

Government of Rwanda



United Nations Development Programme (UNDP)



Project Document

National Environment Youth Project (December 2008-December 2011)

Brief Description

The project will focus on protecting the banks and catchment areas of Nyabarongo river system from land degradation and solid waste pollution while creating employment opportunities for the youth in both rural and urban Districts. The project will promote a wide range of income generating environmental activities and these will include terracing, nursery development, tree planting and rehabilitation of degraded areas; waste collection and recycling particularly transforming some of these materials to produce fertilizer for farmers and briquettes for cooking and other uses. Youth associations, local communities, District and Sector leadership, environmental NGOs and schools will be encouraged to actively participate in environmental awareness programmes and demonstrate practical self help measures of environmental management.

With the support of the Rwanda Environment Management Authority (REMA), Ministry of Natural Resources (MINIRENA) and the National Youth Council, the project will be enabled to mobilize youth associations to establish pilot projects where the youth will be directly involved in rehabilitating, conserving, protecting and sustainably managing the natural resources. In the process viable income generating projects will be established in an effort to create employment and alleviate poverty among the Youth.

The project will build capacities for youth in income generating activities with a view to turning their life into a more attractive one through environmental conservation.

SIGNATURE PAGE

Country: RWANDA

UNDAF Outcome(s)/ Indicator(s):

Management of environment, natural resources and land is improved in a sustainable way.

Expected Outcome(s) Indicators

The youth and communities in the project area are using capacity built in sustainable management of environment and natural resources along Nyabarongo River System.

Nyabarongo river system waters are clean and free from water hyacinth

Kigali city and towns along Nyabarongo river system are clean through improved solid waste management.

The Youth and communities in the Districts along the Nyabarongo River System through sustainable management of environment and natural resources have enhanced their livelihoods.

Improved productivity restored to previously degraded land.

Project effectively managed, monitored, evaluated and reported

Expected Outputs/ Annual Targets:

The Nyabarongo River System catchments high altitude areas have been terraced with radical terracing for management of soil conservation (ha).

The Nyabarongo River System catchments in lower altitude areas have been terraced with progressive terraces

The banks of Nyabarongo River System have been protected through improved management of the river buffer zone.

Executing Agency:

Rwanda Environmental Management Authority (REMA)





Implementing agencies:

United Nations Development Programme (UNDP)

Programme Period: December 2008 – December 2011
Programme Component: Land Degradation
Project Title: National Environment Youth Project
Project ID: 000880
Project Duration: Three Years (starting from Dec. 2008)
Management Arrangement : National Execution (NEX)

Estimated Budget:	US\$ 6,000,000
Allocated Resources :	US\$ 5,298,000 (one fund)
In kind contribution :	US\$ 402,000 (GoR)
UNDP TRAC :	UNDP Rwanda: 300,000 US\$)

Agreed by

On behalf of:	Signature	Date	Name/Title
MINIRENA		20/11/2008	Hon. Vincent Karega Minister of State in charge of Environment, Water and Mines
MINIYOUTH		24/11/2008	Hon. Protais Mitali Minister of Youth
MINECOFIN			Hon. James Musoni Minister of Finance and Economic Planning
UNDP		24/11/08	Anthony Ohemeng Boamah Resident Representative a.i



Country: REPUBLIC OF RWANDA

UNDAF Outcome(s)/Indicator(s): Management of environment, natural resources and land is improved in a sustainable way

Expected Outcome(s)/Indicator(s):

- ❖ The youth and communities in the project area are using capacity built in sustainable management of environment and natural resources along Nyabarongo River System.
- ❖ Nyabarongo river system waters are clean and free from water hyacinth
- ❖ Kigali city and towns along Nyabarongo river system are clean through improved solid waste management.
- ❖ The Youth and communities in the Districts along the Nyabarongo River System through sustainable management of environment and natural resources have enhanced their livelihoods.
- ❖ Improved productivity restored to previously degraded land.
- ❖ Project effectively managed, monitored, evaluated and reported

Expected Output(s)/Annual Targets:

- ❖ The Nyabarongo River System catchments high altitude areas have been terraced with radical terracing for management of soil conservation (ha).
- ❖ The Nyabarongo River System catchments in lower altitude areas have been terraced with progressive terraces
- ❖ The banks of Nyabarongo River System have been protected through improved management of the river buffer zone
- ❖ Filtering and sinking of soil sediments has been enhanced through a forestation and rehabilitation of forests on river catchment areas
- ❖ Nyabarongo River System have been protected and freed from attack by water hyacinth
- ❖ The Capacity of youth and management in Kigali and towns along Nyabarongo River System has been enhanced
- ❖ The youth) have been organized, supported and strengthened for the protection of bank and catchment areas of Nyabarongo River System bank and catchment areas
- ❖ The youth have been supported and strengthened in waste management in Kigali and towns along the Nyabarongo river system
- ❖ The capacity of youth in environment and waste management techniques has enhanced through training in cooperative principles, techniques of soil conservation, agro forestry, forestry, land use and integrated approach
- ❖ Project implementation Unit (PMU) in place and strengthened

**Implementing Partner: Rwanda Environment Management
Authority (REMA)**

Responsible Parties : UNDP



Table of Contents

ABBREVIATIONS AND ACRONYMS.....	VII
LIST OF TABLES.....	VIII
LIST OF FIGURES.....	VIII
LIST OF MAPS.....	VIII
1.0. BACKGROUND AND CONTEXT.....	1
2.0. SITUATION ANALYSIS.....	2
2.1. GEOGRAPHICAL FEATURES.....	2
2.2. SOCIAL ECONOMIC CONTEXT.....	3
2.2.1. <i>Reflection on the Youth</i>	7
2.3. DESCRIPTION OF THE PROJECT AREA.....	10
2.3.1. <i>Project location</i>	10
2.3.2. <i>The Rwandan Akagera Watershed and Nyabarongo River System</i>	11
2.3.3. <i>Hydrology</i>	11
2.3.4. <i>Nyabarongo river basin</i>	12
2.3.5. <i>Hydrology</i>	12
3.0. PROJECT STRATEGY.....	14
3.1. DEVELOPMENT GOAL.....	14
3.2. PROJECT OBJECTIVES.....	14
3.3. PROJECT RATIONALE.....	15
3.3.1. <i>Stakeholder Participation</i>	20
3.4. LINKING WITH PRIOR, ON-GOING PROCESSES AND PROGRAMMES.....	22
3.5. <i>Government Youth Policy and Strategy</i>	24
4.0. CHALLENGES AND OPPORTUNITIES.....	28
4.1. CHALLENGES.....	28
4.1.1. <i>Rehabilitation of Land degradation</i>	28
4.1.2. <i>Population Pressure on Natural Resources</i>	29
4.1.3. <i>The Solid waste management</i>	30
4.2. OPPORTUNITIES.....	31
4.2.1. <i>Political will</i>	31
4.2.2. <i>On-going Processes</i>	31
4.2.3. <i>DEMP Phase 1</i>	32
4.2.4. <i>Donor goodwill</i>	32
4.3. SUSTAINABILITY.....	32
4.4. REPLICABILITY.....	33
5.0. RESULTS AND RESOURCE FRAMEWORK.....	34
6.0. MANAGEMENT ARRANGEMENTS.....	45
6.1. PROJECT IMPLEMENTATION.....	45
6.2. GENERAL FRAMEWORK.....	45
6.3. PROJECT MANAGEMENT UNIT (PMU):.....	45
6.4. NATIONAL PROJECT STEERING COMMITTEE (NPSC).....	46
6.5. DISTRICT ADVISORY TECHNICAL COMMITTEE (DATC).....	46
7.0. FINANCIAL ARRANGEMENT.....	46

7.1. AUDIT REQUIREMENTS	47
7.2. GUIDELINES FOR PAYMENT OF ALLOWANCES.....	47
8.0. PROJECT SUMMARY BUDGET AND ANNUAL WORK PLANS	47
8.1 PROJECT SUMMARY BUDGET.....	47
9.0. MONITORING AND EVALUATION, INCLUDING AWP MONITORING TOOL.....	95
10.0. FINAL PROJECT EVALUATION	97
11.0. LEGAL CONTEXT.....	97
ANNEXES	101
ANNEX 1: PROFITABILITY OF FERTILIZER AND BRIQUETTES MADE FROM SOLID WASTES (IN US\$)	101
ANNEX 2: GENERAL PROJECT BENEFITS FROM INTERVENTIONS FOR FARMERS IN THE PROJECT AREA	102
ANNEX 3: SOIL CONSERVATION TECHNIQUES WHICH CAN BE USED IN TERRACING (ADAPTED FROM SMS-MSP CAPACITY BUILDING PROJECT.)	105
ANNEX 6: THE DUTIES AND RESPONSIBILITIES OF PROJECT STAFF	126
ANNEX 7: DUTIES AND RESPONSIBILITIES FOR THE NATIONAL PROJECT COMMITTEE (NPSC) AND DISTRICT ADVISORY TECHNICAL COMMITTEE (DATC)	134
ANNEX 8: PRELIMINARY TERMS OF REFERENCE OF PROJECT IMPLEMENTATION PROCEDURES.....	135
ANNEX 9 : NOTES	136
ANNEX 10 : LPAC meeting minutes.....	138
ANNEX 11 : Harmonization modality between the National Environment Youth Project and the Joint Youth Program.....	140



