

## Annexure 6-B: Environmental Survey Checklist (Existing)

### **SCREENING CHECKLIST – PIGGERY 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 :

#### **Piggery Farm**

Sl. No.	Questions asked to the Farmers	Response	Specify/Remarks
1.	What type of farming do they practice? <ul style="list-style-type: none"> <li>• Extensive (free range),</li> <li>• Semi-intensive</li> <li>• Intensive</li> </ul>		
2.	What are the breeds they rear? <ul style="list-style-type: none"> <li>• Large white Yorkshire</li> <li>• Landrace</li> <li>• Middle white Yorkshire</li> <li>• Hampshire</li> <li>• HSX1</li> <li>• Duroc</li> <li>• Landrace</li> <li>• Indigenous type (Ghungroo pig)</li> </ul>		
3.	Which breed is more economical and productive?		
4.	What is the life time and time for slaughtering for the breed?		

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### ASSAM AGRIBUSINESS AND RURAL TRANSFORMATION PROJECT

5.	What type of farm it is? (Govt/Private)		
6.	Area of the farm?		
7.	Is the plot located within or near to any environmentally sensitive area like notified forest area, biosphere reserve, wildlife sanctuary, wetland, etc.?		
8.	What pig breed is being reared?		
9.	Status of Land ownership? (Patta land, Lease land, Exonia, Govt. Land, Etc.)		
10.	What types of feed they use? Do they meet their requirements?		
11.	From where do they buy feeds?		
12.	Do they have proper facility for vaccination?		
13.	Do they have any facilities for artificial insemination?		
14.	<p>Are they aware of the diseases in pigs?</p> <ul style="list-style-type: none"> <li>• <u>Bacterial diseases</u>: swine plague, swine erysipelas anthrax and inflectional abortions.</li> <li>• <u>Viral origin diseases</u>: swine fever, rind pest, foot and mouth disease, viral pneumonia and swine pox.</li> <li>• Pigs also suffer from internal and external parasitism.</li> </ul>		
15.	What they do to the diseased dead pig?		
16.	<p>What are the present waste management practices of the piggery farm in terms of:</p> <ul style="list-style-type: none"> <li>• Waste collection method; and</li> <li>• Waste treatment and disposal?</li> </ul>		
17.	How far is the nearby water body? (River or pond).		
18.	What is the water requirement of for the farm? Do they meet their requirements?		
19.	Are there any impacts on the local flora and fauna from piggery?		

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### **ASSAM AGRIBUSINESS AND RURAL TRANSFORMATION PROJECT**

20.	Were the farmers aware of diseases caused to them from piggery? Do they suffer from any of these diseases like: <ul style="list-style-type: none"><li>• Respiratory problems: asthma, bronchitis</li><li>• Gastrointestinal problems: diarrhea</li><li>• Any cases of, conjunctivitis, influenza, allergies, like tape worm, swine flu etc.?</li></ul>		
21.	Do they have proper license for the slaughter house?		
<b>Slaughter Houses</b>			
Sl. No.	Questions asked to the Farmers	Response	Specify/Remarks
22.	What is the number of pigs being slaughtered per day?		
23.	Is there any inspection and monitoring from veterinary department for, pre mortem and post mortem?		
24.	Does the slaughter house have proper drainage facilities?		
25.	Are there any treatment, management and recycling practices for the wastes generated?		
26.	What they do to the unsold pork?		
27.	What is the daily water requirement of the slaughter house?		
28.	What is the energy requirement of the slaughter house per day?		
29.	Do the butchers use any Personal Protective Equipment?		

