

Unlocking Opportunities: Establishing A Goat Cluster In Sangli To Drive Agricultural Prosperity And Sustainable Livelihoods

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Abstract:

This research paper analyzes the prospects of setting up a goat cluster in the Sangli district of Maharashtra. The study is a large-scale survey and was conducted by preliminary as well as secondary sources.

It delves into the interventions needed from the government machinery and the physical infrastructure needed for setting up a goat cluster.

A multivariate statistical approach was applied to best exploit the significant number of available variables.

The analysis generally carries out the goat value chain mapping, the prospects of setting up a modern abattoir facility, market feasibility assessment, and the supply side assessment of the goat cluster.

In conclusion, this study identified the different goat farming components and the parameters for setting up a goat cluster. It emphasized the need to develop strategies that can take the cluster forward.

Keywords: Goat Cluster; Goat Farming and Rearing; Risks and Mitigation Strategies; Sustainable Livelihoods; Rural Prosperity.

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I. Introduction:

The animal husbandry sector of Maharashtra is an essential contributor to the state's economy and plays a crucial role in providing food security to the state's population. As per the 2019 Livestock census, Maharashtra ranks 7th with a total livestock population of 33.1 million.¹ Maharashtra is the seventh-largest milk-producing state in the country and second largest in goat meat production²

Goat farming is an integral part of livelihood for many goats, contributing to both nutritional security and economic sustenance of most farmers. However, goat farmers' principal challenges in the Sangli district have hindered their opportunities. Some of them are access to the markets, the ability to demand higher prices from the buyers, and the ability to negotiate with the suppliers of inputs. This is primarily due to the district's scattered nature of goat rearing.

Inadequate animal slaughtering facilities and market linkages to the farmers are crucial factors limiting the value chain development.

The paper will focus on creating forward and backward linkages and market development and setting up a modern abattoir facility to harness the potential of the Sangli district of Maharashtra.

It shall provide benefits to the farmers like:

- Meeting the growing demand for goat meat in local and export markets.
- Improving nutritional food security through quality protein.
- Economic development and creation of jobs and providing remuneration to the goat keepers.

Other potential benefits would be:

- Reduced food waste: lean supply chain, scientific processing and packaging of meat for shelf-life extension.
- Supply chain efficiency by reducing the need to transport live animals to distant animal *man dies* or abattoirs.
- Animal welfare: humane and scientific slaughter through stunning

¹ BAHS 2021

² CEIC data

The market linkages through the formation of the Goat Farmer Producer Organization (FPO) shall provide the following benefits to the goat farmer community of Sangli:

- **Backward linkages:** Continuous supply of animals to the abattoir by creating backward linkages.
- **Collective bargaining power:** Attaining enhanced bargaining power with buyers and suppliers through collectivization of resources.
- **Transparency in pricing:** Assured margins to the producers and stakeholders of the meat value chain.
- **Farm to fork traceability:** Improving consumer confidence and food safety.
- **Improved access to markets:** Options to access new markets.
- **Better access to finance:** access to credit and other financial services to expand operations and improve farmer livelihoods through collectivization.
- **Improved quality of products** by providing training, technical assistance, and quality control services.
- **Shared resources**, such as feed, farming equipment, and other inputs, can help farmers reduce costs and improve efficiency.
- **Risk Management:** through Livestock insurance and price stabilization.
- **Professionalism:** in livestock farming to help respond better to market opportunities and challenges.
- **Networking:** with other farmers and industry stakeholders to learn from others and stay informed about industry trends and developments.

SWOT Analysis:

➤ **Strengths:**

- Increase in non-vegetarian population in the country.
- Increase in purchasing power of end customer.
- Ample availability of high-quality goat breeds in Maharashtra.
- Maharashtra ranks 2nd in terms of goat meat production.
- Low production cost of goat meat compared to other breeds.
- There is no religious taboo against goat slaughter in the country.
- Goat farming requires smaller investments and is comparatively less risky than the dairy business.

