Annexure 6-B: Environmental Survey Checklist (Existing)

SCREENING CHECKLIST – DAIRY SECTOR (EXISTING)

ASSAM AGRIBUSINESS AND RURAL TRANSFORMATION PROJECT

Basic Information

Name of Project :

Village : Cluster:

Block : District:

Type of the Project :

Total Area :

Name of Monitor's :

Name of Supervisor :

Milk Producing Cluster			
Sl. No.	**Questions asked to the Farmers**	**Response**	**Specify/Remarks**
1	What are the other types of agricultural practices the farmers practice rather than dairy?		
2	Whether the farmers had received any training in dairy farming?		
3	What are the Breeds used by the farmers?		
4	What steps do they take in case of cattle treatment?		
5	What is the daily production of their breed?		
6	What are the feeds the farmers use?		
7	What types of wastes are being produced from the farm?		
8	Do they follow any waste management system?		
9	Do they have any biogas plant installed?		
10	Do they use any Personal Protective Equipment?		
Dairy Processing Plant			
Sl. No.	**Questions asked to the Plant Representatives**	**Response**	**Specify/Remarks**
1	What is the capacity of the milk processing plant?		
2	What is the amount of water required in the plant per day?		

SCREENING CHECKLIST – DAIRY SECTOR (EXISTING)

ASSAM AGRIBUSINESS AND RURAL TRANSFORMATION PROJECT

3	What is the source of water?		
4	What is the water balance of the plant?		
5	What are the wastes generated by the plant per day?		
6	What is the generation point of the waste and its quantity?		
7	Is there any facility to treat waste water?		
8	What is the capacity of Effluent Treatment Plant (ETP)?		
9	Is the waste being treated at intake point of ETP?		
10	Where is the treated waste water disposed?		
11	Does the plant have proper consent from the PCB?		
12	Is the electricity is sufficient or not?		
13	What is the approximate power requirement of the plant in a day?		
14	How many Diesel Generator (DG) sets are installed in the plant?		
15	What is the capacity of these DGs?		
16	How may hour the DGs operate in a day on an average?		
19	What are the procedures followed to ensure quality of intake milk before processing and before packing?		
22	Does the plant maintain daily record of its operation and maintenance?		
23	What are the tests carried out to ensure quality of milk at the collection point?		
24	What is the frequency to encounter adulterated milk at the collection point?		
25	What are the preventive and corrective actions to be taken by the Dairy to minimize such events?		
26	What is the action taken on the unsuitable milk?		
27	What is the capacity of boiler installed in your plant?		
28	How much is the power consumption rate?		
29	Do they use any Personal Protective Equipment?		

ANNEXURE 7: ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (BY PROJECT SECTORS)

Dairy Sector

Sl. No.	Project Stage	Project Activity	Environmental / Operational Impacts	Mitigation Measures
1.	**Pre-Construction Stage Impacts**	• Land requirement. • Land filling • Establishment of grazing land.	• Loss of land and properties. • Loss of residential places like house. • Habitat modification. • Impact to the local flora and fauna.	• Provision of compensation for the affected people (PAP's) as per the proposed Entitlement Matrix. • In the worst case, there should be a provision for Resettlement and Rehabilitation (R&R) • Use of participatory methods to include affected people in decision making process. • Compensatory measures for restoring the affected flora and fauna should be explored. • Provision should be made as per the existing landuse policies, laws and land rights
			• Site Clearance	• Site clearance shall be carried out in such a way that the clearance and grubbing waste are disposed immediately in the designated dumping site identified for the project.
2.	**Construction Stage Impacts** **(Infrastructure Requirements)**	• Upgradation of roads and culverts.	• Generation of noise from heavy machineries. • Air pollution from the emission of dust particles and vehicular emissions. • Effect on the ground water quality. • Degradation of soil quality.	• Advanced machineries with quieter, less vibration and air pollutants emitting, should be used. • Performance of noisy work during less sensitive time periods. • Application of water sprays to reduce dust emission. • Collection of any wastewater generated from site activities in settlement tanks and should be disposed according to environmental regulations. • No burning of materials should be carried out on site. • Proper handling and care should be taken of the wastes generated at the site to avoid run off.
		• Construction of cold storages (BMC unit) and installation of AMCs and DPMCUs at village level collection centers. •	• Generation of construction and demolition wastes like, metal scrapers, bricks, cement, stones etc.	• Reusing and recycling of the wastes rather than hazardous wastes which will be removed and managed by appropriately licensed contractors. • For wastes which could not be reused or recycled, a reputable collector should be employed by the contractor to remove this

