Project Report

On

“Integrated Fish Farming Systems for Sustainable Enhancement of Rural Livelihood”

Index

Abbreviation:-

Sr. No	Short Form	Long Form
1	LMT	Lakh Metric Tonne
2	Ha	Hectare
3	Sq.Mt	Square Metre
4	GNP	Gross National Product
5	BPO	Business Process Outsourcing
6	NPV	Net Present Value
7	BCR	Benefit Cost Ratio
8	DSCR	Debt Service Coverage Ratio
9	IRR	Internal Rate of Return
10	HR	Human Resources
11	KVK	Krishi Vigyan Kendra
12	FCR	Feed Conversion Ratio

Executive Summary & Rationale of the Project–

By considering the availability of land with small and marginal farmers of society and member farmers, it has been proposed to do integrated fish farming with poultry. It will help to utilize available resources in most efficient way and to increase the revenue of society and member farmers. As there is huge demand for fish and meat in the local market so we can catch the market and supply to customer with regular service and good quality product.

Integrated farming of Fish and Poultry gives an opportunity to use resources with minimum human resources and it also diversifies the income and profitability risk of business. As we have observed that one line of business, natural calamity and marker distress has always big question mark on the agriculture as a sustainable revenue source to farmers. There are 96% of farmers from Bihar comes under the category of small and marginal farmers so they need a added line of business which can help to increase their revenue sources and upgrade standard of living will help to reduce migration from the state and automatically will help to improve education and health parameter of state. Naturally, Bihar state has been gifted with huge water resources and most of the society own their pond structure so integrated fish farming will help sustainable revenue sources for societies. As West Bengal and Andhra-Pradesh are leading state to supply good quality fish to Bihar state so added production of fish and meat will help to consume production in the local area itself.

It has been proposed that Catla, Rohu and Mrigal culture with Broiler (Chicken) production in 2 Acres of land with handling of project by 4 human resources. It has been proposed that 10,000 of fingerlings will be stocked in the 8000 Sq.mt area while 2000 birds will be reared in 400 sq.mt area. 8 year analysis of the project depicts that Integrated Fish Farming is a profitable venture and can be given financial support to set up the project. Following points justify the recommendation of the project –

Financial analysis of the Fish Rearing Unit is as follows:

- ✓ Positive Net Profit Every Year
- ✓ IRR – 57%
- ✓ Average BCR – 1.79
- ✓ DSCR – 5.8

Financial analysis of Poultry Unit is as follows:

- ✓ Positive Net Profit Every Year
- ✓ IRR – 32%
- ✓ Average BCR – 1.2
- ✓ DSCR – 4.8

Detail analysis part has attached to report.

Capital Expenditure for the Fish Rearing Unit is as follows:-

Particulars/Years	Amount	Remarks
Fixed Cost		
Renovation of Pond	150,000	8000 Sq.Mt
Net, Icebox, Boat Purchase	200,000	Input Purchase
Other Expenses	20,000	
Total Fixed Cost	**370,000**	
Other Cost		
Hatchlings	25,000	Rs. 2.5/Fingerlings
Feeding Bags	150,000	Rs. 30/Kg Costing
Sub Total	**545,000**	

Source of Finance:-

Equity	20%	109,000
Loan	80%	436,000
Total	100%	545,000

Capital Expenditure for the Poultry Unit is as follows:-

Particulars/Years	Amount	Remarks
Fixed Cost		
Shed Construction	200,000	400 Sq.Mt

Material Costing	40,000	Chick, Adult Drinker and others
Miscellanous Expenses	20,000	
Total Fixed Investment	**260,000**	
Other Cost		
Hatchling Costing	288,000	Rs. 18/Hatchling
Vaccination	20,000	
Feeding Bags	175,500	3 Bags/Day
Sub Total	**743,500**	

Source of Finance:-

Equity	20%	148,700
Loan	80%	594,800
Total	100%	743,500

Funds for this project shall be mobilized from National Cooperative Development Corporation, New Delhi, a statutory body of Ministry of Agriculture and Farmers Welfare, Government of India engaged in promoting, developing and financially assisting cooperative societies.

Introduction:-

Nowadays, the economy is mainly based on the field of agriculture and software development in the area of Information Technology. For achieving rapid progress in rural area, our strategy must focus on; conserving natural resources, enhancing efficient use of resources, increasing

productivity and profitability and improving quality and competitiveness through reduced unit cost of production.

Water is emerging as international challenge and its most efficient management as well as recycling has been given high priority in the plan of formulation. Recycling of crop residue as well as agricultural by products inclusion of nitrogen fixing legumes in rotation, bio fertilizers, vermicultres, agro forestry, nutrient solublising micro-organisms, efficient nutrient up taking plant varieties etc. Are being strategies in the research mandate. Improved efficiency of farm machinery, agro- input and resource conservation technologies of minimum tillage are being researched to minimize the cost of production.

Integrated Fish Farming is one of the best examples of mixed farming. This type of farming practices in different forms mostly in the East and South East Asian countries is one of the important ecological balanced sustainable technologies. The technology involves a combination of fish polyculture integrated with crop or live stock production. On farm waste recycling, an important component of integrated fish farming is highly advantageous to the farmers as it improves the economy of production and decrease the adverse environmental impact of farming.