➤ **Weaknesses:**

- Lack of large-scale and organized goat farming practices. Farmer producers have small holdings of goat units, and they operate individually.
- Unorganized structure of the goat meat sector.
- High operating cost of the abattoir facility.
- Low prevalence of public-private partnerships in goat production.
- Lack of value addition and marketing infrastructure.
- Lack of credit and access to markets.
- Poor market linkages in goat meat production and reliance on middleman.

➤ **Opportunities:**

- High demand for HALAL-certified meat in export markets.
- The untapped potential of value-added products and associated premium pricing.
- Modern production and processing technologies.
- Enormous potential for remunerative use of by-products.
- Promotion of Goat FPOs can open new avenues for goat farmers.
- There is a high demand for traceable and wholesome goat meat products.
- Minimize environmental pollution due to traditional slaughter practices.
- Opportunity to employ large sections of rural India.

➤ **Threats:**

- Ensure uninterrupted supply of large quantities of water and other utilities like electricity.
- Spread of contagious goat diseases such as PPR, goat pox, and FMD in catchment areas.
- Natural calamities and extreme climatic conditions.
- Proper disposal of abattoir waste without causing municipal or public inconvenience.
- Political or social issues may cause turbulence in the abattoir's activity.

The Potential Risks and Mitigation Strategies for Setting up Goal Cluster in Sangli are as follows:

Risks	Description	Mitigation
Sourcing of Goat	Speculators, neighbouring farmers, subsistence farmers, own herds and goat auctions, and wholesale and retail mandis.	Purchase of goats from reliable sources such as registered FPOs, government institutions, auctions, authorized markets, etc; sellers should be able to provide a declaration of health certificate while selling the goat to ensure the traceability of the goal.
Disease Outbreak	Contagious viral diseases like PPR (goat plague), goat pox, ORF, contagious ecthyma.	Timely check-up and immunization of goats by viral vaccine; quarantine or isolation of the diseased animal to check the chances of spread of disease. Farm and abattoir-level sanitation and biosecurity measures shall be employed.
Transport Stress	Long-distance transport without pre-conditioning of animals, contamination of carcass by food-borne pathogens like E-coli contamination. ³	No long distances travel before slaughtered. Brought in the abattoir facility and kept for a minimum lairage time of 1 hour before the slaughter to generate lactic acid to prevent bacterial growth; a specialized vehicle made for the transport of the goats.
Improper Handling of Animals	Induction stress in the animal leads to quality deficiency in meat (DFD Meat); tipping goats onto their hind end or tying their hooves together induces excessive stress.	Following Good Manufacturing Practices, an adequately constructed metal stunning box should be used for the goats. Devices like a neck collar or stanchion/chute can do the same.
Scarce Resources	Increased cost of feed and fodder and lack of grazing land due to urbanization.	Provision of cheap quality fodder and arrangement for fresh pastures. Farmers shall be encouraged to grow their fodder crops.
Parasitic Problems and Infections	External parasites like ticks, lice, fleas, and mange infestation cause emaciation, restlessness, anemia, allergic signs on the skin, rough hair coat, pruritis, and weakness. Diseases like foot rot, mixed respiratory infection, diarrhea, and enterotoxemia.	Following GMP and production guidelines laid down by FAO, pre-purchase check-ups and health declaration. Regular check-ups and separation of healthy goats with sick ones
Nutritional Disorder	Deficiency of various vitamins and minerals, poor plane of nutrition, malnutrition, poor feeding practices, and lack of concentrates supplementation causes debility, weakness, chronic anorexia, and death in extreme cases.	Provision of feed improvement and fortification to ensure nutritional sufficiency. At the same time, ensuring all the hazards are separated from the feed mixture.

