
UNIT 1 PROJECT FORMULATION

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1.0 OBJECTIVES

After studying this unit, you will be able to:

- derive the costs involved in starting a poultry farm;
- recognize technical standards and assumptions in poultry production;
- assess the bank's norms and formalities; and
- prepare a model project for starting broiler, layer and quail farming.

1.1 INTRODUCTION

Egg and chicken are the most popular foods of animal origin throughout the world because they are healthier, nutritious and can be produced at a relatively cheaper cost. Poultry rearing needs a smaller area than other food animals. The main constraint, however, is finance which has to be obtained from a funding agency, which in our country is mainly a bank. The banks need a detailed report on the location, suitability, men and material available, plan of work, amount of loan required and its repayment schedule etc. which is popularly referred to as "Project Report". The information given in this unit will help you estimate and prepare a project report for obtaining bank finance to start a poultry farm.

1.2 GENERAL GUIDELINES FOR PREPARING POULTRY PROJECTS FOR BANK FINANCE

The project report is a technical document, containing the following details:

- What the farmer (who will be referred to as “Promoter” hereafter) is going to do with the finance obtained,
- Type of business he or she is going to start,
- Volume of operation,
- Source and cost of various inputs,
- Production goals,
- Shed design,
- Blue prints of the farm buildings,
- Schedule of operation,
- Production details,
- Marketing strategy,
- Cost-benefit Ratio,
- Technical assistance,
- Loan repayment schedule,
- Technical and financial feasibility reports, and
- Any other details required by the bank.

Along with the project report, the entrepreneur has to submit the following documents to the bank for financial assistance.

- Land sale deed and other property documents.
- Quotations obtained from the input suppliers, such as chick cost from hatcheries, feed cost from a feed mill, equipment cost from equipment supplier etc.
- Marketing tie up particulars.
- Blue prints of the farm buildings and their estimates from an engineer.
- Technical and financial feasibility reports from a Technical consultant and a chartered accountant.
- Promoters’ qualification and experience certificates.
- Any other documents required by the bank.

Before preparing the project report, the promoter has to approach the bank and get their consent (approval) for financing the project. The project report has to be prepared as per the model recommended by the bank or in National Bank for Agricultural and Rural Development (NABARD) format.

1.2.1 Refinance

The promoter has to submit two copies of the project report to the bank which is referred to as “Lead Bank” and another for NABARD. You may wonder why a

copy for NABARD? The reason is, most of the poultry projects are not directly financed by the concerned bank; but refinanced from NABARD; i.e. the bank will get part of the finance from NABARD first; then adds its share of finance and give the loan to the farmer. The bank, therefore, will recommend and forward one copy to the NABARD for refinance.

1.2.2 Promoter's Share

No bank will finance the full cost of the project. They will finance only up to 75% of the project cost or up to a prescribed limit; whichever is lower. The remaining money, called as "Margin money" is the share of the promoter. Moreover, the bank will not finance for the land, where the project is going to be started; the land needs to be attached temporarily to the bank as security deposit. Sometimes, the bank will ask for additional security deposit of fixed or movable assets, depending on the amount of loan required and repayment capacity of the promoter.

1.2.3 Preparing the Project Report

After obtaining permission from the bank and NABARD, the project report has to be prepared on the guidelines prescribed by NABARD. An experienced promoter can prepare project report on his own or can take the help of a Poultry Consultant or Veterinarian or Chartered Accountant, as the case may be, for preparing the project report. Along with the project report, all documents needed by the bank have to be submitted such as the sale deed, security deposit, blue prints, feasibility reports etc. Normally, one to three months time is required for approval of the project and release of loan, depending on the volume of the project.

1.3 ASSUMPTIONS

For preparing a project report, one has to know the latest technical and financial standards as well as the latest prices of various farm inputs and outputs. Without these details, the project report cannot be prepared.

The project report has to be prepared based on certain assumptions, like saleable eggs produced per hen, feed efficiency, mortality rate, body weight at marketing age, prices of inputs and outputs. These predictions or assumptions must be as close as possible to the existing production norms, practically achievable targets and prevailing prices; so that the project will be more accurate and feasible.

Some of the assumptions and standards in poultry projects are as follows:

- Number of saleable eggs per hen = 320
- Body weight of broiler at 40 days of age = 2 kg
- Feed efficiency in broilers = 1.8
- Feed efficiency in layers = 125 g feed per egg
- Feed cost (Fluctuating), present cost is Rs. 10 -13 per kg
- Egg cost (Fluctuating), present rate is Rs. 2.25 per egg
- Live broiler cost (Fluctuating), present cost is Rs. 45 per kg
- Mortality in broilers = Maximum 5%
- Mortality in layers = Maximum 10%

Depending on the type of project, the technical standards and assumptions have to be taken. In case of a Japanese quail project, the production standards and prices of Japanese quail have to be assumed. Other technical standards and assumptions are discussed later in this unit.

Check Your Progress 1

Note: a) Use the space given below for your answers.

b) Check your answers with those given at the end of the unit.

1) What are the documents to be enclosed along with the project report?

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.....

2) What is promoter’s share?

.....
.....

1.4 MODEL PROJECT REPORT FOR A BROILER FARM

Broiler farming is one of the fastest growing animal enterprises in our country. It is growing at an estimated rate of 15% per annum. Many consumers have become aware of advantages of broiler meat not only due to its eating quality but also due to low fat content. Knowledge of nutritive value of poultry meat, in general, and broiler meat, in particular, has further created a sustained demand for broiler meat all through the year. Hence, many farmers are entering into broiler farming and banks are advancing loans for such activities liberally.

1.4.1 Objectives

- To start a 7000 birds capacity broiler farm on a weekly batch system with 1000 birds × 7 batches.
- To produce and sell in retail 1000 broilers per week.
- To develop an independent retail market channel to derive more income.
- To prepare own feed, to reduce feed cost.
- To improve the availability and per capita consumption of highly nutritious broiler meat locally.
- To generate self employment and more employment potential by way of engaging local persons for farm work, processing and retailing.

