manager	240,000	240,000	240,000	240,000	240,000
4.2 Accountant	90,000	90,000	90,000	90,000	90,000
4.3 Hatchery Supervisor	144,000	144,000	144,000	144,000	144,000
4.4 Farm Supervisor	144,000	144,000	144,000	144,000	144,000
4.5 Production Assistant	120,000	120,000	120,000	120,000	120,000
4.6 Night Guard	105,600	105,600	105,600	105,600	105,600
4.7 Hatchery Technician	180,000	180,000	180,000	180,000	180,000

**5. Depreciation**

4.1 Building 5%	-	2,515,375	2,515,375	2,515,375	2,515,375
5.2 Equipment 10%	-	2,150,000	2,150,000	2,150,000	2,150,000
5.3 Furniture and Vehicles 10%	-	170,000	170,000	170,000	170,000
6. HO Management and Logistics	102,360	102,360	102,360	102,360	102,360
7. Interst on Capital Investment 12%	11,040,900	11,040,900	11,040,900	8,940,900	6,060,900
	<b>12,166,860</b>	<b>17,002,235</b>	<b>17,002,235</b>	<b>14,902,235</b>	<b>12,022,235</b>

**Net Profit /(Loss)**

	<b>(12,582,393)</b>	<b>3,216,565</b>	<b>16,829,565</b>	<b>18,929,565</b>	<b>21,809,565</b>
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**Cumulative Profit/ (Loss)**

	<b>(12,582,393)</b>	<b>(9,365,828)</b>	<b>7,463,737</b>	<b>26,393,302</b>	<b>48,202,867</b>
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**POULTRY FARM -MIRARSORAI**  
Projected Balance Sheet

	Year 1	Year 2	Year 3	Year 4	Year 5
<b>Fixed Assets</b>					
Land & Land Development	16,000,000	16,000,000	16,000,000	16,000,000	16,000,000
Building	50,307,500	50,307,500	50,307,500	50,307,500	50,307,500
Equipment	21,500,000	21,500,000	21,500,000	21,500,000	21,500,000
Furniture and Fixtures	500,000	500,000	500,000	500,000	500,000
Vehicles	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000
Sub-Total	89,507,500	89,507,500	89,507,500	89,507,500	89,507,500
Less: Accumulated Depreciation	-	4,835,375	9,670,750	14,506,125	19,341,500
<b>Net Fixed Assets</b>	<b>89,507,500</b>	<b>84,672,125</b>	<b>79,836,750</b>	<b>75,001,375</b>	<b>70,166,000</b>
<b>Current Assets</b>					
Cash & Bank Balance	208,557	1,092,547	387,887	152,827	297,767
Accounts Receivable	-	3,460,800	5,479,600	5,479,600	5,479,600
Advances	-	-	-	-	-
Stock of Raw Materials	409,050	1,636,200	2,727,000	2,727,000	2,727,000
Stock of Parent Breeds (Birds)	2,800,000	5,280,000	7,040,000	7,040,000	7,040,000
Deferred Revenue Exp.	-	-	-	-	-
<b>Total Current Assets</b>	<b>3,417,607</b>	<b>11,469,547</b>	<b>15,634,487</b>	<b>15,399,427</b>	<b>15,544,367</b>
<b>Total Assets</b>	<b>92,925,107</b>	<b>96,141,672</b>	<b>95,471,237</b>	<b>90,400,802</b>	<b>85,710,367</b>
<b>Funds &amp; Liabilities</b>					
Accounts Payable	-	-	-	-	-
Short-Term Loan	-	-	-	-	-
Bank Loan	92,007,500	92,007,500	74,507,500	50,507,500	24,007,500
Equity	13,500,000	13,500,000	13,500,000	13,500,000	13,500,000
Cumulative Profit / (Loss)	(12,582,393)	(9,365,828)	7,463,737	26,393,302	48,202,867
<b>Total Funds &amp; Liabilities</b>	<b>92,925,107</b>	<b>96,141,672</b>	<b>95,471,237</b>	<b>90,400,802</b>	<b>85,710,367</b>

**POULTRY FARM -MIRARSORAI**  
Projected Cash-flow Statement

	Year 1	Year 2	Year 4	Year 4	Year 5
<b>SOURCES OF FUNDS</b>					
<i>From Operations</i>					
Net Profit/(Loss)	(12,582,393)	3,216,565	16,829,565	18,929,565	21,809,565
Add: Depreciation	-	4,835,375	4,835,375	4,835,375	4,835,375
<i>From Other Sources</i>					
Opening Balance, Cash & Bank	-	208,557	1,092,547	387,887	152,827
Accounts Payables	-	-	-	-	-
Short-Term Loans	-	-	-	-	-
Bank Loan	92,007,500	-	-	-	-
Equity	13,500,000	-	-	-	-
<b>Total</b>	<b>92,925,107</b>	<b>8,260,497</b>	<b>22,757,487</b>	<b>24,152,827</b>	<b>26,797,767</b>
<b>APPLICATION OF FUNDS</b>					
Accounts Receivable	-	3,460,800	2,018,800	-	-
Stock of Raw Materials	409,050	1,227,150	1,090,800	-	-
Stock of Parent Breeds (Birds)	2,800,000	2,480,000	1,760,000	-	-
Fixed Assets	89,507,500	-	-	-	-
Payback of Bank Loan	-	-	17,500,000	24,000,000	26,500,000
<i>Closing Balance, Cash &amp; Bank</i>	<i>208,557</i>	<i>1,092,547</i>	<i>387,887</i>	<i>152,827</i>	<i>297,767</i>
<b>Total</b>	<b>92,925,107</b>	<b>8,260,497</b>	<b>22,757,487</b>	<b>24,152,827</b>	<b>26,797,767</b>