Integrated fish farming refers to the simultaneous culture of fish or shell fish along with other culture systems. It may also be defined as the sequential linkage between two or more culture practices. Generally integrated farming means the production or culture of two or more farming practices but when fish becomes its major component it is called as integrated fish farming. Fish culture can be integrated with several systems for efficient resource utilisation.

The integration of aquaculture with livestock or crop farming provides quality protein food, resource utilisation, recycling of farm waste, employment generation and economic development. Integrated fish farming is well developed culture practice in China followed by Hungary, Germany and Malaysia. Our country, India, is organic-based and derives inputs from agriculture and animal husbandry. The integrated fish farming is accepted as a sustainable form of aquaculture. For integration we can use recycled effluents from agro-based industries as well as food processing plants.

Integrated fish farming serves as a model of sustainable food production by following certain principles:

- The waste products of one biological system serve as nutrients for a second biological system.
- Water is re-used through biological filtration and recirculation.
- Local food production provides access to healthy foods and enhances the local economy.

ADVANTAGES OF INTEGRATED FISH FARMING

- Efficient waste utilisation from different culture practice for fish production.

- It reduces the additional cost for supplementary feeding as well as fertilisation.
- It is an artificial balanced ecosystem where there is no waste.
- It provides more employment avenues.
- It reduces the input and increases output and economic efficiency.
- The integrated fish farming provides fish along with meat (chicken, duck, beef, pork etc.), milk, vegetables, fruits, eggs, grains, fodder, mushroom etc.
- This practice has potential to increase the production and socio-economic status of weaker section of our society.

TYPES OF INTEGRATED FISH FARMING

Basically the integrated fish farming is of two types-

a) Agri-based fish farming

1. Paddy Cum Fish Culture
2. Horticulture (Fruits & Vegetable Production) Cum Fish Culture

b) Live-stock fish farming

1. Poultry Cum Fish Culture
2. Duck Cum Fish Culture
3. Pig Cum Fish Culture
4. Cattle Cum Fish Culture
5. Goat Cum Fish Integration
6. Rabbit Cum Fish Integration

The fish-cum live-stock farming is realised as innovation for recycling of organic wastes as well as production of high class protein at low cost. By considering the requirement, available resources, technical adaptability and profitability, we are proposing here Poultry Cum Fish Culture.

Advantages of Integrated Fish & Poultry (Broiler) Farming –

1. The direct discharge of fresh chicken manure to the fish ponds produces enough natural fish feed organisms without the use of any additional manure/fertilizer.

2. The transportation cost of the manure is not involved.
3. The nutritive value of applied fresh manure is much higher than dry and mixed with bedding materials e.g. saw dust or rice husk.
4. Some parts of the manure are consumed directly by the fish.
5. Less supplementary feed is needed for the fish.
6. No extra space is required for chicken farming. Chicken sheds can be constructed over the pond water or on the dyke.
7. More production of animal protein will be ensured from the same area of minimum land.
8. The overall farm production and income will increase.

Scenario of Fisheries in Bihar:-

The economy of Bihar is mainly dependent on agriculture, animal husbandry and fisheries. Fisheries and aquaculture sector play a key role in food security and employment generation as significant proportion of population depend upon fisheries, aquaculture and allied activities for their livelihood sustenance and income. Besides, the sector also generates precious revenue for the State. The importance of fisheries sector to the State economy has increased particularly after the creation of Jharkhand as a separate State. The State has two distinct land masses on either side of the holy River Ganga and is divided into 38 administrative districts, 21 in North Bihar and 17 in South Bihar. 88% of the population lives in villages. Bihar state is 12th largest in terms of geographical size (94,163 Sq.Km) and 3rd largest by population, 10.38 Crore as per census 2011, in the country. After the division of state in 2000, Bihar retained almost 75 percent of the population, while it is left with only 54 percent of the land, thus inducing a lot of strain on the available resources. Rainfall here is the most significant factor in determining the nature of vegetation. Bihar has a monsoon climate with an average annual rainfall of 1200 mm.

Bihar, lying in the heart of Gangetic plain, is blessed with fertile land resources though extreme hot and cold climatic conditions along with flood and drought situations are characteristic part of the geography. The State is endowed with rich aquatic and fisheries resources in the form of rivers, flood plains, wetlands (*chaurs*), ox-bow lakes *(mauns)*, reservoirs, tanks and ponds.

