



**A REVIEW OF EXISTING AND POTENTIAL
ENVIRONMENTAL FISCAL REFORMS AND
OTHER ECONOMIC INSTRUMENTS IN RWANDA**



**RWANDA ENVIRONMENT MANAGEMENT AUTHORITY
(REMA)**

SUPPORTED BY

POVERTY ENVIRONMENT INITIATIVE (PEI)



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FOREWORD

PREFACE

ACKNOWLEDGEMENT

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Finally, REMA acknowledges the past and continued support from the UNDP/UNEP funded Poverty Environment Initiative (PEI) under whose auspices the review was made.

List of Acronyms

BNIs	:	Budget Neutral Instruments
C&C	:	Command and Control
CDCF	:	Community Development Carbon Fund
CDM	:	Clean Development Mechanism
CER	:	Certified Emission Reductions
CFL	:	Compact Fluorescent Lamp
CFM	:	Collaborative Forest Management
COMESA	:	Common Market for Eastern and Southern Africa
EAC	:	East African Community
EDPRS	:	Economic Development and Poverty Reduction Strategy
EFR	:	Environmental Fiscal Reform
EI	:	Economic Instruments
EIA	:	Environmental Impact Assessment
ENR	:	Environment and Natural Resources
FAO	:	Food and Agricultural Organization of the UN
FDI	:	Foreign Direct Investment
FONERWA	:	National Fund for Environment
GDP	:	Gross Domestic Product
GEF	:	Global Environmental Facility
GoR	:	Government of Rwanda
ICCM	:	International Chemicals Conference of Members States
ICS	:	Improved Cook Stoves
IDP	:	Integrated Development Programme
IWRM	:	Integrated Water Resource Management
KCC	:	Kigali City Council
LPG	:	Liquid Petroleum Gas
LWH	:	Land-husbandry, Water-harvesting, and Hillside Irrigation
MDG	:	Millennium Development Goals
MINAGRI	:	Ministry of Agriculture and Animal Resources
MINALOC	:	Ministry of Local Government, Good Governance, Community Development and Social Affairs
MINECOFIN	:	Ministry of Finance and Economic Planning
MINELA	:	Ministry of Environment and Lands
MINICOM	:	Ministry of Commerce, Tourism, Trade, Industry and Cooperatives
MINIFOR	:	Ministry of Mining and Forestry
MININFRA	:	Ministry of Infrastructure
MINIRENA	:	Ministry of Natural Resources
MOH	:	Ministry of Health
MTEF	:	Medium-Term Expenditure Framework
NAFA	:	National Forestry Authority
NEAP	:	National Environment Action Plan
NGO	:	Non-governmental Organizations
NPRP	:	National Poverty Reduction Programme
ODA	:	Overseas Development Assistance
OGMR	:	Rwanda Geological and Mining Agency

PAPSTA	:	Support Project for the Agricultural Transformation Strategic Plan
PEI	:	Poverty Environment Initiative
PER	:	Public Expenditure Review
PPP	:	Public Private Partnerships
PRSP	:	Poverty Reduction Strategy Paper
PSTA	:	<i>Plan Stratégique de Transformation de l’Agriculture</i>
PTA	:	Preferential Trade Agreement
RDB	:	Rwanda Development Board
REDEMI	:	Rwanda Mining and Exploration Authority
REMA	:	Rwanda Environment Management Authority
RIEPA	:	Rwanda Investment and Export Promotion Agency
ROR	:	Republic of Rwanda
RRA	:	Rwanda Revenue Authority
RSOE	:	Rwanda State of Environment
RURA	:	Rwanda Utilities Regulatory Agency
RWF	:	Rwanda Francs
ToR	:	Terms of Reference
UNCCD	:	United Nations Convention to Combat Desertification
UNCDP	:	United Nations Capital Development Fund
UNCED	:	United Nations Conference on Environment and Development
UNFCCC	:	United Nations Framework Convention on Climate Change
USD	:	US Dollars
VAT	:	Value Added Tax
WCED	:	World Commission on Environment and Development
WTP	:	Willingness to pay

