Guideline for micro irrigation Projects

Environmental Risks

Water Use Conflict
There is a risk/no risk that the water source already being used for some other purpose by other community may become affected by use of water by the project. If ground water is the source, there is a risk/no risk of ground water depletion in the area affecting the pre installed tube wells for drinking water.

Water Quality
There is a risk/no risk that water quality of water is not suitable for irrigation due to very high silt content. In Terai, shallow tube well water may contain high level of arsenic, which may cause soil pollution, and harmful effect to human health if arsenic enters the food chain.

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 diverting much of the water for irrigation especially during dry season.

Increased Agrochemical Use
There is a risk/no risk that increased use of agrochemicals due to availability of irrigation water will increase leaching and carrying of agrochemicals to surrounding environment.

Change in soil properties
There is a risk/no risk that water logging and soil salinization occurs due to overuse of water for irrigation.

Erosion and Land Slide
There is a risk/no risk that erosion and landslide can increase along intake point, the irrigation canal and agricultural fields due to increased seepage and flooding during the monsoon period.

Disposal of spoil
There is a risk/no risk that improper disposal of excavation spoil and construction waste may disrupt roads, farmlands, waterways and cause 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.

Crossings and Water drinking Sites
There is a risk/no risk that canal bank/levee can be damaged by hooves of cattle and wild ungulates trying to drink water from the canal. Crossing of canal by cattle and wild animals also damage canal bank. Water over topping and breaching at such portion of canal can occur. There is a risk/no risk that unavailability of culverts or slabs for crossing canal also impairs wild life movement across the canal.
Environmental Management Measures

Water use conflict
- Water requirements of the community served by the project must be calculated for the present and future needs.
- If the same source is used by the downstream community, their prospective for water availability should not be disrupted.
- Spacing of tube wells should be regulated through the formation of Water User association to avoid overdraft of water for aquifer.

Water Quality
- Silt quantity in water of the source should be confirmed before the project proposal. In Terai, arsenic content of the tube well should be assessed in a well-recognized laboratory before the implementation of project.

Disruption in Aquatic Environment
- Not all the water from the stream should be diverted. Minimum water required to support existing fish and aquatic population should be released at any time of the year.

Increased Agrochemical use
- The proposed proposal must state the ways to control the possibility of increased indiscriminate use of agrochemicals after the irrigation is available.

Change in Soil Properties
- The project proposal must design adequate drainage to control water logging and salinization.

Erosion and Landslide
- Safe slope angle should be maintained at cut and fill areas.
- Proper attention should be given to control erosion and breaching at intake, irrigation canal and drainages through construction of civil structures and bioengineering techniques.
- The project proposal must secure that the erosion of fertile agriculture soil in the proposed areas do not aggravate due to the project.
- The irrigated agriculture should not be undertaken on slopes greater than 30 degrees.
- Adequate drainage canal should be installed in order prevent canal breaching from the unwanted areas and hence flooding and water logging.

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 Resources and Infrastructures
- 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 the stakeholders.

Crossings and Water Drinking sites
- Cattle should not be left stray; stall-feeding should be promoted.
- Steps should be made in canals at regular intervals to provide water-drinking sites for cattle and wild animals.
- Canal crossing slabs and culverts should be provided at routes of wild and domestic animals and village roads.
Guideline for Rice Mill, Chiwra Mill, Masala Udhyog Projects

Environmental Risks

Dust and Pollution
There is a risk/no risk that firing to roast paddy for chiwra processing produce fine ash dust. There is a risk/no risk that noise from the mill operation offends the community. Tank for wetting paddy in chiwra mill produces foul order if not cleaned regularly. Washing of dust and ash during monsoon season may pollute waterways.

Solid Waste
There is a risk/no risk that solid waste produced from husks of paddy pollutes the local environment. The husk dust and ash if not disposed properly, can be blown by air. Husk and 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 mills are adversely affected with dust, electrical shocks, machineries, entangling into conveying belt can cause physical injury. There is a risk/no risk that children below 14 years will be kept in work.

