POVERTY ALLEVIATION FUND

DRAFT GUIDELINES FOR ENVIRONMENTAL RISKS IDENTIFICATION AND MANAGEMENT

PRESENTED BY:
SILT CONSULTANTS Pvt. Ltd.
MID BANESHWOR
KATHMANDU
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Guideline for Birds Farming Projects (Duck, Pigeon, Poultry)

Environmental Risks

Availability of Land and Water
There is a risk/no risk that there is no sufficient land and water source legally available to sustain the wallowing of ducks. There is a risk/no risk that the pigeons go to neighboring agricultural field for grain depredation.

Structure of Pen/Aviary
There is a risk/no risk that the pen for bird farming is strong enough to withstand occasional rain and hailstorms.

Waste
There is a risk/no risk waste and washing from birds will contaminate water sources and living areas, creating a health risk of the community.

Noise and Odour
There is a risk/no risk that community may be offended by the noise produced by the birds and odour emanating from the bird farm.

Diseases and Health Risk
There is a risk/no risk that avian influenza (Bird Flu) may be transferred from bird to humans. Japanese Encephalitis may be transmitted from ducks to human through insect vectors. Rearing of birds inside the house is dangerous source of indoor air pollution. There is a risk/no risk that disease may be transferred among birds due to inadequate provision of vaccination and sanitation in bird shed.

Child Labour
There is a risk/no risk that Children will be kept away from school to tend the birds.

Environmental Management Measures

Land and Water Availability
- If common land will be used for wallowing the ducks, the proposal must consider whether the community will agree to the wallowing of ducks in public waterways.
- If pigeons go to neighbor's agricultural land for grain depredation then the pigeons should be enclosed in the pen during the grain depredation season.

Structure of Pen
- The pen structure should be made strong enough that it can withstand occasional rain and hailstorms. The pen should be well ventilated as well as should be capable of retaining heat during winter.

Waste
- Birds waste should be managed properly it should not be disposed haphazardly. It should be composted before application to the agriculture land.
- Bird's waste should not be stored or composted near the source of water, children's playground or near schools.

**Noise and Odour**
- The bird's pen and its surroundings should be cleaned regularly. Lime should be added at places where some residual waste is left to prevent odour.
- Clean and well sanitary condition of the farm also saves birds from possible bird diseases.
- Bird pen should be located farthest possible from the neighbor's house to make the noise of birds more acceptable.

**Diseases and Health Risk**
- The Duck pen should be kept far away from the house as much as feasible to protect the people from transfer of Japanese Encephalitis.
- A separate bird shed away from the house should be constructed for bird farming to prevent diseases transmitted directly from bird contact (like Bird flu, lice, fleas,) or vector related disease like Japanese Encephalitis (from ducks through mosquitoes).
- The project proposal should mention the availability of animal health care facility in the area. Animals should be vaccinated against diseases like foul cholera. There should be a provision in the bird pen for isolating diseased bird from other healthy bird.
- Close observation on bird health should be always kept to prevent transferring of Avian Influenza (Bird Flu) from birds to human. Good sanitation should be maintained on the farm to prevent the infection of birds from avian influenza. If the birds start to die from any symptoms of disease, the farmer should try to avoid their direct contact as much as possible and ask for technical assistance from the veterinary service.

**Child Labour**
- The project proposal must state that children will not be kept away from school to tend birds.
Guideline for Carpet and Garment Projects (Wool Dying not included)

Environmental Risks

Water Pollution
There is a risk/no risk that that wastewater produced from carpet washing plant contains harmful chemicals and these are drained to the nearby waterways.

Solid Waste
There is a risk/no risk that waste clothes and wool from the industry will pollute the environment by causing aesthetic pollution, clogging of drainages.

Occupational Hazard
There is a risk/no risk that the dust from threads and cloths and emissions from recently dyed wool affect the health of workers. There is a risk/no risk that physical injuries may occur during sewing and ironing of the clothes.

Cultural Hazard
There is a risk/no risk that illegal sexual abuse may occur in the work areas. Sexually transmitted diseases like AIDS may transmit among the workers due to lack of awareness about it.

Child Labour
There is a risk/no risk that Children below 14 years are used in the project for different purposes like weaving carpets, helping, and embroidery.

Environmental Management Measures

Water Pollution
- Wastewater from washing of carpet or clothes should not be drained to the drainage or open areas directly. It should be treated before being released to the environment.