Sl. No.	Project Stage	Project Activity	Environmental / Operational Impacts	Mitigation Measures
				waste to landfill. • Implementation of Solid Waste Management Practice.
		• Setting up new milk processing plant at Jorhat and Silchar.	• Generation of construction and demolition wastes like, metal scrapers, bricks, cement, stones etc.	• Reusing and recycling of the wastes rather than hazardous wastes which will be removed and managed by appropriately licensed contractors. • For wastes which could not be reused or recycled, a reputable collector should be employed by the contractor to remove this waste to landfill. • Implementation of Solid Waste Management Practice.
		• Engagement of labours for construction purpose and their settlement.	• Waste generation from human settlement. • Exploitation of land and water resources. • Modification of land for their establishment.	• Proper toilets and wastes disposal areas should be provided to the labours residing at the site. • Water should be supplied in order to reduce exploitation of water resources. • Uncultivable land should be used as temporary settlement of the labours.
3.	**Operation Stage Impact** **(Farm Impacts)**	• Selection of breed	• Ensuring proper selection of breeds. Breeds that cannot adapt to the local climatic conditions will lead to loss of cattle or results in low productivity and health issues.	• Suitable breed selection should be done with respect to climate adaptability. • Indigenous species should be promoted for artificial insemination. • Interaction with technicians of artificial insemination would be helpful to select a good cattle breed.
		• Rearing more number of cows than the holding capacity.	• Resource competition with other livestock. •	• Limit number of dairy cows per household to a manageable size. • Encourage sale of excess dairy cows and assist farmers to access markets.
		• Grazing land requirement and Tackling the fodder scarcity	• Due to the increase in number of cattle, the requirement for more fodder is inevitable and if grazing lands are located near to the forest area, it may even cause a direct threat to the forest eco system by creating an environmental Risk.	• A climate resilient method should be adopted for fulfilling the demand of fodder • Community based grazing land cultivation should be done on the waste/ barren land to fulfill the fodder demand. • Improve productivity of pasturelands by introducing improved fodder seeds and increase the use of waste lands for fodder production. • Community should get proper permission from nearby forest department, if the grazing land

Sl. No.	Project Stage	Project Activity	Environmental / Operational Impacts	Mitigation Measures
				is located near protected areas.
		• Activities like grazing, farm manure storage and spreading and cattle urine disposal.	• Release of NH_3, CH_4, NO_2, Non Methane VOCs, fine particulates and heavy metals to atmosphere. •	• Supply and access to improved cattle feeds which reduces the emissions to atmosphere. • Supply of well adapted genetically modified cattle breeds. • Training to the farmers for better management practices for cattle, shed and waste.
		• Manure and wastewater storage, feed storage areas, livestock housing (such as calf rearing sheds or free stall sheds), and the cows themselves.	• Generation of odour.	• Feed storage areas should be constructed so that feed is kept dry. • Training and following best practice guidelines for the siting, design, management and maintenance of dairy waste.
		• Use of chemical fertilizer and pesticides	• overuse of fertilizer and other chemicals in fodder production •	• Promotion of farming methods; by use of bio-manure, compost material and bio fertilizer as much as possible so as to minimize the introduction of chemicals into the food chain. These methods are cost friendly and eco-friendly . • Preference to be given for green fodder as much as possible.
			• Agricultural chemicals used on dairy farms include herbicides, pesticides and veterinary medications which have potential risks for users, consumers, the community and the environment.	• Trainings for handling, storage and disposal of the chemicals should be provided to the farmers. • Use of personal protective equipment like gloves, masks, boots. • Veterinary medicines used should be appropriate for the identified problem, are used according to label instructions within the expiry date and have been stored correctly from purchase to use. • Minimisation of chemical use and chemicals with the lowest potential for natural environment toxicity and water contamination should be chosen. • The target pest, disease or weed should be correctly identified, and an appropriate chemical, application rate and application method should be followed.

