

Financial Feasibility Analysis

of Integrated Commercial Agricultural Projects
(Developed by APICOL, Odisha)

Prepared by

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Integrated Project I

**Pisciculture (1 acre)
and Broiler (2000 nos)**

Pisciculture

Protein is an essential ingredient of human food. It is also particularly essential for growing children both for their physical and mental growth. Protein deficiency leads to several diseases in human beings particularly children. Among sources of protein, animal meat is a vital source and fish is the cheapest and most easily digestible animal protein and was obtained from natural sources from time immemorial for consumption by human beings. Fish grows naturally in rivers and ponds but can also be produced under artificial conditions. However, due to over exploitation and pollution, the availability of fish in natural waters have declined considerably forcing scientists to adopt various methods to increase its production. Fish farming in controlled or under artificial conditions has become the easier way of increasing the fish production and its availability for consumption. Small entrepreneurs/farmers can easily take up fish culture in village ponds, tanks or any new water body and can improve their financial position substantially. It also creates gainful employment for skilled and unskilled youths.

The area under tanks and ponds available for warm fresh water aquaculture is estimated to be 2.41 million ha. This shows the tremendous scope for fish culture in the country. Only 15 % of the potential area of tanks and ponds available is developed so far, showing immense possibilities for fish culture.

Composite Pisciculture is adopted for getting maximum fish production from a pond or a tank through utilization of available food organisms supplemented by artificial feeding. Normally, the major species selected for composite fish culture are Katla, Rohu, Mrigal, and other exotic varieties.

Technical details

A. Selection of Pond/Tank

The main criteria to be kept in mind while selecting the pond is that the soil should be water retentive, adequate supply of water is assured and that the pond is not in a flood prone area. Derelict, semi derelict or swampy ponds can be renovated for fish culture by dewatering, desilting, repair of the embankments and provision of inlet and outlet. The Pond/Tank should have perennial fresh water source and water level in the pond is to be maintained up to depth of 2m. The water level should not be allowed to go down below 1m. It could be a new pond or existing pond which could be de-silted and deepened.

B. Pond Management

Pre – Stocking

- Removal of weeds and unwanted and predatory fishes and animals either by manual, mechanical or chemical means.

- Liming : The soils/ tanks which are acidic in nature are less productive than alkaline ponds. Lime is used to bring the pH to the desired level.
- Fertilization /Manuring : Fertilization of the pond is an important means for intensifying fish culture by increasing the natural productivity of the pond. The fertilization schedule has to be prepared after studying the quality of the pond soil. A combination of both Organic and Inorganic fertilizers may be used for best results.

Stocking

The pond will be ready for stocking after 15 days of application of fertilizers. Fish fingerlings of 50- 100 gm size (approx) should be used for stocking @ 5000 nos. per hectare.

Poststocking

- Supplementary feeding : Fishes need much more food than what is available naturally in the pond. Fishes can be fed with a mixture of rice bran and oilcakes. Due to the high cost of Ground nut Oil Cake (GOC) farmers have tried using alternate sources like Cotton seed oil cake which is comparatively cheaper than GOC.
- Manuring : Organic manuring may be done in monthly instalments @ 1000 kg/ha. Inorganic fertilization may be done at monthly intervals alternating with organic manuring. However, the monthly rate of fertilization will depend on pond productivity and the growth of the fishes. It should be ensured that excess fertilization does not take place which may result in eutrophication.
- Harvesting : Harvesting is generally done at the end of 1 st year, when the fishes attain average weight of 800 gm to 1.25 kg. With Proper management a production of 4 to 5 tons/ha can be obtained in a year. Harvesting is done by partial dewatering and repeated netting. In some cases complete dewatering of ponds is resorted to. Some farmers resort to partial harvesting also depending on the season and demand for fish.

A number of measures are now being employed by the entrepreneurs to increase the per hectare production of fish. Important measures adopted are stocking of advanced fingerlings / yearlings by stunning the growth of fish seed during first year, heavy stocking and multiple harvesting after the fishes attain a size of 500 gms., multiple stocking and multiple harvesting, use of aerators, integrated fish farming with animal husbandry activities like dairy, poultry, piggery to get daily organic manuring to the pond thus increasing its fertility.