Environmental Management Measures

Dust and Pollution
- The project proposal must state that vegetations should be placed in the surrounding of the mill to contain ash or store ash in closed cabinet.
- The rice mill or chiwra mill should not be located 50 metres near the surface water source.
- Shrubs and trees should be planted around the mills to intercept noise reaching towards community.

Solid Waste
- Waste husk, dust and ash should be managed in closed chamber so that it is not blown by wind or carried down by rainwater.
- The waste ash and husk if not sellable should be managed by the mill itself possibly by composting in areas further than 30 metres from water source.

Child Labour and Occupational Hygiene
- Sufficient ventilation should be provided in indoor working areas so that dust and vapours do not build up indoors. Good quality mask should be provided to the workers inside the mills so that they do not inhale dust.
- Sufficient protective measures like fence should be made to protect the workers from sustaining physical injuries from machineries and entangling in the conveyer belt.
- Children below 14 years should not be kept in work in the mill.
Guideline for Welding Shop Projects

Environmental Risks

Welding Fumes
There is a risk/no risk that welding processes produce harmful fumes. These originate from the filler metal and consist of fine particles. Short-term exposure to welding fumes leads to irritation of the eyes and respiratory tract. Long-term exposure to fumes from heavy metals may lead to cancer.

Sanding Dust
There is a risk/no risk that dust released from dry sanding of filler, rust, etc. may be objectionable and/or harmful when inhaled. The harmful effects on health due to inhalation include irritation of the eyes and respiratory tract.

Transformer Oil
There is a risk/no risk that some of the components that make up the transformer oil used in the transformers contain PCBs (toxic chemical compounds) thus making the proper use, storage and disposal extremely delicate. It must be noted that low levels of PCBs have shown to cause health problems in humans through inhalation, digestion, or through the skin absorption. In extreme exposure, vapour can irritate the eyes, nose, and throat and can cause a skin rash.

Solid Wastes
There is a risk/no risk that waste scraps of metals can cause physical injury to surrounding children or people if disposed on open areas.

Child Labour and Occupational Hygiene
There is a risk/no risk that the worker and their children in the welding shop 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 used for 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

Welding Fumes
- Sufficient ventilated area should be provided in workshop so that fumes do not build up indoors. Good ventilation is also required to reduce the ozone (A harmful gas for human health) build up inside the workshop as high temperature electric shocks during welding produces ozone.
- Good quality mask should be provided to workers so that they can wear the mask during welding.

Sanding Dust
- Good quality mask should be provided to workers so that they can wear the mask during grinding and sanding.
Transformer Oil
- Transformer oil should not be spilled on open areas or sewer or burnt. It should be stored and safely and managed in waste management plant.

Solid Wastes
- Waste metal scraps, welding rods and grinding rollers should not be disposed on open areas as they may cause physical injuries to community children, people and animals. They should be safely delivered to waste management plant or scrap collector (kawadi).

Child Labour and Occupational Hygiene
- Children below 14 years of age should not be used for work.
- Adequate safety of workers should be provided against volatile chemicals and gases by allowing good ventilation.
- Good quality welding goggles should be provided to the workers to safeguard their eyes from welding sparks.
- Adequate provision for the safety of workers from sharp instruments should be arranged.

Noise Pollution:
The workshop should not operate on late night so that noise is not produced at the sleeping hours.
Guideline for Pottery/Tiles/Improved Cooking Stoves Projects

Environmental Risks

Earth Extraction
There is a risk/no risk that there is sufficient legally available soil to sustain the pottery production requirements of the planned project. There is a risk/no risk that extraction of soil from community land may create community tensions and possible environmental disruption like soil erosion.

Water and Fuel Availability
There is a risk/no risk that sufficient water will not be available for treading the earth. This will reduce the water available for the project community and other nearby communities. There is risk/no risk that adequate fuel for firing the products is available locally. If not available, there is a risk that forest will be cleared.

Pollution and Community
There is a risk/no risk that firing of the potteries will offend the community through smokes and dust emission.

Child Labour and Occupational Health
There is a risk/no risk that use of various colours for painting the pottery and ceramics products will adversely affect the health of workers. There is a risk/no risk that children will be used in the industry.