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

### Piggery Sector

Sl. No.	Project Stage	Project Activity	Environmental / Operational Impacts	Mitigation Measures
1.	<b>Pre-Construction Stage Impacts</b>	<ul style="list-style-type: none"> <li>Land requirement</li> </ul>	<ul style="list-style-type: none"> <li>Permanent/ temporary loss of agricultural land and other assets at the project site and its influence area</li> <li>Effect to the local ecology (flora and fauna)</li> <li>Change in landuse pattern</li> </ul>	<ul style="list-style-type: none"> <li>Provision of compensation for the affected people (PAP's) as per the proposed Entitlement Matrix.</li> <li>In the worst case, there should be a provision for Resettlement and Rehabilitation (R&amp;R)</li> <li>Use of participatory methods to include affected people in decision making process.</li> <li>Compensatory measures for restoring the affected flora and fauna should be explored.</li> <li>Provision should be made as per the existing landuse policies, laws and land rights</li> </ul>
			<ul style="list-style-type: none"> <li>Site Clearance</li> </ul>	<ul style="list-style-type: none"> <li>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.</li> </ul>
2.	<b>Construction Stage Impacts</b>	<ul style="list-style-type: none"> <li>Upgradation of roads and culverts (for the link/ approach roads)</li> </ul>	<ul style="list-style-type: none"> <li>Generation of noise from construction machineries.</li> <li>Air pollution (dust and emission) resulting from the movement of construction vehicles and from the construction site.</li> <li>Surface water quality may get deteriorated due to the runoff from the construction site</li> <li>Degradation of soil quality.</li> <li>Loss of Top soil</li> <li>Transportation of construction materials</li> </ul>	<ul style="list-style-type: none"> <li>Construction machineries should be fitted with acoustic proof to reduce noise levels.</li> <li>Construction activities should be avoided near environmental sensitive areas.</li> <li>Construction activities which causes high noise levels should be performed during the day time</li> <li>Application of water sprays should be carried out to reduce dust emission</li> <li>All the vehicles must have valid PUC certificates at all the time during construction phase of the project</li> <li>Wastewater that is generated from site activities should be collected in settlement tanks / soak pit and should be disposed according to environmental regulations (as per CPCB wastewater discharge standards).</li> <li>No burning of materials should be carried out on site.</li> <li>Proper handling and care should be taken of the wastes that are</li> </ul>

Sl. No.	Project Stage	Project Activity	Environmental / Operational Impacts	Mitigation Measures
				<p>generated at the site to avoid run off.</p> <ul style="list-style-type: none"> <li>• Top soil should be preserved and it shall be reused for landscaping/ horticulture etc.,</li> <li>• The contractor should obtain the construction material only from approved quarries / sites.</li> <li>• All vehicles transporting construction material shall be covered with Tarpaulin to avoid fugitive dust during transportation</li> </ul>
		<ul style="list-style-type: none"> <li>• Construction of cold storages and development of infrastructure for electronic trading.</li> <li>• Development of Rural Haats near production clusters- Providing platforms with sheds for producers/ retailers, pathways etc.</li> <li>• Construction of modern auction platform with sheds, trader sheds and Loading/ unloading area</li> </ul>	<ul style="list-style-type: none"> <li>• Generation of construction and demolition wastes like, metal scrapers, bricks, cement, stones etc.</li> <li>• Generation of excavated soils</li> <li>• Habitat modification.</li> <li>• Transportation of construction materials</li> </ul>	<ul style="list-style-type: none"> <li>• Reusing and recycling of the wastes are to be adopted for those other than hazardous wastes which will be removed and managed by licensed vendors.</li> <li>• For wastes which could not be reused or recycled, a reputable collector should be employed by the Contractor to remove this waste to landfill.</li> <li>• Construction spoils shall be reused to the extent possible as a filling material/ construction purposes.</li> <li>• Implementation of Solid Waste Management Plan/Practice.</li> <li>• The contractor should obtain the construction material only from approved quarries / sites.</li> <li>• All vehicles transporting construction material shall be covered with Tarpaulin to avoid fugitive dust during transportation</li> </ul>
		<ul style="list-style-type: none"> <li>• Engagement of labours for construction purpose and their settlement (construction labour camps).</li> </ul>	<p>30. Waste generation from labour camp.</p> <p>31. Exploitation of land and water resources.</p> <p>32. Modification of land for their establishment.</p>	<p>33. Proper toilets and waste disposal areas should be provided to the labours residing at the site.</p> <p>34. Water for drinking and sanitation purposes should be supplied in order to reduce exploitation of water resources.</p> <p>35. Uncultivable / barren</p>