Broiler Farming

Poultry is today the major source of meat in India. Its share in total meat consumption is 28 percent, as against 14 percent fifteen years ago. It has outpaced its competitors – mutton, beef, and pork. High mutton prices, religious restrictions on beef and pork, and the limited availability of fish outside coastal regions have all helped to make poultry meat the most preferred and

most consumed meat in India. Expanding domestic production and increasing integration have pushed poultry meat prices downward and stimulated its consumption.

In 1980, when the poultry sector produced 10 billion eggs and 30 million broilers, respectively, total levels of employment in the sector were not very encouraging. As the income and employment in the crop sector started to diminish, there was a big shift to the non-crop sector, which includes poultry and dairy. With demand increasing and the production level reaching 37 billion eggs and around 1 billion broilers in 1999-2000, the sector is estimated to employ around 1.6 million people. Whereas 80 percent of the employment is generated directly by the farms, 20 percent is generated in the provision of feed, pharmaceuticals, equipment and other services required by the poultry sector. Additionally, there may be a similar number of people who are engaged in marketing and other channels servicing the sector. By 2005, the total egg production in the country had passed 46 billion, and with higher broiler production, the estimated employment was 2.5 million.

Presently, India's per capita annual consumption is 42 eggs and 1.6 kg of poultry meat. The National Institute of Nutrition recommends that a balanced diet should contain 30 grams of eggs/day (i.e. 180 eggs *per annum*) and 30 grams of meat (11 kg *per annum*). Assume that out of this at least 9 kg would be met by poultry meat, given the constraints affecting growth of other forms of meat such as beef. Thus, the gap between the present per capita and the recommended per capita consumption is 138 eggs and 7 kg of chicken meat. How much employment can the industry generate? As and when the gap in production is bridged and the industry grows to the desired level, it can be expected to provide employment to over 9 million people.

Poultry meat is an important source of high quality proteins, minerals and vitamins to balance the human diet. Specially developed varieties of chicken (broilers) are now available with the traits of quick growth and high feed conversion efficiency. Depending on the farm size, broiler farming can be a main source of family income or can provide subsidiary income and gainful employment to farmers throughout the year. Poultry manure is of high fertilizer value which can be used for increasing yield of all crops.

The advantages of broiler farming are

- a) Initial investment is lower than layer farming
- b) Rearing period is 5-6 weeks only
- c) More number of flocks can be taken in the same shed
- d) Broilers have high feed conversion efficiency i.e. the amount of feed required for unit body weight gain is lower in comparison to other livestock
- e) Faster return from the investment
- f) Demand for poultry meat is more compared to sheep/goat meat

Scope for broiler farming and its national importance

India has made tremendous progress in broiler production during the last three decades and the broiler population in the country during 2011-12 stood at 2300 million. Today India is the fifth largest producer of broiler meat in the world with an annual production of 2.47 million MT.

Despite this achievement, the per capita availability of poultry meat in India is only 2.96 kg which is way below the ICMR recommendation of 11 kg meat per capita per annum.

The growth of the poultry sector is mainly attributed to the interventions of the corporate sector with an enabling policy environment provided by the Government of India / State Governments from time to time. The activity provides huge employment opportunities for the rural poor either under Backyard poultry production system or under small scale commercial broiler farming units. Over 5 million people are engaged in the poultry sector either directly or indirectly.

Owing to the considerable growth in broiler industry, high quality chicks, equipment, vaccines and medicines, technically and professionally competent guidance are available to the farmers. The management practices have improved and disease and mortality incidences are reduced to a great extent. Many institutions are providing training to entrepreneurs. Increasing assistance from the Central/ State governments and poultry corporations is being given to create infrastructure facilities so that new entrepreneurs are attracted to take up this business. Broiler farming has been given considerable importance in the national policy and has a good scope for further development in the years to come.