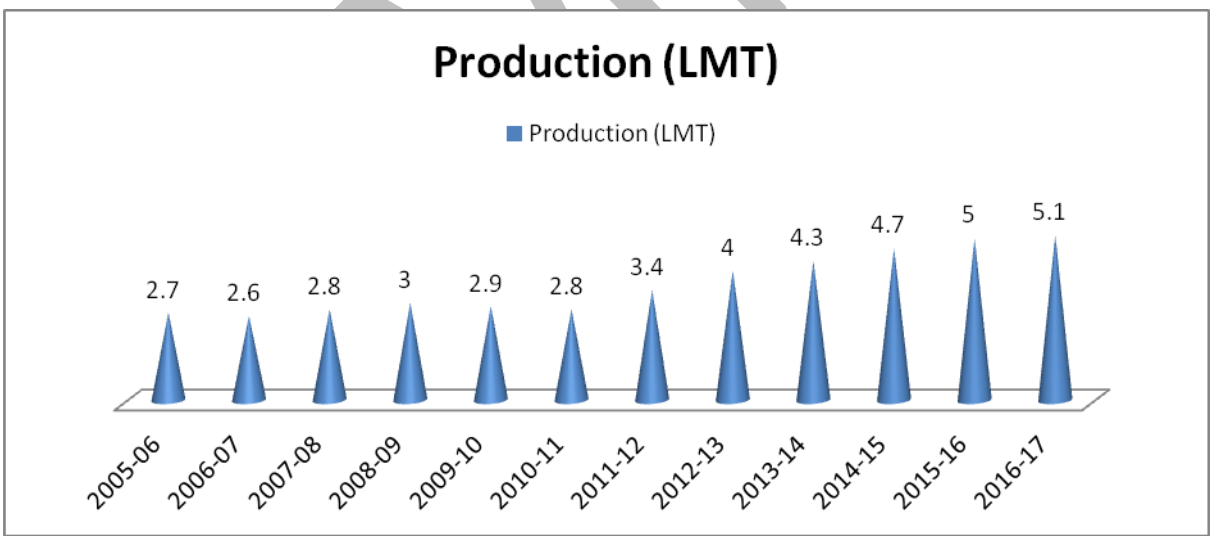
Fisheries sector of this state is an important, most promising and fast growing food farming sub-sector of Bihar accounting 6% annual growth rate and contributes 1.4% (2012-13) to its state GDP. The availability of immense aquatic resources not only satisfies the demand of fish but also plays an important role in gainful livelihood and employment generation, food

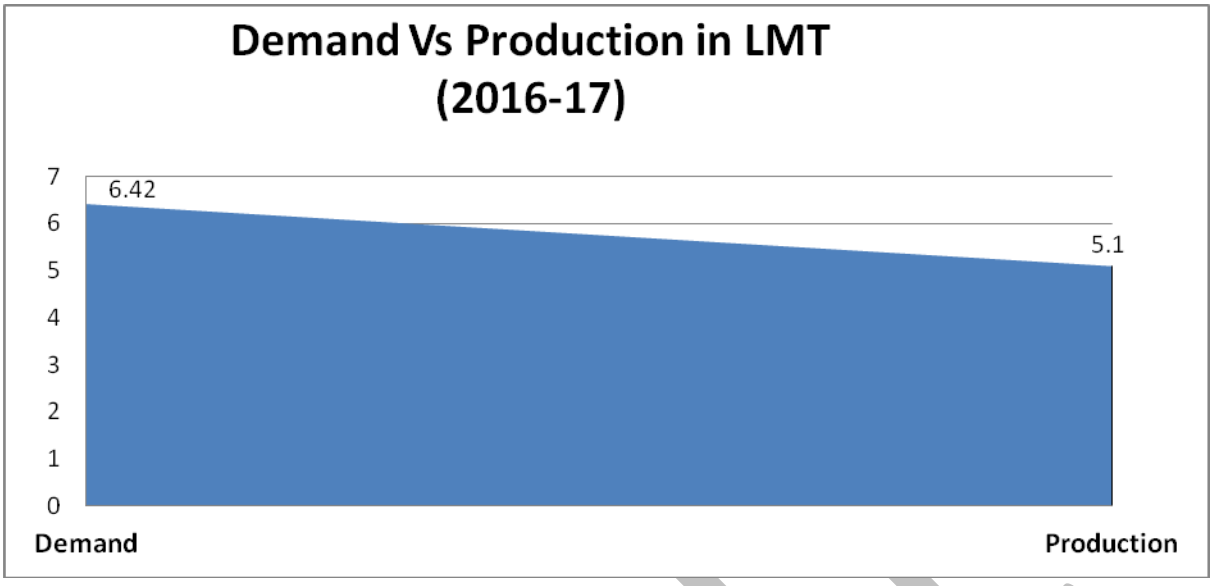
and nutritional security, poverty alleviation, state growth and finally socio-economic up-gradation of the rural downtrodden.

There is substantial growth in fish production in Bihar during last few years. The fish production of the state from 2010-11 to 2016-17 was 2.88 LMT, 3.44 LMT, 4.0 LMT, 4.32 LMT, 4.79 LMT, 5.06 LMT and 5.10 LMT respectively. Although, a gap exist between current production and current demand of fish however steady fisheries infrastructural and development projects have been under taken by the government.

Following is the summary table of fisheries resources available in the state:

Sr. No	Resources	Area (Ha)
1	Pond and Tanks	93296
2	Ox-bow Lakes (Mauns)	9000
3	Reservoirs	26303
4	Rivers	3200 Km
5	Wet Lands (Chaurs)	9.41 Lakhs




Demand Vs Production in LMT
(2016-17)
7
6
5
4
3
2
1
0
6.42
5.1
Demand
Production

Poultry Farming:-

In the broader market for poultry products, India was positioned 17th in World Poultry Production. Analyst estimates that the poultry sector in India has been growing at a much faster rate, along with other industries, like BPO companies and security market. Over the past decade, the poultry industry in India has contributed approximately US$ 229 million to the Gross National Product (GNP). Several breakthroughs in poultry science and technology have led to the development of genetically superior breeds capable of higher production, even under adverse climatic condition, offering opportunities for overseas entrepreneurs to expand export and import products on a larger scale.