Sl. No.	Project Stage	Project Activity	Environmental / Operational Impacts	Mitigation Measures
				land should be used as temporary settlement (construction labour camps) for the labours.
		<ul style="list-style-type: none"> <li>Impact on Surface Water</li> </ul>	36. Sediment accumulation in runoff	37. Erosion and sediment control best practices should be adopted.  38. Disturbed areas will be re-vegetated
		<ul style="list-style-type: none"> <li>Soil Quality Impact</li> </ul>	39. Disposal of construction wastes	40. Wastes will be gathered and periodically hauled to the local disposal site
3.	<b>Operation Stage Impact</b>  (Selection of Proper Breed)	<ul style="list-style-type: none"> <li>Pig Rearing</li> </ul>	<ul style="list-style-type: none"> <li>Adoption of Bad practices in Pig rearing</li> </ul>	<ul style="list-style-type: none"> <li>Prohibition of use of antibiotics to 'prevent' an early death of the pigs without proper medical guidance used</li> <li>Injection of growth hormones to accelerate the growth of pigs to attain higher body mass ratio to meet the market demand should be avoided. .</li> </ul>
		<ul style="list-style-type: none"> <li>Indigenous species</li> </ul>	<ul style="list-style-type: none"> <li>Selection of breeds that cannot adapt to the local climatic conditions will lead to loss of livestock or results in low productivity and might have health issues.</li> </ul>	<ul style="list-style-type: none"> <li>Selection of suitable breed in order to have increased adaptability.</li> <li>Indigenous species should be promoted in artificial insemination facility.</li> <li>Provide awareness to the farmers about significance of the indigenous pig species</li> </ul>
		<ul style="list-style-type: none"> <li>Use of chemical fertilizer and pesticides</li> </ul>	<ul style="list-style-type: none"> <li>Use of Chemicals/fertilizer in fodder production</li> </ul>	<ul style="list-style-type: none"> <li>Sensitization workshop should be conducted for the farmers about the bio-accumulation of chemicals in the pork meat and its implication on the human health.</li> <li>Promoting the use of bio manure for farming, and use of bio food and traditional feed such Mustard Oil cake, by-product of polished rice, maize etc., for pigs.</li> </ul>
		<ul style="list-style-type: none"> <li>Shortage of Food</li> </ul>	<ul style="list-style-type: none"> <li>Shortage of food may occur due to rearing of more number of pigs for more yields.</li> </ul>	<ul style="list-style-type: none"> <li>Water Hyacinth is abundant in Assam which can be used as a food for pigs. This can reduce cost of pig rearing.</li> <li>Integrated farming practices</li> </ul>

Sl. No.	Project Stage	Project Activity	Environmental / Operational Impacts	Mitigation Measures
				<p>should be promoted so as to promote the use of farm waste (kitchen waste, by-products of food grains etc.,) as food for pigs.</p>
		<ul style="list-style-type: none"> <li>Infectious disease</li> </ul>	<ul style="list-style-type: none"> <li>The traditional farmers have little knowledge on food safety, public health risk and zoonotic issues in pig rearing.</li> </ul>	<ul style="list-style-type: none"> <li>An awareness program to farmer on precaution measures that needs to be adopted during epidemic/ spreading of infectious diseases in pig should be made available. Knowledge on the possible diseases that could be transmitted from pig to humans such as H1N1 should be provided.</li> <li>Awareness on the disposal techniques and safety measures to be adopted while handling contaminated / infectious meat</li> </ul>
		<ul style="list-style-type: none"> <li>Storage of Meat</li> </ul>	<ul style="list-style-type: none"> <li>Poor/improper cold storage (refrigeration) facilities</li> </ul>	<ul style="list-style-type: none"> <li>Meat is a perishable item. So in order to protect it from being contamination; deep freezers should be used by the farmers.</li> <li>The awareness about the precaution measures that are to be taken during storage and transportation of pork should be shared with the farmers.</li> <li>Knowledge of public hygiene among traders and producers should be facilitated.</li> <li>Proper gloves, apron should be used in handling and storage of pork.</li> <li>Cross contamination must be prevented</li> </ul>
			<ul style="list-style-type: none"> <li>Food Safety Issue-</li> <li>Excess use of Antibiotics for increase in body mass may lead to unwanted chemical residue in the Food Chain</li> </ul>	<ul style="list-style-type: none"> <li>Provide training to the farmers regarding Food safety standard and regulation of GOI.</li> <li>Provide awareness about human health hazards due to the use of antibiotics.</li> <li>Periodic Testing of pork samples to ensure quality and safety must be in place.</li> </ul>
		<ul style="list-style-type: none"> <li>Poor Hygienic Practice</li> </ul>	<ul style="list-style-type: none"> <li>Poor Hygienic Practice from farming to handling and marketing of pork</li> </ul>	<ul style="list-style-type: none"> <li>Provide awareness about precaution measures that are to be taken during storage and transportation of pork meat from the processing area.</li> <li>Knowledge of public hygiene among traders and producers should be facilitated.</li> </ul>