5

Abbreviations and Acronyms

AIDS	-	Acquired Immune Deficiency Syndrome
CCA	-	Common Country Assessment
CBD	-	International Convention on Biodiversity
COPEDE	-	Compagnie pour l'Environnement et Développement
DATC	-	District Advisory Technical Committee
DHS	-	Demographic and Health Survey
EDPRS	-	Economic Development and Poverty Reduction Strategy
EIC	-	Education, Information and Communication
EICV	-	Enquête Intégrale sur les Conditions de Vie des Ménages
GDP	-	Gross Domestic Product
GEF	-	Global Environment Facility
GOR	-	Government of Rwanda
HIV	-	Human Immunodeficiency Virus
ISAR	-	Institut des Sciences Agronomiques du Rwanda
MSP	-	Medium Sized Project
MDG	-	Millennium Development Goal
MIFOTRA	-	Ministry of Public Services, Skills Development, Vocational Training and Labor.
MINAGRI	-	Ministère de l'Agriculture et des Ressources Animales
MINALOC	-	Ministry of Local Government, Good governance, Community Development and Social Affairs
MINECOFIN	-	Ministry of Finance and Economic Planning
MININFRA	-	Ministry of Infrastructure
MINIRENA	-	Ministry of Natural Resources
NPSC	-	National Project Steering Committee
NBI	-	Nile Basin Initiative
NEX	-	National Execution
NGO	-	Non-Government Organization

NRM	-	Natural Resources Management
NTEAP	-	Nile Trans-boundary Environmental Action Project
ORTPN	-	Office Rwandais de Tourisme et des Parcs Nationaux
PAFOR	-	Projet d'Appui à L'Aménagement des Forêts
PC	-	Project Coordinator
PMU	-	Project Management Unit
PSTA	-	Plan Stratégique de Transformation Agricole
RADA	-	Rwanda Agricultural Development Authority
RARDA	-	Rwanda Animal Resources Development Authority
REMA	-	Rwanda Environment Management Authority
RSSP	-	Rural Sector Support Project
SMS	-	Small Medium States
SMS-MSP	-	Small Medium State-Medium Sized Programme
SGP	-	Small Grant Programme
TAMP	-	Programme for the Akagera River Basin
UNDP	-	United Nations Development Programme
USD	-	United States Dollar

List of Tables

Table 1: Literacy level (%) by sex among those less than 35 years

Table 2: Stakeholder Interests and Expected Level of Participation

Table 3: Erosion risk categories

Table 4: Project Results and Resources Framework

Table 5: Project summary budget (in USD)

List of Figures

Figure 1: Agriculture activities along Mukungwa river bank in Musanze District

Figure 2: COPEED waste recycling factory under construction

Figure 3: Part of Nyabarongo River System which is bare due to erosion

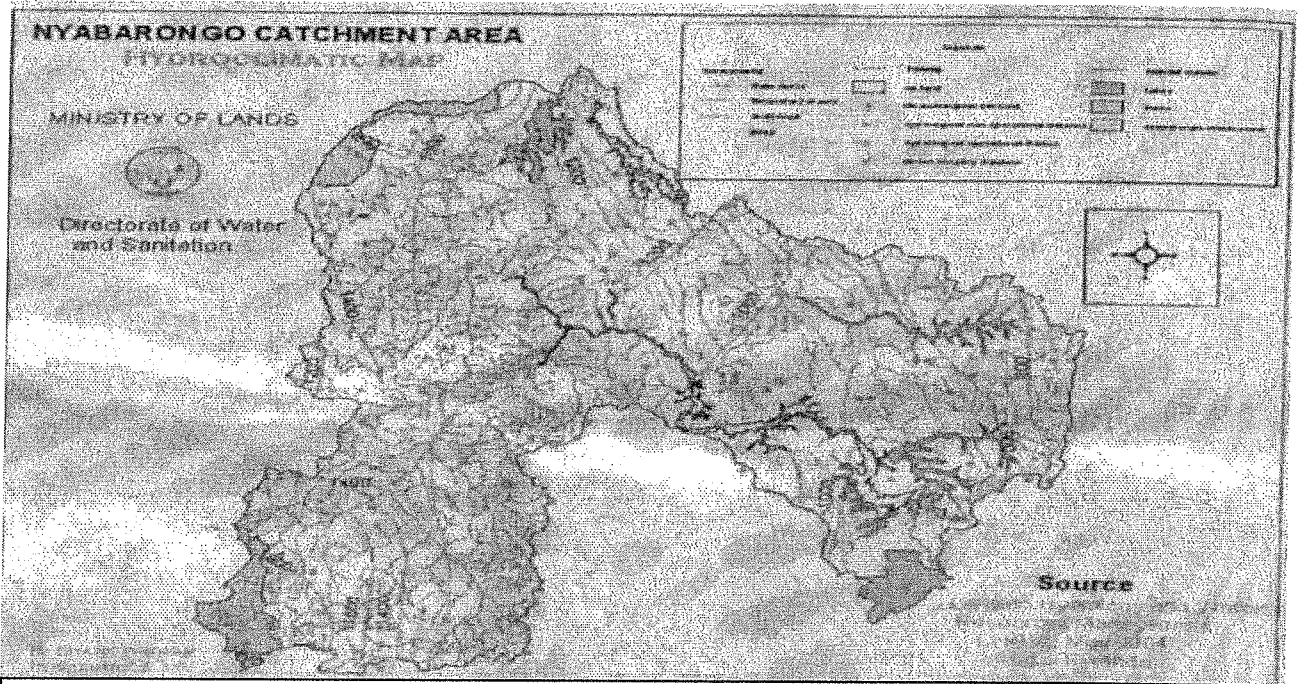
Figure 4 : Nyanza Waste Dumping Area

List of Maps

Map 1: Nyabarongo River System Catchment Area

Map 2: Hydrological Network of Rwanda

The Nyabarongo River Basin



Source: Adapted from Nile Basin Capacity Building Network (NBCN), Flood Management, Research Cluster, group II, 2005

h

M

1.0. Background and Context

The 1994 war and genocide have had profound negative effects on the environment. During and after the genocide, there was extensive cutting of forests for both construction of houses and fuel wood for displaced people. The genocide destroyed ecosystems, infrastructure and human resources, including those who worked on environment related sectors. The situation was aggravated by the return of refugees from their countries of exile who were resettled in forest areas. There was a serious land problem and the Government had to de-gazette some of the park areas and even partition land belonging to state owned projects to make space for resettlement. Reports indicate that two thirds of the Akagera National Park, and almost all the Gishwati Mountain Forest as well as some parts of the Mutara Game Reserve forests were allocated for refugee resettlement. The outstanding genocide consequences are:

- Environmental destruction by massive movement of displaced people
- Heavy impact on children and vulnerable groups.

The unsustainable use of natural resources in the past has resulted in unprecedented rates of environmental degradation that have been a threat to economic growth and poverty reduction. Thus, the EDPRS stresses the need to incorporate issues of sustainable natural resources management in sectoral policies and legislation, plans and programmes in recognition of the cross cutting nature of environment. The National Environmental Policy and the subsequent Organic Law 04/2005 also emphasize the need to integrate environment in the development process for sustainable development. The National Environment Policy sets out overall and specific objectives as well as fundamental principles for improved management of the environment, both at the central and local level. It lays a solid foundation for the establishment of a legal framework for improved management of the environment, as well as the right principles for the participation of the population in general, and women and the youth in particular

These instruments recognise the imperative need of better management of natural resources towards economic growth and poverty reduction. Through the EDPRS process and other initiatives undertaken by Ministry of Natural Resources (MINIRENA) and the Rwanda Environment Management Authority (REMA), it is hoped that other sectoral policies and strategies will integrate natural resources management and environmental conservations measures for sustainable development.

The Vision 2020 recognizes the fact that the high demographic pressure has increasingly led to the occupation of marginal areas and to the rapid and continuous soil degradation of the fragile ecosystems of the country. The Vision 2020 notes the fact that for Rwanda to ensure sustainable development, it has to implement adequate land and water management techniques, coupled with a sound biodiversity policy. The EDPRS targets to map, assess and rehabilitate five ecosystems from current 50% to 80% by 2012. It has priority also to protect biodiversity and to reduce soil erosion and declining soil fertility (EDPRS, July 2007).

Rwanda has ratified several international conventions and agreements relating to environmental protection and sustainable natural resources management, including: the MDGs, The United Nations Convention on Combating Desertification (UNCCD), the International Convention on Biological Diversity (CBD) the UN-Framework Convention on Climate Change (UNFCCC), The Stockholm Convention on Persistent Organic Pollutants, and others.

Of the total population of Rwanda of 8,128,533, 49% is under 14 years old and 60% less than 20 years old (NSTIP, 2005). In general 67% of the total population is below the age of 25 and unfortunately most of these are unemployed (National Census, 2002). The Youth Strategy has fixed the age of the youth to be between 14 and 35 years old. This clearly indicates that the majority of the population in Rwanda is predominantly young. Thus, the country's hope lies in the contribution of particularly the youth who represents the majority of the country's active labour force.

Thus, the youth are being encouraged to take a more direct and active interest in providing solutions to some such environmental issues and problems as a contribution to the aspirations of Vision 2020, MDGs and EDPRS. Vision 2020 envisages Rwanda as a country where the natural resources will be rationally managed and the land protected from erosion and any form of degradation by 2020. This calls for various initiatives to make this a reality. The Economic Development and Poverty Reduction Strategy (EDPRS) is one of the practical processes which has positively responded to Vision 2020 and the Millennium Development Goals (MDGs) with a view to reducing extreme poverty and acknowledging the current environment-poverty linkage which underpins the socio-economic situation. It is crucial to realise the potential contribution of the environment and natural resources to economic growth of the country. The EDPRS appreciates this significant contribution of natural resources management towards poverty reduction and economic development.

2.0. Situation Analysis

2.1. Geographical Features

Rwanda has a mountainous and sloppy or hilly landscape ranging from 900 m to 4500 m above the sea level with an area of 26,238 square km. Rwanda is known to be a country of a "Thousand Hills" reflecting such mountainous and hilly nature of the country. There are volcanic and mountainous highland areas in the North and North West of the country (4500 m) The low lands to the East and South East are about 900 m above the sea level while the central plateau do rise up to 2000 m above the sea level. This diverse terrain makes the country susceptible to land degradation due to soil erosion emanating from heavy rains and poor cultivation methods.

