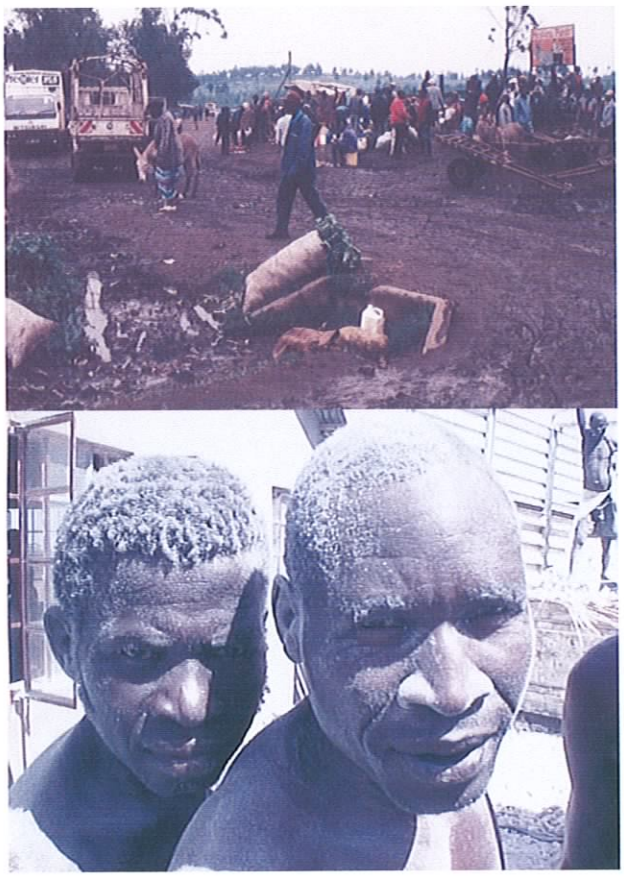
# Crop Post Harvest Programme (CPHP)

## Rural Transport Services Project for Kenya



# Environmental issues overview for the rural transport services project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Project Leader/Institution: **Pascal Kaumbutho / KENDAT**

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## TABLE OF CONTENTS

## INTRODUCTION

Environment, as a development tool, should be viewed, in this Rural Transport Services Research Survey, as consisting of four dimensions: The **biological, physical, socio-economic** and **socio-cultural.**

The major areas of focus in environment and Rural Transport Services interplay are human and commodity transport activities to and from farms, marketing centers, processing facilities and the means of transport like walking, hauling, animal traction, bicycle, wheel barrows, motorized carts and motor vehicles on major and feeder rural roads.

Socio economic activities like the use, maintenance and development of rural and peri-urban road systems and their impacts like degradation, pollution, modification and preservation on natural environment are emphasized.

Further attention is also given to the working environment of transporters, transport commodities, and the means of transport in terms of handling, safety and health.

## STUDY SITE:

Six divisions from different districts in different parts of the country were selected for this study based on their remoteness, intermediate transport technology potential and hetrogenity.

## PROJECT OBJECTIVES:

Within the main Rural Transport Services Research objectives the specific objectives, of environment and Rural Transport Services research are:

(i) To understand the rural transport services links to biological, physical, socio-cultural and socio-economic environment

(ii) To compile current environmental data and information relevant to rural transport services to help the development of better strategies and policies to improve rural transport services

(iii) To improve the livelihoods of the rural poor through different forms of intervention based on the research findings

## SPECIFIC AREAS OF RESEARCH:

1. Climate and Rural Transport Services Interaction

   Impact of Erosion like:

   - Formation of gullies and potholes
   - Destruction of facilities (bridges, culverts, canals etc) and
   - Changes in transport behaviour of IMTs and motorized means of transport by seasonality.

2. Impact of motor vehicles on environment:

a) Impact of air Pollution on:

   - Road side crops
   - Schools
   - Shops
   - Residents

b) Impact of air pollution on water resources like

   road side:

   - Ponds
   - Streams
   - Pans
   - Dams
   - Springs

3. Impact of Topography

Topography has major impacts on rural transport services in the study area on;-

- Types of IMTs used
- Accessibility to major transport network
- Time and speed of human and commodity movements
- Health and safety issues

## METHODOLOGY:

A preliminary environmental survey for rural transport services research was conducted in the study areas in August and September, 2002 along 2860 km major, and feeder roads using the **"Drive about and walk about approach".**

Preliminary environmental data was collected on biological environment like natural vegetation, human activities like cutting, firewood and water collection, digging for sand and excavating for minerals, agricultural activities, livestock trekking etc. at information level.

Two groups of communities are generally affected by rural transport and environment interplay: pastoralists and farmers.