Sl. No.	Project Stage	Project Activity	Environmental / Operational Impacts	Mitigation Measures
				<ul style="list-style-type: none"> <li>• Awareness on Cross contamination by food handlers must be provided.</li> <li>• Lack of sanitation facilities for food handlers.</li> <li>• Improper / Inadequate storage facilities leading to contamination</li> </ul>
			<ul style="list-style-type: none"> <li>• Unpleasant odour</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure proper design construction and operation of the farm</li> <li>• Regular monitoring of waste handling practices</li> <li>• Ventilate sensitive work environments</li> </ul>
		<ul style="list-style-type: none"> <li>• Cattle shed</li> </ul>	<ul style="list-style-type: none"> <li>• Poor manure management, Solid Waste management and discharge of Effluent</li> <li>• Backyard pig rearing practices induce or spreading of foul smell in the surrounding area.</li> </ul>	<ul style="list-style-type: none"> <li>• Effluent and manure by-products that have been generated in a piggery are valuable sources of water, nutrients and organic matter. Hence it shall be re-used in number of ways such that it will not harm the environment.</li> <li>• The animal dung should be dumped in proper manure pit which can be used as manure or can be used in bio-gas production.</li> <li>• Sheds should have proper ventilation.</li> <li>• Keeping drains clean &amp; flushing the sheds twice daily will control the spread of dirty smell to the nearby areas.</li> <li>• Weeping or hosing lanes and pens should be cleaned regularly to avoid manure build-up.</li> <li>• Providing deep litter pens.</li> <li>• Dumping static-pit sheds weekly, or more often.</li> <li>• covering anaerobic ponds with straw and permeable polypropylene</li> <li>• Avoiding ponding and effluent irrigation during wet periods.</li> <li>• Cover the carcasses immediately with soil.</li> </ul>
		<ul style="list-style-type: none"> <li>• Climate Change</li> </ul>	<ul style="list-style-type: none"> <li>• Release of noxious gases</li> </ul>	<ul style="list-style-type: none"> <li>• Promotion of Climate resilient options to reduce the GHG emission thus resulting in power saving option through development of training program on biogas development and bio manure management for community or individual level Integrated Farming practices,</li> </ul>