State Wise Poultry Population: 19th Livestock Census 2012

Sr. No	State	Layer	Broiler	Duck	Others
1	Andhra Pradesh	8,33,03918	4,82,40,075	2,54,164	4,54,710
2	Tamil Nadu	5,11,94235	4,83,11,658	20,07,852	19,16,063
3	Maharashtra	80,29,893	5,08,66,466	7,77,685	6,13,644
4	Karnataka	1,56,70,171	2,75,58,116	2,26,469	2,87,249
5	West Bengal	17,63,547	2,16,26,678	2,77,807	8,285
6	Odissa	19,40,544	55,64,494	54,654	76,557
7	Bihar	3,89,386	46,22,283	55,073	60,717
8	Jharkhand	1,09277	24,15,204	5,739	7,828

Top 5 states in terms of Poultry Production were Tamil Nadu, Andhra Pradesh, West Bengal, and Maharashtra & Karnataka.

Poultry is one of the fastest growing agro-segment in the Eastern India. There is huge demand for meat in the Bihar state and huge scope for small broiler units which can capture local market by providing quality chicken and will help to create employment opportunity at the grass root level.

Following is the District Wise Poultry Population in Bihar:-

Sr.No	District	Layer	Broiler	Duck	Others
1	Araria	18,069	29,074	278	4,252
2	Arwal	500	99,200	0	0
3	Aurangabad	12,340	2,16,598	0	0
4	Banka	4,451	46,174	0	10
5	Begusarai	5,163	1,43,544	7,810	4,950
6	Bhagalpur	21,387	1,11,380	407	3,185
7	Bhojpur	8	80,618	8,211	0
8	Buxar	331	3,200	0	0
9	Darbhanga	9,260	2,11,337	0	1,500
10	Gaya	0	61,190	0	815
11	Gopalganj	13,750	14,220	22,000	23,446
12	Jamui	3,852	23,183	0	0
13	Jehanabad	4,717	21,750	0	0

14	Kaimur	791	5,828	218	0
15	Katihar	2,008	54,569	0	0
16	Khagaria	4,700	68,674	0	3,800
17	Kishanganj	7,554	2,500	0	0
18	Lakhisarai	3,052	3,700	0	15
19	Madhepura	9,400	88,503	3,250	0
20	Madhubani	1,714	49,042	0	2,300
21	Motihari	21,140	3,13,755	7,616	1,500
22	Munger	75	49,275	0	0
23	Muzaffarpur	53,528	4,84,998	161	3,682
24	Nalanda	32,448	3,16,146	26	1
25	Nawada	54,038	71,950	0	0
26	West Champaran	12,841	1,34,950	1,700	0
27	Patna	22,040	2,59,856	13	478
28	Purnia	378	24,130	0	0
29	Rohtas	27,231	71,285	205	650
30	Saharasa	667	45,382	0	0
31	Samastipur	4,391	4,60,224	779	150
32	Saran	3,978	2,01,701	0	1,500
33	Sheikhpura	350	20,278	0	0
34	Sheohar	2,689	10,866	0	4,780
35	Sitamarhi	1,515	44,426	82	0
36	Siwan	22,122	73,229	511	0
37	Supaul	224	9,732	0	0
38	Vaishali	6,684	6,95,816	1,806	3,703
	Total	3,89,386	46,22,283	55,073	60,717

The Project, Proposal & Strategy:-

Project Description & Strategy –

- The project is Integrated Fish Farming which includes additional unit of Poultry Farming which can help to improve the revenue of societies and member farmers.
- Fish farming will be done in 2 acres (8000 Sq.mt) of fish pond and poultry shed of 20*20 (Sq.mt) will be constructed on the periphery of pond.
- Catla, Rohu & Mrigal fish variety will be reared in the fish pond while broiler will be reared in the poultry shed.
- 10,000 fingerlings will be stocked at fish pond and 2000 broiler bird will be raised in the poultry shed.
- 2 trained human resources will handle fish farming activity while 2 trained human resources will handle poultry farming.
- Total block cost for the fish rearing unit will be Rs. 5.45 Lacs. Out of this amount, 20% (Rs. 1.09 Lacs) will be contribution from society while 80% (Rs. 4.36 Lacs) amount will be given by NCDC as a loan.
- Total block cost for the poultry farming unit will be Rs. 7.43 Lacs. Out of this amount, 20% (Rs. 1.48 Lacs) will be contribution from society while 80% (Rs. 5.94 Lacs) amount will be given by NCDC as a loan.
- The main purpose of the project is to increase the revenue sources of societies and dividing the risk bearing capacity of farmers by promoting allied agri-business activity.
- The training of human resources will be done by KVK and will be given field exposure to increase their understanding of the project.
- KVK scientist will visit in between so they can guide the team on the technical part of the project.
- Project will give focus on the higher production with optimum utilisation of resources.
- Feed Conversion Ratio (FCR) will be important point to increase net profit and that will be analysed frequently to improve the success rate of project.
- We will give more focus on quality product, good service, competitive pricing, regular supply of product and developing a long term relationship with customer.
- If required we will also try to develop a good range of line product in the future so we can tap the customer as per their demand.