1.4.2 Technical Details and Assumptions

- (i) **House:** Open-sided deep litter house with tile roof.
- (ii) **Floor space:** 0.045 m² (½ sq ft) up to 3 weeks of age and 0.09 m² (1 sq ft) per bird thereafter.

Assumptions:

Total number of birds in the farm	7000
Total number of batches in the farm	7 (but house will be provided for 8 batches i.e. to clean a house when it is empty after all birds are sold or gap between batches (Called Down time))
Total number of birds per batch	1000
Batch interval	One week
Down time	One week
Poultry house cost	Fluctuating, considered as Rs. 1,111 per m ² (Rs.100 per sq ft)
Other buildings cost	Fluctuating, considered as Rs. 1,667 per m ² (Rs.150 per sq ft)
Equipment cost	Fluctuating, considered as Rs.10 per bird at full capacity
Cost per day-old broiler chick	Fluctuating, considered as Rs.15
Extra free chicks supplied per batch	Fluctuating, considered as 5% i.e. 5 chicks per batch
Mortality	2% (excluding extra and weak chicks)
Saleable broilers per batch per week	980
Growing period	40 to 49 days
Average dressed body weight	1.5 kg
Dressing cost per bird	Fluctuating, considered as Rs.1.00
Marketing : Direct retail marketing	50% sold as live chicken and 50% as dressed chicken in a retail shop.
Marketing cost / bird	Fluctuating, considered as Rs.3 (excluding dressing cost)
Market body weight (live)	2 kg
Empty feed bags	1 bag / 100 kg feed used
Feed cost	Fluctuating, considered as Rs.14/kg
Sales price of chicken	Fluctuating, considered @ Rs.50 per kg for live birds and Rs. 80 per kg for dressed birds
Feed efficiency	1.8
Manure production	4 kg per bird
Project completion period	4 months
Bank holiday period	6 months
Loan repayment period	5 years, including holiday period
Bank interest	12%

(iii) Farm Buildings

Since housing is the major item of capital expenditure, the poultry house will be designed with minimal budget; but without sacrificing any comfort to the birds, for optimal growth rate. Here are the dimensions of farm buildings required for a broiler farm:

a) Broiler-Brooder House:

- One shed 4 pens (rooms) each of 5 m × 9 m (16.67 ft × 30 ft) providing 45 m² (500 sq ft) area to accommodate 4 batches × 1000 birds from 0 to 25 days of age with 0.045 m² (½ sq ft) floor space per bird.
- One 4 m × 9 m (13.33 ft × 30 ft) providing 36 m² (400 sq ft) area for owner / supervisor rooms.
- Two 2 m × 9 m (6.67. ft × 30 ft) providing 18 m² (200 sq ft) × 2 worker's room.
- One 6 m × 9 m (20 ft × 30 ft) providing 54 m² (600 sq ft) for feed room.
- One 2 m × 9 m (6.67. ft × 30 ft) providing 18 m² (200 sq ft) for store room.

Hence, this Broiler Brooder House (BBH) with other accessory rooms will be of dimensions $36\text{ m} \times 9\text{ m} = 324\text{ m}^2$ ($120\text{ ft} \times 30\text{ ft} = 3600\text{ sq ft}$) outer to outer of which four $20\text{ m} \times 9\text{ m} = 180\text{ m}^2$ ($66.67\text{ ft} \times 30\text{ ft} = 2000\text{ sq ft}$) will be for broilers and the rest $16\text{ m} \times 9\text{ m} = 144\text{ m}^2$ ($53.33\text{ ft} \times 30\text{ ft} = 1600\text{ sq ft}$) will be for owner's and worker's rooms and feed and store rooms.

b) Broiler-Grower House

Another shed will be of $40\text{ m} \times 9\text{ m}$ ($133.3\text{ ft} \times 30\text{ ft}$) (360 m^2 or 4000 sq ft) outer to outer size; partitioned into 4 rooms each measuring $10\text{ m} \times 9\text{ m}$ ($33.3\text{ ft} \times 30\text{ ft}$) (90 m^2 or 1000 sq ft) to rear 4 batches of broilers from 26th day onwards; referred to as Broiler Grower House.

Both the houses will be oriented East-West with side-walls facing North and South to prevent entry of direct sunlight into the poultry houses. They will be constructed with 0.6 m (2 ft) plinth, stone pillars with brick and cement walls (on East and West side) and floor plastered with cement with roof made of seasoned country wood reapers and tile roof. Side-walls will be 0.3 m (1 ft), over which 1.8 m (6 ft) high 2.5 cm (1 In) G.I. chain link mesh is fixed to cover the side-walls. Metal doors, 0.9 m (3 ft) and an over hang for roof at eaves, to prevent entry of rainwater and direct sunlight will be provided. The feed room, store and the workers quarters will have brick side-walls to the full height.

(iv) Birds

A batch of 1000 day-old commercial broiler chicks will be purchased every week from a reputed commercial hatchery. After mortality of about 2%, excluding free chicks, about 980 broilers will be ready for sale in about 7 weeks period, with an average body weight of 2 kg.

Between batches (down time) the poultry house will be thoroughly cleaned, washed and disinfected by spraying disinfectants and applying flame gun on the wire mesh, walls, floor and outside the shed for about 3 m (10 ft), followed by white washing the floor and walls; in order to get rid off disease producing organisms and thereby breaking the disease cycle.

(v) Feed

Own broiler feed will be prepared in the farm premises by installing a grinder and purchasing feed ingredients and feed supplements in the local market. Own feed will be not only cheaper; but also fresh and of good quality. This will avoid unnecessary water medication and reduce the cost of production of broilers, considerably.

(vi) Flock Health Cover

In order to minimize mortality and to optimize the growth rate and feed efficiency, proper health care will be strictly followed. The farm sanitation, cleaning, waste disposal, disinfection, water sanitation procedure, vaccination and medication will be carried out strictly according to the procedure suggested by the consultant Veterinarian. Moreover, the broilers, sheds and equipments will be insured, to overcome losses due to natural calamities, theft, diseases etc.