Solid Waste
- Waste wool and waste clothes produced from the industry should be properly stored in the closed chamber in the industry before being properly dumped on municipal dumping site or sent to resource rehabilitation centre.
- Wastes should be incinerated if there is no dumping site or resource rehabilitation centre available locally.

Occupational Hazard
- Working areas should be well lighted and ventilated.
- Sufficient protection measures should be followed to protect the workers from electric and heat shocks from hot iron and sewing machines.

Cultural Hazard
- Adequate institutional measures should be taken to provide safe condition for workers so that they will not be sexually abused. The workers should be given basic necessary knowledge about AIDS and STDs.

Child Labour
- Child below 14 years of age should not be kept for work.
Guideline for Dairy, Ice cream and Milk Chilling project

Environmental Risks

Adequacy of Resource
There is a risk/no risk that there is enough availability of water required for processing milk and cleaning facilities. There are enough electrical facilities for chilling and incubating the dairy product at required temperature. There is a risk/no risk that enough backup electricity facility is available in case, the primary source of electricity fails. If the electricity fails, the milk will be damaged and there arises the problem of milk disposal.

Waste and Water Pollution
There is a risk/no risk that the contamination and deoxygenation of streams and waterways may occur by direct discharge or run-off of inadequately treated wastewater. Excessive concentration of nutrients such as nitrogen and phosphorus in surface waters causes eutrophication (eutrophication contributes to excessive growth of plants and algae blooms which makes downstream water unsuitable for domestic, agricultural and industrial uses).

Land Degradation and Damage to Crops
There is a risk/no risk that long-term damage to soil productivity may arise from high salinity, low/high pH due to over-application of wastewater to land, resulting in contaminated groundwater, poor irrigation design.

Hygiene and Sanitation Problem
There is a risk/no risk that spilled milk products during handling and washing vessels attract houseflies, mosquitoes and other disease vectors and emit offensive odour in the community. There is a risk/no risk that milk is contaminated with disease containing bacteria and cause health effect among consumers of milk products.

Child Labour
There is a risk that children below 14 years are used as helpers in the dairy processing industry for cleaning purposes.

Environmental Management Measures

Adequacy of Resource
- Water requirements of the dairy processing system/ice-cream industry should be calculated in the project proposal. If the same source is used for other purposes by the community, their present and future demand should be calculated.
- Electricity used in the dairy should not interfere with the electric need of other members of the community.

Waste and Water Pollution
- Wastewater from vessels and utensils cleaning and wastewater produced from processing of milk products like (CHEENA, PANIR) should not be directly discharged to the river. Wastewater should be collected on concrete
lined sedimentation/oxidation tank and only the treated clear water should be released to the environment.

**Land Degradation and Damage to Crops**
- Proper attention should be given to control discharging of untreated wastewater to farmland. The water can be used as irrigation water only after it is made acceptable to be used by proper settlement and aeration.

**Hygiene and Sanitation Problem**
- The surroundings and vessels should be kept neat and clean so that flies and mosquitoes are not attracted and emission of odour is controlled.
- Milk products should be covered so that flies are not attracted. This also reduces the chance of contamination of milk products from flies borne diseases.
- Milk should be pasteurized before making milk products so that consumption of milk products does not cause risk of diseases to the consumers.

**Child Labour**
- The project proposal must state that children below 14 years will not be used as workers.
Guideline for Fibre and Nepali Paper Production Projects

Environmental Risks

Adequacy of Raw Material
There is a risk/no risk that there is no sufficient legally available raw material to sustain the fiber production requirements of the planned project. This will cause over harvesting of natural fiber producing vegetation from forest.

Water Availability
There is a risk/no risk that sufficient water will not be available for wetting the raw materials for fibre production. This will reduce the water available for the project community and other nearby communities for other purposes.

Water pollution
There is a risk/no risk that water collected in the pond to wet the fibre raw material will pollute surface and ground water. There is a risk/no risk that water required for processing the fibre may also pollute water. High organic matter containing wastewater from paper processing may increase the BOD (the amount of oxygen required to decompose organic matter) of pond or stream water. Bleaching and whitening chemicals used in Nepali Paper production also may pollute water.

Odour and Sanitation
There is a risk/no risk that organic decomposition in the wetting pond and processing areas produces offending odour in the neighborhood and attract flies and disease vectors like mosquitoes.

Wastes
There is a risk/no risk that waste produced during fibre processing may cause solid waste problem.

Environmental Management Measures

Adequacy of Raw Materials
- Sufficient availability of raw materials should be ensured in the project proposal. If the raw materials are not legally available from private or public land, there may be illegal overexploitation of plant raw materials from forest.