EXECUTIVE SUMMARY

This report has been made under the auspices of Poverty Environment Initiative (PEI) Phase II in Rwanda. The Initiative aims to enhance the contribution of sound environmental management to poverty reduction, sustainable economic growth and achievement of the Millennium Development Goals. Led by the Rwanda Environment Management Authority (REMA), Ministry of Natural Resources (MINIRENA¹), the intended outcome of the Rwanda PEI Phase II is the integration of environment into national policy and district planning, policy and budget processes to implement the Economic Development and Poverty Reduction Strategy (EDPRS). One of the 5 outputs under the Phase is: *“Improved national funding levels for investing in environmental sustainability”*. Systematic implementation of Environmental Fiscal Reform (EFR) and other economic instruments for environmental management can contribute to the above output. It has to be emphasized that EFR/EIs are not implemented for their own sake, but rather as policy instruments in support of environmental management objectives.

In simple terms, EFR encompasses full cost pricing of natural resources, taxation, charges, tax rebates and exemptions, smart subsidies and other forms of incentives. An important question to understand is why we need them. Economic activities to generate goods and services also generate costs not only to the private parties involved in production and consumption (known as *“private costs”*) but also the public (known as *“social costs”*). Social costs include costs of pollution, depletion of natural resources or degradation of the environment. As these costs are not always included in the prices paid by consumers and producers, they are borne by society as a whole. The failure to consider these *“external costs”* in private-decision making may be corrected through government intervention using EFR and other economic instruments, by including them in the prices of goods and services. They are a means of implementing the *“Polluter-Pays-Principle”* and the *“Beneficiary-Pays-Principle”*. These instruments are becoming increasingly popular among countries because of their triple benefits for environmental sustainability, poverty reduction and fiscal discipline. However, sometimes trade-offs among these benefits have to be made.

The report has shown that the poverty levels and challenges of meeting the MDGs in Rwanda are closely linked to widespread environmental degradation. The challenge is further complicated by the fact that the economy is not sufficiently financed to address them. For example, the Public Expenditure Review for environment also done under the auspices of PEI showed that (i) the tax revenue has failed to even cover the recurrent expenditure since 2004, and the gap is not narrowing down despite impressive revenue collection rates by Rwanda Revenue Authority, and (ii) of the total public expenditure on budget in 2008, the environment and natural resources sector spent only 1%². To some extent, EFR can contribute some revenue although Rwanda’s case has to be put in perspective. It has a narrow economic base. It is not yet able to generate savings from trade. Accordingly, it has to use EFR among other policy instruments to stimulate the growth of Gross Domestic Product (GDP) and disposable income.

¹ MINIRENA has recently been split into the Ministry of Environment and Lands (MINELA) and Ministry of Mining and Forestry (MINIFOR). However, the report has maintained the MINIRENA, the name of the sectoral ministry at the time of the study.

² The report on Public Environmental Expenditure Review is available from REMA, Rwanda

Further, the report has highlighted that the government has been extending EFR based incentives although it did not announce them as such. They were introduced through legislations for investment, customs, Value-added tax, personal and corporate tax, and consumption and through sectoral legislation. There are opportunities for introducing more over time.

In view of the fact that EFR/EIs cut across many sectors in Rwanda, they should centrally be coordinated so that their overall impacts on the national budget, environmental sustainability and poverty reduction can systematically be measured, monitored and reported. Such coordination is missing. Another motivation for coordination is that EFR have implications for fiscal discipline. In most of them, the government has been forfeiting revenue by extending exemptions. In others, it has been raising revenue. It is thus imperative that MINECOFIN spearheads the coordination in close cooperation with Rwanda Revenue Authority, REMA among others. The case for coordination is further strengthened by the fact that EFR have to be assessed for their likely impact through the six transmission channels of price, transfers, employment, access, assets and authority.

It has equally been shown that it is not always enough to introduce EFR. The government has to go a step further sometimes to provide other interventions before their impacts for environmental sustainability can be felt. For example, in as much as the government exempts solar equipment and accessories from customs, the access of solar is not yet popular. There are barriers to be overcome like providing soft loans to pay upfront for the equipment, training technicians for maintenance, creating awareness to mention but a few. Another example to highlight relates to giving access to the poor to use the natural resources like marshlands, forest products and wildlife for non-consumptive uses or eco-tourism. Communities have to be made aware about these opportunities using simple and understandable guidelines. The capacity of their local institutions has to be built.