Goal, Vision, Mission & Objectives:

Following is the Goal, Vision, Mission and Objective of the Project.

Goal	Doubling the Farmers Income with Trust on Allied Activities
Vision	Economic Sustainability of Farmers with Trust on Allied Activities
Mission	Introduce, Propagate and support in Integrated Manner
Objective	• Increasing Revenue Sources of Society and Farmers • Regular Source of Income • Optimum Utilization of Local Available Resources • Improving Risk Bearing Capacity of Farmers

SWOT Analysis of the Project:-

Strength • Fish will be raised from the poultry waste so it will save the feed cost. • Poultry shed will be constructed over the fish farm so it will help to save the space and use area in a better way. • Good economic return • Good nutrient management • Availability of market in the local area • Employment opportunities in the local area	**Weakness** • Need to maintain a better quality of water in a regular way. • Those persons who will handle the farm should be good trained or technically equipped. • Need to maintain low mortality rate
Opportunity • Proper utilization of local resources	**Threats** • Need to do a proper disease management • Environmental vulnerability

• Economic upliftment of weaker section • Market for value added product exists • Opportunity to enter in the fish and poultry feed market as an additional business line in the segment	• Uncertainty in the fair prices or market

Feasibility Assessment of the Project:-

Feasibility Assessment of the Project is as follows-

Parameter	Assessment
Technical Feasibility	• Renovation of pond and construction of poultry shed will be done from locally available resources. • Good quality water availability & regular supply of water at the project area. This water can be used to fill up required quantity of water in pond. • Good quality fish seed available in the Motihari district so fingerlings will be purchased from Motihari hatchery and will be stocked at pond. Chicks are also available at district head quarter so that will be used to rear at poultry shed. • Good quality poultry and fish feed available in the local area.
Commercial Feasibility	• Huge consumption of fish and meat in the Bihar state. • Andhra Pradesh and West Bengal mainly supplying fish variety to Bihar. • Production could be sold the local market itself. • No need to invest more on logistics and cold chain part as demand would be more from surrounding area itself.
Organisational Feasibility	• Society is involved in the fish rearing activity from last 7 years.

	• Board of Director of the society are well aware about fishing activity. • Society is also having animal rearing farm and fertilizer selling unit. • Society having 12 acres of fish pond and out of those 2 acres will be used for Integrated Fish Farming Activity. • Successful implementation other line business activity like animal rearing farm, fertiliser unit gives confidence that they will be able to handle poultry unit too. • Board of Director are confident and eager to expand their business activity. • Human resources has been trained by KVK and exposure visit also has been completed so they are confident to implement project successfully.
Marketing and Viability	• There is no Integrated Fish Rearing Unit in the surrounding area so it gives them edge than the others to capture the market. • Huge demand for the fish and meat in the local area itself. • They can supply fish and meat on the regular basis. • Earlier experience of society in the Fish rearing gives confidence that they will be able to sustain their business activities.
Financial Viability	• Financial analysis of the Fish Rearing Unit are as follows: ✓ Positive Net Profit Every Year ✓ IRR – 57% ✓ Average BCR – 1.79 ✓ DSCR – 5.8 • Financial analysis of Poultry Unit ✓ Positive Net Profit Every Year ✓ IRR – 32% ✓ Average BCR – 1.2 ✓ DSCR – 4.8

Business Model or Revenue Model

Business Model for the planned project will be is as follows:

Particulars	**Comment**
Product	Raw Fish & Meat. If there is good demand for frozen fish and meat then we will be open to add product line in our business activity.
Market Segment	Local & Surrounding area. To improve the quality of the product ice box will be used to keep it in the required temperature. We will also keep the database of customer and will divide them in the different groups to make a strong marketing strategy.
Marketing Chain	We will identify Local Retailer and Distributor to sell our product. We will make a good scheme to sell our product so local retailer and distributor will push our product in the market.
Price	Price will decide on the local market, availability of product and demand for the product. Pricing of surrounding area will be analysed to keep the product competitive.
Promotion	Promotion of the product will be done by pamphlets, advertising in the local hut. We will try to create a brand of our product by providing good quality product, giving good service to customer and competitive pricing. We will keep the mobile database of each customer so we will send the messages to them whenever fresh harvesting is available with us.

Risk Management:

Following point has been reviewed to reduce the risk of project –

Particulars	**Mitigation of Risk**
Multiple activities	Society is involved in the fish rearing unit, animal rearing farm, fertiliser unit and additional activity of poultry will give them advantage to increase income by reducing risk of losses due to multiple activities. We will also try to go for frozen product of fish and meat if required.
Technical Inputs	Technical inputs will be given by KVK and expertise farmers on regular basis to society. It will help to improve the technical feasibility of farmers. Exposure visit also will be conducted for human resources to make them competent to handle the project.
Investment	Society has invested 20% equity in the project and has applied 80% as a loan. They will try to get good income from the invested money so it will reduce the possibility of defaulter.
Training	Human resources will trained regularly by KVK. It will help to build the technical efficiency of labour.
Inputs	Good quality inputs will be procured from the recognised sources. Inputs will be verified by expertise so there will be minimum risk for the failure.
Review Meeting	Monthly review meeting will be taken at project site. Visit will be also conducted by monitoring and evaluation team foe the success of project.