(vii) Bank Loan required and Loan Repayment Schedule

The total cost of the project will be Rs.19.11 lakhs. Promoter's share will be Rs.5.53 lakhs and the bank finance needed is Rs. 13.58 lakhs only (Table 1.3).

This loan amount will be repaid within a period of five years; along with 12% interest, including the construction and holiday periods, as shown in Table 1.6.

At least 6 months moratorium is needed for repaying the first instalment of loan; because construction of buildings, establishment of the farm and selling of the first batch of broilers (at 6 weeks of age) requires at least 6 months.

Table 1.1: Non-recurring Expenditure

(Rs. in lakhs)

Cost of 20 m × 9 m (66.67 ft × 30 ft) (180 m ² or 2000 sq ft) BBH + 40 m × 9 m (133.3 ft × 30 ft) (360 m ² or 4000 sq ft) Brood Grow House totally 540 m ² (6000 sq ft) at Rs. 1,111 per m ² (Rs.100 per sq ft)	6.00
Cost of 16 m × 9 m (53.33 ft × 30 ft) (144 m ² or 1600 sq ft) space for feed store, supervisor and 2 workers rooms at Rs. 1,667 per m ² (Rs.150 per sq ft).	2.40
Land development charges like fencing, provision of gate, farm roads etc.	0.50
Cost of bore well, overhead tank, water pump and pipe line to all sheds	0.50
Cost of feed grinder, motor starter etc.	1.00
Cost of feeders, drinkers, platform weighing scale, wheel barrow, sprayer, brooders and other farm equipment	1.00
Rent advance for starting a chicken retail shop	0.50
Cost of furnishing the shop, scale, feather plucker, crates, freezer and dressing equipment	0.50
Total non-recurring expenditure	12.40

(viii) Working capital

It is the capital needed to run the farm until the first batch of birds are ready for sale and money obtained for further rotation. This is equivalent to two months recurring expenditure.

Table 1.2: Working Capital

(Rs. in lakhs)

Cost of 1000 × 7 batches of day-old broiler chicks @ Rs.15 each	1.05
Feed cost for 7 batches at an average of 4 kg per bird × 7000 birds @ Rs.14,000/ tonne	4.31
Other miscellaneous cost for 2 months @ Rs.5 per bird for 7000 birds	0.35
Total working capital	5.71

Table 1.3: Total capital investment, share of the promoter (Margin money), bank finance needed and annual interest

(Rs. in Lakhs)

Description	Total Capital	Promoters Share (25%)	Bank Finance required (75%)
Land cost (1.23 acres)	1.00	1.00 (100%)	-
Non-recurring Expenditure	12.40	3.10	9.30
Working capital	5.71	1.43	4.28
Total Project Cost	19.11	5.53	13.58

Table 1.4: Annual Recurring Expenditure

(Rs. in Lakhs)

Cost of 1000 day-old broiler chicks × 52 batches per year @ Rs.15 each	7.80
Feed cost for 52000 broilers × 3.6 kg per bird @ Rs.14 per kg	26.21
Medicine, vaccine, insurance, labour, electricity, fuel, health cover, transport etc. @ Rs.5 per bird for 52000 birds	2.60
Chicken retail shop rent, electricity, labour and other miscellaneous expenditure @ Rs.10,000 × 12 months	1.20
Total annual recurring expenditure (excluding bank interest and principal repayment)	37.81

Table 1.5: Annual Gross and Net Returns

(Rs. in Lakhs)

By retail sale of about 490 live broilers per batch × each weighing 2 kg × 52 batches per year = 50960 kg @ Rs. 50 per kg live weight	25.48
By retail sale of about 490 dressed chicken per batch each weighing 1.5 kg × 52 batches @ Rs.80 per kg	30.58
By sale of about 2000 empty feed gunny bags @ Rs.5 each	0.10
By sale of about 200 tonnes of manure @ Rs.500 per tonne	1.00
Total annual gross income*	57.16
LESS: Annual recurring expenditure	37.81
Annual net returns (before repayment of bank loan)	19.35
* The annual gross returns during first year will be Rs. 49.46 lakhs because there will not be sales during first 7 weeks period; only 45 batches will be sold instead of 52 batches. Hence, the 1 st year net receipts before loan repayment will be Rs.11.65 lakhs .	

Table 1.6: Bank Loan Repayment Schedule

Year	Gross Receipts	Expenditure	Net Surplus before Loan Repayment	O.B. of Bank Loan	Interest	Total Bank Loan	Loan Repaid	C.B. of Bank Loan	Net profit after Loan Repayment	Benefit Cost Ratio
I	49.46	37.81	11.65	13.58	1.63	15.21	2.21	13.00	9.44	1.31
II	57.16	37.81	19.35	13.00	1.56	14.56	3.56	11.00	15.75	1.51
III	57.16	37.81	19.35	11.00	1.32	12.32	4.32	8.00	15.03	1.51
IV	57.16	37.81	19.35	8.00	0.96	8.96	4.96	4.00	14.35	1.51
V	57.16	37.81	19.35	4.00	0.48	4.48	4.48	Nil	14.87	1.51
VI onwards	57.16	37.81	19.35	Nil	Nil	Nil	Nil	Nil	19.35	1.51

VETERINARY CERTIFICATE

“Certified that this project is prepared by me taking into account the prevailing prices for various farm inputs and outputs and the latest technical and production standards. Hence, this project will be technically feasible and financially viable”.

Office Seal (Signature of Veterinarian/Poultry Specialist)

- Enclosures:**
1. Farm site map
 2. Estimates and blue prints from civil engineer
 3. Farm land ownership document copy
 4. Farm land patta copy
 5. Poultry training certificate copy
 6. Quotation for equipment, chick and feed
 7. Permission from local panchayat to start a broiler farm.

Check Your Progress 2

- Note:**
- a) Use the space given below for your answers.
 - b) Check your answers with those given at the end of the unit.

1) What is working capital?

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2) How many aspects cover recurring expenditure in broiler farm?