The recent integration of Rwanda into the East African Community is bringing a new dimension. Rwanda has to monitor the EFR regimes in other member states. An example has been given in this report how the in the same Community are having different taxation regimes for second hand equipment like fridges, second hand computers and electronic waste.

It has to be noted that EFR is bringing new demands. Their spread in several sectors and the introduction of additional ones should be matched with parallel investment in awareness creation, the formulation of environmental standards, regulations and building institutional capacity for monitoring and enforcement. Sectoral staff have to be trained to appreciate and value the natural resources. Short of that, the prices they negotiate in forest harvesting, mining, water extraction etc may not reflect the full cost. Several of such situations drive the government always to borrow to invest in these sectors. EFR is also bringing implications for coordination, systems development for capturing the impacts of EFR and equipping some mandated institutions to carry out inspections and testing.

Ideally, capacity building for EFR should be placed within the bigger picture of capacity building for sustainable development. That capacity building would have components targeting central government ministries, semi-autonomous government agencies, districts, communities, NGOs, the media, private sector, the enforcement agencies and parliamentary committee responsible for overseeing ENR. In content, the capacity building programme would cover among others, inter-institutional coordination, environmental planning, formulation of standards, regulations and guideline; environmental mainstreaming and budgeting, environmental monitoring and reporting and environmental enforcement.

Presently, there is wide spread earmarking of funds e.g. National Water Fund, National Forestry Fund, and of recent, there is talk of Climate Change Adaptation Fund. Government is conducting a study on

how to rationalize them. That may also have a bearing to the operationalisation yet another fund, the National Fund for Environment, abbreviated as FONERWA in French. The establishment of FONERAWA is provided for under the Organic Law No 04/2005 determining the modalities of protection, conservation and promotion of environment in Rwanda. Although separate concept note for FONERWA has been prepared³, suffice it to mention that a proposal to merge the several similar funds above has been advanced both in the concept note and this report.

³ The concept note for the operationalisation of FONERWA is available from REMA, Rwanda

1. INTRODUCTION

1.1 Background

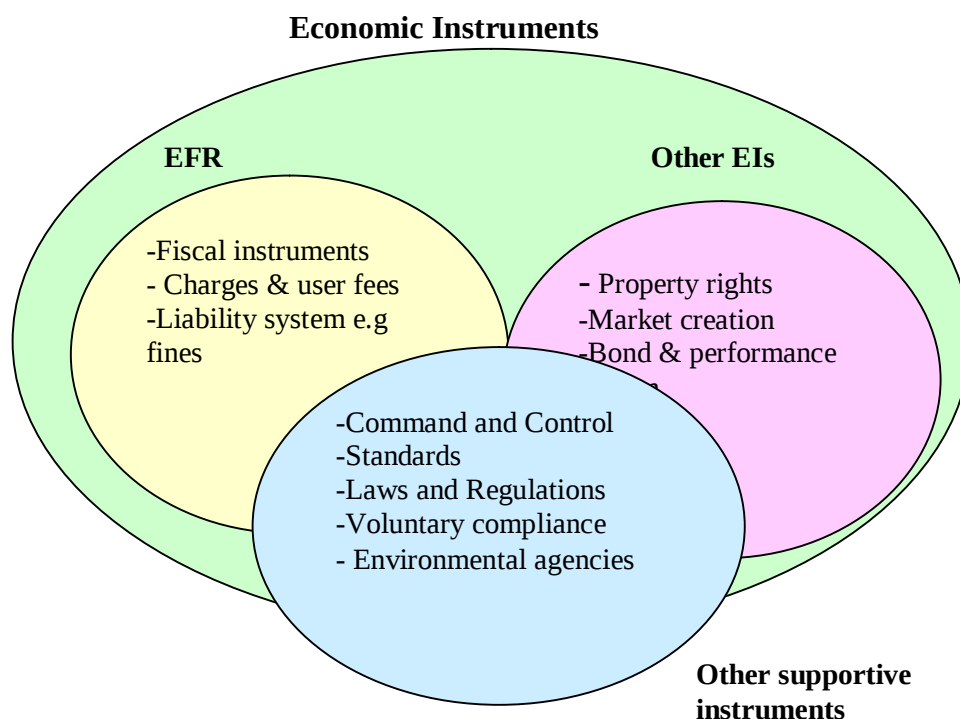
1. This report has been made under the auspices of Poverty Environment Initiative (PEI) Phase II in Rwanda. The Initiative aims to enhance the contribution of sound environmental management to poverty reduction, sustainable economic growth and achievement of the Millennium Development Goals. Led by the Rwanda Environment Management Authority (REMA), Ministry of Natural Resources (MINIRENA⁴), the intended outcome of the Rwanda PEI Phase II is the integration of environment into national policy and district planning, policy and budget processes to implement the Economic Development and Poverty Reduction Strategy (EDPRS). One of the 5 outputs under the Phase is: *“Improved national funding levels for investing in environmental sustainability”*. Systematic implementation of Environmental Fiscal Reform (EFR) and other economic instruments (EIs) for environmental management can contribute to the above output.
2. The thrust of the study was to make an inventory of existing and potential EFR/EIs with a view of coming up with strategies to enhance their contribution towards sustainable development in Rwanda. Annex 1 provides the terms of reference for the study under which this report was made. On the other hand, Annex 2 provides the list of people that informed the study. Annex 3 provides the existing EFR and Annex 4 covers potential EFR. In accordance with the TOR, case studies from the East African region, Africa and the rest of the world which can come to bear on implementing a successful EFR programme in Rwanda have been included.
3. In simple terms, EFR encompasses strengthening the implementation of existing fiscal instruments for environmental management and introducing new ones where they may be required. It is a strategy that redirects government’s taxation and expenditure programmes to create an integrated set of incentives to support shift to sustainable development practices. They encompass **full cost pricing** of natural resources, taxation, charges, tax rebates and exemptions, smart subsidies and other forms of incentives. These instruments are becoming increasingly popular among countries because of their triple benefits. Firstly, they help to ensure environmental sustainability in accordance with two main principles: the **polluter-pays-principle** and the **beneficiary-pays-principle**⁵.
4. Secondly, they may contribute to the generation of substantial revenue and fiscal discipline. This is very important to the Government of Rwanda (GOR) aspiring to broaden revenue base and to level the play ground for fair competition. They also free up government resources by making the private sector and communities, for example, take the lead in managing some of the environmental problems. They are able to do that because of the incentives provided under EFR.