Sl. No.	Project Stage	Project Activity	Environmental / Operational Impacts	Mitigation Measures
		• Unhygienic farming practice.	• Introduction and spread of diseases (including leptospirosis, salmonellosis and toxoplasmosis) on farm from pests. • Decrease in milk production, and result in livestock losses through direct attack or injury and can also be a nuisance and a health hazard for farm workers and neighbours.	• Management and strategic application of appropriate chemicals or other extermination measures. • Feed spills should be cleaned up immediately, to minimize breeding sites or attractants. • Vegetation and rubbish around buildings and yards are removed or controlled, in order to reduce habitat for insects and vermin.
		• Vaccination and artificial insemination facility	• Inappropriate vaccination and insemination may create problem in overall health of cattle and negatively affect the production.	• Develop a regular interaction with the Providers/ technician of Artificial Insemination and veterinary facility (a doorstep facility can be provided under the Project APART). • A sensitization workshop for producers would be helpful to create awareness among them about the precautions and probable health risk in cattle, which will also pose a negative impact on overall milk production.
		• Enhancing the Milk Yield	• Injecting hormonal substances like oxytocin under misconception that it would increase milk yield will result in negative impact on animal health and will make the animal go dry early.	• Practice of injecting hormones should be strictly avoided. • Creating an awareness among producers would help us to solve this issue • Senisitisation by the veterinarians on this subject would be helpful to the producers
		• Milking	• Unhygienic milking practice may cause contamination of milk and pose a health risk for human	• Beneficiaries should be trained on hygienic milking practices. • Sterlisiation of utensils and other equipment's must be emphasized by conducting an awareness training • Proper sanitization methods to be adopted before milking
		• Shed spacing, sanitation and waste management	• Shed Spacing and Sanitation problem (Congested and unclean shed without proper facilities for urine drainage, lack of ventilation etc.) will lead to outbreak and spread of diseases.	• Selection of sheds should be such that it should avoid areas that are close to waterways or those with shallow groundwater. • The shed should be clean and should provide sufficient ventilation, enough space to animals must be provided to avoid overcrowding, allow free movement of the cattle.

Sl. No.	Project Stage	Project Activity	Environmental / Operational Impacts	Mitigation Measures
				• Proper waste drainage system should be provided . • Awareness on alternate use of waste such as use of cow dung as bio fuel, as organic manure etc must be provided • cattle shed management measures has been presented in **Annexure 6** as a reference
		• Dairy shed cleaning, yard and pad wash down and stock drinking.	• Transfer of organic matter (such as manure, milk, nutrients, salts, micro-organisms and chemicals) to surface water, groundwater and soil.	• An irrigation and drainage management plan should be developed. • Spills of effluent, feed, chemicals and other potential pollutants should be cleaned up promptly.
		• Emission of GHGs	• Emission of noxious gases like methane, nitrous oxides is possible due to the enteric fermentation of manure when it is stored in the anaerobic condition, • Ammonia gas would be released from the cattle wastes.	• Adoption of better manure management practices can substantially reduce the emission • Promotion of Community base or individual level biogas plant. • Climate resilient options to reduce the GHG emission ensuring power saving option should be promoted. A training program on biogas development and bio manure management for community or individual level well shall be beneficial. • An integrated farming system should be adopted to increase the fodder farm production capacity by using the wastes from cattle shed as manure. • Sensitization of farmers to adopt the traditional ways would result in eco-friendly techniques to enhance overall productivity and achieve cost effective benefits.
	Dairy Processing Impacts - (Industries)	• Operation of the dairy processing plant • Biological decomposition of milk derived organic matter.	• Air pollution due to odours and particle emissions.	• Maintenance of aerobic conditions for wastewater processing. • Use of filters or scrubbers to eliminate or reduce particles. • Use of automatic process control. • Continuous routine monitoring of emission points using audible, visible alarms.
		• Air discharges from drier stacks, Heater fans, Air supply fans,	• Generation of noise.	• Concrete construction for buildings. • Sound silencers on air intake

