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# **DETAILED PROJECT REPORT ON SETTING UP OF A PIG REARING FARM**

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Detailed project report (DPR) on setting up a pig rearing farm of 200 capacity. The project report has been prepared for cooperative societies of Mizoram State, however, the same can be replicated throughout NE Region by making necessary adjustments based on local factors.

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**Abbreviations:**

DSCR	Debt Service Coverage Ratio
IRR	Internal Rate of Return
MIZO PIG Fed.	Mizoram Pig Federation



## **Executive Summary:**

The project report is regarding setting up a pig rearing farm of 200 capacity of **Hamsphire Crossbred Pigs** for a piggery Society in Mizoram. Pig rearing to Mizos is not something new. At backyard of their houses pig rearing is a common practice. The project will provide opportunity to rear pigs in scientific way, market the produce on larger economy of scale to generate revenue and a sustainable livelihood opportunity to the members of the cooperative society and provide fresh and quality pork to the consumers.

The project is designed to cater huge demand and supply gap in winter season, particularly in festive season of Christmas and New Year. Inputs required for the project are easily and locally available and there is very good demand for the produce as well. Climatic Conditions in Mizoram is also very conducive for pig rearing. Mizoram largely an agrarian economy, animal husbandry has been inherently associated with community for livelihood. Feeds required for pig farming such as house hold waste, agricultural waste, bamboo shoots are abundantly available.

**Total project cost estimated is to be Rs.28.75 lakh**, which does not include the cost of the land as society owns its own land. The project cost will be met by the society contribution of Rs. 2.875 lakh (10%) and balance financial assistance from a financing institution.

Based on certain realistic assumptions the future cash flow of the project has been also worked out. The Internal Rate of Return (**IRR**) worked out to be healthy **21.66** % signifying that the Project will be able to generate the revenue in about 3.25 years to cover all the costs incurred in project. Also average Debt Service Coverage Ratio (**DSCR**) is worked out to be **1.66** which signifies that project will be able to generate significant revenue to easily repay its debt/ loan.

The project is thus very important for the Cooperative Society to generate revenue and provide gainful employment to the members of the society. The project is technically feasible and financially viable.

## **1. Introduction:**

1.1 Mizoram is primarily an agrarian economy with a high literacy rate. However, because of current agricultural practices, environmental factors and unavailability of large farming areas, Mizoram being a hilly state, agriculture is primarily subsistence. People are not able to generate sufficient income out of agriculture. Hence, along with agriculture, animal husbandry is inherent to the community. Pig rearing at the backyard of the houses is very common for the Mizoram people. Pork is the most relished food in the region. However, the demand and supply gap is huge as there are not many pig rearing centers and specially during the festive seasons of Christmas and New Year the prices soar high. Pork is normally sold at a higher price in Mizoram because of huge demand. In normal days, retail prices are around Rs.400/kg which soars to Rs.600/kg in the festive season. People in Mizoram primarily like pork of indigenous (Zo vak) black pig. However, the consumption has shifted to Hampshire crossbred as indigenous black pig are small in size and weight, per pig pork is very low and not a viable option for large scale rearing. Hampshire crossbreds are got from breeding of Hampshire pure breed with indigenous breed. Taste wise, not very different from indigenous breed but grow up in big size and weigh around 120 kg in 8 months as compared to 40 to 50 kg of indigenous breed. They are also more disease resistant than the pure breed. The other breed is Yorkshire, despite producing good quantity of pork per pig not very popular as its taste is not relished by the Mizoram people.

1.2 The total pork production in Mizoram is around 12.5 metric tons and consumption is around 14.5 metric tons. Mizoram has to presently import pork from neighboring States and also Myanmar to meet domestic needs. The high demand supply gap and high cost incurred in importing makes pork prices high in Mizoram. This provides an opportunity for the cooperative society to venture into large scale pig farming. The increased demand for the processed pork such as sausages, ham, bacon and canned meat products, which are primarily imported, also provides an opportunity for the pig farming to flourish. Although the processing of pork is presently not done in Mizoram and mostly processed pork is imported, self sufficiency in pork production in the future will also provide the processing industry to take off.