Financial Analysis:-

A) Fish Culture

Assumptions: Fish Variety – Catla, Rohu and Mrigal

Particulars	Unit	Value
Area	Sq.Mt	8,000
Renovation of Pond	Rs.	150,000
Stocking rate of fish	5000/Per acre	10,000
Price per fingerlings	Rs.	2.5
Total Fingerling Costing	Rs.	25,000
Feeding cost	Rs/Kg	30
Production	Tonnes/Year	5
Production	Kg	5,000
Total Feeding Cost	Rs.	150,000
Price/Kg (Average)	Rs.	140
Total Revenue		700,000
Season	Year	1
Purchase of Inputs (Boat, Net, Icebox)		200,000
Other Material Cost		20,000
Depreciation on Fixed Assets	%	5
Rate of Interest	%	11
Moratorium	# of year	1
Debt Repayment Period		7
No of Payment Per Year		2

Capital Expenditure & Contributions:-

Particulars/Years	Amount	Remarks
Fixed Cost		
Renovation of Pond	150,000	8000 Sq.Mt
Net, Icebox, Boat Purchase	200,000	Input Purchase
Other Expenses	20,000	
Total Fixed Cost	**370,000**	
Other Cost		
Hatchlings	25,000	Rs. 2.5/Fingerlings
Feeding Bags	150,000	Rs. 30/Kg Costing
Sub Total	**545,000**	

Contribution

Equity	20%	109,000
Loan	80%	436,000
Total	100%	545,000

Computation of Production:-

Particulars/Years	I	II	III	IV	V	VI	VII	VIII
Total Hatchling	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Total Assumed Cycle/Year	1	1	1	1	1	1	1	1
Total Production/Year (In Kg)	5,000	5250	5513	5788	6078	6381	6700	7036
Fish Price/Kg	140	147	154	162	170	179	188	197
Total Revenue	700,000	771,750	850,854	938,067	1,034,219	1,140,226	1,257,099	1,385,952

*** It is assumed that 5% will be increase in each year production.**

Recurring Cost:-

Years	I			II	III	IV	V	VI	VII	VIII
Particulars	Quantity	Rate	Total							
Hatchling	14,000	3	35,000	36750	38588	40517	42543	44670	46903	49249
Feed	8,000	30	240,000	252000	264600	277830	291722	306308	321623	337704
Labour	2	8,000	192,000	201600	211680	222264	233377	245046	257298	270163
			467,000	**490,350**	**514,868**	**540,611**	**567,641**	**596,023**	**625,825**	**657,116**

***It is assumed that 5% will be increase in the price of Hatchling, Feed & Labour**

Repayment of Loan:-

Equity	109,000
Loan	436,000
Total	545,000
Interest	10.60%

Installement No	Principal Balance	Equated Half Yearly Principal	Effective Interest
1	436,000	0	23,108.00
2	436,000	0	23,108.00
3	436,000	31,143.00	23,108.00
4	404,857	31,143.00	21,457.42
5	373,714	31,143.00	19,806.84
6	342,571	31,143.00	18,156.26
7	311,428	31,143.00	16,505.68
8	280,285	31,143.00	14,855.11
9	249,142	31,143.00	13,204.53
10	217,999	31,143.00	11,553.95
11	186,856	31,143.00	9,903.37
12	155,713	31,143.00	8,252.79
13	124,570	31,143.00	6,602.21
14	93,427	31,143.00	4,951.63
15	62,284	31,143.00	3,301.05
16	31,141	31,143.00	1,650.47
	Total	**436,002.00**	**219,525.31**

Principal Paid	436,002.00
Interest Paid	219,525.31
Total Paid	655,527.31
Years	8.00

Cash Flow Analysis:-

Sl. No	Particulars	Year	I	II	III	IV	V	VI	VII	VIII
	Investment		545000							
1	Capacity Utilization		100%	100%	100%	100%	100%	100%	100%	100%
2	Income from Poultry Production		700,000	771,750	850,854	938,067	1,034,219	1,140,226	1,257,099	1,385,952
3	Total Recurring cost		467,000	490,350	514,868	540,611	567,641	596,023	625,825	657,116
4	Profit before interest, tax& depreciation		233,000	281,400	335,987	397,456	466,577	544,203	631,275	728,836
5	Interest on Term Loan		46,216	44,565	37,963	31,361	24,758	18,156	11,554	4,952
6	Deprecation		18,500	16,650	14,985	13,487	12,138	10,924	9,832	8,848
7	Profit after interest & dep.		168,284	220,185	283,039	352,609	429,681	515,123	609,889	715,036
8	Tax (30%)		50,485	66,055	84,912	105,783	128,904	154,537	182,967	214,511
9	Profit after Tax		117,799	154,129	198,127	246,826	300,777	360,586	426,922	500,525
10	Loan Repayment (Principal)		-	62,286	62,286	62,286	62,286	62,286	62,286	62,286
11	Salvage Value		-	-	-	-	-	-	-	-
12	Net surplus after repayment	20,00,000	117,799	91,843	135,841	184,540	238,491	298,300	364,636	438,239
13	Net Cashflow for IRR	-545000	233,000	281,400	335,987	397,456	466,577	544,203	631,275	728,836
14	IRR	**57%**								