Water Availability
- Water requirements of the community served by the same source of water must be calculated for the present and future needs and mentioned in the project proposal. Only the water in access after the community use should be used for the project.

Water Pollution
- The tank used for wetting the raw material should be lined with concrete and surface should be punned to prevent water seepage to nearby aquifers.
- Wastewater containing organic matter should be stored in concreted lined sedimentation/oxidation tank for organic matter removal before discharging into water sources.
- Chemical processing unit for processing the raw material should be located at a minimum distance of 50 metres from the water sources used for drinking by humans, and should be downstream of these sources.

**Odour and Sanitation**
- The surrounding areas of the fibre-processing unit should be cleaned regularly so that offending odour do not emit from the processing unit.
- The provision of covering of wetting tank should be mentioned in the project proposal this helps to control odour, flies and mosquitoes.

**Wastes**
- Solid Waste should be composted by suitable composting method but the waste should not be deposited or composted near the water source.
- Liquid Waste should be stored in sedimentation tank for sedimentation before releasing clear water.
Guideline for Fishery Projects

Environmental Risks

Resource Availability
There is a risk/no risk that sufficient land and water is available for fishery. There is a risk/no risk that wetland and swamps are prioritized for construction of fishpond, thus disturbing local wildlife. There is a risk/no risk that water used in fishery may reduce the water available for the communities nearby.

Water Pollution
There is a risk/no risk that plant nutrients from fish farms lead to an increased occurrence of algal blooms. If fish farming is adopted in cages in existing lakes particulate organic wastes from cage farms have a profound effect on the benthic environment and recovery, on cessation of farming, may take several years. Fishponds need to be drained after batches of fish cultivation. This residual water is contaminated with chemicals and drugs, which will pollute local waterways.

Escape to Natural Environment
There is a risk/no risk that escaped fish from fish farms may interbreed with wild population resulting in losses of genetic variability, including loss of naturally selected adaptations, thus leading to reduced fitness and performance.

Accidental Drowning
There is a risk/no risk that accidental drowning of children and other people occur in the pond.

Waste
There is risk/no risk that waste is produced during rearing, harvesting and marketing of fish. Waste from fisheries emit offending odour.

Environmental Management Measures

Resource Availability
- The proposal should mention that the proposed fish farming do not destroy important wetland area.
- If the same source is used by the downstream community, their prospective for water availability should not be disrupted.

Water Pollution
- Only limited amount of feed should be supplied to the fishes in case of cage farming. If the fish farming is done on small fishery ponds, only limited amount of fertilizers should be added to reduce water pollution.
- Sufficient protection measures should be taken to check the entry of floodwater in the pond so that chemicals and nutrients are not carried away to the local waterways.
Escape to the Natural Environment
  • Adequate nets and barriers should be installed in the water exit or entrance point so that fish is not allowed to escape to the natural environment.

Accidental Drowning
  • Ponds should be fenced to prohibit accidental drowning of children and animals.

Waste
  • Degradable wastes produced from fishery should be composted. Non-degradable wastes like fish scales and bones should be managed in pit or municipal dumping site. Fish processing area should be cleaned regularly to limit odour and sanitary problems.
Guideline for Furniture Industry/Saw Mills Projects

Environmental Risks

Legal Availability of Wood Products
There is a risk/no risk that wood products required for the furniture industry is legally available or not. If the wood products are not legally available, there is a chance that wood products from nearby forests are used illegally in the furniture industry.

Saw Dust
There is a risk/no risk that power-sawing processes produce fine saw dust. Short-term exposure to saw dust leads to irritation of the eyes and respiratory tract. Long-term exposure to saw dust causes chronic respiratory tract and pulmonary disease.

Solvents and Volatile Gases
There is a risk/no risks that solvents used in furniture colouring emit irritating and harmful emissions.

Solid Wastes
There is a risk/no risk that waste scraps of wood, shavings and dispersed nails can cause physical injury to surrounding children or people if disposed on open areas. The saw dust if not disposed properly can be blown by air. There is a risk/no risk that small wooden scraps and saw dusts if not dumped properly can cause foul smell during monsoon period.

Child Labour and Occupational Hygiene
There is a risk/no risk that the worker and their children in the furniture workshop are adversely affected with vapours and dust, sharp instruments can cause physical injury. There is a risk/no risk that children below 14 years will be kept in work for sanding works, paintings and other support works.

Noise Pollution
There is a risk/no risk that community may be offended by the noise produced during workshop operation.

