

CHECKLIST #7 RURAL ROADS

Construction of roads and trails where some of the effects are similar to those associated with projects for linear routes, such as small rights-of-way for energy transmission projects.

A. Questions relating to road location

1. What are the uses and activities of the area where the road is to be constructed? What roads and infrastructures are already present (underground gas, water, sewage lines, and so on)? How heavily is the area used, and what are the seasonal variations in use? How close are homes, businesses, villages and cities? What is the land use master Plan? What are the density and needs of the population? What laws and/or government policies relate to the construction of roads? Could the project lead to:
 - displacements of the population (migration; expropriation and resettlement);
 - changes in ways of life and/or land use (for indigenous populations, losses of territory, uncontrolled and unplanned urbanization, disruption in the organizational structure or means of subsistence, a faster rate of cultural change, and so on);
 - accentuation of social inequalities (depending on the means and availability of transportation for proposed users, for localities through which the road passes and their specific groups, such as women, children, the elderly, and so on, if there is an unequal distribution of access to goods and services, and so on);
 - incompatible uses and/or social conflicts, value conflicts and conflicts over ownership rights between the various users and owners of the land (if there is sacred land, traditional or recreational sites, and so on);
 - changes in the visual quality (aesthetics) of the landscape and/or incompatibility with the landscape;
 - problems with the quality and supply of materials, resources and various services;
 - a decrease or an improvement in the quality of life;
 - better access to goods and services (education, medical care, health services, markets) and de-isolation?
2. What types of environment, landscape, fauna and flora are present? What is their specific importance? Are there bodies of water, wooded areas, slopes, marshes and other vulnerable sites nearby? Is the area prone to flooding, heavy rain, intense storms, fog, freezing, earthquakes or other disasters? What are the characteristics of the soil (stability, texture and drainage) and topography? Has the durability of the road been studied? Could the project have an effect on:
 - environments or sites of economic, ecological, cultural, archaeological or historical importance and the natural resources (water, soils, vegetation, and so on) they contain;
 - rare or vulnerable species and/or species of economic, cultural or ecological importance (biodiversity)?

B. Questions relating to road construction

1. How large is the affected area? What are the location, area and width of the road, its side roads and structures (viaducts, tunnels, bridges, contour canals, ditches, culverts, cuts, embankments, and so on)? What type of road surfacing is proposed (hard surface, asphalt, dirt)? Will there be demolition, blasting, excavation, levelling, clearing of trees and/or brush, soil denudation, backfilling, land drainage, siltation of bodies of water? Will the project require the construction of lodgings or various services such as sanitation facilities (see appropriate checklists)? What types and quantities of construction materials will be required and where will they be obtained (local source of gravel, sand, water, and so on)? How will they be transported to the site, stored and managed? Could the project lead to:
 - changes in, encroachments on and/or the destruction of environments or sites of economic, ecological, cultural, archaeological or historical importance and the natural resources they contain;

- landslides, soil instability and erosion of fragile or thin soils, if there is clearing of trees, particularly during seasons of heavy rain, if there are no proposed measures to stabilize the soil while excavating tunnels, creating embankments, and so on;
- soil compaction or changes in drainage and/or soil permeability by heavy equipment;
- variations in the level and quality of the groundwater table resulting from changes in drainage and the influx of debris due to ravines, tunnels, and so on; floods, changes in surface water, its quality, water levels and flow (seasonal and permanent, upstream and downstream) if the road crosses bodies of water and waterways, by means of structures such as bypasses, flow interrupters, water catchment areas or reservoirs; and consequent effects on aquatic fauna and flora (effects on spawning, breeding, nesting areas, and so on);
- nuisances (foul odours, airborne dust, noise, vibrations, traffic), risks of accidents and/or health risks to workers and the local population during construction;
- problems with pollution of the soil, surface water, groundwater, drinking water sources and air, if construction materials and wastes are poorly managed;
- fair and equitable participation of the local work force with no adverse effects on food security and other activities?

C. Questions relating to road use

1. Who will use this road, with what means of transportation? What will be transported? Will the products transported be heavy or have a high risk of toxicity? What will be the road's intensity of use and volume of traffic? Will use and maintenance of the road generate pollutants (liquids, solids, gases) that may seep or be discharged into surface waters and groundwater, drinking water sources, soils, habitats and air? May greater numbers of people flow through the area? Does improved access complement the development goals and activities of the community and the region? Will the project lead to spontaneous unplanned human and agricultural settlements? Will it promote access to particularly significant and/or fragile environments which would previously have been more isolated for people other than members of the local population? Will there be a greater demand for natural, financial and energy resources and for agricultural lands, and so on? Could the project lead to:
 - the collapse of the road, soil instability, erosion or gulying of fragile or thin soils, if measures are not taken to stabilize banks and soil, if buffer zones of vegetation on slopes and surrounding bodies of water and waterways are not planned, if windbreaks are not established, if degraded sites are not restored, if adequate drainage of the roadbed is not ensured, and so on;
 - increased sedimentation in surface waters (for example, if the dirt road is sensitive to rain) and possible blockage of passage structures (for water, fish, and so on) caused by suspended matter, plant debris, ice;
 - soil compaction or changes in drainage and/or soil permeability, if drainage ditches are not appropriate for soil and climatic conditions;
 - barriers to the movement, reproduction, feeding and migration routes of wildlife (migratory birds, waterfowl, fish, deer and other cervids) and livestock and/or the segmentation of their habitat;
 - an increase in harmful species (invasion of weeds along the roadside, for example) and/or degradation of the vegetation cover (for example, due to airborne dust);
 - an increase in disease vectors associated with humid areas (malaria, schistosomiasis, for example) if there are puddles of stagnant water, depending on the drainage of ditches, and so on;
 - the spread of human and livestock diseases as a result of population movements;
 - a decrease in the quantity and quality of natural resources (water, wood, fauna, minerals, and so on) if these resources cannot sustain an increase in demand generated by an increase in population (immigration or migration), its aggregation, its densification along the road or an increase in prospecting and extraction of resources by people passing through the area or at their request;
 - additional pressures on local infrastructures and services;
 - nuisances (noise, odours, vibrations, dust, smoke, traffic, increased occupancy), risks of accidents (heavy road vehicles, night transportation, pedestrians, spills, explosions, fires, and

- so on) and health risks (respiratory problems due to smog, and so on) among users and in the localities concerned;
- pollution due to the use of pesticides to control roadside vegetation and/or maintenance materials such as salt or dust control materials;
 - pollution due to seepage of oil and gas, exhaust fumes (nitrogen oxides, carbon monoxide, and so on), the type of gasoline used (lead) and/or transportation of hazardous materials and wastes;
 - socio-economic conflicts (if the marketing system for traditional products is affected; if local sale prices change; if the demand for manufactured products and processed foods from other regions increases as a result of increased income; if food crops are replaced by cash crops because of the possibility of increased mobility for such products; if local producers migrate to urban areas to compensate for lost income, and so on);
 - a reduction in the use of improvised roads which adversely affect environmental protection;
 - socio-economic development of the population and all its specific groups (a reduction in the time and cost of transporting local products to outside markets, higher incomes, and so on), a decrease in rural outmigration through socio-economic development and the de-isolation of villages if the road serves local communities instead of simply passing through their territory for the benefit of users from more distant regions;
 - increased involvement of the community in taking charge of its development through public participation in monitoring effects and regularly maintaining the road?