Sl. No.	Project Stage	Project Activity	Environmental / Operational Impacts	Mitigation Measures
				such Pig Fish Farming should be promoted, where urine, excreta of pig and spilled pig feeds can be applied manually into the pond water containing fish at a pre-determined dose.
		<ul style="list-style-type: none"> <li>• Soil Pollution</li> </ul>	<ul style="list-style-type: none"> <li>• Soil pollution is another delicate issue when coming to spills and leaks of manure from pig farm.</li> </ul>	<ul style="list-style-type: none"> <li>• Applying manure to the soil has positive impacts on the soil it supplies nutrients, especially Nitrogen and Potassium and improves the fertility of the soil; Manure should not to be disposed near the water bodies and the human settlements.</li> <li>• Manure from the pig farm should be disposed/ applied at different locations, so as to maintain uniformity. It should not be dispersed at one location as it may lead to accumulation</li> </ul>
		<ul style="list-style-type: none"> <li>• Water Pollution</li> </ul>	<ul style="list-style-type: none"> <li>• Water Pollution (liquid waste from shed can leak into groundwater or mix with surface water it may lead to an increase of nitrogen and phosphorous component which is likely to result in algal bloom and other toxic effect.</li> </ul>	<ul style="list-style-type: none"> <li>• Cleaning the waste water storage pit or lagoon frequently, a limited amount of waste water can be used in the nearby fish ponds which in turn can act as a source of fish feed.</li> </ul>
		<ul style="list-style-type: none"> <li>• Air Pollution</li> </ul>	<ul style="list-style-type: none"> <li>• Air Pollution- Storage of Pig manure may lead to emanation of toxic gases such as hydrogen sulphide and ammonia that leads to respiratory problems in human.</li> </ul>	<ul style="list-style-type: none"> <li>• Manure should be used as bio compost material in agricultural field after decomposition.</li> <li>• Establishment of biogas plant could a best way to manage the toxic gas and it generates the energy to fulfil the demand of day to day cooking fuel.</li> <li>• A family having 2-5 pigs can have a biogas establishment.</li> </ul>
			<ul style="list-style-type: none"> <li>• Biodiversity Threat</li> <li>• More Introduction of exotic breed of pig which is threatening indigenous species.</li> </ul>	<ul style="list-style-type: none"> <li>• Provide awareness to the farmers about importance, adaptability and long term benefits of indigenous pig species.</li> </ul>
		Heath and Hygiene	<ul style="list-style-type: none"> <li>• Health and Disease</li> <li>• Vaccination</li> </ul>	<ul style="list-style-type: none"> <li>• Provision of mobile veterinary services to be offered during emergency period for critical and emergency care.</li> <li>• Following proper Vaccination and deworming schedule.</li> <li>• Provide mandatory health Checkups</li> <li>• Provide Pig Health calendar depicting season and disease relationship and related</li> </ul>

Sl. No.	Project Stage	Project Activity	Environmental / Operational Impacts	Mitigation Measures
				<p>preventive measures to check disease occurrence.</p> <ul style="list-style-type: none"> <li>Regular interaction with medical service provider about pig health and precautions that are to be followed.</li> </ul>
			<ul style="list-style-type: none"> <li>Unhygienic Practices in Poor Slaughter House (in open air / on the floor with no waste disposal system)</li> </ul>	<ul style="list-style-type: none"> <li>Slaughter House should be operated with proper slaughter license.</li> <li>Legal formulation should be maintained in community based slaughter house as per Slaughter House Act, 2000.</li> <li>Slaughter House should be located far from residential and commercial areas.</li> <li>Slaughter house should have good ventilation system, provided with closed and proper drainage system.</li> <li>Waste water should not be flushed/ discharged in the open area.</li> <li>FIFO or other food handling practices must be practiced</li> <li>Food handlers must be aware of possibilities of cross contamination</li> </ul>
			<ul style="list-style-type: none"> <li>Lack of awareness among small beneficiaries for sustainable pig farming (will lead to problem while applying the project intervention of productivity enhancement),</li> </ul>	<ul style="list-style-type: none"> <li>Providing awareness and capacity building to the farmers, participating communities, local authorities, extension agents, development practitioners etc., on the promising approaches to minimise environmental impacts due to pig farming.</li> </ul>
	Awareness		<ul style="list-style-type: none"> <li>Lack of awareness among small beneficiaries for sustainable pig farming (will lead to problem while applying the project intervention of productivity enhancement),</li> </ul>	<ul style="list-style-type: none"> <li>Providing awareness and capacity building to the farmers, participating communities, local authorities, extension agents, development practitioners etc., on the promising approaches to minimise environmental impacts due to pig farming.</li> </ul>
4.	<b>Post Construction and Operation Stage Impacts</b>	<ul style="list-style-type: none"> <li>Public health, amenity and hygiene</li> </ul>	<ul style="list-style-type: none"> <li>Attraction of vermin, rodents, scavengers, and breeding sites for mosquito and other vectors borne diseases</li> </ul>	<ul style="list-style-type: none"> <li>Ensure provision of proper drainage of facilities (ensure there is no stagnant water in the project site and its vicinities)</li> <li>Waste storages, sludge collection facilities controlled regularly to prevent insect attraction and breeding;</li> </ul>
			<ul style="list-style-type: none"> <li>Hygiene</li> </ul>	<ul style="list-style-type: none"> <li>Insure hygiene of equipment's and tools, machine and over all</li> </ul>