II. Methodology:

Government Schemes and Policy Support:

Ministry of Food Processing Industries and other central government schemes provide financial assistance through grants and subsidized loans. It is imperative to keep updated on notification of the following schemes to avail financial support and other benefits:

- Animal Husbandry Infrastructure Development Fund (AHIDF)
- Financial Assistance to set up Infrastructure Projects in Food Processing Sector: Creation/Expansion of Food Processing & Preservation Capacities (CEFPPC) – MoFPI⁴
- Under the CEFPPC scheme, MoFPI occasionally invites proposals through the expression of interest. Financial assistance shall be in the form of Grants-in-aid with a maximum outlay of @35% of eligible project cost for projects in difficult areas, while for projects of FPOs, SHGs, and SC/ST candidate grants in aid shall be 50% of the project cost, subject to a maximum outlay of Rs 5 crore.
- Integrated Cold Chain and Value Addition Infrastructure under the PMKSY scheme
- Infrastructure for Agro-processing Clusters under the PMKSY scheme

³ Mather, A. E., G. T. Innocent, S. A. McEwen, W. J. Reilly, D. J. Taylor, W. B. Steele, G. J. Gunn, H. E. Ternent, S. W. J. Reid, and D. J. Mellor. 2007. Risk factors for hide contamination of Scottish cattle at slaughter with *Escherichia coli* O157. *Prev. Vet. Med.* 80:257–270

⁴ https://www.mofpi.gov.in/sites/default/files/cefppc_scheme_guidelines_dated_08.06.2022_1.pdf

- HACCP/ ISO Standards/Food Safety/Quality Management Systems under PMKSY⁵
- Setting Up/Up-gradation of Quality Control/Food Testing Laboratories scheme under PMKSY⁶

Government initiatives to support goat farming in Maharashtra:

1. **Bakri Palan Loan Yojana (Sheli Palan Yojana):** Under this scheme, the respective state government provides applicants with a 60% subsidy. Aaplesarkar.mahaonline.gov.in
2. **Sheli Samuh Yojana:** The scheme supports Goat farmer cluster formation.
3. **Training to schedule cast beneficiaries regarding animal husbandry by DPC, Maharashtra:** 3 days of training on Animal Husbandry to SC beneficiaries and Rs 1000 allowance per day per beneficiary.
4. Encouragement for developing livestock fodder by DPC, Maharashtra: 100% subsidy limited to Rs. 600 per acre, and Perennial's fodder saplings/ fodder seeds are supplied.
5. Modernization & Development of Sheep and Goat Farm under *Punyashlok Ahilyadevi* Maharashtra Sheep and Goat Development Board (A Govt. of Maharashtra undertaking): Grant-in-aid support in the construction of livestock shed, purchase of livestock, the establishment of the training center and other input facilities.
6. Financial assistance to registered Societies of Dhargar community women for goat farming: Provides financial assistance to 125 women's societies.

Regulatory and Compliance Requirements:

Mandatory licenses and certifications:

The following certifications are deemed necessary for the proper functioning of a modern abattoir facility:

- FSSAI and quality management system (ISO 9000; ISO 22000)
- FSMS – Food safety management system (HACCP, GMP and GHP)
- APEDA license and registration for meat export compliance.

List of Statutory Regulations and Clearances:

1. NOC/Permission from The Ministry of Environment, Forest and Climate Change (Indian government ministry) under their published notification in the Sub-Section (ii) - Section 3 – Extraordinary Part-II of Gazette of India after the conduct of EIA (Environment et al.) study of the project.
2. NOC/Consent to establish from the Maharashtra State Pollution Control Board under the Environment Protection Act, 1986.
3. NOC/Permission from the DG Civil aviation, GOI under the Aircraft (Amendment) Act 1988 (No. 58 of 1988) - No person shall slaughter or flay any animal or deposit or drop any rubbish, filth, garbage, or any other polluted or obnoxious matter including such material from hotels, meat shops, fish shops and bone-processing mills which attracts or is likely to attract vultures or other birds and animals within a radius of ten kilometers from the aerodrome reference point.
4. Concerning the transport of the animals on foot or vehicle to the abattoir, rules as stated under the notification dated 26th March 2001 - Implementation of prevention of cruelty to animals' rules, 2000 (under the Prevention of Cruelty to Animals Act, 1960) shall be adhered to.⁴⁵
The sub-sections (1) and (2) of section 38 of the Prevention of Cruelty to Animals Act, 1960 state the rules and norms for the slaughtering of an animal:⁴⁶ (Annexure 1)
5. Statutory regulations on slaughterhouses and meat markets under the Municipal Corporation Act shall be followed and implemented.