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1.5 MODEL PROJECT REPORT FOR A LAYER FARM

Modern layer farms are not yet popular in many parts of our country especially North-Eastern states. In any case, more people have accepted eggs in their diet and hence per capita consumption of eggs is steadily increasing. Therefore, number of laying birds needs to be increased at least by 6% per annum.

A model project report of a layer farm given below is only an assumption.

1.5.1 Objectives

- To start a layer farm of 15000 capacity with 3 batches of 5000 chicks each grown till 4 months of age in a “Brood-Grow House (BGH)” and shifted to a separate “Cage Layer House (CLH)”; that means, one BGH and 3 CLHs are required.
- To prepare own feed, by having a feed mill, to reduce the feed cost.
- To produce about 11500 table eggs daily and sell them locally, directly to the consumers for better returns.
- To increase self employment and employment potential locally.
- To increase the per capita consumption of eggs locally.

1.5.2 Location of the Farm

Assume that the farm is located in a land belonging to the promoter. The total extent of the land is 3.88 acres. The land map and documents should be enclosed.

1.5.3 Availability of Inputs

The farm site is well connected to a highway, through a Panchayat road, to transport various farm inputs and outputs, without any hindrance, round the year. As soon as the farm construction work commences, the entire area will be fenced, farm roads will be laid, open-well with a motor pump, pump room, overhead tank and pipelines to various poultry houses will be provided. Three separate, 3-phase electricity supplies will be obtained for use of the farm (10kV), feed mill (20kV) and the quarters (3 kV), since the tariff varies for each use. The day-old pullet chicks will be obtained from local branch of a reputed hatchery, which is within about 150 km from the farm site.

Most of the feed ingredients will be procured locally, to prepare own feed, which will reduce the feed cost considerably. Broken rice and rice bran are locally available at a cheaper rate. The feed additives and the medicines will be purchased directly from the manufacturer or distributors, through their local sales representatives, so that these items will be available at the wholesale price. The layer cages will be fabricated at the farm premises itself, by purchasing the weld mesh, angles, flats etc. This will not only reduce the cost of cages; but also make it as per standards and durable. Other farm equipment will be purchased directly from the manufacturer, in order to reduce the cost.

(i) Farm Buildings

The farm buildings are East-West oriented consisting of one BGH in which birds will be reared on deep litter, to rear pullet chicks from 0-19 weeks of age, one three-in-one raised platform cage layer houses to rear 3 batches of layers from 20-80 weeks of age, feed mill, egg room, 4 workers quarters, one owner's quarters, store room, pump room and other accessories.

(a) Brooder-Grower House

The deep litter brooder-cum-grower house to accommodate 5000-5500 replacement pullets is of 9 m (30 ft) wide from north to south and 50 m (167 ft) length 450 m² (5010 sq ft) from east to west, with floor space of 0.09 m² (1 sq ft) per bird. It is constructed with brick cement walls 22.5 cm (9 In), thick concrete pillars of 2.4 m (8 ft) height, tubular truss, and lattice design purlins with half-monitor asbestos roof for ridge ventilation. The roof at eaves is provided with 0.9 m (3 ft) overhang, to avoid entry of rainwater and direct sunlight into the shed. The inside floor is cement concrete, elevated 0.3 m (1 ft) above the ground level. The inside height at eaves will be about 2.1 m (7ft); while at ridge the height will be around 3.6 to 3.9 m (12 to 13 ft). The two long sides are provided with 0.3 m (1 ft) high wall with 60° inside slope at top, to prevent perching of birds. The remaining 1.8 m (6 ft) height is covered with 25 cm (1 In) eye, 12 gauge Galvanized Iron (G.I) chain link mesh throughout, except at the four doors. The 4 doors are made up of M.S. angle frame and 2.5 cm × 7.5 cm (1 In × 3 In) weld mesh of 10 gauge thickness; with provision to lock from both sides. The grower house is provided with 3-phase power supply, with at least 10 compact fluorescent lights, 12 extra light points and 10 nos. of 15 amps plug sockets, to supply additional power during brooding and debeaking. Two rows of water pipe lines are provided at 2.1 to 2.4 m (7 ft to 8 ft) above the floor level, throughout the length of the shed, to connect it to automatic drinkers.

(b) Raised Platform Cage Layer House

As indicated in "Objectives", to reduce housing cost without sacrificing the comfort of the birds, a single 3 in 1 raised (elevated) platform CLH to accommodate 15000 layers will be constructed.

The layer house is 9.9 m (33 ft) wide × 87.6 m (292 ft) long i.e. 867.24 m² (9636 sq ft) East-West orientated to accommodate 15,000 layers in 3 divided batches (5000 / batch) with 576 cm² (0.64 sq ft) per hen. The 3-cage units (one for each batch) will be separated by two 3 m (10 ft) wide x 9.9 m (33 ft) long platforms with stair case. The platforms are 1.8 m (6 ft) above the ground level. Two store rooms are constructed below these two [3 m (10 ft) wide × 9.9 m (33 ft)] to store eggs, litter material, empty feed bags, equipment etc. In simple terms, each of the batches of layers is separated by 3 m although the CLH in a single construction.

The two sides of the layer house on east and west are hollow brick cement walls, supported by 22.5 cm (9 In) thick concrete pillars, with a height of 4.8 m (16 ft) at eaves and 6.9 to 7.2 m (23 to 24 ft) at the ridge. The lengthwise north and south sides are having 4.8 m (16 ft) high × 22.5 cm (9 In) thick concrete pillars at 6 m (20 ft) interval and covered by 7.5 cm (3 In) eye 10 gauge G.I. chain link mesh from cage height to the top.

The asbestos roof will have half-monitor ridge ventilation at the centre and have 1.5 m (5 ft) overhang at eaves, to prevent heat radiation, direct sun light and splashing of rainwater into the shed. Three platforms, each of 0.6 m (2 ft) wide × 87 m (290 ft) length will be provided in each shed; which will be supported by 12.5 cm (5 In) thick 'T' shaped concrete pillars at the bottom at 1.5 m (5 ft) interval.

