

CHAPTER SEVEN:

ENVIRONMENTAL AND SOCIAL IMPACTS AND THEIR MITIGATIONS

7.1 Sources of Impacts

For a long-term project such as the sustainable management of TRF in DTC, impacts, be they positive or negative, on the environment and surrounding communities, particularly those living downstream could be both short and long terms. Such impacts would be of interest since they can exert telling and long-lasting influences on the resource and our approach to its management. The sources of impacts from SFM operations in the forest could emanate from any or all of the following:

1. Forest Management Planning.
2. Construction of forest infrastructure and ecosystem modification which include selective timber harvesting and priming of the site for rehabilitation activities.
3. Natural rehabilitation/ silviculture and nursery operations
4. Post-felling Silviculture and Tending Treatment, e.g. re-planting and forest rehabilitation operations
5. Transport & hauling operations
6. Assessment, maintenance, monitoring, control of operation and protection of the forest.
7. The workforce (human element).

In addition the forest management project may also render impacts on other components of the ecosystem and the surrounding land uses and communities. Many of the above-mentioned aspects are those that the organisation can control and over which it can be expected to have an influence. The followings are some of the negative impacts that are foreseen if the Project was inadequately administered and badly managed:

- 1) A disorganized and haphazardly implemented operation which is impossible to control adequately.
- 2) An accelerated soil erosion, and increased stream sedimentation,
- 3) Poor disposal of wastes and sewage,
- 4) Higher costs for post-harvest maintenance
- 5) Inability to meet timber production and silviculture targets
- 6) Scheduling problems and confusion that greatly increase the potential for conflicts from miscommunication, thus forcing forest managers to manage from crisis to crisis rather than managing in a systematic, organized way.
- 7) Absence or inadequate database (from detailed vegetation inventory) on which to base decisions on the intensity of logging, ecosystem modification, species-site suitability; nursery, road, bridge and culvert placement and deployment of resources. The pre-felling operations are important starting points for subsequent activities.
- 8) Less-than-optimum placement of roads, bridges and culverts, leading to under- or over-utilisation and short life of these infrastructure
- 9) Reduced efficiency and reduced rates of harvesting and rehabilitation.
- 10) Increased risk for mass flow and landslides on steep slopes with consequent damage to infrastructure, streams, regeneration and land use;
- 11) Excessive usage of fuels and lubricants
- 12) Excessive noise and air pollutions.
- 13) Adverse living condition for the natural regeneration within residual stand and planted stock which may be exposed to soil compaction and to risks of drying, pests and diseases and improper handling
- 14) Bad nursery practice: Improper and excessive use of growth enhancing material and fuels, fertilisers, herbicides and fungicides leading to pollution and danger to forest ecosystem

- 15) Unnecessary creation of forest tracks/ terracing work due to unplanned movement of tractor/ heavy machine causing excessive damage and disturbance/ compaction of soil and loss of habitats for terrestrial and aquatic life as well as avifauna
- 16) Loss of value of forest leading to loss of confidence amongst stakeholders and potential investors.
- 17) Higher mortality of natural regeneration and planted young trees and plants due to weed competition or improper weeding
- 18) Poor forest hygiene leads to disease and pests outbreaks
- 19) Sedimentation or pollution of nearby streams or groundwater
- 20) Civil or criminal penalties due to offences that constitute traffic hazard and danger to public safety
- 21) Loss of timber volume or value
- 22) It will not be possible for the manager to institute further (new) mitigation measures due to lack of knowledge of the post-harvest condition, health and safety of the forest
- 23) Lack/ absence of data from improperly planned and executed SFM programme will lead to misleading inferences about the managed stand, hence bad silvicultural and protection decisions
- 24) Loss of opportunity for learning and skill upgrading.
- 25) Excessive damage to the soil during logging, seedling regeneration, and environment incl. hydrology and biodiversity
- 26) Unsuitable, dangerous and poorly maintained tools and machines
- 27) High accident rates
- 28) Low labour and machine productivity and high production costs
- 29) A dissatisfied and unmotivated workforce
- 30) High workers' turnover.