### **1.3 Advantages of pig farming:**

- a) Pig has got the highest feed conversion efficiency i.e. they produce more live weight gain from a given weight of feed than any other class of meat producing animals except broilers.
- b) Pig can utilize a wide variety of feed stuffs viz. grains, forages, damaged feeds and garbage and convert them into valuable nutritious meat.
- c) Pig farming requires small investment on buildings and equipment.

- d) Pigs are known for their meat yield, which in terms of dressing percentage ranges from 65 - 80 in comparison to other livestock species whose dressing yields may not exceed 65%.
- e) Pork is most nutritious with high fat and low water content and has got better energy value than that of other meats. It is rich in vitamins like thiamin, Niacin and riboflavin.
- f) Pigs manure is widely used as fertilizer for agriculture farms and fish ponds.
- g) Pigs store fat rapidly for which there is an increasing demand from poultry feed, soap, paints and other chemical industries.
- h) Pig farming provides quick returns since the marketable weight of fatteners can be achieved with in a period of 6-8 months.
- i) There is good demand from domestic as well as export market for pig products such as pork,

## **2. The Project**

### **2.1 A Brief about the Piggery Cooperative Society:**

2.1.1 The piggery cooperative has been registered under Mijoram State Cooperative Society Act.

2.1.2 The Society has 60 members and an elected board comprising of 12 members. The society has its own land of around 6000 sq feet for the proposed project. The members of the society are primarily engaged in agriculture, rear pigs at the backyard of their home and some of them also have consumer shop.

2.1.3 The society presently sale pig feed to its member as well as non member through its retail outlet at society office. The society office is also used as store room to keep pig feed. Presently society has sale of around Rs. 2 lakh pig feed per year. As pig feed is provided to members at no profit there is insignificant reserves and surplus.

### **2.2 The Proposal:**

2.2.1 The present proposal is for establishing a pig rearing farm of Hampshire crossbred pigs of 200 capacity by the cooperative Society. Weaning piglets are proposed to be procured from PIGFED, Aizawl and nearby breeders in batches of 50 each at an interval of 15 days starting in the month of May. They will be scientifically reared in hygienic condition in the proposed shed, with proper vaccination and feed

including prescribed medicines as per standard practices. The pigs will be reared for 8 months i.e. upto their maturity and then marketed to the local market as well as market in Aizawl. The first batch will come out in first half of December and the last batch will be out by January last or February first half. This will ensure catering the market's peak demand in the festive season i.e. the month of December and January. In the month of March and April the sheds will be maintained for any wear and tear, deep cleaned and sterilized. The next batch will again start from the month of May.

2.2.2 Total project cost estimated is to be **Rs.28.75 lakh**, which does not include the cost of the land as society owns its own land. The project cost will be met by the society contribution of Rs. 2.875 lakh (10%) and balance from a financing institution.

### 2.3 Goal/ Objectives of the Project is to:

- i. increase the revenue of the cooperative society
- ii. provide gainful employment to its members
- iii. cater the need of the growing demand of pork in the region
- iv. provide assured quality pork to consumers at a very competitive price
- v. to strengthen membership of the society

### 2.4 SWOT, Business Model, Strategies and Technical Feasibility

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• High demand for pork</li> <li>• Conducive environmental and cultural factors for pig rearing</li> <li>• Ample forest produce and kitchen waste available for pig feed</li> <li>• Tie up with MIZO Pig Fed for supply of piglets and feed</li> <li>• Ample availability of water and electricity</li> <li>• Society has good management body</li> </ul>	<ul style="list-style-type: none"> <li>• Less experience in large scale pig rearing</li> <li>• High transportation cost due to difficult terrain</li> <li>• Less number of veterinary doctors available</li> <li>• Increasing labor cost</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>• Huge demand and supply gap</li> <li>• High pork prices</li> <li>• Subsidy available for pig rearing</li> <li>• Government Support</li> </ul>	<ul style="list-style-type: none"> <li>• High mortality rate of piglets</li> <li>• Pigs are prone to various diseases</li> <li>• Heavy rain and land slides</li> </ul>