Sl. No.	Project Stage	Project Activity	Environmental / Operational Impacts	Mitigation Measures
		Ventilation, Boilers, and Pumps.		fans and air discharges. • Acoustic enclosure of outdoor mechanical plant such as pumps. • Restricted operating hours. • Mufflers on transport vehicles.
		• Product losses from leaking equipment and pipelines, spills caused by equipment overflows and malfunctions and by poor Handling procedures. • The washing and cleaning out of product remaining in the tank, trucks, cans, piping. • Splashing and container breakage in automatic packaging equipment.	• Generation of waste water and other liquid wastes.	• Wastes generated should be disposed after treatment. • The plant should have proper drainage system. • Use of chemicals in cleaning and washing purposes should be reduced.
		• Pumping of ground water for the complete processing.	• This activity leaves less water available for downstream uses, such as municipal water supply and agriculture.	• Soil-water balance should be maintained. • Recycling of the water used for processing.
		• Plant operation.	• Excess use of energy	• Reduction of heat loss by using continuous, instead of batch, pasteurizers, partially homogenizing milk to reduce the size of heat exchangers, using multistage evaporators, insulating steam, water, and air pipes / tubes. • Improvement of cooling efficiency by insulating refrigerated room / areas. • Employment of heat recovery for both heating and cooling operations in milk pasteurizers and heat exchangers. • Installation of renewable energy sources.
		• Slippery conditions, the use of machines and tools and collisions with internal transport equipment.	• Physical hazards. • Biological hazards. • Chemical hazards.	• Maintaining walking and working surfaces clean and dry and provide workers with antiskid footwear. • Providing workers with training in the proper use of equipment (including the proper use of

Sl. No.	Project Stage	Project Activity	Environmental / Operational Impacts	Mitigation Measures
		• Exposure to biological and microbiological agents. • Chemical-handling activities related to cleaning operations and disinfection of process areas, in addition to the maintenance of heating (thermal oils) and cooling systems.		machine safety devices) and personal protective equipment. • Proper ventilation of enclosed or semi-enclosed areas to reduce or eliminate exposure to dust and aerosols. • Installation of exhaust ventilation equipped with filters and / or cyclones, at sources of dust.
4.	**Post Construction and Operation Stage Impacts**	• Packaging of the dairy products. •	• Packaged wastes generated at community level.	• Use of biodegradable packaging materials. • Recycling of the packing covers.
		• Storage of the products at cold storages/cooling units.	• High consumption of electricity. • Gas emissions from the unit.	• Use of suitable renewable energy like, solar, wind etc. • Advanced cooling equipment should be used to reduce emissions.
		• Transportation	• Vehicular emission to the ambient atmosphere. • Cracking of roads by over weighing vehicles.	• BS-IV vehicles with valid emission certificate should be used for transportation. • Heavy weighing vehicles without proper permission should not be allowed to pass through the constructed roads.
		• Marketing.	• Market waste generation, both solid and liquid. • Generation of foul and noise from the fish market.	• Proper waste disposal techniques should be followed in the market. • The market should have proper drainage facility. • Hygiene should be maintained at the market.