Rwanda has a stable tropical temperate climate with average temperature of 20°C. The annual temperatures in North and North-West range from 16°-17°C while in the central

plateau, the temperature do range from 18°C to 20°C and eastern and southern lowlands temperatures range from 20° to 24°C annually.

Rwanda has bimodal rainfall regime with average rainfall of 1000 mm annually. The rainfall pattern is characterized by a short rainy season from September to November and a longer season between February and May. Between these seasons are two dry periods, a short one between December and January and a long one from June to September. Generally the rainfall is abundant with an average of 1000 m annually but rainfall ranges from about 900 mm in East and South-East to 1500 mm to the North and North-West volcanic highland areas. However, the rains have recently become unreliable and unstable to the extent that some areas are becoming relatively warmer than expected. Indeed, in the last 30 years, Rwanda has experienced climate changes, with regards to frequencies, intensity and persistence of extremes like heavy rainfalls, waves of heat, drought and climatic variables.

Rwanda has a natural good drainage system composed of the Congo and Nile river basins with well distributed rivers streams, lakes and marshlands networks which could ensure adequate rainfall in the country. The Nile basin covers 67% of the natural territory and the Western Congo basin covers 33%. The Congo basin consists of insignificant and short rivers which flow into Lake Kivu. The Rusizi River is its outflow into Lake Kivu. The wetlands related to these basins are not well utilized and this underpins the need to manage them to ensure sustainability of the drainage systems

2.2. Social Economic Context

Rwanda is one of the poorest countries in the world, with an average per capita income of 220 USD and with about 57% of the entire population living under the poverty line. However, poverty levels declined from around 70% in 1994 to under 57% in 2006¹. The Economic Development and Poverty Reduction Strategy (EDPRS, July, 2007) and the EICV (2006) put Rwanda's poverty at 56.9% and 36.9% of its population in extreme poverty. Rural areas are relatively poorer than urban areas. Poverty in rural areas is 62.5% compared to 13% for Kigali City and 41.5% for other towns. Extreme poverty in rural areas is 40.9% of the population (EICV, 2006). Households that live below the poverty line represent 65.7% in rural areas as opposed to 14.3% in urban areas. Poverty strikes also hard in rural areas where 45% cannot meet their food needs (National Youth Policy, 2005). About 90% of people are below poverty line and 43% of the population is in extreme poverty (PRS Annual Report, 2005).

Rwanda economy is primarily dependent on natural resources. Over 87% of Rwandans depend on subsistence agriculture for their livelihood. Agriculture (and food crops in particular) remains a major component of GDP and provides most employment (EDPRS, July, 2007)². Agricultural sector accounts for about 36.4% of GDP and service sector that account for 43.8%. The industrial sector accounts for 14.2 % of GDP (EDPRS, July, 2007). The agriculture sector is still important as about 80% of employment for working

¹ Household Living Conditions Survey (EICV), 2007

adults comes from agricultural sector (Integrated Living Conditions Survey, 2006). The government is currently undertaking investments to improve farm productivity and intensification of agriculture with increased use of improved seeds and husbandry practices.

Basically 52% of the country is suitable for arable farming, representing approximately 1,385,000 hectares. Marshland is estimated to be about 165,000 hectares and only 93,000 ha are cultivated (i.e. 57 % of the total area) with only about 5,000 ha reclaimed and prepared for water retention. About 88,754 ha of marshlands are partly reclaimed, without prior technical studies, by peasants grouped in associations or cooperatives (NTEAP, 2006). This kind of reclamation tends to be detrimental to the harmony and ecological equilibrium of fragile ecosystems of these areas. The marshlands form wetlands of lakes and Nyabarongo River System and continuous cultivation of these marshlands without mitigation measures is leading to soil infertility, falling water table levels and changing ecological nature of the marshlands. The rest is classified to preserve the hydrological cycle, ecological-climatic balance as well as biodiversity (National Land Policy, 2004).

Increased agricultural and livestock activities has lead to deforestation and overgrazing cause soils to be exposed to water and wind erosion. Inappropriate cultivation methods on hill slopes, done without terracing or improper terracing has aggravated the situation and has led to unsustainable agriculture. The unsustainable agriculture remains the major problem resulting in a serious level of land degradation throughout the country. Unsustainable agriculture in Rwanda causes: (i) soil erosion and (ii) loss of soil fertility. Soil erosion in Rwanda is a result of a combination of several factors, namely: extremely steep slopes, non-application of soil protection measures, application of inappropriate soil conservation techniques, unreliable heavy rains and the general low level of awareness of both the farmers and local leaders on the economic benefits of soil protection investments. Continued decline in soil fertility is mainly a result of "soil mining", that is continued cultivation without replenishing soil fertility with plant nutrients through application of organic manure or/and mineral fertilizers. The increasing levels of soil erosion and reducing soil fertility in the acid-soil mountainous areas of Rwanda have resulted in ecosystem degradation, lowered agricultural yields, severely impacted on rural livelihoods and the national economy. Ecosystem integrity has been compromised, river banks have been eroded and siltation has caused nutrient loading in water bodies, mainly the Nyabarongo River System and associated wetlands.



Figure 1: Agriculture activities along Mukungwa river bank in Musanze District

Rwanda is experiencing increasing population growth, rapid urbanization, increasing unemployment, poverty, risk of worsening HIV/AIDS issues, and natural resources depletion leading to various environmental problems. Natural resource degradation and depletion has significantly contributed to the low productivity of the primary sectors particularly agriculture. In Rwanda crop farming is undertaken in all areas including mountain slopes and tops, valleys and plains. Competition for limited land resources is intense, productivity is generally low and massive erosion is common. Over cultivation, inappropriate agricultural practices, overgrazing and deforestation have been identified as the major causes of land degradation

At the same time, urban population has increased from 7% in 1993 to 18% of the total population in 2002. It is even estimated that by 2020 the population will increase to 30% (Environmental Policy, 2003). The challenge is how to cope with emerging urban environmental problems with the prevailing infrastructure.

The population of Rwanda is 8,128,533 (Population Census, 2002) and about 83% of the population is rural with an annual growth rate of 2.6. Out of that population 3,488,612 (49%) are male while 3,668,939 (52.29%) are female and sex ratio of 91 for men and 100 for women. The country has the highest population density in Africa with an average of 321 inhabitants per km² (Population Census, 2002). However, Rwandan population's life expectancy has fallen from 54 years in 1991 to 40 years in 2003 and 44 years in 2005 (DHS,2005). The overpopulation has led to excessive environmental degradation due to exploitation of natural resources, on which the development of Rwanda is largely dependent, particularly agriculture and tourism.

There is a growing competition for access to land due to the combined effects of land scarcity, population growth, and the high number of landless people, the livestock crisis, and the increasing hold of the urban elite over rural land (National Land Policy, 2004). Soil erosion has worsened due to continuous and uncontrolled cultivation, exploitation of marginal land that is unsuitable for agriculture and the lack of reliable soil conservation methods" (Ibid pg 7). In addition, the number of those who are landless has tremendously increased leading to acute poverty. Thus, lack of infrastructure in

rural areas encourages youth to migrate to urban areas intensifying the problem of unemployment in urban areas. Generally neither the Government nor the private sector is able to absorb this big group in the employment sector

Yet agriculture and related activities employ the bulk of the labour force in the country. Reducing the levels of poverty and improving livelihoods would depend on how agriculture is exploited and how environment is harnessed for improved welfare without damaging it (UNDP/UNEP, 2006).

As a result of the high population pressure, there is a rapid reduction of the size of farmland for families. Available cultivable land per family is about 0.6 ha. (MINAGRI, 2000). The land size vary with regions in the country; the highest land size is in Umutara with 1.14 ha, followed by Gitarama with 1.09 ha, Byumba has 1.04 ha, Butare has 0.36 ha and the loWest is 0.34 ha for Cyangugu (Agricultural survey, 2006). There are also regional disparities concerning the availability of arable land which varies from <0.25 ha to >2 ha. The average farm size is 0.72 ha/household but some Provinces (Gisenyi, Cyangugu, Gikongoro and Butare) have already reached the average of 0.50 ha per household (Agricultural survey, 2006). The number of families with non-economical parcels of land continues to rise. About 40% of all households own land less than 0,5ha, a significant increase from 25% in 1986².

Biomass is the principal source of energy since it meets 96.2% of national needs. Fuel wood, shrubs and plant residues are used for cooking and cottage industries as a source of primary energy (Rwanda Development Indicators, 2004) The increasing demand of the modern sector has necessitated searching for other sources such as the hydro-potential, solar energy and methane gas.

As in many other developing countries, there has been a dramatic expansion in urban areas in recent years, but most of that growth has been unplanned and urban management and services are rudimentary. Industrial development has been actively promoted in and around major urban centres to generate local opportunities for employment. However, industries in Rwanda are not many and most of these are agriculturally based. The most important ones include: textiles, breweries, flour milling, tanning, wood and chemical industries

Services such as water and electricity supply, sewage and refuse collection are inadequate. Environmental health and the control of industrial pollution are issues of increasing concern.

² PSTA, MINAGRI, 2004

2.2.1. Reflection on the Youth

Rwanda formulated the National Youth Policy in 2006 to tackle the many challenges facing the youth in different fields such as management of direct or indirect consequences of genocide, employment, fighting against HIV/AIDS, hunger and poverty, illiteracy and limited possibilities of accessing education, deterioration of the environment etc. as a result of past and current social and economic situation of the country. Not only such challenges prevent the youth from improving their wellbeing but also jeopardize their future.

As cited above, Rwanda has 49% of its population (8,128,533) being under 14 years old and 60% less than 20 years old. In general 67% of the total population is below the age of 25 and unfortunately most of these are unemployed (National Census, 2002). The Youth Strategy has fixed the age of the youth to be between 14 and 35 years old.