Economics of Pisciculture and Broiler farming

Pisciculture

Water area of the tank (in hect.)	0.40	
FERTILISER COST	Per hect. requirement (Kg)	Cost/hect. (Rs.)
a) Initial monthly liming @ Rs.6.00 per Kg.	1000	6000
b) Raw cow dung @ Rs.0.50/Kg.	11250	5625
c) S.S.P.Rs. 8/- per Kg.	312.5	2500
d) Urea @ Rs.8/- per Kg.	225	1800
SEED COST		
a) Fingerlings (80 mm above) @ Rs.2083/- per thousand	6000	12498
b) Hatchery FW Prawn seed (In nos) or Minor/Exotic carps Intercropping @ Rs.1000/- per thousand	7500	7500
FEED COST		
a) Pellet Feed @ Rs.22/- Kg.	6000	132000
b) Rice Bran @ Rs.8/Kg	1200	9600
c) Prawn feed @ Rs.26/- per Kg.	562.5	14625
MISCELLANEOUS		
a) Medicines & Chemicals		3000
b) Insurance @ 2.5% at input		4000
c) Harvesting expenses L.S.		3000
d) Miscellaneous expenses		1407

Horticulture in embankments (Papaya, Banana, Drumstick etc.)	10000
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REVENUE FROM SALES	Per hect. Output (Kg)	Revenue/hect. (Rs.)
a) Fish @ Rs.110 per Kg	5000	550000
b) Minor/Exotic carps @ 100 per Kg	1000	100000
c) Prawn @ Rs.200 per Kg	250	50000
d) Horticulture in embankments		30000

CAPITAL COSTS	
Excavation Cost :	Rs.
Earth work in ordinary soil	172548
Earth work in hard soil	102900
	275448
Provision for inlet and outlet	3000
Farm Equipments & Misc	2000
Land Development/Grass Turfing	3000
TOTAL	283448

OTHER INFORMATION	
Culture Period	11 months
Sales begin from	2nd year
Beneficiary Contribution	25%
Bank Loan	75%
Interest Rate	12%
Repayment period	6 years
Depreciation	Nil
Additional Investment in renovation of Tank required during 5th year (25% of CC)	say Rs.70000

Broiler Farming

Number of birds	2000 per batch
Number of batches reared per annum:	
First year	5 batches
Second year onwards	6 batches
Cost of construction of sheds	Rs.220 per sq.ft
Space requirement	15 sq. ft per bird
Cost of equipments	Rs.15 per bird
Expenditure on water supply	Rs.20000
Installation of electricity	Rs12500
Cost of day old chicks	Rs.22
Feed requirement per bird	3.5 Kgs per bird
Average cost of feed	Rs.21 per Kg
Labour (1 no.) cost per day	Rs.200
Medicine & vaccines cost per bird	Rs.5 per bird
Weight on selling	2 Kgs per bird
Selling price of birds	Rs.70 per bird
Mortality rate	5%
Income from manure (1kg per bird)	Rs.1.50 per Kg

Interest rate	12%
Depreciation of building	10%
Depreciation of equipments	5%
Repayment period	6 years
Beneficiaries contribution to project	25%
Bank Loan	75%

A. Project Cost

Projects	Amount(in Rs)
Pisciculture	3,78,551
Broiler	7,23,700
TOTAL	11,02,251

Note :

1. Project Cost – Pisciculture

Capital Costs :	Rs.	
Excavation Cost	2,75,448	
Provision for inlet & outlet	3,000	
Farm Equipments & Misc	2,000	
Land Dev/Grass turfing	3,000	
	_____	2,83,448
Working Capital (first culture period) :		
Fertilizer	6,370	
Seed	7,999	
Feed	66,234	
Miscellaneous	4,500	
Horticulture	10,000	
	_____	95,103

		3,78,551

2. Project Cost – Broiler

Capital Costs :	Rs.	
Cost of shed (2,000 sq ft @ Rs.220)	4,40,000	
Expenditure on water supply	20,000	
Installation of electricity	12,500	
Cost of equipments	30,000	
	_____	5,02,500

Working Capital (first batch) :		
Cost of chicks (2000 birds @ Rs.22 plus 5% extra for mortality)	46,200	
Cost of Feed (2000 birds x 3.5 x Rs.21)	1,47,000	
Cost of medicines, vaccines (2000 birds x Rs.5)	10,000	
Labour Cost	18,000	
	_____	2,21,200

		7,23,700

B. Means of Finance

Projects	Project Cost	Debt (75%)	Owner's Contribution (25%)
Pisciculture	3,78,551	283913	94638
Broiler	7,23,700	542775	180925
TOTAL	11,02,251	826688	275563