(c) Cages

Two 'M' - type and two 'L' -type cages, each of 3-tier will be fixed in between the platforms and pillars. For each batch, or in other words in each of the subunits of the 3-in-1 CLH, 2 'M' and 2 'L' units will be allotted. Each 'M' unit will have 6 rows and 'L' unit 3 rows of cages. The 'M' units are at the centre and the 'L' near the pillars. Each unit will be having 52 cages. Each cage has a dimension of 42.5 cm (17 In) front height, 37.5 cm (15 In) back height and 50 cm (20 In) length at front. The cage depth (front to back) will be 37.5 cm (15 In) in case of bottom and middle row cages so as to house 5 hens per cage and 45 cm (18 In) in case of top row cages so as to house 6 layers per cage. Cage space allowance by this method will be 375 cm² (60 sq inches) per hen. The middle row cages overlap the bottom row and the top row overlaps the middle row by 5 cm (2 In), to save space; but without any inconvenience to the hens. The cage bottom and partitions are made up of 2.5 cm × 7.5 cm (1 In × 3 In) 12 gauge weld mesh; top, back and front are made up of 5 cm × 7.5 cm (2 In × 3 In) 8 gauge weld mesh. The feeders are made of 24 gauge aluminium sheet and plastic water pipe with nipple drinkers are provided at top front portion of each cage partition.

For all the three subunits put together, there will be 6 'M' and 6 'L' units of cages.

(d) Lighting and Plumbing

Compact fluorescent lights (CFL) are provided in two rows at 6 m (20 ft) interval. Plumbing will be done to provide nipple drinkers and medication. Two rows of foggers will be provided over each M-cage, to cool the birds during summer.

(e) Feed Room and Other Buildings

A rodent- and seepage-proof ware-house (feed room) of 12 m × 9 m (40 ft × 30 ft) size; will be attached to the grower house to store feed ingredient and mixed feed. In addition, the Owner's quarters 3 m (30 ft) + Egg store 3 m (10 ft) + Workers' quarters 3 m (10 ft) × 4 + 3 m (10 ft) store room will be added to the grower house. Therefore, the total length of the grower house cum other buildings will be 89 m or 292 ft.

To sum up, the proposed farm will consist of one BGH cum feed store and quarters measuring 89 m × 9 m (292 ft × 30 ft) and a 3-in-1 CLH measuring 87.6 m × 9.9 m (287 ft × 33 ft) along with a water pump room under the overhead tank.

(f) Technical Details of the Project

This project pertains to a layer farm, having about 20000 birds at any given time with 15000 layers + 5000 growers (replacement stock) in 1 + 3 batches; i.e. 1 batch of growers and 3 batches of layers. Once in 20-22 weeks, 5400 day-old pullet chicks will be purchased; of this about 5000 will survive up to the point of lay. At about 19 weeks of age, about 5000 ready-to-lay pullets will be shifted to layer cages; where they remain up to culling at 80 weeks. At any given time, there will be about 14400 (5000 + 4800 + 4600) layers; which lay at an yearly average of 80%; so that about 11,500 table eggs can be expected daily; which can be easily sold in the local retail market. After 1 to 2 weeks for cleaning and disinfection, the next batch of birds will be brought to the shed. As such, one new batch of 5200 chicks will be purchased, about 5000 ready-to-pullets will be shifted to layer cages and about 4800 culled hens will be sold once in 20-22 weeks. Each pullet up to the point of lay will consume around 7 kg feed and about 110 g of feed/day during laying period. As such, a bird from 0-80 weeks will consume around 53 kg feed, produce 336 eggs in 420 days and about 40 kg of manure (1 tonne manure from 25

birds); assuming each Gunny bag can hold 100 kg feed, one Gunny bag will be available for sale for every two hens.

Scientific management, disease prevention, deworming, vaccination, debeaking and medication program will be followed, in order to obtain optimal egg production and minimize mortality. Own feed will be prepared to reduce the feed cost; without any loss in quality.

(g) Assumptions

Average number of batches / year	2.5
Pullet chicks purchased / batch	5200 (excluding free chicks)
Cost of one day old pullet chick	Fluctuating, considered as Rs.18
0-20 weeks mortality	4%
21 - 80 weeks mortality	6%
Cost of grower shed	Fluctuating, considered as Rs. 1,111 per m ² (Rs.100 per sq ft)
Cost of layer shed	Rs. 1,333 per m ² (Rs.120 per sq ft)
Cost of other farm building	Rs. 1,667 per m ² (Rs. 150 per sq ft)
Cost of cages	Fluctuating, considered as Rs.60 per hen
Cost of grower equipment	Fluctuating, considered as Rs.10 per grower
Feed / bird (0-80 weeks)	53 kg
Average daily farm feed requirement	1.8 tonnes
Cost / Kg of own feed	Fluctuating, considered as Rs.10 per kg
Average no. of saleable eggs per day	12000 eggs
Average no. of culled hens sold / year	12000 hens (2.5 × 4800)
Average no. of empty feed bags sold / year	6570 bags
Average manure production / year	500 tonnes
Average selling price / egg (Retail rate)	Fluctuating, considered as Rs.2.25
Average selling price of culled hen	Fluctuating, considered as Rs. 80
Average selling price of empty feed bag	Fluctuating, considered as Rs.10 each
Average selling price of manure	Fluctuating, considered as Rs.500 / tonne
Insurance premium	Fluctuating, considered as Rs.4 per bird

(h) Technical and Financial background of the promoter

The promoter and his or her family are well educated, financially sound and capable of executing the project as described and economically. Both of them have undergone intensive poultry training for 8 weeks at government Poultry farm. The promoter is financially sound having 3.88 acres of farm land worth Rs. 6 lakhs, as well as house, egg shop and other farm land worth more than Rs.10 lakhs.