Environmental Management Measures

Earth Extraction
- The type and quantity of earth requirement must be calculated for the planned and future need and sufficient legal sources of soil must be identified in the project proposal.
- If common land is used for soil extraction, the proposal must consider whether the soil needs for other users will also increase, and whether it will be necessary to establish new agreements to share the soil mining in the common land.
- Extraction of soil should not be done on land, which the community has not agreed to use for soil extraction.

Water and Fuel Availability
- The quantity of water and type and quantity of fuel need must be calculated for the planned and future need, and sufficient legal sources of fuel and water must be identified in the project proposal.

Pollution and Community
- The proposal should make clear that the project will not offend the community by producing excessive air and waste pollution.

Child Labour and Occupational Health
- The project proposal must state that the children will not be kept away from school to help in the pottery/tile industry.
- The proposal must ensure that the harmful chemicals used to paint the pottery will be handled and stored safely so that workers and children are not affected by them.
Guideline for Hotel/Restaurant Projects

Environmental Risks

Adequacy of Resource
There is a risk/no risk that there is enough amount of water required for cooking, drinking and cleaning purposes of hotel/restaurant. There is risk/no risk that enough fuel for heating and cooking is available legally if not available fuel wood collection from forest may cause forest destruction.

Water Pollution
There is a risk/no risk that a lot of wastewater is produced from kitchens during dishwashing, rinsing vegetables, cooking, steam tables and washing activities. In addition, wastewater is produced from toilets and laundries. If not adequately managed, wastewater can pollute ground and surface water sources.

Wastes and Sanitation
There is a risk/no risk that waste generated in hotel and restaurant operation, such as food and vegetable scraps, packing materials like papers and plastics and guest related throwaway items pollutes environments. There is a risk/no risk that lack of enough cleanliness and sanitation attract disease vectors like flies and mosquitoes.

Impact to Wild Life
There is a risk/no risk that food products form wild terrestrial and aquatic species of flora and fauna will be served as hotel/restaurant special menu thus depleting the biodiversity of the area.

Social and Cultural Disruption
There is a risk/no risk Alcoholism and Prostitution increases in the community due to hotel/restaurant operation

Occupational Hazard
There is a risk/no risk that workers in the hotel/restaurants are exposed to extreme heat (during cooking), poor ventilated condition and accidents.

Child Labour
There is a risk that children below 14 years are used in cooking and cleaning activities.

Environmental Management Measures

Adequacy of Resource
- Water requirements of the hotel/restaurant 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.
- The type and quantity of fuel required for the hotel/restaurant and its source should be mentioned in the project proposal. The procurement of fuel wood for hotel/restaurant operation should not contribute to forest destruction.
**Water Pollution**
- Wastewater from cleaning vegetables, fruits, etc., vessels, and utensils, and wastewater from the toilet should not be directly discharged to the river. The wastewater should be stored in a sanitary septic tank.

**Wastes and Sanitation**
- Commitment on economic use of materials in cooking, reduction of wastage, sorting of wastes at source should be included in the project proposal.
- Organic degradable wastes should be composted at a safe site (not nearer than 30 meters from the water source).
- Inorganic wastes should be properly dumped in safe ways.
- Rooms and surroundings of the hotel/restaurant should be cleaned regularly to prevent flies.

**Impact to Wild Life**
- The proposal must state that the hotel/restaurant will not serve the food products derived from wild species of aquatic and terrestrial plants and animals that are rare and threatened.

**Social and Cultural Disruption**
- Alcohol should not be sold to children, and awareness should be given to workers in the hotel/restaurant to discourage prostitution.
- Restaurants and Bars should not be opened until late nights to control alcoholism and prostitution.

**Occupational Hazard**
- Kitchen should be well ventilated so that workers are not exposed to high levels of indoor air pollution consisting of vapours of oils, smoke. Exhaust fans and improved cooking stoves should be installed in the kitchen. Sufficient ventilation also protects workers from extreme heat built up.

**Child Labour**
- The project proposal must state that children below 14 years will not be used to work on the hotel restaurant.
Guideline for Road Projects

Environmental Risks

Slope Instability
There is a risk/no risk that removal of vegetation and open cuts will increase soil exposure to rainwater and cause soil erosion and landslides.