⁴ MINIRENA has been split into the Ministry of Environment and Lands (MINELA) and Ministry of Mining and Forestry (MINIFOR).However, the report keeps reference to MINIRENA

⁵ This is also called the User-pays-principle.

5. Thirdly, the revenue generated is not only partly reinvested in the Environment and Natural Resource (ENR) sector but it also finances other sectors that benefit the poor like education, health and good governance. In a Public Environmental Expenditure Review for Rwanda, it was found that out of total public expenditure on budget in 2008, the environment and natural resources sector spent only 1%. Further, the internally generated revenue does not yet cover the recurrent expenditure. This then should make the government explore opportunities for revenue generation promised by some EFR
6. It should further be noted that there are other economic instruments which equally deliver on the same benefits as mentioned above but which are not of fiscal nature. They include property based instruments, Market creation, financial instruments and bond and performance systems. These instruments and EFRs collectively belong to a class called economic instruments for environmental management.(Figure 1).They are termed so to convey the message that their effect is to use **costs** and **benefits** to influence investment and consumption decisions in such a way that alternatives are chosen that lead to an environmentally more desirable outcome than in their absence [OECD, 1994].
7. However, it should be strongly cautioned that that EFR/EIs complement and are complemented by other policy instruments as shown in the same figure 1. They have been referred to where they have relevance to the implementation of EFR/EIs. They may also have their comparative advantage over EFR/EIs. To avoid irreversible damage or ensure Minimum Safe Standards for example, the government is better placed to apply the command and control instruments than EFR. As an example, Article 102 of Law No 21/2006 establishing the Customs System in Rwanda prohibits “goods that destroy the environment”.