(i) Marketing potential

Assume that the area where the farmer wants to start a layer farm has good demand for eggs. Hence, there is great scope for selling farm fresh eggs, locally at a premium price. Part of the eggs will be sold at the farm premises itself to the consumers. The remaining eggs will be sold in the retail outlet already owned by the promoter.

(j) Bank Finance and Repayment

Details of bank finance needed, margin money and repayment schedules are shown in Tables 1.9 to 1.12. This project needs a capital of Rs. 56.68 lakhs, of which the bank loan is Rs. 38 lakhs and the remaining Rs. 18.68 is the margin money, invested by the promoter. It will take minimum three months for land development and construction of grower shed to receive first batch of chicks, second and third batches will arrive 20 and 40 weeks later. Unless all these 3 batches come to full production, it will not be possible to repay the loan. The first year recurring expenditure will become working capital. The third batch comes to production, 60 weeks after arrival

of the first batch. Therefore, a minimum of 18 months repayment holiday is needed. The principal and interest will be repaid in 72 months, after 18 months holiday period i.e. in 90 months from the commencement of the project, as detailed in Table 1.12.

(k) Technical and Economic Feasibility

This project is prepared after taking into account the latest prices for various inputs and outputs, technical and economic standards. All the targets and norms can be easily achieved. Hence, the expected results can be obtained; without any risk. For the first 18 months, there will not be enough income to repay loan; which can be commenced, by selling the first batch of culled hens around 80 weeks of age. The promoter and his or her family are aware of technical and practical details of layer farming and are trained for the purpose. All the technical details considered in developing the project are as per the norms for commercial layers. The project is economically feasible considering all the details presented thereon.

(l) Gross and Net Profits and Cash Flow

As reported in Tables 1.11 and 1.12, there is sufficient net income for profitable running of the farm. Once the loan is repaid, the net income is sufficient for further expansion.

Table 1.7: Fixed Capital (Non Recurring Expenditure)

(in Lakhs)

Cost of one asbestos roof chick-cum-grower house for 5000 growers at 0.09 m ² (1 sq. ft) per/ bird, 50 m × 9 m (167 ft × 30 ft) 450 m ² (5010 sq ft) @ Rs 1,111 per m ² (Rs.100 per sq ft) including electrical and plumbing works.	5.01
Cost of one elevated (raised) platform, asbestos roof cage layer house for 3 batches = 87.6 m × 9.9 m = 867.24 m ² (292 ft × 33 ft = 9636 sq ft) to accommodate 15000 layers, @ Rs. 1,333 per m ² (Rs.120 per sq ft)	11.56
Cost of feed mixing cum store room, egg room, quarters, office accommodation etc. 39 m × 9 m = 351 m ² (130 ft × 30 ft = 3900 sq ft) @ Rs 1,667 per m ² (Rs.150 per sq ft) (all with asbestos roof)	5.85
Cost of barbed wire fencing, gate, bore well, overhead tank, pump room, farm roads, manure pit, burial pit and other infrastructure facilities	1.20
Cost of layer cages to accommodate 15000 birds @ Rs. 60 per bird	9.00
Cost of chick and grower equipment for 5000 birds @ Rs.10 per bird	0.50
Cost of feed mill, water pump, motors, starters, sprayers, foggers, debeaker, trolley, scales, flame gun, buckets, egg filler flats and other misc. farm equipments	2.00
Total fixed capital (Non-recurring expenditure)	35.12

Table 1.8: Working Capital

(in Lakhs)

Cost of 5400 day old chicks × 3 batches @ Rs.18 per chick + insurance premium @ Rs.4 per chick = 5400 × 3 × (18 + 4)	3.56
Feed cost for 3 batches up to the point of lay (20 weeks) for 5000 pullets per batch × 3 batches × 7 kg feed per bird @ Rs.10 per kg (own feed)	10.50
Misc. Cost for 5000 birds × 3 batches @ Rs.10 per bird	1.50
Total working capital	15.56

Table 1.9: Total Project Cost, Margin Money and Term Loan Required (in Lakhs)

Item of Expenditure	Total cost	Margin Money	Term loan Required
Land 3.88 acres	6.00	6.00	—
Fixed capital	35.12	8.78	26.34
Working capital	15.56	3.89	11.67
Total project cost	56.68	18.67	38.01 or say 38.00

Table 1.10: Annual Recurring Expenditure

(in Lakhs)

Year	Chick Cost-including Insurance Premium		Feed = Rs.10,000/ tonne		Misc. cost @ Rs.12/- bird/ annum	Total Expenditure
	No.*	Cost (Rs.22)	(tonnes)	Cost		
I	16,200	(3.56)**	105 +169	(10.50)* * +16.90	(1.50)** + 0.90	(15.56)** + 17.80
II	10,800	2.38	640	64.00	2.23	68.61
III	16,200	3.56	670	67.00	2.40	72.96
IV	10,800	2.38	670	67.00	2.40	71.78
V	16,200	3.56	670	67.00	2.40	72.96
VI	10,800	2.38	670	67.00	2.40	71.78
VII	16,200	3.56	670	67.00	2.40	72.96
VIII	10,800	2.38	670	67.00	2.40	71.78
IX	16,200	3.56	670	67.00	2.40	72.96

* Chicks are purchased every 20 to 22 weeks; therefore, three and two batches of chicks will be purchased on consecutive years

** Value in parenthesis indicates the working capital. Hence, it will not come under annual recurring expenditure.

Table 1.11: Annual Gross and Net Returns

(Rs in Lakhs)