## 2.4.1 Business Model and strategy :

a) The key stake holders identified for this project are following

- The beneficiary cooperative society and its members
- Suppliers of the project inputs for piglets, feed, equipment and tools, veterinary services & medicines and transport services
- Buyers of pork in wholesale or retail, hotel and restaurants and local consumers
- Financing institution
- Others: laborers, state animal husbandry department, cooperation department and local community

b) The business model is depicted as under :





**c) Raw materials / Inputs supplier and service providers:**

The raw material required for the pig farming such as piglets and feed are being presently procured at Society level, however, at much smaller scale. PIGFED is the prime supplier for piglets and pig feed. There are other private suppliers as well for feed and piglets. The society has well established contacts with these suppliers. The tools and equipments required for the farming are not many and all locally available. The veterinary services will be taken from the government veterinary doctor available locally and the medicines, vaccinations etc. are available at local veterinary hospital, otherwise readily available at Champhai, the district head quarter. The transport vehicle services are also locally available, although at higher price, the region being hilly and difficult terrain. The area has abundant water available and electricity supply is there. A tube well with motor pump and over-head tank will be set up in the project location for adequate good quality supply of water. Labor is available at cheaper rate and society member would be engaged on wage.

**d) Marketing of the Produce**

The rearing cycle is scheduled to cater the peak demand in festive season and winter months. 200 piglets will be procured in the batches of 50 on every 15<sup>th</sup> day starting from first week of May. Thus the first batch will attain maturity in the first week of December and last batch will in last January. The peak demand season of December and January will be catered by such scheduling. The pigs will be sold to retailers in pork market at the block level, district level and State Capital Aizawl. Big hotels and restaurants in Aizawl will also the buyers. The society will have its own retail shop at the project site where every Sunday pork will be sold in retail. The pork sold to the members of the cooperative society will be at concessional rate so that to attract more membership, participation and share capital from the community. As a goodwill gesture and to promote its product the Society will organize annual pork eating competition at Khawzawl.

**e) Managerial Efficiency**

The members of the society are well versed with pig rearing, although at lower scale only. The society is also presently in business of sale of pig feed and the accounts are well maintained and audited. The society has an elected board of 12 members, elections are regularly conducted. The board meetings and annual general meeting are done regularly and records of the meetings are well maintained.

As far as technical knowhow of the pig farming management of the society is well versed with the basics. However, training programs on scientific rearing of pigs as well

as general management has been included in the project cost and will be imparted to the management team. The technical training will be provided at ICAR, National Research Center for Pig at Gwahati.

#### **2.4.2 Technical Feasibility**

The backward and forward linkages for the project are well established. Institutions like Mizoram PIGFED, Animal health centers by the Animal Husbandry Dept. etc. are instrumental in backward linkages. The demand for pork is high and readily available market is present, Environment is conducive for pig rearing, there is ample water supply and sufficient electricity supply and transportation is also available. The society management has capability to run such project and for any gap training is also proposed. Thus the project is technically sound and feasible.

#### **2.5 Implementation plan, monitoring and evaluation**

The project is scheduled to be commenced as per the implementation schedule mentioned below:

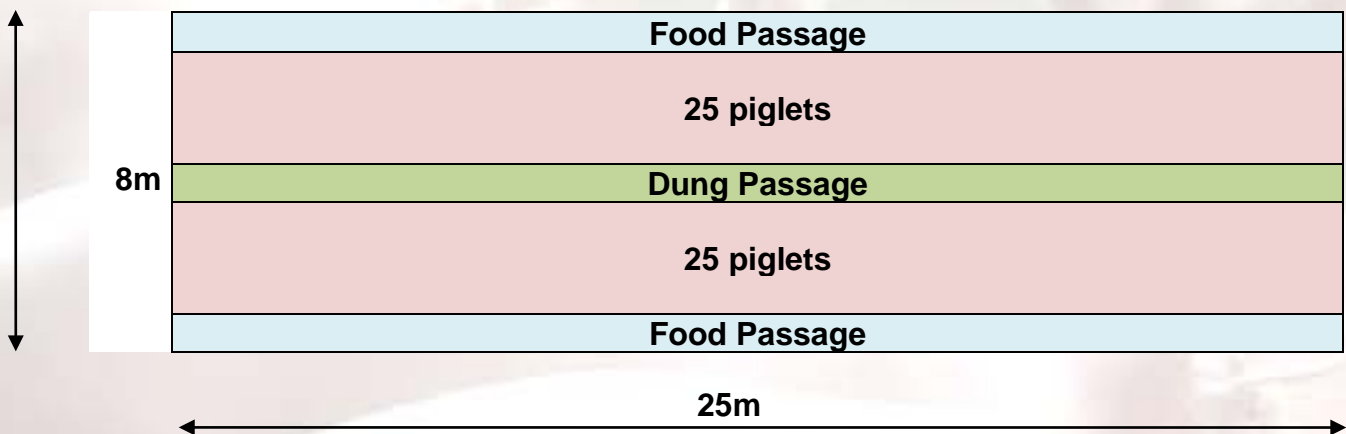
Sl. No.	Particulars	Duration
1	Land Acquisition	Owned
2	Land Development	One month
3	Building of Sheds	One month
4	Training to staffs and Management	15 days
5	Water and Sanitation / Electricity	One month
7	Procurement of feed, medicine, equipments etc.	10 days
9	Rearing	The first batch will be ready for market in 7 months

The shed proposed to be constructed will have four major separations so that similar age piglets can be kept in one area to avoid any confusion about their age. There will be proper water supply, ventilation and hygiene will be properly maintained. There will be registered veterinary doctor will be engaged to monitor well being of the pigs. Regular health checkup will be conducted and vaccination, feed schedule will be properly looked after. The sheds will remain vacant for two months after every cycle for

maintenance, deep cleaning and sterilization so that the subsequent batches get disease free, clean and hygienic environment to grow up.

### Layout:

Each block of 50 piglets will have following lay out. There will be four such blocks for the 200 piglets.



- The floor will be raised 60 cm above the ground level.
- Strong corrugated roofs to protect from sun and rain
- Outside wall will be of 25cm thick with brick and mortar and the inside partition wall will have 12.5 cm thickness.
- The walls will be raised to a height of 1 meter and from walls to roof ventilated grills will be installed.
- There will be two food passages a meter wide and a dung passage of 1.5 meter wide.
- There will be a dung and waste disposal soak pit constructed beside the pigsty.

## 2.6 Project Cost and Financing

Total project cost has been estimated to be Rs. 28.75 lakhs. Detailed breakup is given below:

Sl. No.	Particulars	Unit Rate (Rs.)	Total Cost (Rs. in lakh)
1	Buildings/ Sheds	Rs. 200/- per Sq ft. for 5000 sq. ft	10.00
2	Store Room 250 Sq. Ft.	Rs. 200/- per Sq ft. for 250 sq feet	0.50
3	Office with necessary amenities		1.00
4	Overhead Tank		1.00
5	Water Supply, Sanitary Fittings including water pump etc.		0.50
6	Electrification		0.30
7	Furniture & Fixture		0.60
8	Tools, Implements, misc fixed assets		0.30
9	Cost of animal	Rs. 5000/piglet for 200 piglets	10.00
10	Margin Money		3.32
11	Contingencies	3%	0.73
12	Cost of Training		0.50
	<b>Total</b>		<b>28.75</b>

## 2.7 Project Viability

Based on certain realistic assumptions the future cash flow of the project has been also worked out. The Internal Rate of Return (**IRR**) worked out to be healthy **21.66** % signifying that the Project will be able to generate the revenue in about 3.25 years to cover all the costs incurred in project. Also average Debt Service Coverage Ratio (**DSCR**) is worked out to be **1.66** which signifies that project will be able to generate significant revenue to easily repay its debt/ loan. Hence, the project is financially viable. Detailed workout has been **Annexed**.