**POULTRY FARM -MIRARSORAI**

1. Working Sheet of Sales Revenue	Taka	Nos	Total Taka
1. D O C	22	3,120,000	68,640,000
2. Unsetable Egg	2.50	480,000	1,200,000
3. Culling Birds	100	21,600	2,160,000
4. Others			100,000
<b>Total Revenue</b>			<u>72,100,000</u>

2. Working Sheet of Direct Inputs	Taka	Nos	Total Taka
2.1 Parent Stock Hens	200	24,000	4,800,000
2.2 Feed(KG)	16	1,440,000	23,040,000
2.3 Litter			150,000
2.4 Medicine	100	24,000	2,400,000
2.4 Vaccine	70	24,000	1,680,000
			<u>32,070,000</u>

3. Working sheet of Direct Labours	Nos	Month	Taka Per month	Total Taka
3.1 Poultry Shed Worker	24	12	1,200	345,600
3.2 Hatchery Cleaner	4	12	1,200	57,600
3.3 Hatchery Assistant	3	12	2,500	90,000
				<u>493,200</u>

Working Sheet of Salaries	Nos	Month	Taka Per month	Total Taka
4.1 Manager	1	12	20,000	240,000
4.2 Accountant	1	12	7,500	90,000
4.3 Hatchery Supervisor	1	12	12,000	144,000
4.4 Farm Supervisor	1	12	12,000	144,000
4.5 Production Assistant	2	12	5,000	120,000
4.6 Night Guard	4	12	2,200	105,600
4.7 Hatchery Technician	3	12	5,000	180,000
				<u>1,023,600</u>

**POULTRY FARM/ MIRARSORAI ( 300,000 PER MONTH )**

Capital Investment	Taka
1.Land	
1.1. Land (12 acres)	13,500,000
1.Land Development	2,500,000
<b>Total Land and Land Development</b>	<u>16,000,000</u>

2. Building	
2.1 Boundary ( 3000sft @ Tk 500)	1,500,000
2.2 Internal Road ( 2000sft @ TK.200)	400,000
2.3 Office Store and Residence Building ( 5000sft @ TK.500)	2,500,000
2.4 Wasing Room ( 1500sft @ TK.500)	750,000
2.5 Septic Tank	200,000
2.6 Pump House and Pump	600,000

*Handwritten notes:*  
 - 9,25,000  
 - 150,000

2.7 Overhead Water Tank	600,000
2.8 Generator Room (300sft @ TK.325)	97,500
2.9 Main Gate (2 nos @ TK.15000)	30,000
2.10 Sentry Post (400sft @ TK.200)	80,000
2.11 Hatchery Room (8500sft @ TK.500)	4,250,000
2.12 Poultry House with Feeder Drink	30,000,000
2.13 Poultry Shed foundation Work	6,000,000
2.14 Electric Installation	300,000
2.15 Electric Connection	2,000,000
2.16 Miscellaneous	1,000,000
Total Building	<u>50,307,500</u>
3 Equipment	
3.1 Generator	5,000,000
3.2 Hatchery Equipment	16,000,000
3.3 Equipment Installation	500,000
Total Equipment	<u>21,500,000</u>
4 Furniture and Fixtures	500,000
5. Vehicles	1,200,000
Total Fixed Capital	89,507,500
B.Working Capital	16,000,000
Total Investment	<u>105,507,500</u>

58,25,000  
 - 1,000,000  
 - 500,000  
 - 500,000  
 - 60,000,000

	Year 1	Year 2	Year 3	Year 4	Year 5
<b>Ratio Analysis</b>					
1. Return on Investment	-11.8%	3.0%	16.0%	17.9%	20.7%
2. Return on Fixed Assets	-14.1%	3.6%	18.8%	21.1%	24.4%
3. Return on Sales	0.0%	7.4%	24.6%	27.6%	31.8%
4. Gross Profit margin	0.0%	46.74%	49.39%	49.39%	49.39%
5. Net Profit margin	0.00%	7.44%	24.57%	27.64%	31.64%
<b>1. Break-even Analysis</b>					
1. Break-even sales in Taka	34,422,292				
2. Break-even point of Capacity -Utilisation	50%				
3. Pay back period(year)	6.2				