Year	Eggs @ 2.25 per egg		Culled Hens @ Rs. 80 per hen		Manure @ Rs. 80/hen		G. Bags @ Rs. 6/bag		Gross Receipts Rs.	Total Expenditure Rs.	Net Surplus Rs.
	No. (Lakhs)	Rs.	No.	Rs.	Tonnes	Rs.	No.	Rs.			
I	14.0	31.50	-	-	70	0.35	1030	0.06	31.91	17.80	14.11
II	40.0	90.00	9000	7.20	400	2.00	6276	0.38	99.58	68.61	30.97
III	43.8	98.55	13500	10.80	500	2.50	6570	0.40	112.25	72.96	39.29
IV	43.8	98.55	9000	7.20	500	2.50	6570	0.40	108.65	71.78	36.87
V	43.8	98.55	13500	10.80	500	2.50	6570	0.40	112.25	72.96	39.29
VI	43.8	98.55	9000	7.20	500	2.50	6570	0.40	108.65	71.78	36.87
VII	43.8	98.55	13500	10.80	500	2.50	6570	0.40	112.25	72.96	39.29
VIII	43.8	98.55	9000	7.20	500	2.50	6570	0.40	108.65	71.78	36.87
IX	43.8	98.55	13500	10.80	500	2.50	6570	0.40	112.25	72.96	39.29

Table 1.12: Bank Loan Repayment Schedule

(Rs in Lakhs)

Year	O.B. of Loan	Borrowings	Interest	Total	Repayment			C.B. of loan
					Principal	Interest	Total	
I	--	3.80	4.56	42.56	--	4.56	4.56	3.800
II	3.80	--	4.56	42.56	3.00	4.56	7.56	3.500
III	3.50	--	4.20	39.20	5.00	4.20	9.20	3.000
IV	3.00	--	3.60	33.60	5.00	3.60	8.60	2.500
V	2.50	--	3.00	28.00	5.00	3.00	8.00	2.000
VI	2.00	--	2.40	22.40	6.00	2.40	8.40	1.400
VII	1.40	--	1.68	15.68	7.00	1.68	8.68	7.00
VIII	7.00	--	0.84	7.84	7.00	0.84	7.84	--
Total	--	3.80	24.84	62.84	38.00	24.84	62.84	--

“Certified that this project is prepared by me taking into account the prevailing prices for various farm inputs and outputs and the latest technical and production standards. Hence, this project will be technically feasible and financially viable”.

Office Seal (Signature of Veterinarian/Poultry Specialist)

Enclosures:

1. Farm site map
2. Blue Print of Farm buildings
3. Farm land ownership document copy
4. Farm land patta copy
5. Poultry training certificate copy
6. Egg shop ownership certificate
7. Buildings estimates from civil engineers
8. Quotation for cages, generator, feed mill and other equipment
9. Permission from local panchayat to start a broiler farm.

Check Your Progress 3

- Note: a) Use the space given below for your answers.
 b) Check your answers with those given at the end of the unit.

1) What are the enclosures to be submitted along with the project report?

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1.6 MODEL JAPANESE QUAIL PROJECT

Japanese quails are reared throughout the world both for meat and egg production. They need less space, i.e. about 20% of the space required for chicken. Hence they can be reared even in urban areas, where land cost is high. They can be reared on terraces, backyard, veranda and other small areas economically. They can be reared both in cages and deep litter. Cages need lesser land area. Moreover, they need lesser capital. Hence, small farmers who are not having sufficient margin money to start a chicken farm, can start a quail farm. Meat-type Japanese quails will be ready in 25 days and Egg-type quails start laying eggs at just 6 weeks of age. Hence, it will generate quick income. Moreover, their meat is low in fat and hence can be sold at a premium price. A model Japanese quail project to produce 1000 quails per week is given below:

1.6.1 Technical Standards and Assumptions

The technical standards and assumptions for preparing a model Japanese Quail project are as follows:

Cost of day-old quail chick	Rs. 5 each
Feed cost	Rs. 15 per kg
Miscellaneous costs	Rs.1.50 per bird
Housing cost	Rs. 25 per bird in deep litter and Rs.10 per bird in cages
Equipment cost	Rs.10 per bird on deep litter and Rs. 25 per bird in cages
Mortality up to 4 weeks of age	8%
Body weight at 4 weeks	150 g
Feed efficiency	2.2
Number of batches available in the farm	1000 quails × 4 batches growing + 1 batch for sales.
Total housing needed	1000 × 5 batches

Table 1.13: Fixed Cost (non-recurring expenditure)**(Rs. in '000)**

Cage housing cost: for 5000 birds @ Rs. 20 per bird	100
Cost of cages for 5000 birds @ Rs. 25 per bird	100
Feed grinder and other farm equipments	100
Land development charges, bore well, water and electricity supply	50
Total non-recurring expenditure	350

Table 1.14: Working Capital (Recurring expenditure)**(Rs. in '000)**

Cost of 5 batches × 1000 quail chicks @ Rs. 5 per chick	25
Feed cost for 5000 quails up to 4-5 weeks @ 350 g per bird @ Rs.15 per kg	26.25
Miscellaneous cost @ Rs. 1.5 per bird × 5000 quails	7.5
Total working capital / recurring cost	58.75

Table 1.15: Capital Investment and Loan Requirement**(Rs. in '000)**

Fixed cost	350.00
Working capital	58.75
Total capital investment	408.75
Margin money (promoter's share)	108.75
Bank loan required	300.00

Table 1.16: Annual Recurring Expenditure**(Rs. in '000)**

Quail chick cost @ Rs.5 × 1000 chicks per week × 52 weeks	260
Feed cost @ 0.35 kg per bird × 1000 × 52 @ Rs.15 per kg	273
Miscellaneous cost @ Rs 1.5 per bird × 5000 × 52 weeks	78
Total annual recurring expenditure (excluding bank loan)	611

Table 1.17: Annual Returns and Net Profits

(Rs. in '000)

By sale of 460 quails (50% sold live) × 52 weeks × 0.15 kg per bird @ Rs.100 per kg live weight	358.8
By sale of dressed quails 460 nos. × 52 batches × 0.12 kg per bird @ Rs.200 per kg	574.0
Less dressing and marketing cost @ Rs.2 per bird	24.0
Net receipts by sale of dressed quail	550.0
By sale of cage manure 18 tonnes @ Rs.1000 per tonne	18.0
By sale of empty feed bags, 1800 bags @ Rs. 10 per bag	18.0
Total annual gross returns (358.8+550.0+18.0+18.0)	944.8 or 945.0

Table 1.18: Bank Loan Repayment Schedule and Net Returns

Year	Recurring Expenditure	Loan Repayment (Principal + interest)	Total Expenses	Gross Returns	Net returns after Repaying Bank loan
I	611	50+36	697	854 (47 batches only)	157
II	611	50+30	691	945	254
III	611	50+24	685	945	260
IV	611	50+18	679	945	266
V	611	50+12	673	945	272
VI	611	50+6	667	945	278
VII	611	NIL	611	945	334

VETERINARY CERTIFICATE

“Certified that this project is prepared by me taking into account the prevailing prices for various farm inputs and outputs and the latest technical and production standards. Hence, this project will be technically feasible and financially viable”.