Figure 1: EIs and other instruments for environmental protection and natural resource management



8. In terms of scope, this report reviews the existing EFR/EIs, identifies potential ones and draws policy, legal and institutional implications for implementation of a successful EFR/EI programme in Rwanda. It draws examples from the sectors of Finance and Economic Development, Environment and Natural Resources, Local Government, Infrastructure, Industry and Agriculture and Animal Resources
9. The main rationale for the study is that the government is challenged to maximise the triple benefits from EFR/EIs mentioned above and to make informed trade-off choices where they may be absolutely necessary. Managing that challenge cannot be left to chance because EFR/EIs have a direct bearing on the budgeting and fiscal discipline because some are public expenditure instruments while others are revenue generating instruments.
10. Further, the spread of EFR/EIs among several sectors dictates a coordinated approach so that their synergistic impacts can regularly be monitored, measured and reported. The environment in which they are implemented is dynamic, changing economically, socially, administratively and institutionally. For these reasons they must continually be reviewed and evaluated. Only then can the government be able to refocus them for environmental sustainability in particular and for sustainable development in general. It is therefore no wonder that Agenda 21 provides:

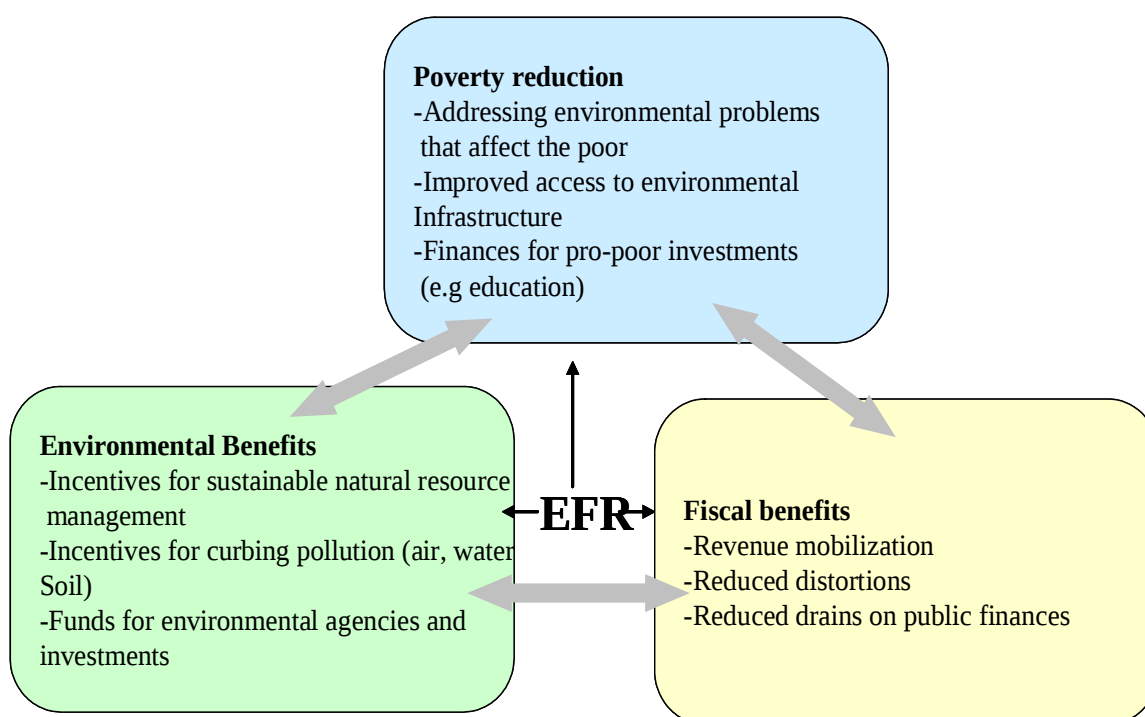
“ National Authorities should endeavour to promote the internalisation of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution with due regard to public interest and without distorting international trade and investment” [UN, 1992].
11. An evaluation of EIs five years after the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro found that such instruments were *“among the most powerful policies for improved environmental management because the market and price give signals to make the appropriate allocation of resources”* [World Bank, 1997].
12. According to Thomas Sterner [1998], the design of policy instruments for environmental policy making is a complex mix of science and art. His view is that implementation of economic instruments should be preceded by careful assessment of potential impacts, to be done by collaboration of experts from several disciplines such as economists, technology experts and environmental professionals.