Spoil Disposal
There is a risk/no risk that the excavated materials during road construction/widening if disposed inappropriately may contaminate water bodies affecting aquatic biota. The unmanaged spoil may also clog the drainages and trigger drainage scouing, erosion and landslides.

Water Resources and Drainage
There is a risk/no risk that construction of road, causeway/drainage and other cross drainage structures may disrupt existing drinking water supply and irrigation schemes.

Quarrying Materials and Borrow Pit Operation
There is a risk/no risk that extraction of boulders, sand and aggregates for construction graveling, structures construction from inappropriate places can cause erosion, river bank cutting and changes in river regime.

Air, Water and Noise Pollution
There is a risk/no risk that there are likely chances of emission of dusts, noise and water pollution (due to spoil disposal, from labour camp wastes and leakage and spill of various hazardous materials).

Vegetation, Forest and Biodiversity
There is a risk/no risk that trees remaining in the road will be cut down. The habitat will be fragmented and increased movement of vehicles may disturb wildlife of the area.

Natural Resources, Properties and Infrastructures
There is a risk/no risk that during construction and maintenance of the project, private properties, natural resources and community infrastructures like forests, roads and irrigation canals may be disrupted/lost.

Social and Cultural Impact
There is a risk/no risk of increased vehicular accidents social deformities (alcohol markets, prostitutions, etc.) and criminal activities

Environmental Management Measures

Slope Instability
- The cutting of slope will be minimized, cut and fill angle should be correctly maintained.
- Cut and fill slope should not be left exposed. Vegetation should be planted on the cut and fill slope.
• Minimum damage to the vegetation should be ensured during the road construction and operation.
• Bioengineering and civil engineering techniques should be applied whenever necessary to control erosion and landslides.
• Adequate drainage should be made whenever necessary to control erosion of adjoining land.

Spoil Disposal
• 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.

Water Resources and Drainage
• Wastewater should be prevented to spill into irrigation canal, drinking water source through proper drainage.
• Wastewater from road should not be discharged into farmland or environmentally sensitive locations.

Quarrying Materials and Borrow Pit Operation
• Sites for quarrying should be selected such that the quarrying activity should not result into slope instability, erosion, disruption of natural drainage, riverbank cutting, destruction of vegetation and farmland and other physical resource.

Air, Water and Noise Pollution
• No horn region should be marked around schools and hospitals.
• Waste and fluids from labour camps should be managed properly. Organic waste should be composted at least 30 metres away form the water sources.
• Water should be sprinkled if dust is carried out by wind during construction phase.

Vegetation, forest and Biodiversity
• The loss of trees should be minimized through alternative design if the loss is unavoidable it can be compensated by planting trees on suitable area. The planted trees should be cared and their survival should be guaranteed.

Natural Resources, Properties and Infrastructures
• 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 the stakeholders. If acquisition of private land is necessary, consensus and/or agreement with the owner should be made for voluntary contribution of the land.

Social and Cultural Impacts
• Sufficient traffic signs should be installed and awareness among locals about the traffic rules should be made.
• Late night operation of bars and restaurants should be stopped by the consent from stakeholders to control alcoholism, and prostitution.
• The proposal should include the provision for prioritizing the recruitment of locals for the road construction and maintenance.
Guidelines for Small Enterprises Like Madal Making/ Shoe Making/ Umbrella Making/ Medal Making/ Tailoring/ Watch TV Etc Repairing/ Jewelry Shop/

Environmental Risks

Adequacy of Resource
There is a risk/no risk that there are enough resources and facilities like water, raw materials, energy source available to operate the enterprise without conflicting with local communities.

Waste Generated
There is a risk/no risk that waste generated in enterprise operation cause inconveniences in regular community activities, decline in aesthetic values and cause water logging due to blocking of drainages. There is a risk/no risk that hazardous wastes may be produced from some activities of the enterprises which may cause harm to the environment if not handled and discharged properly.

Health and Sanitation
There is a risk/no risk that operation of enterprise may cause noise pollution, produces unpleasant odour or attract flies and other disease vectors.

Child Labour
There is a risk that children below 14 years are used in enterprise activities as child labour.