This clearly indicates that the majority of the population in Rwanda is predominantly young. According to the National Youth Policy, 42% of the youth are either unemployed or work on seasonal small scale agriculture. Obviously, there is a high level of young people who discontinue at primary education and have to seek employment because of limited chances at high level education.

The unemployment rate continues to rise and sources of monthly income are increasingly becoming rare. Economic conditions of the population are improving but issues caused by extreme poverty are not eradicated (EDPRS, July, 2007; EICV, 2006). According to the National Youth Policy, 42% of the youth are either unemployed or work on seasonal small scale agriculture. Obviously, there is a high level of young people who discontinue at primary education and have to seek employment because of limited chances at high level education.

The problem of unemployment is characterized by lack of job opportunities both in rural and urban areas. Rwanda experiences an acute shortage of land and presently available cultivable land per household is 0.6 hectares which is, in most cases, not viable. According to the FAO a cultivation plot should be at least 0.90 ha to be economically viable for a family (National Land Policy, 2004).

Unemployment and underemployment of youth are the major problems that have to be seriously addressed. Unemployment has strongly negative impact on youth. It is important to create conducive conditions and an enabling environment for the youth by effectively involving them in development activities such as environmental rehabilitation and urban improvement programmes.

The Country's Economic Development and Poverty Reduction Strategy (EDPRS) is one of important undertaking geared to fulfilling the objectives of Vision 2020. The Strategy is to ensure all stakeholders including the youth formulate poverty reduction programmes and projects for an improved livelihood.

This project is therefore meant to enable the youth play a key role in employing techniques which would add value to the environment through income generating activities in order to clearly improve their living conditions.

The following are socio-economic factors that cause youth unemployment in Rwanda:

(i) Lack of job opportunities both in rural and urban areas

The problem of unemployment is characterized by lack of job opportunities both in rural and urban areas. Rwanda experiences an acute shortage of land and, the number of those who are landless has tremendously increased leading to acute poverty. The lack of land in rural areas encourages youth to migrate to urban areas intensifying the problem of unemployment in urban areas. Generally neither the Government nor the private sector is able to absorb this big group in the employment sector.

(ii) Weak capacities for employment creation

The Rwandan economy is faced by weak industrialization and weak enterprise creation capacities to facilitate creation of jobs. The enterprises have weak internal savings and there are few Rwandan promoters. The participation of nationals is limited to the creation of small and medium enterprises with inadequate productive capacity. A study on employment opportunities show that out of 895 investigated enterprises, 408 enterprises had less than 10 jobs, 325 enterprises had 10 to 50 jobs and 162 enterprises only had more than 50 jobs³.

(iii) Youth have insufficient professional training and professional experience and as a result can not be competitive on the job market.

(iv) High illiteracy rate among the youth;

About two-thirds (65.5%) of people aged 15 and above are literate out of which 62.5 % is for rural areas, 86.5% for City of Kigali and 70.5% for other towns. The literacy rate increases to 76.8 % for people aged between 15 and 24. The latter is based on reported literacy rather than tested literacy (EICV2). The table below on literacy level (%) by sex among those less than 35 years shows that a quarter of the youth less than 35 years can not read or write and more than two thirds are literate.

³ Five year Action Plan for youth Employment promotion, October 2005.

Table 1: Literacy level (%) by sex among those less than 35 years

	Male	Female	Total
Neither read nor write	10.7	13.8	24.5
Only read	2.0	2.3	4.3
Read and write	32.7	36.8	69.5
Undetermined	0.8	0.9	1.7
Total	46.2	53.8	100

Source: Five Year Action Plan for Youth Employment Promotion (provisional final version October, 2005).

The high illiteracy rate not only puts the youth at disadvantage to compete and get employed jobs, but it also denies them the capacity to create self-employment.

(v) Besides the above causes of unemployment and job insecurity of the youth, there are other factors which contribute to hinder self employment among youth in the country, namely;

- ❖ Lack of initiative and creativity by youth
- ❖ Absence of data and information about employment opportunities
- ❖ Difficulty of access to start-up funds
- ❖ Poor knowledge about Rwandan economic situation
- ❖ Inadequate relationship between education curriculum and employment
- ❖ Lack of access to capital
- ❖ Absence of legal framework for the promotion of youth employment
- ❖ Limited market of Rwandan population
- ❖ Inadequate purchasing power of the rural people.

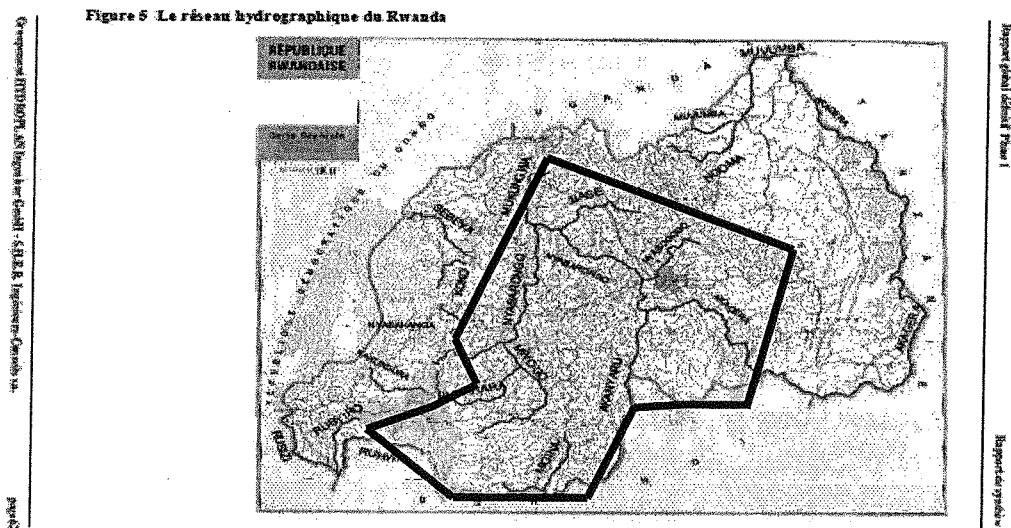
Youth unemployment and underemployment are major problems that have to be seriously addressed. Unemployment has strongly negative impact on youth and it is important to create conducive conditions and an enabling environment for the youth by effectively involving them in development activities such as environmental rehabilitation and urban improvement programmes.

2.3. Description of the Project Area

2.3.1. Project location

The project location will be within the Nyabarongo River System involving 17 Districts⁴ in the country. The map bellow shows the allocation of Nyabarongo River System catchment areas within which the project is located.

Map 2 Nyabarongo River System Catchment Area



The land on catchment areas of Nyabarongo River System is owned by smallholder farmers. These are areas highly degraded that will involve more than 900,000 youth in soil conservation activities. The farming communities will engage the youth to carry out the terracing and afforestation works on their lands. The smallholder farmers will get micro-grant credit from the project and will hire the youth to carry out soil conservation activities and pay them from the micro-grants. The payment will be done through their youth committees. The farmers will be mobilized by the local leaders, MINIRENA, MINAGRI and the project

⁴ i.e. whole 8 districts of the Southern Province (Muhanga, Kamonyi, Ruhango, Nyanza, Nyamagabe, Huye, Nyaruguru, Gisagara) + whole 5 districts of the Northern Province (Musanze, Burera, Gakenke, Rulindo, Gicumbi) + whole 3 districts of Kigali City (Gasabo, Nyarugenge, Kicukiro) + 1 district from the Eastern Province (Bugesera)

management to have the lands terraced, planted with forests and rehabilitation of existing ones.

2. 3. 2. The Rwandan Akagera Watershed and Nyabarongo River System⁵

The Rwandan Akagera Watershed is along the Equator between 1°04' and 2°51' latitude South and 28°53' and 30°53' longitude East. From West to East, the watershed stretches from the high Congo-Nile hill ranges (that divide the Congo and the Nile waters) up to the border with Tanzania (Ngara and Karagwe Districts). In the North, it borders with Uganda (Kabale and Ntungamo Districts), and, in the South, with Burundi (Kirundo and Kayanza Communes).

The Akagera watershed covers 20,550 sq km, which is about 80% of Rwanda (the remaining 20 % is in the catchment area of the Congo River waters). The watershed includes three different altitude areas, namely:

- Low altitudes under 1500 m in the East of Rwanda from the border with Tanzania up to the Rwandan Central plateaux.
- Medium altitudes (1500 m –1900m) that include the Central plateaux in the centre of Rwanda.
- The area of high altitudes above 1900 m from the centre up to the Congo-Nile high hill ranges in the West of the Akagera watershed.

The landscape of the country is characterized by very steep hills and high mountains, with an average altitude of around 1,800m above sea level.