1.2 Functions and benefits of EFR/EIs

13. Economic instruments are chosen in order to contribute to sustainable development by performing three functions:
 - To **encourage, motivate or reward** good practices. In this case they are referred to as **incentives**
 - To **discourage** and penalize bad practices like pollution and unsustainable extraction and use of resources. In this case, they are referred to as **disincentives**
 - To **raise some revenue and** plough back some for investment in the environment and natural resources sector in addition to investing in other sectors.

14. As already described and as shown in Figure 2 below, EFR/EIs have triple benefits, namely environmental benefits, fiscal benefits and poverty reduction benefits. However, it is not automatic to derive the three types of benefits at the same time. For example, in order to support manufacturers to adopt cleaner technologies, the government may forgo the objective for revenue generation in the short run by exempting those taxes on imports of cleaner technologies. That is to say that it may have to make trade-offs.

Figure 2: Benefits from the EFR



Source: World Bank [2005]

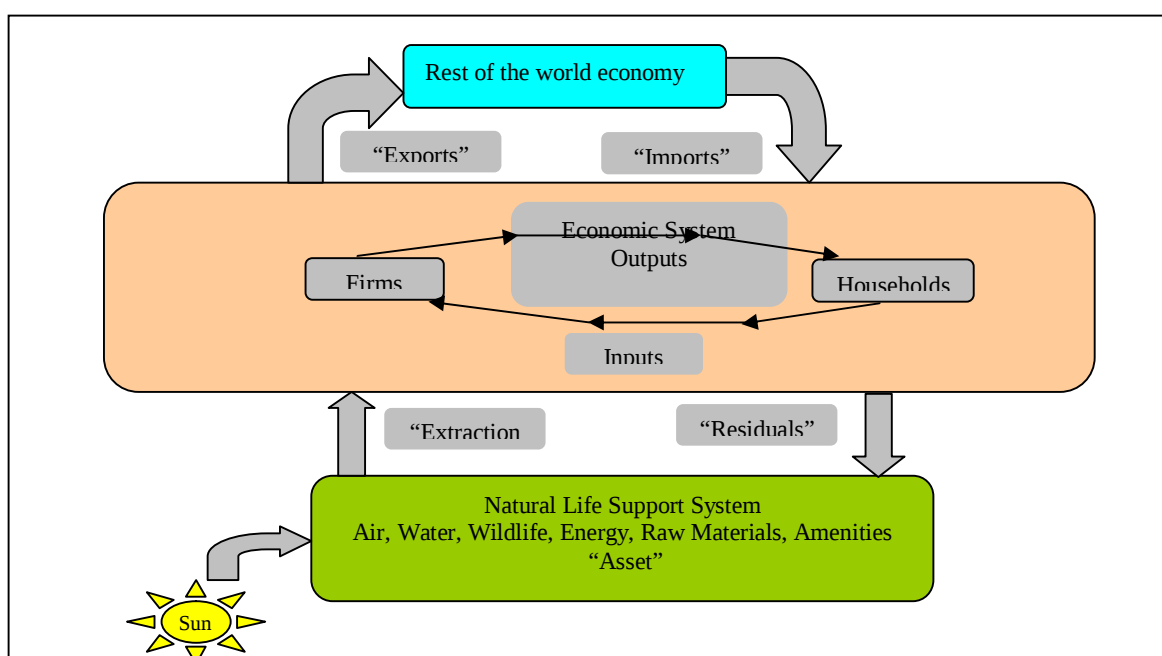
15. The following examples in Table 1 illustrate specific examples of EFR benefits in Rwanda. The implication from the examples is that Rwanda, through MINECOFIN and other agencies like REMA and Rwanda Revenue Authority (RRA) need to continually monitor whether the EFR meets its intended objectives.

Table 1: Illustrative examples of EFR benefits in Rwanda

Environmental benefits
- The GoR is already giving incentives for improving agriculture and natural resources thereon, by exempting machinery and agricultural inputs from customs duty - It is also promoting the renewable energy e.g solar through tax exemption of solar equipment and accessories
Poverty reduction benefit
- By removing taxes on paraffin, it is allowing have the poor access to an energy resource they can afford - By exempting water services for non-for profit, it wants to encourage the poor to access water - The revenue raised from some of the taxes and charges, is partly invested back to benefit the poor e.g through radical terracing and up scaling of rain-water harvesting technologies
Fiscal/revenue benefit
- The government raises some revenue from taxes, charges, fees and fines. In so doing, it improves its capacity for national resource mobilization thereby reducing its dependence on foreign aid amidst global financial crunch - Further, by offering legally enforceable property rights e.g. land titles, concessions to forest areas, it is creating environment for attracting the use of private capital in the use of land and forests, and thereby reduce drain on its treasury.