C. Projected Income

	YR-0	YR-1	YR-2	YR-3	YR-4	YR-5	YR-6
A. Revenue							
Pisciculture		310000	310000	310000	310000	310000	310000
Broiler		1416000	1699250	1699250	1699250	1699250	1699250
Total	0	1726000	2009250	2009250	2009250	2009250	2009250
B. Operating costs							
Pisciculture		95103	85103	85103	85103	85103	85103
Broiler		1089000	1292200	1292200	1292200	1292200	1292200
C. Operating profit							
Pisciculture		214897	224897	224897	224897	224897	224897
Broiler		327000	407050	407050	407050	407050	407050
Total		541897	631947	631947	631947	631947	631947
D. Interest							
Pisciculture		34070	28391	22713	17035	11357	5678
Broiler		65133	54277.5	43422	32566.5	21711	10855.5
Total Interest		99202.59	82669	66135.06	49601	33067.53	16534
E. Depreciation							
Broiler							
shed		47250	42525	38273	34445	31001	27901
equipment		1500	1425	1354	1286	1222	1161
Total dep		48750	43950	39626	35731	32222	29061
PBT (C-(D+E))							
Pisciculture		180827	196506	202184	207862	213540	219219
Broiler		213117	308822.5	324002	338752	353116.5	367133
Total PBT		393944	505328	526186	546614	566657	586352
Total Tax	0%	0	0	0	0	0	0
Total PAT		393944	505328	526186	546614	566657	586352

Depreciation Schedule

		Building		Equipment
0		472500 ⁺⁺		30000
1	10%	47250	5%	1500
2	10%	42525	5%	1425
3	10%	38273	5%	1354
4	10%	34445	5%	1286
5	10%	31001	5%	1222
6	10%	27901	5%	1161

++Expenditure on water supply and installation of electricity have been added with cost of shed to determine the total cost

D. Cash Flow Estimation (Integrated Project)

	YR-0	YR-1	YR-2	YR-3	YR-4	YR-5	YR-6
Inflows							
Owner contribution	275563						
Term Loan	826688						
PAT		393944	505328	526186	546614	566657	586352
Dep		48750	43950	39626	35731	32222	29061
Total	1102251	442694	549278	565812	582346	598879	615413
Outflow							
Capital costs	785948					70000	
Loan repayment		137781	137781	137781	137781	137781	137781
Total	785948	137781	137781	137781	137781	207781	137781
Net Cash flow	316303	304913	411497	428030.6	444564	391098	477632
Opening cash		316303	621216	1032713	1460743	1905308	2296406
Ending cash	316303	621216	1032713	1460743	1905308	2296406	2774038

E. Repayment Schedule (Integrated Project)

	YR-0	YR-1	YR-2	YR-3	YR-4	YR-5	YR-6
Total Loan	826688						
Principal repayment		137781	137781	137781	137781	137781	137781
Interest	12%	99203	82669	66135	49601	33068	16534
Loan outstanding	826688	688907	551126	413344	275563	137781	0

F. Financial Indicators (Integrated Project)

	YR-0	YR-1	YR-2	YR-3	YR-4	YR-5	YR-6
Cash Flow	-785948	304913	411497	428030.6	444564	391098	477632
IRR	43.16%						
DSCR		2.29	2.87	3.10	3.37	3.70	4.10
Average DSCR	3.24						
Breakeven Sales		27%	21%	17%	14%	11%	8%

+ Net Cash Flow in YR-0 (at the beginning of Year 1) is actually Initial Cash Outlay (i.e. summation of capital cost of individual projects)

Annual Breakeven Calculation

		yr-1	yr-2	yr-3	yr-4	yr-5	yr-6
	Sales Revenue		310000	310000	310000	310000	310000
Variable							
Fertiliser		6370	6370	6370	6370	6370	6370
Seed		8000	8000	8000	8000	8000	8000
Feed		66234	66234	66234	66234	66234	66234
Labour							
Fixed							
Misc		4500	4500	4500	4500	4500	4500
Int		34070	28391	22713	17035	11357	5678
Dep							
Breakeven		17%	14%	12%	9%	7%	4%

	yr-1	yr-2	yr-3	yr-4	yr-5	yr-6	
Broiler	Sales Revenue	1416000	1699250	1699250	1699250	1699250	1699250
	Variable						
	cost of chicks	231000	277200	277200	277200	277200	277200
	cost of feed	735000	882000	882000	882000	882000	882000
	Medicine	50000	60000	60000	60000	60000	60000
	labour	73000	73000	73000	73000	73000	73000
	Fixed						
	Misc						
	Int	65133	54278	43422	32567	21711	10856
	Dep	48750	43950	39626	35731	32222	29061
	Breakeven	35%	24%	20%	17%	13%	10%