Environmental Management Measures

Adequacy of Resource
- Community resource required for the enterprise 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.

Waste Generated
- The project proposal should include the commitment on efficient use of materials reduction of wastage, sorting of different types of wastes (degradable, non-degradable and hazardous) and proper disposal of waste.
- The project proposal should describe which type of wastes (degradable, non-degradable and hazardous) are produced and how are they managed so as to safeguard the environment.
- The enterprise should Avoid disposal of waste at open areas and drainage
- If any hazardous wastes are produced from activity of enterprise they should be handled separately, stored in safe container and send to waste rehabilitation centre if available. If not available, they should be buried in sanitary pits taking the helps of sanitation experts.
- Promote paper bags for the plastic bag. Promote reuse/ recycle of plastic bags.

Health and Sanitation
- The enterprise should take every possible step to control noise pollution.
- The surroundings of the enterprise should be cleaned regularly to reduce odour and number of flies and other disease vectors.

Child Labour
- The project proposal must state that children below 14 years will not be used to work on the enterprise.
Guideline for Toilet Project

Environmental Risks

Site and Design Selection
There is a risk/no risk that selection of location for toilet construction and design of toilet type affects environment and health of community. There is a risk/no risk that loss of agricultural land/forest area or productive area occurs or not.

Water Pollution
There is a risk/no risk that Leachet from the safety tanks of the toilet might contaminate water bodies/sources located in vicinity, particularly, those located downhill to the toilet.

Hygiene and Sanitation
There is a risk/no risk that lack of enough cleanliness and sanitation attract disease vectors like flies and mosquitoes. Poorly maintained toilet may produce offending odour.

Environmental Management Measures

Site and Design Selection
- Only wasteland or the area that does not affect the kitchen garden or arable land should be selected as much as feasible.
- The size of the septic tank should be optimum according to the number of users.

Water Pollution
- Toilets should be located at a safe distance (minimum of 30 metres) from the water bodies/ source.
- The inner wall of the septic tank of the toilet should be panned with cement so that water does not leak.

Hygiene and Sanitation
- The project proposal should mention sufficient measures to aware/train users for maintenance of hygienic condition.
- The project proposal must ensure that there is enough water available for proper maintenance of hygiene.
- The project proposal should mention the method of maintenance of cleanliness in the public toilet by awareness rising about hygiene, collecting nominal fee for toilet use to be used in toilet cleaning, etc.
Environmental Risks

Resource Availability
There is a risk/no risk that prerequisites such as sufficient irrigation, seeds, and fertilizers technical advices are available. There is a risk/no risk that seeds or seedlings for medicinal or high values crops are collected from forests hence depleting their natural stock.

Soil Stability and Landscape
There is a risk/no risk that of cultivation causes soil erosion from the disturbance of the slopes, decline in soil fertility and water logging problem.

Fertilizers and Manuring
There is a risk/no risk that over use of chemical fertilizers may create soil texture problems, soil acidity and soil infertility problems. Leaching of fertilizers may create eutrophication (increased plants and algae boom on waterways) and hence biodiversity loss of the nearby waterways.

Pesticides and Herbicides Use
There is a risk/no risk that insufficient care during pesticide and herbicide spray may affect health of farmer. Accidental swallowing of pesticides by children may occur. There is a risk/no risk that pesticides may kill the beneficial organisms like spiders.

Wastes
There is a risk/no risk that wastes may be produced during processing and marketing of harvested products, which may pollute environment.

Environmental Management Measures

Resources Availability

- The resource requirements must be calculated for the planned cultivation and the way to manage them should be stipulated in the project proposal.
- If other members of the community use the same resource source like irrigation water the proposal must ensure that, there will be no reduction in other people's resources availability due to the project.
- If seeds and seedlings are to be derived from forests, they should be derived only legally.

Soil Stability and Landscapes

- The project proposal should state that marginal land is avoided for cultivation.
- Proper drainage system should be maintained to drain out excessive water to prevent water logging.
- If soil erosion and nutrient leaching is high, techniques like hedgerows plantation should be applied to reduce fertility reduction and nutrient leaching.
Fertilizers and Manuring
- Priority should be given in the use of compost fertilizer as much as practicable.