HACCP and Food Safety:

Testing a small sample of each batch of finished product shall not be adequate for food safety as there might be batch variations, and testing samples of each batch is expensive and time-consuming. Under the HACCP system, all the potential food safety hazards at each production stage are identified as critical control points. Each CCP is a step or procedure where control must be applied to prevent or reduce any potential food hazard to permissible levels. To ensure food safety, critical control points are continuously monitored to keep them under critical limits. If the limits are exceeded, appropriate corrective action against the CCP must be taken.

⁵ <https://www.mofpi.gov.in/Schemes/food-safety-quality-assurance-infrastructure/implementation-haccp-iso-22000-iso-9000-ghp-gmp-etc>

⁶ <https://www.mofpi.gov.in/Schemes/food-safety-quality-assurance-infrastructure/setting-gradation-quality-control-food-testing-laboratory>

The seven principles of the HACCP system are as follows:

1. List all potential hazards associated with each step, conduct a hazard analysis, and consider any measures to control identified hazards
2. Determine Critical Control Points (CCP). In general, CCPs at the following stages of production are observed in a modern abattoir:
 - a. Anti-mortem inspection
 - b. Post-mortem inspection
 - c. Chilling of carcass
 - d. Carcass Freezing and cold
3. Establish critical limits for each CCP
4. Establish a monitoring system for each CCP
5. Establishment of corrective actions
6. Establishment of verification procedures
7. Establishment of documentation and record keeping

Prospecting Meat Traceability in Meat Production:

Meat traceability refers to tracking the movement of meat products from the farm to the point of sale. This is an essential requirement in the meat industry because it helps to ensure the safety and quality of meat products and promotes transparency and accountability in the meat industry. There is a burgeoning demand for introducing traceability solutions to livestock meat production. Amid the incidence of livestock disease epidemics, the practice of unhygienic handling of meat at traditional meat shops, food adulteration, etc., there has been an increasing demand among health-conscious consumers to trace the source of meat they are consuming. The traceability system improves food safety, confidence among meat consumers, and profitability margins for value chain actors and assists in exploring high-value market trade via export markets.

The introduction of traceability solutions in the meat production system ensures transparency at every point of the meat value chain, including production, processing, packaging, and logistics until the point of sale. Following are the critical traceability solutions that shall be employed at various stages of the goat meat value chain:

- **Goat Production:** As part of goat production management, producer farmers or the producer organizations shall assign a unique identifier to each goat. In the context of goats, the unique identifiers may be a QR or RFID-enabled ear tag. Smartphone-enabled QR scanners or RFID scanners allow for robust record-keeping services that can feed quick information into the database. Complete records of each goat's health status, feeding, immunization, breeding history, etc., are accessible to all relevant stakeholders, including farmers, healthcare providers, processors, retailers, and others.
- **Slaughtering and Processing:** During the goat meat processing, the unique digital identifiers of the goat may be utilized to record each activity at every step. To ensure strict control, surveillance systems, and IoT-based sensors shall be deployed during goat meat processing to capture important information such as the date and time of processing, monitoring, and recording of critical control points on slaughter lines, the type, and quantity of meat products produced, etc.
- **Packaging and Labeling:** All goat meat products produced by the modern abattoir facility should be labeled with information on the quality standards control measures followed during production, the origin of the animal, processing, and packaging dates, etc. This labeling should be tamper-evident and can withstand the rigors of shipping and handling. Ascribing unique barcodes and QR codes on the packaging shall provide the entire history of the meat product to any goat meat value chain member. The traceability of meat shall also be creatively marketed through the product packaging.
- **Transport and Logistics:** The processed meat and meat products must be transported to ensure their safety and quality, as well as the integrity of the traceability system. This may involve digitized cold storage units, temperature-controlled vehicles, lot-wise monitoring and recording of dispatch and reception timings via barcodes/QR codes, etc.

In addition to these components, it is also essential to have a robust quality assurance program to ensure that goat meat products are safe and of high quality. Through the packaged product, the consumer shall get information on the quality standards, certifications, and control measures followed during production. By implementing these solutions, it is possible for producers to improve the sustainability of goat meat production, seek higher margins for the value provided, and help build consumer confidence in the products.