Combined Breakeven	27%	21%	17%	14%	11%	8%
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G. Comments

- a. The Internal Rate of Return is about 43.16 % which is substantial enough to compensate all the costs and to generate good return.
- b. The DSCR of 3.24 indicates that the operating cash flow is about 3.24 times stronger to serve the debt burden and hence very well bankable from term loan point of view.
- c. Break even sales of 27% in the first year implies that the integrated project covers its fixed cost at 27% of the sales revenue.
- d. The integrated project is financially viable.

Integrated Project II

**Pisciculture (1 acre)
and Diary (10 CB Cows)**

Dairy Farming

No matter what the season is and no matter what the place is 'there is always great demand for milk' in India. Due to the population increase, consumption of milk is increasing tremendously day by day. Milk production in India is expected to grow at about 3 to 4% every year. There are many people who want to get into small scale or large scale dairy farming business. However due to lack of knowledge and finance they are unable to set up a dairy unit.

Dairy farming from being a traditional family run business, today has grown hugely to an organized dairy industry with technological specializations in every part of the process. But many of the dairy firms still manage small dairy firms mostly in villages and supply milk to get processed by large companies and finally sell to the retail outlets.

Anyone opting to go in for dairy farming must have a genuine love for the welfare of cows and buffaloes. Further to be a successful dairy farmer one must have good knowledge about all aspects of management of dairy animals as well as management of dairy business.

Dairying is an important source of subsidiary income to small/marginal farmers and agricultural laborers. In addition to milk, the manure from animals provides a good source of organic matter for improving soil fertility and crop yields. The *gobar* gas from the dung is used as fuel for domestic purposes as also for running engines for drawing water from well. The surplus fodder and agricultural by-products are gainfully utilized for feeding the animals. Almost all draught power for farm operations and transportation is supplied by bullocks. Since agriculture is mostly seasonal, there is a possibility of finding employment throughout the year for many persons through dairy farming. Thus, dairy also provides employment throughout the year. The main beneficiaries of dairy programs are small/marginal farmers and landless laborers.

Scope for Dairy Farming and its National Importance

India is endowed with the largest livestock population in the world. It accounts for about 57.3 per cent of the world's buffalo population and 14.7 per cent of the cattle population. The value of output of milk is Rs. 3,05,484 crore in 2011-12. The total milk production in the country is 127.9 million tonnes per annum at the end of the Eleventh Plan (2011-12) and the demand is expected to be 180 million tonnes by 2020. To achieve this demand annual growth rate in milk production has to be increased from the present 2.5 % to 5%. The Annual growth rate for production of milk is about 5% in 2011-12. Thus, there is a tremendous scope/potential for increasing the milk production through profitable dairy farming.

Economics of Pisciculture and Dairy farming

Diary Farming

Civil Works

Space required per cow	40 sq ft
Space required per calf	20 sq ft
Cattle feed storage	400 sq ft
Cost of construction of shed per sq ft	Rs.200 per sq ft
Electrification	Rs.20000
Ceiling fan and light	Rs.5000
Borewell	Rs.40000
Pump set & Pipeline	Rs.30000

Animal & Equipments

Cost of CB Cow Rs.36000 per cow

Dairy equipments with one milking machine:

Stainless steel milk cans of 40 liters capacity 3 nos. x Rs. 2500/- per can.

Stainless steel bucket of 20 liters capacity 3 nos. x Rs. 1500 / each.

S.S. measuring equipments like 5 liters 500 gm 200 gm 100 gm.

Iron chain 20 nos. x Rs. 200/- per chain

Coir brush, spade dip cup (2 set) @ Rs. 100/- per set.

Hand driven chaff cutter (1 no.) @ Rs. 10,000/- each

Recurring Cost (for 1 month to be capitalized)

Cost of fodder cultivation for 10 CB cows of 2 acres @ Rs. 5000/- per acre x 2 acres

Cost of feed for 1st batch of 5 CB cows for one month

Insurance of 10 CB Cows @ 5% of the cost of animal for one year

Veterinary aid for 10 nos. of CB cows for the 1st year @ Rs. 500/- per animal.

Transportation cost @ Rs. 1000/- per animal.