Pastoralists keep large numbers of livestock not only for milk, meat, hide, etc, it is also a sign of social prestige. As animal population increases, the pressure on rangelands increases. A given area of land can only support a limited number of animals for a certain period of time without degradation. This is called the carrying capacity and can be maintained through proper range management. In arid and semi-arid lands, where ground cover vegetation is very scanty, environmental degradation is at a higher magnitude. Sporadic distribution of livestock in dry lands and their concentration around water vicinities have led to the decline of several plant species, mainly the most nutritious and palatable ones.

Agricultural communities continue to cultivate tracts of land mainly for subsistence crop production through clear cutting of trees/shrubs. The consequences of these activities are the creeping of wind and water erosion and decline of agricultural rangelands into void and sterilands. These in turn clear paths for the encroachment of desert type micro-climate.

The biodiversity is the natural biological capital of the earth, and presents important opportunities for all rural communities. The adverse effects of human activities on biodiversity are dramatically increasing and threatening the foundation of sustainable development in rural areas.

The rate at which rural communities are altering their environment, the extent of those alterations, and their consequences for the distribution and ambudance of species, and ecological systems are unprecedented. These changes in turn threaten their food supply, sources of food, medicine and energy, opportunities for recreation and tourism.

Environmental degradation in the study areas, emanates from different biological and physical factors like:

- Fire wood and charcoal production
- Clear cutting for cultivation
- Construction of pans/dams
- Overgrazing and browsing
- Expansion of settlements
- Road construction
- Uprooting by wildlife
- Water erosion, mobile sand and siltation
- Digging for sand

## 2. CLIMATE:

Climate influences rural transport mainly through rainfall which leads to the damage of roads, bridges, culverts and other infrastructures. In all the study areas the negative impacts of climate mainly floods and run-off is felt every where. Severe rural transport obstruction by rainfall is most felt in Mwea & Kalama divisions.

High temperatures retard mobility and working hours. This is felt most in Magadi, Kalama & Mwea divisions.

## 3. SOIL EROSION:

Soil erosion is among the most chronic environmental and economic burdens in the study area. It is a quite crisis, an insidious, man-made disaster that is unfolding gradually. In some places it is barely recognized. Some of the study areas are part of the fragile ecosystems.

Soil erosion is caused mainly by rainfall, wind, clear cutting of natural vegetation for shifting cultivation & overgrazing.

As most of the study areas are located in the Arid and Semi arid zone, just a few hours of torrential downpours can wash away tons of top soils from each hectare cutting across rural roads.

Swirling winds and flash floods can be equally devastating.

Little has been done in overcoming this problem in these areas.

One major reasons is that there are very few, if any, solutions that are cheap, appealing, long lived and sustainable over this vast area that need protection.

## 4. AIR AND WATER POLLUTION

Air and Water pollution have been associated in many people's minds with industrialization and urbanization and thus with the cities of developed countries where most of the measurements have been made. Recently, however, Global Environment Monitoring System (GEMS) has demonstrated quite convincingly that the worst ambient conditions reported today exist in both rural and peri-urban households of developing countries.

The same holds true in most of the rural household set ups of the study area.

Dust particles by motor vehicles are the major pollutants affecting schools, shops, residentials, roadside crops, ponds, & springs significantly.

## THE ENVIRONMENTAL EFFECTS OF POVERTY

Rural inhabitants who cannot meet their subsistence needs through purchase are forced to use common or private resources like; forests for food and fuel; pastures for fodder; pans, waterholes and rivers for water. Rural communities depended on such resources for millenia. Major forces like population growth and recurrent drought have recently changed this pattern to some extent.

Only limited number of households in rural area have access to boreholes while others depend on wells, pans and rivers for their water requirement. Overuse of water resources, mainly during dry seasons, by great majority has resulted in some contamination and exhustion. Untreated sewage are disposed in depressions which feed wells, and rivers. The health of those dependents on untreated sources of water is increasingly at risk. Those who depend on biofuel - wood, crop residues, and animal dung for cooking risk health effect like respiratory disease, anaemia, cancer and early child miscarriage. Women and children are most exposed to this risk. At times the location of these resources is very far from settlement, thus require more time and effort. At the same time settlements need for wood for construction puts additional demand on the same resource.

Sanitation services are not available. Human waste, in most cases, is disposed in open spaces and can spread pathogens through air, water or by direct contract. Waste-related health hazards are increasing and affect the semi-urban and rural poor inhabitants most severely.

Rural communities are both agents and victims of environmental degradation, whether caused by their own actions or natural calamities. Insufficient food supply, unsafe drinking water, smoke from firewood and charcoal, and unsanitary conditions contribute significantly to high child mortality and low life expectancy, in most of rural areas.

Thus, in any rural transport services and poverty eradication strategy designing and development undertakings the need for inclusion of environmental roles is imperative both at national & regional levels.