Organizations and institutional models supporting collective goat farming in Sangli & Maharashtra:

1) **SHG model (Sheli et al.):** The Pashu Sakhi model has been proposed by The Goat Trust based out of Lucknow. They have their project office at Dharashiv and Wardha. Their collective goat farming model has been emulated

in different states with promising success. The Goat Trust is a charitable trust that provides the following activities for the development of goat rearers:

- Support in Goat farm establishment
- Social Enterprise programs
- Training and Field Support
- Research & Tech Development
- Support in micro leasing
- Field Studies
- Tools and Equipment
- In-situ and community-led conservation of elite breeds

2) **Goat bank concept in Karkheda:** Goat farmer producer organizations shall be encouraged by FPO-promoting organizations to test and adopt the concept of goat bank as practiced by members of the goat farming community in Karkheda. The concept involves payment of a registration fee of Rs 1,200 and a loan agreement by the interested farmer. The farmer repays the loan by returning four lambs in 40 months. The concept has shown promising results in goat farming community development as nearly 1,200 farmers have availed the facility to date

3) **Goat farming knowledge support providing organizations in Maharashtra:** Reputed institutions like Maharashtra Goat and Sheep Research Development Institute (MGSRD) and Nimbalkar Agricultural Research Institute (NARI) provide training and capacity-building support to interested farmer and farmer groups on optimizing profits via goat farming. Testimony to their support includes training Panchakroshi Pashusamvardhan Producer Company Limited for Stall-fed goat rearing by small farmers.

4) **Other organizations are working on goat sector development in Maharashtra:** They mobilize goat farmers and FIGs to organize into producer groups and institutionalize as SHGs, co-operatives, or producer companies.

- a. ANTHRA, Bavdhan, Pune
- b. BOSCO Gramin Vikas Kendra, Kadegaon, Nagar- Pune Marg, Ahmednagar
- c. BAIF Development Research Foundation, Uralikanchan, Pune
- d. Nimbkar Agriculture Research Institute (NARI), Phaltan
- e. Rural Agriculture Institute, Narayangaon (RAIN)

Proposed Marketing Strategy

Goat Meat Marketing Strategy:

1. Defining the Target Market: Identifying the target market helps tailor the marketing efforts to the specific need. STP analysis assists in identifying and establishing effective communication with the target market. In the context of goat meat produced via a modern abattoir, STP can be used to reach customers effectively and promote the product. By segmenting the goat meat market, targeting the goat meat products to the most promising segments, and positioning the product effectively, the abattoir can reach its target customers and successfully promote the product.

a) **Segmentation:** The first step in the STP process is market segmentation, which involves dividing a more significant market into smaller, more homogeneous groups of consumers based on common characteristics. For goat meat from an abattoir, possible segmentation variables could include:

- **Demographic Segmentation:** Over the years, there has been a distinct shift in consumption patterns, as more than 77.50% of Maharashtra's population are meat eaters. The purchasing power of the state people is also on the rise. The age group from 15-59 forms 67% of the total population with higher disposable income and is aware of the health benefits associated with the consumption of goat meat compared to other forms of red meat. The age group is also more influenced by urbanization and changing lifestyles.

With a preference to relish quality meat. The non-veg consuming population falling in the middle and high-income groups is more inclined towards consuming quality chevon more often. Customers in the lower income group may prefer to consume goat meat and its products during festivities.

- **Geographic Segmentation:** Urban markets shall be more acceptable for frozen meat markets.

- **Psychographic and Behavioural Segmentation:** With improving lifestyle and disposable income, health-conscious and well-informed sections of society shall prefer to consume wholesome goat meat processed via a modern abattoir facility. Customers may also prefer meat with a traceable nature over the meat sold traditionally in the market. Hygienic meat products with traceability traits shall support a broader customer base in gaining the confidence to accept Chevon as an essential component of their dietary lifestyle, even for a justified premium price.