## 2.8 Risk Assessment and Risk Management

Every project has some inherent risks and mitigating them is key to the success of the project. Risks have been identified for this project and they have been categorized in four major categories as below :

- i. **Production Risk :** Pigs have high mortality rate as they are prone to disease. A 10% mortality is common but any slackness in hygiene, vaccination and medicines may shoot up the mortality to the extent to severely affect the project. The risk has been acknowledged and a certified veterinary doctor has been engaged for the project who will make regular visit to the farm. The pigs will be regularly monitored for any infection/ disease, vaccinated timely as per standards, fed properly and reared under a very hygienic condition. Regular water supply has been ensured for drinking as well as cleaning. The sheds will be well ventilated, proper sunshine will be available and ample space provided for each pig.
- ii. **Market Risk:** Despite having good market for if proper forward linkages are not made, the Society will not be able to sell its produce and thus may incur loss. For this, the possible buyers have been identified and contacted. They will be asked to place demand well in advance so that society would be able to deliver required quantity in right time. Further, the society will have its own outlet to cater local needs. For the sale of gunny bags and manure produced society already has established contacts with buyers.
- iii. **Managerial Risk:** Society's management and staff have experience in big rearing though on small scale. They are also good at maintaining books and accounts of the society. Any gap in technical and managerial knowledge will be taken care by the Training proposed in the project which will be imparted before the commencement of the project.
- iv. **Resource Risks:** As forward linkages are important for the success of the project so are the backward linkages. The society has well established contacts with Mizoram PIGFED for procurement of piglets as well as pig feed. Also, the medicines and vaccination are available at local veterinary hospital or can be easily procured from the district head quarter Champhai which is just 45 km away. Important component of Pig Feed is roughage which is in ration 1:1 to concentrate feed. The roughage is easily available as kitchen waste and also bamboo shoots are abundantly available in the region. Adequate care has been taken for clean water and electricity supply. Labor will be engaged from society and will also be given training before engaging.

### **3. Conclusion**

The project of 200 units of pig rearing farm proposed to be set up by the cooperative society is a technically feasible and financially viable project. A part from the listed objectives of the project there are many other benefits such as people of the region will be motivated to take up pig rearing at large scale seeing the success of the project. Such projects will make Mizoram a self sufficient in pork production and overall economy will improve. The project is, therefore, recommended for investment and implementation.



**Annexure I**

<b>Assumptions</b>		
<b>Particulars</b>	<b>Unit</b>	<b>Quantity/ Amount</b>
Rearing Capacity	No.	200
Marketable age of piglets	No. Of days	240
Shed for Piglets @ 25 Sq.ft per piglet for 200 piglets	Rs./Sq.ft	200
Store room 250 Sq.ft	Rs./Sq.ft	200
Purchase price of piglets	Rs./Piglet	5000
Sale price of Pig	Rs./Kg	250
Mortality	Per cent	10%
Equipment cost for piglets (200 nos.)	Rs. / Piglet	100
Medicine, Vaccine cost	Rs. per animal/year	200
Labour cost	Rs./month/per person	10000
Feed requirement (Conc.) for 240 days	Kg/Piglet/day	1.00
Feed Requirement (Roughage/Kitchen Waste)	Kg/Piglet/day	1.00
Feed Ratio (Conc: Roughage/Kitchen Waste)		50:50
Concentrate feed cost	Rs./kg	20
Roughage/Kitchen waste feed cost	Rs./kg	3.00
No. Of gunny bags per ton feed	No./Ton	20
sale price of gunny bag	Rs/bag	10
Interest rate on term loan	Percent	10.85%
Loan period (including one year moratorium on repayment of principal)	years	8
Weight at marketable age	Kg/Piglet	65
Feed quantity per year	Tonnes	48
No. Of gunny bag per year		960
Insurance	Percentage on Purchase Price	5%
Vehicle for transport and feed collection	Rs. Per year	100000
Charges for hiring Veterinary Doctor	Rs. Per month	20000
Rate of Interest on Working capital	percentage	10%