Office Seal (Signature of Veterinarian/Poultry Specialist)

Enclosures:

1. Farm site map
2. Estimates and blue prints from civil engineer
3. Farm land ownership document copy
4. Farm land patta copy
5. Poultry training certificate copy
6. Quotation for equipment, chick and feed
7. Permission from local panchayat to start a quail farm.

Check Your Progress 4

- Note:** a) Use the space given below for your answers.
 b) Check your answers with those given at the end of the unit.

- 1) Describe fixed cost or non-recurring expenditures in quail farming project.

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1.7 LET US SUM UP

A project report generally consists of a brief introduction, objectives, location of the project site, technical standards, assumptions, back ground of the promoter, non-recurring expenditure, working capital, total capital cost, annual recurring expenditure and returns, loan repayment schedule and feasibility report. The feasibility report must be duly signed by a Veterinarian or Poultry specialist. Banks provide 75% of working capital required and the rest 25% (margin money) must be contributed by the farmer (promoter). The project birds must be insured as per the bank requirements. While submitting the project report to the bank, some supporting documents as suggested by the bank have to be provided.

1.8 GLOSSARY

Asset	: A valuable item that is owned.
Blue-print	: Drawing of the building plans by a civil engineer.
Deed	: A legal document signed and sealed and delivered to effect a transfer of property and to show the legal right to possess it.
Entrepreneur	: A person who organizes, operates, and assumes the risk for a business venture.
Feasibility Report	: A certificate given by a competent Veterinarian or Poultry Specialist certifying the technical and economic viability of the proposed project.
Feasible	: Able to be done; capable of being accomplished or brought about
Fixed Cost	: Expenditure involved in construction of building, purchase of equipments and others which are needed only once at the beginning of the project. This is also referred to as “Non-recurring expenditure”
Gross Receipt	: Total income from the farm before expenditure is subtracted.
Inputs	: Various purchases made to run the farm.
Margin Money	: The promoter’s share of the project cost; which is usually about 25% of the total cost plus the land cost.
Moratorium	: It is the holiday period between starting the farm and starting of the bank loan repayment-first instalment. It is usually ranges from six months to one year, depending on the project.

Net Surplus	: Amount left after subtracting total expenditure from gross receipt.
Non-recurring Expenditure	: Same as fixed cost.
Norm	: A standard.
Outputs	: Farm outputs include eggs, chicken, manure, empty feed bags, chicks in case of hatchery and feed in case of a feed mill.
Pen	: A fenced enclosure for animals or birds.
Principal	: Total amount of loan sanctioned for the project which has to be repaid.
Project Cost	: Total amount involved in the project including fixed cost and running (recurring) cost. Also referred to as “Total Capital investment”.
Promoter	: Refers to the person who wishes to undertake the project; in other words, “Poultry farmer” in this context.
Recurring Expenditure	: Expenditure that needs to be made with every time a new batch of birds is introduced as per project plan.
Working Capital	: Money needed to run the project until the farm income is generated; also referred to as “Working capital”.

1.9 SUGGESTED FURTHER READING

Sreenivasiah, P.V. 2007. *Scientific Poultry Production*, 3rd Edition. International Book Distributing Company, Lucknow, India.

1.10 REFERENCES

Narahari, D. and Rajini, R.A. 2004. *Poultry Projects and Economics*. Pixie Publications, Karnal, India.

1.11 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress 1

- 1) The following documents have to be provided to the bank while submitting a project proposal:
 - Land sale deed and other property documents.
 - Quotations obtained from the input suppliers, such as chick cost from hatcheries, feed cost from a feed mill, equipment cost from equipment supplier.
 - Marketing tie up particulars.
 - Blue prints of the farm buildings and their estimates from an engineer.
 - Technical and financial feasibility reports from your consultant and chartered accountant.

- Promoters' qualification and experience certificates.
 - Any other documents asked by the bank.
2. No bank will finance the full cost of the project. They will finance only up to 75% of the project cost or up to a prescribed limit; whichever is lower. The remaining money, called as "Margin money" is the share of the promoter. Moreover, the bank will not finance for the land, where the project is going to be started; the land needs to be attached temporarily to the bank as security deposit. Sometimes the bank will ask for additional security deposit of fixed or movable assets, depending on the amount of loan required and repayment capacity of the promoter.

Check Your Progress 2

- 1) The working capital is the capital needed to run the farm until the first batch of broilers are ready for sale / egg production started and money obtained for further rotation. This is equivalent to two months recurring expenditure in case of a broiler farm and six months expenditure in case of a layer farm.
- 2) The annual recurring expenditure includes the following: Cost of day old chicks; Feed cost; Medicine and vaccine cost; Electricity charges; Labour cost; Health cover; Insurance; Transportation charges; Chicken retail shop rent; Miscellaneous expenses.

Check Your Progress 3

- 1) The enclosures to be submitted along with the project report are:
 - Farm site map
 - Blue Print of Farm buildings
 - Farm land ownership document copy
 - Farm land patta copy
 - Poultry training certificate copy
 - Egg shop ownership certificate
 - Buildings estimates from civil engineers
 - Quotation for cages, generator, feed mill and other equipment
 - Permission from local panchayat to start a broiler farm.

Check Your Progress 4

- 1) The fixed cost-non recurring expenditure in quail farming project includes cage housing cost; cost of cages; feed grinder, Farm appliances; land development charges, Well boring; Electricity installation; Miscellaneous.