Sl. No.	Project Stage	Project Activity	Environmental / Operational Impacts	Mitigation Measures
				<p>farm and slaughter house sanitation to eliminate bacteria host</p> <ul style="list-style-type: none"> <li>Inspect regularly workers health and hygiene</li> </ul>
		<ul style="list-style-type: none"> <li>Storage of the products at cold storages/ cooling units.</li> </ul>	<ul style="list-style-type: none"> <li>High consumption of electricity.</li> <li>Gas emissions from the unit</li> <li>Excess use of water for cleaning and cooling purposes</li> <li>Waste disposal</li> </ul>	<ul style="list-style-type: none"> <li>Use of suitable renewable energy like, solar, wind etc.</li> <li>Advanced cooling equipment should be used to reduce emissions</li> <li>Waste water treatment and its recycling should be practiced.</li> <li>Proper waste disposal and treatment should be followed.</li> </ul>
		<ul style="list-style-type: none"> <li>Transportation</li> </ul>	<ul style="list-style-type: none"> <li>Vehicular emissions to the ambient atmosphere.</li> <li>Cracking of roads due to over weighing vehicles.</li> </ul>	<ul style="list-style-type: none"> <li>BS-IV vehicles with valid emission certificate should be used for transportation.</li> <li>Overweighing Vehicles carrying loads exceeding those permissible without proper permission should not be allowed to pass through the constructed roads.</li> </ul>
		<ul style="list-style-type: none"> <li>Waste disposal and pollution</li> </ul>	<ul style="list-style-type: none"> <li>un safe handling and disposal of waste</li> </ul>	<ul style="list-style-type: none"> <li>Provide sanitation facilities and ensure collection of all solid waste from all sites and dispose to authorized site and by using authorized method</li> <li>Waste handling and disposal must comply with the CPCB Environmental Standards</li> <li>Skins and hides should be transferred to respective bodies timely and ensure proper handling and transportation</li> <li>Disposal of dead stock, condemned carcasses and other solid wastes should be disposed as per the CPCB-Comprehensive Industrial document for slaughter house, meat and seafood processing</li> <li>Contingency plan for mass disposal of animal carcass in the event of disease or disaster</li> </ul>
		<ul style="list-style-type: none"> <li>Wastewater discharge</li> </ul>	<ul style="list-style-type: none"> <li>Inadequate drainage facilities and improper waste handling</li> </ul>	<ul style="list-style-type: none"> <li>Ensure provision of adequate drainage facilities</li> <li>Ensure use of proper (leak free) containers to transfer sludge and sewage to authorized disposal site</li> </ul>

Sl. No.	Project Stage	Project Activity	Environmental / Operational Impacts	Mitigation Measures
			<ul style="list-style-type: none"> <li>• Ground water pollution from leachate and percolations from septic tanks and waste sites</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure adequate design, installation, and maintenance of holding tanks, septic systems and wastewater soak pits</li> </ul>
		<ul style="list-style-type: none"> <li>• Marketing</li> </ul>	<ul style="list-style-type: none"> <li>• Market waste generation, both solid and liquid.</li> <li>• Generation of foul and noise from the market area.</li> </ul>	<ul style="list-style-type: none"> <li>• Proper waste disposal techniques should be followed in the market.</li> <li>• The market should have proper drainage facility.</li> <li>• Hygiene should be maintained at the market.</li> </ul>