Calculation of Net Present Value (NPV):-

Sl. No	Particulars	Year	I	II	III	IV	V	VI	VII	VIII
	Investment		545000							
1	Capacity Utilization		100%	100%	100%	100%	100%	100%	100%	100%
2	Income from Poultry Production		700,000	771,750	850,854	938,067	1,034,219	1,140,226	1,257,099	1,385,952
3	Total Recurring cost		467,000	490,350	514,868	540,611	567,641	596,023	625,825	657,116
4	Profit before interest, tax& depreciation		233,000	281,400	335,987	397,456	466,577	544,203	631,275	728,836
5	Interest on Term Loan		46,216	44,565	37,963	31,361	24,758	18,156	11,554	4,952
6	Deprecation		18,500	16,650	14,985	13,487	12,138	10,924	9,832	8,848
7	Profit after interest & dep.		168,284	220,185	283,039	352,609	429,681	515,123	609,889	715,036
8	Tax (30%)		50,485	66,055	84,912	105,783	128,904	154,537	182,967	214,511
9	Profit after Tax		117,799	154,129	198,127	246,826	300,777	360,586	426,922	500,525
10	Loan Repayment (Principal)		-	62,286	62,286	62,286	62,286	62,286	62,286	62,286
11	Salvage Value		-	-	-	-	-	-	-	-
12	Net surplus after repayment	20,00,000	117,799	91,843	135,841	184,540	238,491	298,300	364,636	438,239
13	Net Cashflow for IRR	-545000	233,000	281,400	335,987	397,456	466,577	544,203	631,275	728,836
14	IRR	**57%**								

Calculation of Debt-Service Coverage Ratio:-

Sl. No	Particulars	Year	I	II	III	IV	V	VI	VII	VIII
	Cover									
1	Profit After Tax		117799	154129	198127	246826	300777	360586	426922	500525
2	Depreciation		18500	16650	14985	13487	12138	10924	9832	8848
3	Taxes		50485	66055	84912	105783	128904	154537	182967	214511
4	Interest on Term Loan		46216	44565	37963	31361	24758	18156	11554	4952
	Total		233000	281400	335987	397456	466577	544203	631275	728836
	Service									
1	Repayment of Term Loan		0	62286	62286	62286	62286	62286	62286	62286
2	Interest on Term Loan		46216	44565	37963	31361	24758	18156	11554	4952
	Total		46216	106851	100249	93646.8	87044.5	80442.2	73839.8	67237.5
	DSCR		**5.04**	**2.63**	**3.35**	**4.24**	**5.36**	**6.77**	**8.55**	**10.84**
	Average DSCR	**5.8**								

B) Broiler (Poultry) Farming

Assumptions:

Particulars	Unit	Value
No of Birds (Broiler)	Nos	2,000
Area Required (Sq.mt)	Sq.Mt.	400
Price/Hatchling	Rs.	18
Mortality Rate	%	10%
Feeding Cost (Bags/Day)	No of Bags	3.00
Bag Price (Per Bag)	Rs.	1,300
Feeding Cost/Day (Rs)	Rs.	3,900
Rearing Cycle (Days)	Days	45
Total Cycle in a Year		8
Labour Cost (2)	Nos	Rs. 8000/month
Electricity Expenses		1,00,000/year
Vaccination/Medicines	Rs.	20,000
Material Costing	Rs.	50,000
Bird Weight After at 45 Days (Kg)	Kg	2.15
Meat Price/Kg (Rs.)	Rs.	70
Profit/Bird (Rs)	Rs.	10
Depreciation/Year	%	10%
Rate of Interest	%	10.6
Moratorium	# of year	1
Debt Repayment Period		7
No of Payment Per Year		2

Capital Expenditure & Contributions:-

Particulars/Years	Amount	Remarks
Fixed Cost		
Shed Construction	200,000	400 Sq.Mt
Material Costing	40,000	Chick, Adult Drinker and others
Miscellanous Expenses	20,000	
Total Fixed Investment	**260,000**	
Other Cost		
Hatchling Costing	288,000	Rs. 18/Hatchling
Vaccination	20,000	
Feeding Bags	175,500	3 Bags/Day
Sub Total	**1,003,500**	

Contribution

Equity	20%	200,700
Loan	80%	802,800
Total	100%	1,003,500

Computation of Production:-

Particulars/Years	I	II	III	IV	V	VI	VII	VIII
Total Hatchling	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Total Assumed Circle	8	8	8	8	8	8	8	8
Average weight/Chicken	2.15	2.21	2.28	2.35	2.42	2.49	2.57	2.64
Mortality Rate	10%	10%	10%	10%	10%	10%	10%	10%
Total Production/Year (In Kgs.)	30,960	31,889	32,845	33,831	34,846	35,891	36,968	38,077
Selling Rates of Processed Items								
Chicken	**70**	73.5	77.18	81.0	85.09	89.34	93.81	98.50
Calculation of Sales								
Total Sales	2,167,200	2,343,827	2,534,849	2,741,439	2,964,866	3,206,503	3,467,833	3,750,461