OTHER INFORMATION	
Beneficiary Contribution	25%
Bank Loan	75%
Interest Rate	12%
Repayment period	6 years
Depreciation	
Building	10%
Equipment	5%
Cow	Cost-SV/n

Salvage value (SV) of a cow is assumed to be Rs.3000 and productive years (n) of a cow is 6 yrs.

Feeding Schedule & Cost per Cow

Particulars	Rate / Rs. Kg	Lactation Period		Dry Period	
		Qty. (Kg)	Cost (Rs.)	Qty. (Kg)	Cost (Rs.)
Concentrated Feed	25.00	5.5	137.50	3	75.00
Green Fodder	OWN				
Dry Fodder	1.00	4	4.00	4	4.00
	Total		141.50		79.00

Lactation Chart

Batch No.	Particulars	1st year	2nd year	3rd year	4th year	5th year	6th yr
1	i) Lactation	250	280	280	280	255	255
	ii) Dry	115	85	85	85	110	110
2	i) Lactation	180	245	245	245	245	245
	ii) Dry	0	120	120	120	120	120
Total	i) Lactation	4300	5250	5250	5250	5000	5000
	ii) Dry	1150	2050	2050	2050	2300	2300

Recurring Cost

Sl. No.	Item	Units	Rate
1	Feeding	Lactation period	141.50
		Dry period	79.00
2	Insurance	10	5%
3	Veterinary Aid	10	500
4	Labour expenses	2	14000 p.m.
5	Electricity charges		1000 p.m.
6	Other Misc. expenses		2000 p.m.

Revenue

Milk per litre	Rs.26
Manure	1st Yr : Rs.10000
	Yr 2-6 : Rs.15000
Gunny Bag can be sold @ Rs.10 per bag	1st Yr : 1000 bags
	Yr 2-6 : 1500 bags

A. Project Cost

Projects	Amount(in Rs)
Pisciculture	3,78,551
Dairy	8,15,000
TOTAL	11,93,551

Note :

- Project Cost – Pisciculture**
Break up of project cost has already been presented previously
- Project Cost – Dairy (10 Nos CB Cows)**

Capital Costs :	Rs.	
<u>Civil Works :</u>		
Cost of cow shed	80,000	
Cost of calf shed	40,000	
Cattle feed storage	80,000	
Electrification	20,000	
Ceiling fan & light	5,000	
Borewell	40,000	
Pumpset & pipeline	30,000	
	_____	2,95,000
<u>Cost of animal & equipments :</u>		
Cost of 10 CB Cows	3,60,000	
Dairy equipments (aggregate)	16,800	
	_____	3,76,800
		_____ 6,71,800
Working Capital (one month) :		
Cost of fodder cultivation	10,000	
Cost of feed	1,00,000	
Insurance	18,000	
Veterinary aid	5,000	
Transportation cost	10,000	
	_____	1,43,000

	(say)	8,15,000

B. Means of Finance

Project	Project Cost	Debt (75%)	Owner's Contribution (25%)
Pisciculture	3,78,551	2,83,913	94,638
Dairy	8,15,000	6,11,250	2,03,750
TOTAL	11,93,551	8,95,163	2,98,388

C. Projected Income

	YR-0	YR-1	YR-2	YR-3	YR-4	YR-5	YR-6
A. Revenue							
Pisciculture		310000	310000	310000	310000	310000	310000
Dairy		1361600	1668000	1668000	1668000	1590000	1590000
Total	0	1671600	1978000	1978000	1978000	1900000	1900000
B. Operating costs							
Pisciculture		95103	85103	85103	85103	85103	85103
Dairy		926300	1131825	1131825	1131825	1116200	1116200
C. Operating profit							
Pisciculture		214897	224897	224897	224897	224897	224897
Dairy		435300	536175	536175	536175	473800	473800
Total		650197	761072	761072	761072	698697	698697
D. Interest							
Pisciculture		34070	28391	22713	17035	11357	5678
Dairy		73350	61125	48900	36675	24450	12225
Total Interest		107420	89516	71613	53710	35807	17903
E. Depreciation							
cow		59500	59500	59500	59500	59500	59500
shed		20000	18000	16200	14580	13122	11809.8
equipment		5590	5310.5	5044.975	4792.726	4553.09	4325.435
Total Dep		85090	82811	80745	78873	77175	75635
F. PBT (C-(D+E))							
Pisciculture		180827	196506	202184	207862	213540	219219
Dairy		276860	392239.5	406530	420627	372175	385940
Total PBT		457687	588745	608714	628489	585715	605158