Environmental Management Measures

Legal Availability of Wood Products
- The proposal must clearly state the source of wood products used in the furniture industry.
- The industry should not use illegal wood products.

Saw Dust
- Good quality mask should be provided to workers so that they can wear the mask during grinding and sanding.

Volatile Gases
- Sufficient ventilated area should be provided in workshop so that volatile gases do not build up indoors.
Solid Wastes
- Waste wooden scraps, shavings, sawdusts and nails laden furniture wastes should not be disposed on open areas as they may cause physical injuries to community children, people and animals. They should be stored in safe place and sold if sellable. Wastes that cannot be sold should be safely delivered to waste management plant or buried safely on the pit at least 50 meters away from the water source.

Child Labour and Occupational Hygiene
- Children below 14 years of age should not be kept for work.
- Adequate safety of workers should be provided against volatile chemicals and gases by allowing good ventilation in the workshop.
- Good quality goggles and mask should be provided to the workers while operating the saw machine.
- Adequate provision of safety of workers from sharp instruments should be provided.
- Children should not be allowed to play inside the workshop as they may sustain injury from sharp instruments or health problems due to dust.

Noise Pollution
The workshop should not operate on late night so that noise is not produced at the sleeping hours.
Guideline for Micro Hydro Projects

Environmental Risks

*Land Acquisition*
There is a risk/no risk that acquisition of private and public land is necessary for powerhouse and water conveyance and transmission line construction.

*Water Availability*
There is a risk/no risk that the proposed water source will be available throughout the year or there may be chances that water will be used for other purpose by other community and water source would be depleted.

*Disruption in Aquatic Environment*
There is a risk/no risk that the proposed project would disrupt the aquatic environment of the water source like streams by producing dewater zone effect especially during the dry season by diverting much of the water for power generation.

*Erosion and Land Slide*
There is a risk/no risk that erosion and landslide/bank cutting can increase along the excavation work at intake structure, conveyance (head race and tail race), forebay, power generation site and in escapes from forebay and tail race both during construction and operation.

*Disposal of Spoil*
There is a risk/no risk that improper disposal of excavation spoil and construction waste disrupts roads, farmlands, waterways and inconvenience, dust problem, water pollution and trigger landslides and erosion.

*Risk on other Natural Resources and Infrastructures*
There is a risk/no risk that during construction and maintenance of the project natural resources and community infrastructures like forests, roads and irrigation canals may be disrupted.

*Transmission Line and Poles*
There is a risk/no risk that poles required for transmission lines are derived from felling of trees in nearby forest. There is a risk/no risk that transmission line transmitting electricity from power house to the settlement will cause electrical shocks to human and animals.

Environmental Management Measures

*Land Acquisition*
* The project has to avoid acquisition of land. If acquisition is necessary, consensus and/or agreement with the owners for voluntary contribution of the land should be stated in project proposal.

*Water Availability*
* Water requirements of the micro-hydro system must be calculated in the project proposal.
- If the upstream community uses the same source, their present water use and prospective future use should be calculated and compared with the water needed by the power generator to generate the stipulated power.

**Disruption in Aquatic Environment**
- At least 10 percent of water in the source should be allowed at any period of the year to support aquatic lives in the stream.

**Erosion and Land Slide**
- Safe slope angle should be maintained at cut and fill areas.
- Proper attention should be given to control erosion and breaching at intake, water conveyance (head and tail race) and powerhouse through construction of civil structures and bioengineering techniques.
- Tail race after propelling the dynamo should be transported safely to the stream through well-maintained escape. Spilled water from forebay should be transported safely to the stream through well-maintained escape.

**Disposal of Spoil**
- Spoil generation should be limited through balanced cut and fill. The generated spoil should be used to fill eroded gullies, quarries and burrow pits, depressed areas and the remaining spoil will be disposed in safe areas where it do not disrupt present land stability balance and peoples activities.

**Risk on other Natural Resource**
- Public or private resources like forest, agriculture land, roads, irrigation canals should not be disrupted during construction and operation phase. If minor damage to them is unavoidable, adequate mitigation measures should be applied with the consent of all stakeholders. If trees are cut, compensation plantation should be done and the plants should be cared until they can survive themselves.

**Transmission Line and Poles**
- Rare and protected species of trees should not be fallen down. Species abundant in the areas should be use for poles. Compensatory plantation should be done for fallen tree and they should be properly cared until they can survive themselves.
- Transmission lines should be aligned such it do not create risk for electrical shock to people and animals. If monkeys are present in the location, the poles of transmission lines should be barred with metallic barbs so that monkeys cannot climb the poles.