Pesticides and Herbicide Use
- Gloves and gas mask should be used while handling and applying pesticides. Pesticides should be kept safely in a closed cabinet away from the reach of children. The bottles and pouches of pesticides should be labeled with danger sign to ensure that accidental swallowing does not occur.
- Not more than prescribed dose and frequency of pesticides should be applied to the crops.

Wastes
- Organic degradable wastes should be composted at safe site (not nearer than 30 metres from water source).
- Inorganic wastes should be properly dumped in safe ways.
Guideline for Vehicle Maintenance Projects

Environmental Risks

Waste Lubricating Oil
There is a risk/no risk that waste lubricating oil extracted from vehicles will pollute the environment (air through evaporation, water through seepage and soil through residual effect) if not properly managed.

Waste Battery
There is a risk/no risk that disposal of waste battery will contaminate water with lead and acid.

Wastewater
There is a risk/no risk that wastewater produced from washing of vehicles, which contains soaps, detergents, and other chemicals may pollute the water and soil.

Solid Wastes
There is a risk/no risk that used and worn out materials like tires, tubes, and other plastic and metal products can pollute the environment.

Child Labour and Occupational Hygiene
There is a risk/no risk that the liquid and vapours of the oils and chemicals used in the maintenance works adversely affects the worker in the maintenance workshop. There is a risk/no risk that children will be kept in work for washing the vehicles and other support works.

Noise Pollution
There is a risk/no risk that operation of maintenance station will disturb community from noise problem.

Environmental Management Measures

Waste Lubricating Oil
- All used oil generated at the station must be stored in a vessel specifically designed and used exclusively for that purpose. The used oil kept in the vessel should be tightly and securely capped.
- The proposal should arrange for pick-up of used oil as necessary. The maintenance station is responsible for ensuring that the used oil is sent to a waste management facility.
- Used oil must not be used drained on drainage or open areas.

Wastewater
- The contaminated water may not be sent to drainages (either open or closed) unless it meets the specifications in the municipal sewer use by-laws and any other applicable municipal requirements.

Waste Battery
- Waste batteries must not be disposed on the surroundings. It should be handled by a waste battery reclaiming plant. Precautions should be taken to ensure that leakage does not occur from batteries that are stored on-site, pending disposal.
Solid Wastes
- Used tires, tubes, other plastics and metal wastes should be sent to the solid waste collection and reclaiming plants. They should be stored safely in closed area before disposing.
- Tires, tubes should not be allowed to be burnt to prevent its adverse environmental consequences.

Child Labour and Occupational Hygiene
- Children below 14 years of age should not be kept for work on the maintenance station
- Adequate safety of workers should be provided against volatile chemicals by allowing good ventilation. Gloves should be provided to workers during work.

Noise Pollution
- The vehicle maintenance station should not be operated during late nights to reduce impact of community due to noise pollution.
Guideline for Animal Husbandry Projects

Environmental Risks

Fodder and Grazing
There is a risk/no risk that there is no sufficient land legally available to sustain the grazing and fodder requirements of the planned and future herd of animals. This will cause a loss of vegetation and soil erosion.

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

Water Availability
There is a risk/no risk that sufficient water will not be available for washing, wallowing and drinking of the planned and future herd of animals. This will reduce the water available for the project community and other nearby communities.

Disease Transmission
There is a risk/no risk that zoonotic diseases like rabies from rabbits, encephalitis from pig and various parasites are transferred to the farmers from the farm animals. There is a risk/no risk that disease may be transferred among animals due to inadequate provision of vaccination and sanitation in animal shed.

Child Labour
There is a risk/no risk children will be kept away from school to tend the animals.

Environmental Management Measures

Fodder and Grazing
- The fodder and grazing requirements must be calculated for the planned and future herd, and sufficient legal sources of fodder and grazing must be identified in the project proposal.
- If common land will be used for grazing, the proposal must consider whether the grazing needs of other users will also increase, and whether it will be necessary to establish new agreements to share the grazing on common land.
- Animals should not be left to open graze on land, which the community has not agreed to use for grazing.