b) **Targeting:** The quality goat meat produced via the abattoir facility shall be targeted towards the meat-loving population of the state, which is nearly 77.50% of the total state population. Traditionally, the majority of the goat meat available in the market comes from unlicensed and unwholesome meat-producing facilities and roadside butchers. It has contributed to developing a negative perception among the meat-loving population on the fitness

of the meat for regular consumption. High-quality packed and processed meat from the modern abattoir facility could be marketed to counter this perception. Urban families and individuals looking for a healthier alternative to traditionally available red meat may offer the most suitable target market opportunity for goat meat and its product.

c) Positioning: The goat meat produced via the modern abattoir shall be positioned to effectively communicate its advantage over traditionally available goat meat to the target market. This may involve creating unique branding and promotion via quality packaging that emphasizes the hygienic and wholesome process of meat production, the traceable nature of the meat, the health benefits of goat meat, highlighting its unique flavor, etc. A marketing and promotion campaign similar to the BAKRAW initiative in Uttarakhand shall be instrumental in positioning and reinforcing the quality of meat produced from Sangli goats through modern meat processing technologies and in building brand awareness among the target market.

2. Developing a Unique Selling Proposition (USP): The modern abattoir may market processed meat by highlighting the USP that sets its meat products apart. Emphasis shall be laid on highlighting the social benefits brought about by the sale of their meat, which shall include improving the livelihood of the goat farmer producers. The USP may also highlight the practice of sourcing goats from local farmers and promoting sustainable farming practices. The USP shall appeal to consumers who value locally sourced products. Other unique features of the meat produced by modern abattoirs may include – meat produced from locally grazed Sangli goats, hygienic meat processed with the highest quality standards, farm-to-fork level of meat traceability, etc.

3. Building a Brand: A branding initiative should be carried out to create a distinct identity in the market such that it communicates the USP of the meat and resonates with the perception of quality meat among the customers. Developing strong branding shall involve creating an attractive brand name, brand logo, brand tagline, brand mascot for product packaging, and marketing campaign. The development of these branding attributes shall contribute to the consumer's reason to buy and believe in meat products produced by modern abattoirs. The branding activity shall also be consistent over all the platforms such that it creates a distinct brand image in the eyes of the customer.

4. Creating Content Marketing Strategy: Content marketing is an essential medium to educate and engage the target audience. Since the majority of the target customers have access to the internet and digital services, the abattoir may market the processed meat product through social media campaigns. Content marketing methods may involve publishing websites, videos, customer testimonials, social media posts, blog posts on the benefits of consuming hygienic goat meat, developing recipes and dishes, etc. The content market strategy allows the building of a community around the brand, which engages and encourages the customers to follow and trust the brand and use its products.

5. Leveraging Partnerships and Collaborations:

The abattoir may market its goat meat in one of the following ways:

The abattoir may establish partnerships with online marketplaces and online meat retail businesses to reach the customer base who prefer to shop online. Popular businesses like Meatigo, Fresho (Big Basket), Fresh to Home, Amazon Fresh, Zepto, etc., can provide the avenue for abattoirs to form an additional sales channel for their meat products and expand their reach to new customers.

b) The goat FPOs or abattoir may organize, sponsor, or host events in high-traffic areas to connect with potential customers face-to-face. They may sponsor or host events like cooking workshops and farm tours or organize tasting sessions to build relationships with the customers. The event shall help connect with meat-loving and health-conscious consumers to promote the quality and health benefits of the goat meat produced by them

c) Partnerships and collaborations with food bloggers, influencers, and nutritionists can increase the visibility of goat meat products and promote the brand to new customer segments at a large scale

d) Establishing linkages with grocery stores, local restaurants, and caterers with a branding and marketing initiative on the traceability of the meat served shall help create new sales opportunities.

Product Differentiation Strategy:

Product differentiation and branding are critical for newly launched products in order to attract customers and make them buy the products. Product differentiation strategy shall depict that the goat meat and its products offered by the modern goat meat abattoir hold a distinctive advantage over the traditionally available goat meat in the market. The packaging and labeling used for prolonging the shelf life and marketing the meat products shall be of high quality such that it stands out on the market shelves and customers develop a distinct perception towards the products.