Calculation of Depreciation

Yr	Rate	Shed	Rate	Equipments	Cows
0		200000		111800	360000
1	10%	20000	5%	5590	59500
2	10%	18000	5%	5310.5	59500
3	10%	16200	5%	5044.975	59500
4	10%	14580	5%	4792.726	59500
5	10%	13122	5%	4553.09	59500
6	10%	11809.8	5%	4325.435	59500

D. Cash Flow Estimation

	YR-0	YR-1	YR-2	YR-3	YR-4	YR-5	YR-6
Cash Inflows							
Owner contribution	298388						
Term Loan	895163						
PAT		457687	588745.2	608714	628489.5	585715.4	605158.5
Dep		85090	82810.5	80744.98	78872.73	77175.09	75635.24
Total	1193551	542777	671555.7	689458.9	707362.2	662890.5	680793.7
Cash Outflows							
Capital costs	955448					70000	
Loan repayment		149194	149194	149194	149194	149194	149194
Total	955448	149194	149194	149194	149194	219194	149194
Net Cash flow	238103	393584	522361.8	540265.1	558168.3	443696.6	531599.9
Opening cash		238103	631686.5	1154048	1694313	2252482	2696178
Ending cash	238103	631687	1154048	1694313	2252482	2696178	3227778

E. Repayment Schedule

	YR-0	YR-1	YR-2	YR-3	YR-4	YR-5	YR-6
Total Loan	895163.3						
Principal repayment		149194	149194	149194	149194	149194	149194
Interest	12%	107420	89516	71613	53710	35807	17903
Loan outstanding	895163	745969	596776	447582	298388	149194	0

F. Financial Indicators

	YR-0	YR-1	YR-2	YR-3	YR-4	YR-5	YR-6
Cash Flow	-955448 ⁺	393584	522361.8	540265.1	558168.3	443696.6	531599.9
IRR	44.67%						
DSCR		2.53	3.19	3.45	3.75	3.78	4.18
Average DSCR	3.48						
Break Even Sales		32%	25%	23%	20%	19%	17%

+ Net Cash Flow in YR-0 (at the beginning of Year 1) is actually Initial Cash Outlay (i.e. summation of capital cost of individual projects)

Annual Breakeven Calculation

	yr-1	yr-2	yr-3	yr-4	yr-5	yr-6	
Pisciculture	Sales Revenue	310000	310000	310000	310000	310000	310000
	Variable						
	Fertiliser	6370	6370	6370	6370	6370	6370
	Seed	8000	8000	8000	8000	8000	8000
	Feed	66234	66234	66234	66234	66234	66234
	Labour						
	Fixed						
	Misc	4500	4500	4500	4500	4500	4500
	Int	34070	28391	22713	17035	11357	5678
	Dep						
	Breakeven	17%	14%	12%	9%	7%	4%

	yr-1	yr-2	yr-3	yr-4	yr-5	yr-6	
Dairy	Sales Revenue	1361600	1668000	1668000	1668000	1590000	1590000
	Variable						
	labour	168000	168000	168000	168000	168000	168000
	Transportation	10000	10000	10000	10000	10000	10000
	Feed	699300	904825	904825	904825	889200	889200
	Vertenary Aid	5000	5000	5000	5000	5000	5000
	electricity	12000	12000	12000	12000	12000	12000
	Fixed						
	Misc	24000	24000	24000	24000	24000	24000
	Int	73350	61125	48900	36675	24450	12225
	Dep	85090	82810.5	80744.975	78872.73	77175.09	75635.24
	Breakeven	38%	29%	26%	24%	24%	22%

Combined Breakeven	32%	25%	23%	20%	19%	17%
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G. Comments

- a. The Internal Rate of Return is about 44.67 % which is substantial enough to compensate all the costs and to generate good return.
- b. The DSCR of 3.48 indicates that the operating cash flow is about 3.26 times stronger to serve the debt burden and hence very well bankable from term loan point of view.
- c. Break even sales of 32% in the first year implies that the integrated project covers its fixed cost at 32% of the sales revenue.
- d. The integrated project is financially viable.