***3% increase in the production & 5% increase in the price expected for each year.**

Calculation of Recurring Cost:-

Sr. No	Particular	I	II	III	IV	V	VI	VII	VIII
1	Capital Expenditure	260000	0	0	0	0	0	0	0
	Recurring Cost								
1	Hatching Cost	288,000	302400	317520	333396	350065.8	367569.1	385947.5	405244.9
2	Poultry Feed	1,404,000	1474200	1547910	1625306	1706571	1791899	1881494	1975569
3	Medicines	20,000	21000	22050	23152.5	24310.13	25525.63	26801.91	28142.01
4	Labour Salary (2 Labour @Rs. 8000/Month)	192000	201600	211680	222264	233377.2	245046.1	257298.4	270163.3
5	Electricity Expenses (Per Year)	100000	105000	110250	115762.5	121550.6	127628.2	134009.6	140710
	Total Recurring Cost	**2,004,000**	**2,104,200**	**2,209,410**	**2,319,881**	**2,435,875**	**2,557,668**	**2,685,552**	**2,819,829**

***It is assumed that 5% increase will be in the every year.**

Repayment Schedule:-

Equity	200700	
Loan	802,800	
Toal	1,003,500	
Interest	10.60%	

Installement No	Principal Balance	Equated Half Yearly Principal	Effective Interest
1	802,800	0	42,548.40
2	802,800	0	42,548.40
3	802,800	57,342.86	42,548.40
4	745,457	57,342.86	39,509.23
5	688,114	57,342.86	36,470.06
6	630,771	57,342.86	33,430.89
7	573,429	57,342.86	30,391.71
8	516,086	57,342.86	27,352.54
9	458,743	57,342.86	24,313.37
10	401,400	57,342.86	21,274.20
11	344,057	57,342.86	18,235.03
12	286,714	57,342.86	15,195.86
13	229,371	57,342.86	12,156.69
14	172,029	57,342.86	9,117.51
15	114,686	57,342.86	6,078.34
16	57,343	57,342.86	3,039.17
	Total	**802,800.00**	**404,209.80**

Principal Paid	802,800.00
Interest Paid	404,209.80
Total Paid	1,207,009.80
Years	8.00

Cash Flow Statement & IRR:-

Sl. No	Particulars	Year	I	II	III	IV	V	VI	VII	VIII
	Investment		1003500							
1	Capacity Utilization		100%	100%	100%	100%	100%	100%	100%	100%
2	Income from Poultry Production		2,167,200	2,343,827	2,534,849	2,741,439	2,964,866	3,206,503	3,467,833	3,750,461
3	Total Recurring cost		2,004,000	2,104,200	2,209,410	2,319,881	2,435,875	2,557,668	2,685,552	2,819,829
4	Profit before interest, tax& depreciation		163,200	239,627	325,439	421,558	528,992	648,834	782,281	930,632
5	Interest on Term Loan		85,097	82,058	75,979	57,744	45,588	33,431	21,274	9,118
6	Deprecation		26,000	23,400	21,060	18,954	17,059	15,353	13,817	12,436
7	Profit after interest & dep.		52,103	134,169	228,399	344,860	466,345	600,051	747,189	909,079
8	Tax (30%)		15,631	40,251	68,520	103,458	139,904	180,015	224,157	272,724
9	Profit after Tax		36,472	93,918	159,880	241,402	326,442	420,036	523,033	636,355
10	Loan Repayment (Principal)		-	114,686	114,686	114,686	114,686	114,686	114,686	114,686
11	Salvage Value		-	-	-	-	-	-	-	-
12	Net surplus after repayment	20,00,000	36,472	(20,767)	45,194	126,716	211,756	305,350	408,347	521,669
13	Net Cashflow for IRR	-1003500	163,200	239,627	325,439	421,558	528,992	648,834	782,281	930,632
14	IRR	**32%**								

Conclusion & Recommendations:

8 year analysis of the project depicts that Integrated Fish Farming is a profitable venture and can be given financial support to set up the project. Following points justify the recommendation of the project –

1) Financial analysis of the Fish Rearing Unit are as follows:
   - ✓ Positive Net Profit Every Year
   - ✓ IRR – 57%
   - ✓ Average BCR – 1.79
   - ✓ DSCR – 5.8

2) Financial analysis of Poultry Unit
   - ✓ Positive Net Profit Every Year
   - ✓ IRR – 32%
   - ✓ Average BCR – 1.2
   - ✓ DSCR – 4.8

3) Society doesn't have taken loan earlier from any bank or financial institution and has done business from their own financial resources which show the strong equity base of the society.

4) Society is submitting FDR as a nature of security.

5) Society is involved in the fish rearing unit, animal rearing farm, fertiliser unit and additional activity of poultry will give them advantage to increase income by reducing risk of losses due to multiple activities.

6) Society members having good experience in Fish Rearing Activity and they are technically sound to run the business activities. They will also supported by KVK in Integrated Fish Farming.