The reason to buy and the reason to believe shall form the backbone of the promotion strategy. It shall be incorporated into all product packaging, branding initiatives, and marketing communications to sensitize the customers on product differentiating features as follows:

Reason to believe:

Reason to buy -

- Goats directly sourced from goat farmers
- Meat complies with high standards of food safety regulations such as FSSAI
- Use of industry-leading technologies and control measures to process the goat meat such as HACCP
- Farm-to-fork traceability of goat meat
- Consumption of safe and hygienic meat
- Taste and Quality characteristics of Sangli goat meat
- Health benefits of consuming goat meat (low fat and cholesterol, Vitamin B12/Zinc and iron-rich composition, high-quality protein among red meat, etc.)
- It supports the development of a goat farmer community

III. Results:

By understanding the potential implications of the methodology, the following steps have been undertaken to set up the clusters and arrive at result-oriented policy measures:

Suggested path for project implementation:

To establish the abattoir facility and the associated backward and forward linkages, which includes establishment of the Farmer Collectives and the suggested marketing channels, there is a need to establish a Project Management Unit which will support the identification and collaboration with various stakeholders like the prospective investors, licensing and regulatory bodies, support in the formation, seeding and capacity building of the farmers to enable and facilitate the collectivization at the grass root level as well as capacitate the office bearers of the farmer producer organization to their prospective roles. The PMU shall also support the ground-level implementation of the various elements envisaged in this DPR to attract investments to the district, create livelihoods for 20,000 farmers, generate direct and indirect employment, and thereby contribute to the overall economy of the district.

The prospective roles of the PMU shall be broadly but not limited to the following areas:

- Scouting for investors and funding support under various models, such as the PPP model.
- Technical support on the design and construction of the facility and selection of equipment as per the abattoir's requirements
- Establishing goat farmer collectives: Support understanding the feasibility of forming goat farmer collectives, assisting in farmer mobilization activities, legal incorporation and formation of goat FPOs, and establishing market linkages with goat FPOs to ensure a continuous supply of goats to the abattoir.
- Establishing forward market linkages: Technical support to scout various market channels and assistance in forming industrial relationships
- Training and skilling up of staff for the abattoir's operations
- Support in meeting the compliance and regulatory guidelines for seamless operations and quality control
- Support in Brandin and Marketing of abattoir's products to target customers
- Incorporation of the traceability solutions and ensuring farm-to-fork traceability.

Formation of Goat Farmer Producer Organization:

Steps involved in FPO formation:

Formation of the Goat farmer collective is lengthy as it relies on educating and subsequently aggregating the farmers to conduct business collectively. The whole process involves multiple activities to be conducted by different stakeholders.

Following are the steps involved in supporting the formation of goat farmer producer collectives:

- Identification and aggregation of goat farmer clusters
- We are planning business activities for goat farmers and conducting baseline and feasibility studies to ensure the viability of the producer organization.
- The step of cohesively introducing the concept of goat farmer collectives with the primary producers. It is apprising the need and benefits of the farmer collective to the goat farmers.
- I am conducting an exposure visit for the interested goat farmers to a functioning producer organization.
- Creation of a critical group of enthusiastic goat farmers and empowering them further with the concept and the benefits of producer organization
- Support the mobilization of the critical group to canvass among other goat farmers on the concept and the need for a producer organization.

- Clarify the doubts and allow sufficient time for goat farmers to ensure prospective members have the proper understanding and willingness to work together for their collective benefit. Such a social mobilization may involve a time of up to 6 months.
- Conduct focus group discussions, motivate proactive goat farmers to become shareholders, and organize meetings with prospective shareholders to discuss the objectives and potential business ideas for the producer organization.
- Revise and incorporate the views of prospective members into the business plan.
- Ascertain the willingness of members to establish a producer organization and contribute towards share capital (to form a farmer producer company)

Identify the promoter directors and prepare the draft Article of Association (AoA) and Memorandum of Association (MoA):

- a) Conduct an informal meeting with the shareholders to approve the following: a. Article of Association (AoA)
- b) Memorandum of Association (MoA)
- c) Selection of promoter
- d) Authorized capital and cost of each share
- e) Collection of shareholder's capital