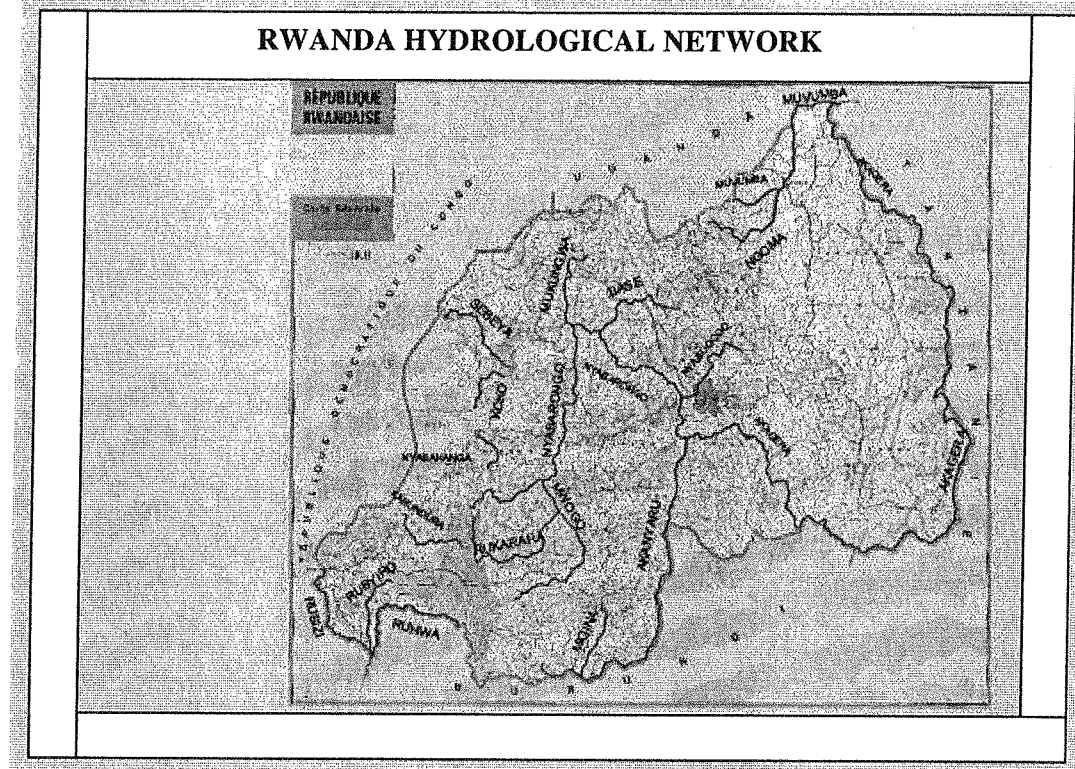
2.3.3. Hydrology

There are two major hydrological basins in Rwanda divided by a vertical line running from North to South. The Eastern part forms the Nile catchment that occupies 67% of Rwanda and drains 90% of the country's waters into the Nile through Akagera River. The Western part is the Congo catchment; it occupies 33% of Rwanda and drains only 10% of Rwanda's water into the Congo basin.

The watershed has an abundant water network that is made of rivers (7,260 ha), wetlands (77,000 ha) and lakes (128,190 ha). Three main rivers, namely Akanyaru in the South, Nyabarongo in the center, and Kagitumba in the North drain the numerous tributaries from all over the watershed to the Akagera River that, in turn, leads to Lake Victoria. These rivers and tributaries are closely associated with vast marshes and shallow lakes all along their courses. The map below shows the Rwanda hydrological network.

⁵ Adapted from Nile Basin Capacity Building Network (NBCN), Flood Management, Research Cluster, Group II, 2005

Map 3: Hydrological Network of Rwanda



Source: Adapted from Nile Basin Capacity Building Network (NBCN), Flood Management, Research Cluster, Group II, 2005

2.3.4 Nyabarongo river basin

Nyabarongo River is called Akagera River in its down stream stretches when it is discharging into Lake Victoria. The Nyabarongo River is the source of the White Nile and crosses all the Provinces of Rwanda. The Nyabarongo river basin has a catchment area of 8,900 sq km, an annual rainfall of about 1,350mm and its altitude varies between 3000m upstream and 1,350m downstream, with an average altitude of 2,176m. The river has a slope of about 0.8% with an annual average discharge of 83m³/s. The basin runoff coefficient is about 22% and the specific discharge 9.31l/s/km.

2.3.5 Hydrology

The Nyabarongo river basin is within the Rwandan Nile catchment that occupies 67% of Rwanda and drains most of the country's waters into the Nile through Akagera River.

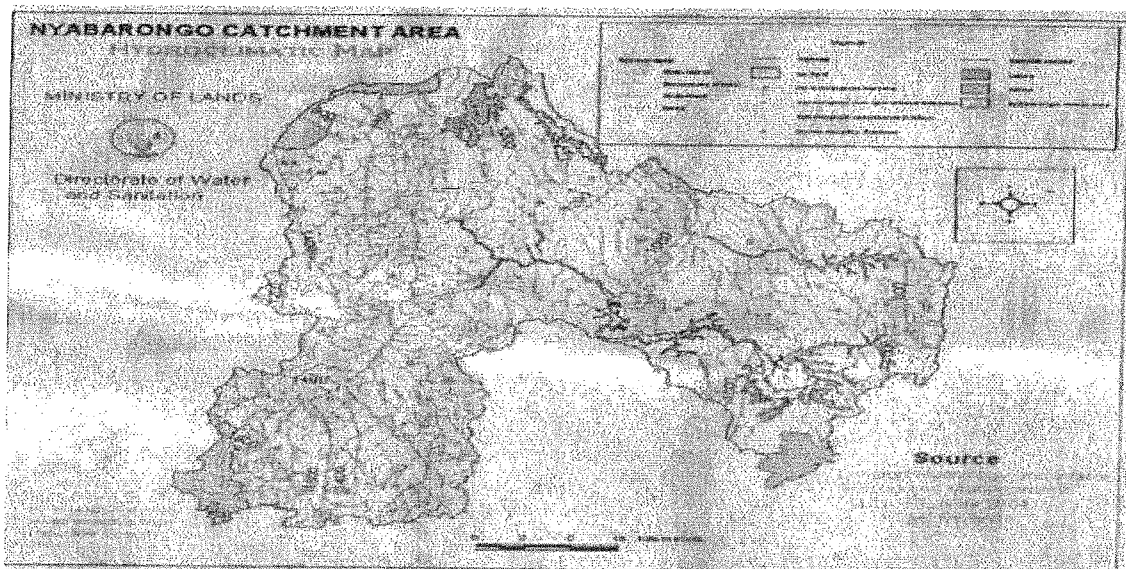
In 2003 (29th April, 2003) the water level of Nyabarongo River was measured at hydrological station in Kigali and the maximum recorded level since 1972 , the

gauge showed a level of 4607m which corresponds with a flow of 283 cubic m per second.

The river basin does not experience cold season, except in the Northwest part of the country where the sub catchment of the river (Mukungwa River) are situated in the volcanoes area with altitudes higher than 2, 500m. There are no marked differences in rainy and dry seasons while the special variation of rain is heterogeneous and precipitation pattern are characterized by thunderstorms, due to slowly moving humid air masses climbing against the hilly terrain. Temperatures and air humidity create an intense evaporation, which sometimes leads to drought in several parts of the river basin.

Major Nyabarongo river tributaries are Akanyaru River from North West and Mukungwa River from North in the volcanoes.

Map 4: The Nyabarongo River Basin



Source: Adapted from Nile Basin Capacity Building Network (NBCN), Flood Management, Research Cluster, group II, 2005.

3.0. Project Strategy

3.1. Development Goal

The Development goal of the project is to achieve a level of sustainable management of natural resources and solid waste while improving the living standard of youth and communities at large along the Nyabarongo River System.

3.2. Project Objectives

A distinctive feature of this project is that it will be specifically targeted at the Youth with the intention of mobilising a youth service for environmental rehabilitation and urban centres clean up. The objective being to organise and direct the energy and enthusiasm of young people into constructive and rewarding activities of benefit, both to themselves and the community at large. The project is meant to empower the youth to engage in employment and income creating activities through sustainable environment management of the Nyabarongo catchment areas.

The project will aim at rehabilitating degraded lands, collection of rubbish and its consolidation in designated areas for soil composting and recycling of materials creating employment and generating income for the youth, removing the youth from crime, and eradicating poverty among the affected communities. It will not only enhance awareness of a wide range of environmental concerns, but will also demonstrate appropriate, practical and sustainable means of local self-help and community action.

The Environment Youth Project is intended to address the most significant, yet manageable environment problems within the country by providing experience and employment opportunities for an age group of which there is a disproportionate number entering the labour force. The National Youth Policy, 2006 articulates the significance of building capacities for youth by identifying opportunities through small scale projects.

The overall project objectives will be:

- Creating tangible mechanisms whereby people can participate directly in creating a more healthy environment, raise moral and respond to local and national environmental problems;
- Enhancing opportunities for young people to participate in activities, which will increase their skills and improve their prospects of employment through on-the-job training and vocational training;
- Educating the youth on the importance of environmental conservation. This means the project will increase the number of young people with basic training in natural resource management and conservation in Rwanda by

training them as trainers, or making them “contact persons” on environmental issues;

- Providing labour for conservation work, which would otherwise be unavailable;
- Enhancing awareness of the importance of conservation and natural resources management needs;
- Providing more opportunities in conservation and natural resource management at the village level;
- Curtailing rural-urban youth migration;
- Building indigenous capacities in the area of natural resource management at village level; and
- Improving welfare of the youth through the promotion of youth initiatives and income generating activities.

3.3. Project Rationale

The rationale for the project is justified by the importance and benefit of the Nyabarongo River System to Rwanda and the countries in the Nile basin. The following section provides a review of the major benefits and importance of the Nyabarongo River System that will be enhanced by this project through promotion of soil conservation techniques to protect the river banks, the river catchment areas and cleaning river wetlands of water hyacinth and solid pollution.

Nyabarongo river basin has most of Rwanda's wetland marshes and rivers, particularly the marshes and associated rivers of Nyabarongo, Akanyaru, part of Akagera and Rugezi. These wetlands are beneficial not only to Rwanda but also to the countries in the Nile basin. Protecting and managing Nyabarongo river basin is paramount to sustain the benefits from these wetlands. The following are major benefits from wetlands of Nyabarongo river basin.

- ❖ The Nyabarongo River System wetlands act as a buffer or store of water. In this way it reduces the maximum flow during the rainy season and maintains relatively high flow during the dry season. The project will clean the Nyabarongo River System of water hyacinth and stabilize river banks by protecting it from erosion. This will ensure stable flow of the rivers in the Nyabarongo River System and preventing or slowing down flooding.
- ❖ The wetlands in the river basin do provide a spawning habitat for fish. Cleaning the river basin of water hyacinth and prevention of

river and swamp water siltation will make fish habitat safe and encourage the multiplication of fish.