Animal Waste
- Animal sheds must be at least 30 metres from any water source.
- Water source should be fenced to keep animals out from the water source.
- The pit to collect animal waste should be a minimum 30 metres length away from any house, Kitchen, children's play area, school or health post.
- Water for washing and watering animals (including walls for buffalo) should be provided at a minimum distance of 30 metres length from the water sources used for washing and drinking by humans, and should be downstream of these sources.
Water
- The drinking, washing and wallowing water requirements must be calculated for the planned and future herd, and sufficient water sources must be identified in the project proposal.

Disease Transmission
- Pig’s pen should be kept as far as feasible from the house.
- Good sanitary conditions around animal shed should be maintained to control mosquitoes, flies and other disease vectors.
- Direct contact with rabbits must be minimized if any symptoms of rabies are observed. Veterinary services should be contacted whenever necessary.
- A separate shed away from the house should be constructed for animal husbandry to prevent diseases transmitted directly from animal contact (like scabies, lice, fleas,) or vector caused disease.
- The project proposal should mention the availability of animal health care facility in the area. Animals should be vaccinated against diseases like FMD (Foot and Mouth Disease) and PPR. There should be a provision in the shed for isolating diseased animal from other healthy animals.

Child Labour
- The project proposal must state that children below 14 years will not be kept away from school to tend animals.
Guideline for Drinking Water Supply Projects

Environmental Risks

Water Availability
There is a risk/no risk that the water source already being used for some other purpose by other community may be affected by use of water by the project. There is a risk/no risk that water diversion from the source affects important aquatic life.

Water Quality
There is a risk/no risk that water quality of the source is not suitable for drinking and use for other purpose. In Terai, shallow tube well water may contain high level of arsenic that poses health risk. There is a risk/no risk that drinking water is contaminated with pathogens which cause diseases in human.

Water Pollution
There is a risk/no risk that water at source can be polluted due to disposal of wastes at or near the source. Accumulation of leaves, woods and degradable products at intake structure also pollutes water.

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, water tank, and distribution lines. Excavation spoil if not managed properly can block drainage and trigger erosion. There is a risk/no risk that polythene pipes are laid above the surface so that they may be damaged by cattle hooves or falling stones and cause water leakage. Leakage of water through distribution lines can trigger erosion at slopes.

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

Environmental Management Measures

Water Use Conflict
- Water requirements of the community served by the project must be calculated for the present and future needs and the project proposal must ensure that it will be sufficient until the stipulated period.
- If the downstream community uses the same source, their prospective for water availability should not be disrupted.

Water Quality
- Water quality of the new source should be confirmed before implementing the project through testing of parameters necessary for safe drinking water in the nationally recognized laboratory. If the community is using same source of water for drinking, the water quality testing may not be essential if there is no visible symptoms of deficiency and disease among users. If the water source is ground water in Terai, water should be tested for arsenic content in nationally recognized laboratory. If water pathogens is suspected in the drinking water it should be either treated in source through chlorination or
boiled or treated with chlorine (Piyush™, waterguard™), or Sodish method (keeping the clean water in plastic bottles and leaving in sunlight for 48 hours) at home before drinking.

Water Pollution
- Agreements should be made among the stakeholders that no open pit toilets, animal sheds, pit to collect animals waste or any harmful effluents are allowed to be located nearer than 30 metres from the water source.
- No harmful material should be allowed to be disposed at or near the source of water.
- Accumulated leaves, wood fragments and other degradable wastes at the intake should be cleaned regularly.

Erosion and Land Slide
- Safe slope angle should be maintained at cut and fill areas around intake.
- Proper attention should be given to control erosion and breaching at intake, and distribution lines through construction of civil structures and bioengineering techniques.
- Polythene pipes should be buried on the ground to prevent their possible damage.
- Trench excavated for main line and distribution lines should be immediately filed so that they do not cause erosion and drainage partition in slopes (and initiate gully erosion) during monsoon season.
- Adequate break pressure tanks should be installed to prevent possible water leakage from pipe breaking.
- Provision for maintenance of leaky distribution pipes and protection of intake should be mentioned in the proposal.

Risk on other Natural Resources and Infrastructures
- 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 the stakeholders.