**Annexure II**

<b>Repayment Schedule</b>				
Rs. in lakh				
Installment No.	Loan Outstanding	Principal	Interest	Total Installment
1	18.69	0.00	2.03	2.03
2	18.69	2.67	2.03	4.70
3	16.02	2.67	1.74	4.41
4	13.35	2.67	1.45	4.12
5	10.68	2.67	1.16	3.83
6	8.01	2.67	0.87	3.54
7	5.34	2.67	0.58	3.25
8	2.67	2.67	0.29	2.96
Total		18.69	10.14	28.83



## Annexure III

### Depreciation Schedule for Pig Rearing Unit

Year	Building & Furniture Fixture		Machinery & Equipments etc		Total Depreciation	Value at the end of the year
	Value at the beginning of the year	10%	Value at the beginning of the year	15%		
1	13.10	1.31	1.10	0.17	1.48	12.73
2	11.79	1.18	0.94	0.14	1.32	11.41
3	10.61	1.06	0.79	0.12	1.18	10.23
4	9.55	0.95	0.68	0.10	1.06	9.17
5	8.59	0.86	0.57	0.09	0.95	8.22
6	7.74	0.77	0.49	0.07	0.85	7.38
7	6.96	0.70	0.41	0.06	0.76	6.62
8	6.27	0.63	0.35	0.05	0.68	5.94
Salvage value	5.64			0.30		
Total Salvage value	5.94					

## Annexure IV

## Financial Analysis

(Rs. in lakh)

	Particulars									
1	Capacity	200	Piglets							
A	Income	Yr-0	Yr-1	Yr-2	Yr-3	Yr-4	Yr-5	Yr-6	Yr-7	Yr-8
	Total marketable piglets after mortality		180	180	180	180	180	180	180	180
i.	By Sale of Piglets		29.25	29.25	29.25	29.25	29.25	29.25	29.25	29.25
ii.	By Sale Empty Feed Bags		0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
	Total Income		29.35	29.35	29.35	29.35	29.35	29.35	29.35	29.35
B	Expenditure									
i.	Cost of piglet		10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
ii.	Cost of Feed		11.04	11.04	11.04	11.04	11.04	11.04	11.04	11.04
iii.	Cost of Medicines & Vaccination		0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
vi.	Wages		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
vii	Depreciation		1.48	1.32	1.18	1.06	0.95	0.85	0.76	0.68
viii	Interest on Working Capital Loan		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ix	Interest on Term Loan		2.03	2.03	1.74	1.45	1.16	0.87	0.58	0.29
	Total Expenditure		26.94	23.76	23.62	23.50	23.39	23.29	23.20	23.12
C	Profit before tax		2.41	5.59	5.73	5.85	5.96	6.06	6.15	6.23
D	Income tax 33%		0.79	1.84	1.89	1.93	1.97	2.00	2.03	2.05
E	Profit after interest, tax & depreciation		1.61	3.74	3.84	3.92	3.99	4.06	4.12	4.17
F	Term Loan Repayment		0.00	2.70	2.70	2.70	2.70	2.70	2.70	2.52
G	Salvage Value									5.94
H	Cashflow for IRR	- 28.75	5.91	8.93	8.64	8.35	8.06	7.77	7.49	7.20
I	IRR		21.16%							
J	DSCR		2.52	1.50	1.52	1.55	1.58	1.62	1.66	1.83
K	Average DSCR		1.66							