IV. Discussion:

Proposed Way Ahead -

Ideal requirements for plant location -

- Accessible road connectivity (preferably highway roads) for receiving goats and dispatching processed meat products
- The site shall be away from establishments like garbage dumps, sewage plants, oil refineries, stone mills, and chemical plants, which may release environmental contaminants, smoke, dust, poor odor, etc. Winds from a distance may carry these contaminants to the abattoir site and compromise its biosecurity and other operations.
- Adequate space for future expansion plans shall be considered before selecting the site.
- The land terrain of the facility shall be such that the condemned waste shall not come out in the open or in contact with edible products.
- An ample supply of potable water shall be available at the site. The water resource shall be protected and free from pollution and contaminants. Water shall be supplied throughout the facility at an adequate pressure. Non-potable or treated water may be used as a condenser for refrigeration systems, but it must not come in contact with the potable water supply.
- The site shall support the establishment of a sewage disposal system that is efficiently designed and acceptable to pollution control agencies' norms.

Critical Success Factors:

The success of a modern goat abattoir project depends on a few critical factors, viz.:

- **Availability of adequate offtake from the herd:** As the number of goat heads required for optimum abattoir operation is identified, the abattoir shall plan and ensure the supply of required goats from the identified primary and secondary catchment areas. The abattoir shall establish long-term commercial relationships with goat farmer producers and collectives to ensure the same.
- **Availability of animals for slaughter during the lean season:** A goat abattoir may face challenges in supply during the lean season of goat production, which can affect its operation and profitability. The abattoir shall develop a seasonal supply plan that incentivizes the farmer producer for supply (by encouraging the farmer to breed goats for availability during the lean season) or sourcing goats from other regions. The abattoir may arrange adequate training on breeding practices for this reason. The abattoir may even prospect developing channels for the supply of sheep for mutton production during the lean period or diversify to production of value-added meat products (having higher shelf life) such as nuggets, sausages, and patties for sale during the lean season.
- **Local and regional market demand for consumption of finished meat products:** An abattoir shall ascertain the target market demand by accounting factors such as age, demography, income, culture, lifestyle, etc., which influence consumer behavior and preferences. The abattoir shall also emphasize sufficient product promotion to ensure demand and expansion of the consumer base. To consistently sell finished products, the abattoir shall build business relationships with institutional and industrial buyers such as HoReCa.
- **Operational efficiency of the modern abattoir:** The abattoir shall continuously monitor and track its output to identify improvement areas and optimize operations. Lean principles, which help streamline operations and reduce unwanted inventory or waste generation, shall be incorporated at every step of production.

- **Trained human resources for handling abattoir operations:** Ensuring trained staff is critical to the operational efficiency of any plant operation. The abattoir shall provide training development to its human resources to stay updated with the industry's broad best practices and improve production quality and efficiency.

V. Critical Success Factors and The Way Forward:

Conclusion -

Setting up a modern abattoir facility in Sangli district shall provide the following benefits:

1. **Financial Benefits:** The goat farmers shall receive a better price for their goats in the market since the meat has been hygienically and efficiently processed. Higher profits shall generate the demand among goat farmers to slaughter their goats at the modern abattoir facility. As the income improves, the goat farmers shall consistently raise their goats through scientific rearing practices and emphasizing the marketable properties of their goats, i.e., body weight and composition. The consumer shall also benefit from a regular supply of quality, wholesome meat.

2. **Employment Generation:** The modern abattoir facility shall act as a catalyst for the development of the meat value chain in the region. It shall provide employment opportunities to skilled and unskilled labor. It shall also support the development of new markets through new market linkages and boost the local economy. The backward linkages shall also benefit goat farmers as they try to increase their production by using quality inputs like feed, fodder, and veterinary healthcare support.

3. **Environmental Benefits:** The production of local meat at unlicensed roadside butchereries causes a severe threat to the environment as it discharges harmful effluent to the environment without treatment. A modern abattoir complies with the CPCB norms to treat the effluent via an effluent treatment plant and by-products utilization plant, thus preventing environmental pollution.

4. **Nutritional Benefits:** Modern abattoirs shall help ensure that the goat meat produced is high quality and safe for consumption. The availability of wholesome meat in the market shall, in turn, make high-quality protein available to consumers.