- ❖ The project will protect the wetlands from solid waste pollution and contribute to maintaining the soil fertility and thus increasing productivity of maize, beans and sweet potatoes grown in these wetlands.
- ❖ Nyabarongo river basin wetlands are of great biodiversity conservation
- ❖ They are useful as a source of raw materials e.g. collection of papyrus leaves for making handcrafts and bricks.
- ❖ Sustainable management of Nyabarongo river watersheds would prevent pollution and siltation with eventual stabilization of the river banks

As already stated above, Rwanda crop farming is undertaken in all areas including mountain slopes and tops, valleys and plains. Competition for limited land resources is intense, productivity is generally low and massive erosion is common. Over cultivation, inappropriate agricultural practices, overgrazing and deforestation have been identified as the major causes of land degradation. The EDPRS has considered sustainable land use management and specifically soil protection as critical for the country's long-term development. The National Environment Youth Project will support and contribute to implement the EDPRS strategy on environment through soil conservation measures, organize and provide capacity to unemployed youth in soil conservation techniques to be used in establishing environment stability of the Nyabarongo River System.

As observed, school leavers (primary education) are in big numbers and have not been followed by a corresponding expansion of secondary education. By the time the youth complete primary education they do not have adequate skills to start self employment activities. At the same time, the employment sector is very limited and it normally looks for skilled labour. Worse still, youth unemployment is rising and the problem is exacerbated by having a big group which is landless.

Thus, school leavers have a hard time finding work because of their comparative inexperience and lack of skills. Youth unemployment is much higher than the national figure would suggest and is set to rise as their numbers swell through population growth.

The Government through the Ministry of Education has extended the present six (6) years primary/basic education to nine (9) years in order to enable school leavers become mature and acquire relevant skills to initiate various enterprises or find employment. This new approach will encourage primary education leavers to be innovative and be able to work independently without necessarily moving around in search of employment opportunities. The number of youth with

employment will increase leading to the improvement of their welfare and contributing to poverty reduction. It will also be in conformity with one of the MDGs objectives, which emphasizes the importance of Universal Primary Education for all and the rectification of gender-based disparities, in particular.

The Government has established the Rwanda Environment Management Authority (REMA) to oversee environmental management in the country. The establishment of the Youth Project will be an important initiative in support to the objectives of REMA. The project will provide employment opportunities for the unemployed youth, whilst addressing the serious problem of land degradation in the context of implementing the United Nations Convention to Combat Desertification (UNCCD). As already noted, pressure on land resources has resulted in habitat and species losses as well as habitat degradation. The overexploitation on natural resources and marginal lands particularly the misuse of wetlands and encroachment of Protected Areas have led to the loss of biodiversity. The National Youth Project is consistent with the objectives of the Convention of Biodiversity (CBD) and the National Environmental Policy which emphasize the importance of safeguarding human welfare, utilising natural resources sustainably, protecting and managing ecosystems for sustainable development. The project is going to address the critical unemployment problem facing the youth in Kigali and towns along the Nyabarongo River System.

The project is also within the framework of the UN Millennium Development Goals (MDGs) especially goal 8 which is emphasizing global partnership as well as mainstreaming youth issues in all MDGs and the first and seventh MDGs on eradication of extreme poverty and hunger and that on ensuring environmental sustainability.

Unemployment and underemployment of youth is an area of policy concern that should be addressed by the creation of income generating activities other than agricultural ones (National Youth Policy, 2006). Presently, there are few economic opportunities in rural areas. Vision 2020 aims at creating off-farm employment both in rural and urban areas in order to reduce dependency on agriculture by 50%. The target of reducing the proportion of population engaged in agriculture to about half needs to be complemented by clear strategies including creating opportunities of those moving out of agriculture. The creation of off-farm jobs is critical to transformation of the economy and is seen to be central to the poverty reduction strategy. While efforts are focused on improved agriculture, it will be crucial that jobs outside agriculture are created. Otherwise, the agricultural sector cannot continue to bear such pressure which has led to massive destruction.

Recognizing that these complex interrelated issues are of fundamental importance to the future course of development, the project identified two major priority problems to be addressed, namely:

- Rehabilitation of degraded land and general protection of the environment with particular reference to mountain tops, major river courses and improving terracing techniques.
- Improving the youth welfare through the promotion of youth initiatives and income generating activities by creating employment opportunities.

Thus, it is crucial to sensitize the youth through their Associations to take interest in environmental management and in the process to improve their livelihoods.

The major problem facing the environment lies in the imbalance between population and natural resources (land, water, flora and fauna and non renewable resources) which have been deteriorating since decades. (Vision 2020 . The search for fertile lands by the increasingly growing population leads to rapid and continued destruction of soil and ecosystem. Remedial measures are required to improve land management through soil and water conservation programmes and collection of waste materials and recycling.

Vision 2020 stipulates "Land use management is a fundamental tool in development. Presently, land in Rwanda is characterized by acute shortage which necessitates preparing land use plans to ensure its optimal utilization in urban and rural development. Currently, Rwanda's land resources are utilized in an inefficient and unsustainable manner, which limits the profitability of land and infrastructure. As a result, land and soil losses are enormous. Land has continued to be badly managed and soil erosion has worsened due to poor and inappropriate farming methods. This includes cultivation on marginal lands which are unsuitable for agriculture without taking into consideration soil and water conservation techniques. Lack of enough knowledge in agricultural techniques, has contributed immensely to environmental degradation and very low level of productivity.

The main challenge lies in devising and setting up a system of agricultural production, waste collection and recycling that can generate a long term employment, income and sustainable development. Agricultural development will only be efficient if the Government adopts coherent strategies which will guarantee better land use management to ensure economic growth (Rwanda Development Indicators, 2002). The Youth are expected to act as driving force for the activities meant for environment conservation. The National Youth Council will need to motivate the Youth to initiate activities under this project for sound environment management both in rural and urban areas.

The promotion of youth employment in rehabilitation of land in rural areas as well as waste collection and recycling in urban areas becomes paramount. The youth have to be assisted in project planning and implementation with a view to improving employment opportunities for an enhanced livelihood. It is true that protecting environment is the responsibility of every stakeholder in the society but

the youth's role in safeguarding the environment is particularly essential as they are the same youth that will inherit it.

Once the Youth have been trained and have acquired relevant skills it will be expected to assist women groups, among others, in the agricultural sector in rural areas. Such an approach will transform rural areas through conservation for improved productivity. This will be a unique opportunity to transform traditional farming systems to modern farming which would guarantee high yield and improved livelihood

The envisaged project will provide training, create employment opportunities and generate income for the youth through environmental rehabilitation activities in rural areas and cleaning and recycling in Kigali city and towns along Nyabarongo River System. The project will promote environmental education and awareness programmes and seek the active support and participation of NGOs, local communities and the private sector. This process will enhance capacity building of youth by actively participating in income generating environmental activities. The project will improve farming techniques for enhanced productivity which will in turn guarantee income for the youth.

In this regard, the involvement of the youth, supported by various stakeholders, NGOs, CBO, government institutions, the private sector among others, will be an important initiative, and a key component of a cross-sectoral strategy to mobilize national and international support, natural resource management and poverty eradication for sustainable development in the country.

Similar projects were initiated elsewhere and the outcome was a success. In 1996 the Government of Lesotho and the United Nations Development Programme (UNDP) undertook a joint initiative establishing National Environment Youth Corps Project (NEYC) in Lesotho to provide employment opportunities for the unemployed youth, whilst also addressing the serious problem of land degradation in the context of implementing the UNCCD. The evaluation report on the project implementation noted that most objectives of the programme had a resounding success and most importantly it was strongly recommended to be replicated in other countries using the lessons learnt in Lesotho. The project has also been replicated in Cape Verde, Ethiopia, Eritrea, Zambia and Zimbabwe addressing the issue of youth unemployment and land degradation and has registered successes.

Rwanda has been facing increasing urbanization. The urban population has increased from 7% in 1993 to 18% of total population in 2002. The urbanization is estimated to grow by 30% by year 2020 (EDPRS, 2007). The increase in urban population has been accompanied with urban environmental problems, particularly the problem of solid wastes. The extent of waste management in Rwanda, including the City of Kigali, other towns and rural areas is worthy mentioning. It has been reflected that between 125 to 200 tonnes of solid waste is collected in Kigali daily and dumped at Nyanza dumping areas without treatment. The remaining garbage waste in the City of Kigali is dumped with all

the disease risks inherent. The situation in other towns, including those along the Nyabarongo River System is not any better. Public collection in towns other than the City of Kigali is only 9.5% of garbage waste.

The National Environment Youth Project will complement the existing effort to manage solid waste in Kigali city and towns along Nyabarongo River. The project will give capacity and organize the unemployed youth around solid waste collection, sorting and recycling to make fertilizers for agricultural sector and briquettes for cooking to reduce using firewood and contribute to environment protection.

In this regard, the involvement of the youth, supported by various stakeholders, NGOs, CBO, government institutions, the private sector among others, will be an important initiative, and a key component of a cross-sectoral strategy to mobilize national and international support, natural resource management and poverty eradication for sustainable development in the country.

Similar projects were initiated elsewhere and the outcome was a success. In 1996 the Government of Lesotho and the United Nations Development Programme (UNDP) undertook a joint initiative establishing National Environment Youth Corps Project (NEYC) in Lesotho to provide employment opportunities for the unemployed youth, whilst also addressing the serious problem of land degradation in the context of implementing the UNCCD. The evaluation report on the project implementation noted that most objectives of the programme had a resounding success and most importantly it was strongly recommended to be replicated in other countries using the lessons learnt in Lesotho. The project has also been replicated in Cape Verde, Ethiopia, Eritrea, Zambia and Zimbabwe addressing the issue of youth unemployment and land degradation and has registered positive successes.

3.3.1. Stakeholder Participation

The Ministry of Natural Resources (MINIRENA) now has a stronger grip and leverage in policy matters related to management of resources while the newly created Ministry of Youth has a mandate of designing national policies, strategies and programs for the youth as stipulated in EDPRS. Nevertheless, there are still several other key players in resource management and sustainable land use management both at central and decentralized levels. At the central level, the concerned government ministries include, MINAGRI and its semi-autonomous agencies (RADA and RARDA), in charge of agriculture and livestock, MINALOC, responsible for decentralization and community development activities, MINECOFIN, in charge of finance and economic planning. The Rwanda Environment Management Authority (REMA), a semi-autonomous agency under MINIRENA, is a key player in its regulatory and supervisory role in all matters related to land degradation and environmental protection in general.

The local authorities at the decentralized administrative levels are responsible for all activities of planning, implementing, coordination and monitoring of environment related activities on the ground. Since the territorial administrative reforms in January 2006⁶, the Sectors are the centers for service delivery, the districts are in charge of planning and coordination of socio-economic development actions, and the Provinces are responsible for ensuring conformity of actions at decentralized levels with Government policies.

The national policy for soil management and conservation involves all institutions of the country. However, the main stakeholders are MINAGRI in charge of agriculture and animal resources, MINIRENA in charge of lands management in rural and urban areas apart from Kigali City, MININFRA in charge of management of plots in urban areas apart from Kigali City and finally MINALOC which represents all ministries at decentralized level.

As MINAGRI deals only with formulation of policies, strategies and programmes of soil and water conservation, MINALOC must play an important role in implementing programmes defined by MINAGRI. This must be achieved through local decentralized structures, NGOs and CBOs.

The youth Associations will be involved in awareness raising and mobilization of youth to join the project. Besides, the youth Associations in Districts will prepare small projects within the framework of the project and these small projects will be submitted to the project headquarter at REMA where they will be screened and approved before they are submitted to UNDP for fund release to youth committees.

Table 2: Stakeholder Interests and Expected Level of Participation

STAKEHOLDERS	Level of involvement
MINIRENA	Ministry responsible for environmental policy formulation and monitoring.
REMA	Overall national authority with responsibility for protection and conservation of environment, responsible for overseeing the implementation of the Youth Project.
MINAGRI	MINAGRI sets national policies on agriculture and livestock, provides guidelines and standards for land use management including terracing
RARDA	Provides technical support and regulatory oversight in the procurement and distribution of livestock for beneficiary

⁶ After the territorial administrative reforms of January 2006, the number of provinces was reduced from 12 to 4 rural provinces (Eastern, Western, Northern and Southern) and the City of Kigali, the Districts were reduced from 106 to 30 and Sectors from 1,545 to 416. After the reforms, the sectors are currently divided in a total of 2148 Akagari (It is the basic politico-administrative unit of the country and closest to the grass root people), reduced down from the former number of 9,165. Smaller administrative units called "Umudugudu – pl. Imidugudu", comprising 50 Households, were established in every Akagari after the elections of March 2006.

	communities.
RADA	Provides extensive services in terracing and provision of quality seeds.
MINALOC	Responsible for all activities of planning, implementing, coordination and monitoring of environment related activities at a local level.
MINECOFIN	In charge of finance and economic planning
Local NGOs and CBOs	Local NGOs and CBOs to mobilize the youth, undertake training and raising awareness programmes
Kigali City, MININFRA	Have some responsibility in the management of plots in urban areas
Youth Associations	Involved in awareness raising and mobilization of youth to join the project.
UNDP	Funding

3.4. Linking with Prior, On-going Processes and Programmes

The project will complement and build synergies with other several on-going initiatives to implement the Government's strategies under Economic Development and Poverty Reduction Strategy (EDPRS) in the sustainable livelihood area, particularly in sustainable natural resource and environmental management. The project will work closely with national Youth Council will further build synergies with a number of other projects and programmes, particularly those dealing with land degradation issues and environment management. The following are, but a few examples of such initiatives and programmes:

The Decentralisation and Environment Management Project (DEMP) is a UNDP assisted initiative designed to strengthen capacity of Districts in the Western Province to integrate environment into Development Plans and budgeting let alone support to Rwanda Environment Management Authority (REMA). It also supports MINIRENA to implement environmental policies. The phase I of the project focused on the implementation of soil conservation techniques to manage the catchment areas of Lake Kivu and Phase II is under preparation. The lessons learnt from the implementation of this project will be useful to the implementation of National Youth Environment Project

The Poverty Environment Initiative project: (PEI) Support to the Economic Development and Poverty Reduction Strategy (EDPRS) through Poverty Environment Initiative; a collaborative endeavour between UNDP and UNEP to integrate environment into economic development programmes. In addition, it includes promotion of alternative energy sources to replace the use of biomass energy, protection of the remaining natural forests as well as institutional capacity building for sustainable management of environmental resources.

The GEF Strengthening Biodiversity Conservation Capacity in the Forest Protected Areas in Rwanda is another initiative towards environmental management. The montane forest encompassing the Volcanic National Park and the newly created Nyungwe Park have both national and global importance for the biodiversity and endemism values and ecological services. At the same time economic benefits accrued from tourism contributes immensely to the national economy.

MIFOTRA and Ministry of Youth, besides setting employment policy and strategy for the youth, they do also conduct research and data management on youth problems and employment opportunities.

MINAGRI provides training on best practices in soil management and extension on sustainable land management for agricultural development. **MINECOFIN** will participate in funding the project in kind and through **CEPEX** will be involved in monitoring and evaluation of the project. The development partners, particularly **UNDP** will participate in financing, monitoring and evaluation of the project

Rural Sector Support Project (RSSP): The main purpose of the Rural Sector Support Program (RSP) is to significantly contribute to the efforts of the Government of Rwanda to achieve its strategic goal of revitalizing the rural economy and thereby increasing rural incomes, reducing poverty, and reinforcing national stability. The RSSP has the following major components:

- ❖ Agricultural services delivery systems ;
- ❖ Small-scale rural infrastructure development and maintenance ;
- ❖ Rehabilitation of marshland and hillside farming ;
- ❖ Promotion of traditional and alternative export agriculture;
- ❖ Diversification of economic activities in the off-farm sector of the rural areas.

The RSSP component on hillside terracing will cost about 5 million USD. Rehabilitation work on farmed hillside areas would include two basic interventions: (i) progressive terracing, and (ii) radical terracing. The former would be considered only on slopes of less than 12 percent. The National Youth Environment Project will learn from the experiences of the implementation of RSSP but will also complement the efforts of the project in the areas of terracing techniques.

The GEF Small Grants Programme (GEF/SGP): The Programme aims at encouraging communities to play an active role in global environment protection through local initiatives. GEF/SGP is a porthole of demonstration and dissemination of innovations experimented in the field to be replicated at larger scale by other partners. This program has boosted the NGOs and local communities' capacities to address global environment issues at the local level and to improve their living conditions as well. The National Youth Environment

Project will learn from the integrated approach and best conservation practices being promoted by this programme.

The National Environment Youth Project is meant to generate employment opportunities through environmental rehabilitation activities in both rural and urban areas. It has to position itself to take advantage of the above cited initiatives in undertaking its activities.

National Youth Centre

The project will learn from the National youth centres in Rwanda which promote the youth employment through financing specific development micro grants such as Environment related projects. Those structures at district levels will be useful tool in supporting the implementation of the project.

3.5. Government Youth Policy and Strategy

Rwanda formulated the National Youth Policy in 2006 to tackle the many challenges facing the youth in different fields such as management of direct or indirect consequences of genocide, employment, fighting against HIV/AIDS, hunger and poverty, illiteracy and limited possibilities of accessing education, deterioration of the environment etc. as a result of past and current social and economic situation of the country. Not only such challenges prevent the youth from improving their wellbeing but also jeopardize their future. It was crucial to have the National Youth Policy because the youth constitute an age group which is large in the population (67% of the total population is below the age of 25) and the youth policy would direct the activities of the youth in the country to tackle the many challenges facing the youth.

In 2003, the Ministry of Youth, Culture and Sports, in collaboration with the GTZ youth training support project, conducted a survey in order to take into account views, priorities, problems, issues and wishes of the youth. The survey of 1,000 youth between 14 and 35 years from rural and urban areas, among other things, indicated that 98% had no property by any standards and 21% had no regular work. This group was facing abject poverty and needed immediate assistance.

The government formulated the Youth Strategy in 2005. According to the Strategy 31.6% of youth of less than 26 years old are orphans, having lost at least one of the parents. More importantly, about 200,000 youth of less than 20 years old were head of households on an average size of 4.5 people. This group needs help to be able to support other members of their households.

Therefore, the Ministry of Youth, Culture and Sports in conjunction with the National Youth Council have a mammoth task of mobilising and organising youth associations, who are poor and desperate, to form economic groups of interest. It is crucial to sensitize the youth to undertake productive activities with the view to contributing to the overall development of the country. It is also a challenge to build Youth capacities through their Youth Associations in order to be productive.

The Youth Strategy identified three major programmes which are currently being addressed:

- Mobilisation and training of the youth
- Support of youth initiatives
- Cooperation and networking among the youth

Through these programmes various activities have been undertaken as shown below:

- Preparing brochures about issues of health and environment
- Training modules for the youth
- Developing a data base on existing youth activities in Rwanda
- Sensitizing the youth on modern productive methods
- Coordinated programmes on improving capacities and access to economic opportunities
- Supporting one new project per District
- Identifying bankable projects and soliciting for funding

This project is tailored in a manner in which it will support the country's youth programme by creating employment for the youth and designing activities which will ultimately generate income and promote environmental management for sustainable development.

An integrated approach of environment protection and income generating activities for the youth will be used in this project. This means that agro forest trees and grass/pasture, etc to be used for environment protection will also provide products for sale for the youth to generate income and wealth. Livestock will be integrated in the project activities not only to use the planted pasture for erosion control but also to provide organic manure and milk to the household to consume or to sale to get income. The project activities will be geared to three important intervention strategies, namely;

- i. Control the land degradation of the Nyabarongo river catchment areas and its banks through rehabilitation activities such as terracing and contouring, afforestation and planting grasses/pasture, shrubs, agro forestry and trees, restoration of fertile soils, filter and prevent soil and sediments entering the Nyabarongo River System.
- ii. Improved solid waste management in Kigali city and towns around Nyabarongo River System to protect the environment and ecosystem through stopping pollution but also making the Kigali city and other towns clean.
- iii. The project will create a source of employment and income for the youth in concerned Districts around Nyabarongo River System: This means that project activities have to be mostly income generating and owned by the youth even after the project

completion. The youth will be organized in cooperatives/ associations around the project activities.

The technologies considered under this project proposal includes physical soil conservation measures such as radical and progressive terracing on the Nyabarongo river catchment hillsides; planting grasses/pasture on the contour bands and terraces to prevent surface run-off and erosion. The project will also promote reforestation and rehabilitation of forests on the catchment hillsides. The activities will be implemented by the youth but the decision of what and where to terrace, plant forests or rehabilitate, etc will have to be participatory and having consent of the owners of land (farmers) as the latter will have to pay for the work done from grant funds from the project.

The stabilization of river banks will entail planting shrubs and grasses/ pasture and agro-forest trees to generate income for the youth near the river. The management of river banks will be restricted to a band of up to 50 m from the river banks. The forestation near the river bank (about 6m) will focus on shrubs that do not mine the river's water.

Project activities will also involve collecting the garbage wastes from households, sorting it to separate plastics to get material waste for making fertilizers and briquettes. The plastic materials will be sold to the COPED plastic recycling factory. Given the fact that the youth will be just starting business, the foregoing activities will be the focus in managing the wastes in the City of Kigali and towns along the Nyabarongo River System. The technology of transforming the wastes (recycling) into fertilizer and briquettes is simple and cheap. While it was found that recycling plastics is feasible and profitable (see literature review document), it is advisable for the youth not go into it now until such time they will have got experience and capital to invest in plastic recycling. Currently the COPED is constructing a plastic recycling factory at Butamwa, North-West of Kigali (see photo bellow). Operational experience from this factory is indispensable before the youth can venture into plastic recycling business.

Figure 2: COOPED waste recycling factory under construction



The project will use the following best practices in rehabilitation and management of the river's catchments and banks:

↳

- Protection of catchments areas and river banks through construction of radical and progressive terraces.
- Planting shrubs (e.g. bamboos and other shrubs) and agro forestation that do not mine water and allow drainage for protection of river banks and trees to protect the catchments.
- Integrating livestock in the soil conservation and planting grass and pasture to feed livestock
- Collecting water hyacinth for making fertilizers and baskets
- Alternative sources of energy for cooking instead of relying on fuel wood. Beneficiaries will be trained in making briquettes from wastes.

There is a wide range of soil conservation techniques one can choose from to control surface run off, retain water or allow drainage, particularly for slopes up to 30 degrees (see annex 3) The application of any of the technique will depend on the sloppiness of the area, whether one is constructing the radical or progressive terraces, the seriousness of the run-off, labor requirements and the government policy.

The farmers will get micro grant funds from the project to finance terracing and afforestation activities on their farms and will pay back the funds to the project. The project will have also to assess ways of how the farmers could also pay in kind, like offering their labor for terracing or/and reforestation. Labor will be supplied by the youth who will be paid from project grants to the farmers.

In case of river bank stabilization and waste management activities where the youth will own the income generating activities, the youth will be paid from the project funds to establish the activities.

4.0. Challenges and Opportunities

4.1. Challenges

4.1.1. Rehabilitation of Land degradation

Rwanda has been facing a big challenge of arresting land degradation that leads to loss of soils and leaving infertile soils that are responsible for unproductive agricultural farming. Land degradation appears in form of deforestation and unsustainable use of forests, poor cultivation practices accompanied with overgrazing of rangelands that have led to unsustainable agriculture in the country.

Some 77% of all cultivated land in Rwanda have slopes between 13% and 55% and are classified under the category of "moderate to high erosion risk soils". In some cases, land with a slope of over 80% is put under cultivation as a result of land scarcity. In fact, 39% of all cultivated land in Rwanda fall under the high erosion risk categories, 37,5% in the middle risk category and only 23.4% are classified under the "low erosion risk" and "very low risk" categories⁷ (see table1).

Table 3: Erosion risk categories

No	Parameter	% area	'000 ha	Slope Class
1	Very High Erosion Risk	17.6	358	Slopes class over 55%
2	High Erosion Risk	21.5	437	Slope classes 25-55%
3	Average Erosion Risk	37.5	763	Slope classes 13-25%
4	Low Erosion Risk	16.7	340	Slope classes 6-13%
5	Very Low Erosion Risk	6.7	137	Slope classes less than 6%

Source: PSTA, MINAGRI, 2004

The amount of plant nutrients lost annually is about 945,200 tons of organic matter, 41,210 tons of nitrogen, 280 tons of phosphorus and 3,055 tons of potash (PSTA, MINAGRI, 2004 and NTEAP, Soil Study, February, 2006). The Strategic Plan for Agricultural Transformation (PSTA) estimates a total soil loss of about 15 Million tones per year, equivalent to loss of the capacity to feed 40,000 people annually. Soil erosion causes denudation of mountain and hill tops, decreases the soil depth, alters the soil structure and decreases the soil organic matter resulting in reducing the water holding capacity with consequent leaching of nutrients and associated acidification of the soil. Heavy rains frequently occur in the mountainous regions of the country and cause serious erosion and

⁷ PSTA, MINAGRI, 2004

subsequent soil sedimentation in the lower parts of the hillsides, often causing significant damage to crops and destruction of infrastructure such as roads and polluting the rivers

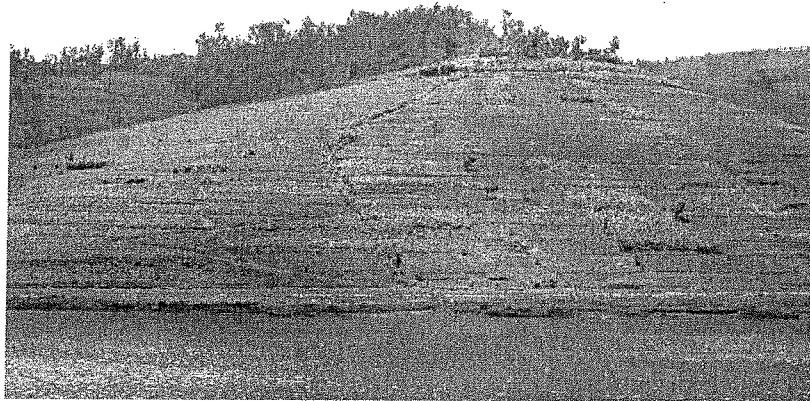


Figure3: Part of Nyabarongo River System which is bare due to erosion

The decrease in soil productivity and yields as a consequence of continued land degradation in Rwanda is a serious threat to sustainable livelihoods for the rural population and is a major factor of the high level of poverty in the countryside. Land degradation contributes significantly to poor performance of the agricultural sector upon which more than 80% of population depends. Environmental deterioration, particularly land degradation caused by soil erosion has serious adverse implications not only to agriculture productivity but also to Nyabarongo River System. The Nyabarongo River is heavily polluted with siltation through soil erosion from upstream hillsides in the country.

4.1.2. Population Pressure on Natural Resources

Rwanda still experiences remarkable challenges to environmental conservation, particularly in the areas of population pressure on natural resources and associated severe incidents of soil erosion, massive deforestation and reclamation of wetlands. High population densities still fuel land degradation given the fragility of the ecology, the predominance of traditional agricultural technologies, high dependence of the population on biomass energy (94%) and very limited opportunities for employment outside agriculture.⁸ Thus, reducing population pressure on natural resource requires innovative approaches to natural resources and environmental management.

⁸ DEMP Project Document 2004

4.1.3. The Solid waste management

Solid wastes include household garbage, commercial wastes and public wastes (municipal wastes). Solid waste disposal is a major problem in Kigali city and the country at large. In Kigali about 37.3% of households dispose their rubbish by means of public collection and in other towns it is 9.5% while in rural areas this comes only to 0.3% of households. About 70% of rural population and 67.3% of rural towns, including the towns along Nyabarongo River System, dump their waste and this is a high percentage compared to Kigali's 50.7% households who dump their waste. The latter is a reflection of the level of development in terms of availability of appropriate infrastructures and means to dispose the waste (EICV, 2000-2001).

It is estimated that between 125 to 200 tonnes of solid waste is collected in Kigali daily and dumped at Nyanza dumping area (see photo bellow). The latter is about a half of rubbish at household level in Kigali city. The composition of the waste is: organics materials 70%, textiles 10%, veers 5%, plastics materials 5%, papers materials and other constituents 10%. However, this is still inadequate to solve the problem of solid waste in Kigali as this is about 60% of solid waste.

Figure 4 : Nyanza Waste Dumping Area



The District municipalities in Kigali city and town municipalities in rural areas are responsible for solid waste collection and dumping. In Kigali city, attempts have been made to work with the private sector in waste management. There are about 18 associations in Kigali city who are practicing waste collection and dumping the waste at Nyanza dumping area. Gasabo District has 5 associations; Nyarugenge District, 9 associations and Kicukiro District, 4 associations in the waste management business. The largest associations/company in business are COOPED and three women associations, namely; DUSABANE, SAMU and TWIZERE.

Despite some effort of the Kigali city and town municipalities the problem of solid wastes still persists. There is little, if any, biological treatments, inadequate composting, animal manure spreading and landfill. The partnership with the