1.3 The position of EFR/EIs in the environment-economy relationship

16. In order for one to appreciate the rationale for this study, one needs to relate it to the GoR efforts for poverty reduction, sustainable environmental management and attainment of Millennium Development Goals (MDGs). To set the scene, and as already mentioned, the basic principles underpinning EFR/EIs are **the polluter-pays-principle and the beneficiary-pays-principle**. Both principles convey one message: Environment is not a free good. These principles can best be understood when we contextualize them in the bigger picture of the relationship between the economy, the environment and the rest of the world in which Rwanda finds itself. It is shown in Figure 3.

Figure 3: The economic system, the environment and the rest of the world

17. As the Figure 3 shows, the environment provides the economy with raw materials through “extraction”. Ultimately, these raw materials and energy return to the environment as waste products or “residuals”. The two arrows reading “extraction” and “residuals” are communicating the two principles stated above, that is, beneficiary-pays-principle and polluter-pays-principle. In either direction of the arrows the government is challenged to ensure environmental sustainability.
18. Further, the figure shows that the Rwanda economy is not closed; it relates to the rest of the world through trade (exports and imports). In this respect, it would want to ensure competitiveness in trade, through say, being efficient in the use of resources, adding value, etc. Equally, it would wish to regulate imports that can harm the environment in the name of trade liberalisation.
19. Based on Figure 3, and in the context of EFR one would then be interested in answers to the following sets of questions in Table 2. These questions set the background against which the importance of EFR has to be appreciated. In the next Chapter, a theoretical context is provided to further strengthen the rationale for EFR in Rwanda

Table 2: EFR questions in the relationship between the economy, the environment and the rest of the world.

Aspect	Type of questions relevant to EFR
“Extraction”	• Who are extracting the resources and are they legally recognized or licenced? • How much are they paying to extract? • Do the fees or prices they pay include the costs of inefficient extraction or damage to the environment? • What are the consequences for environmental sustainability, revenue generation and fiscal discipline if they are not paying the above costs? • Is MINECOFIN borrowing where it could have used revenue from those who use and benefit from the environment?
“Residuals”	• Who are those discharging to the environment? • What are they discharging and how dangerous is it? • Are all of them known and some of them registered by virtue of toxicity of their discharges? • Are they paying for polluting? • If so, is it enough to cover the likely cost of cleaning up and restoration? • If it is not enough, who is incurring the balance? • What are the implications for poverty reduction, meeting the MDGs, environmental sustainability, revenue generation and fiscal discipline if they are not paying the full costs? • Are there instances where the government is forced to borrow, albeit at a cost, because some of the users of the environmental services are not paying?
“Exports”	• Are exports meeting environmental standards and green consumerism of the external markets? • Are firms adopting measures to improve efficiency in the use of raw materials, energy, and water to be competitive, that is, taking a low carbon path? • Is government providing sufficient EFR to make its exporters compete?
“Imports”	• How environmentally friendly are the imports? • Are there policy instruments to gradually shift the population to purchase environmentally friendly products?

2. UNDERSTANDING KEY CONCEPTS AND RATIONALE FOR EFR IN RWANDA

2.1 The goal of government is to improve people's welfare

20. Like any government, the GoR has interest to increase the **welfare** of its citizens. The concept of **welfare** (or utility) refers to the state of well-being or happiness which individuals derive from their own consumption of goods and services. In reality, it is difficult to judge whether a particular policy is contributing to welfare. This is because individuals and households have different preference and socio-economic settings.
21. Nonetheless, economists try to separate as far as possible the issue of social welfare from value judgments. They use the **Pareto principle** as a starting point of reference to study different other situations. By definition, the **Pareto principle** states that “at an efficient equilibrium state of society, no one can be made better off without making someone else worse off”. When this condition exists, we talk of Pareto **optimal** or Pareto-efficient condition. It implies economic efficiency.
22. On the other hand, when a policy or project makes some individual(s) better off without making anyone else worse off, then we talk of **Pareto improvement**. For example, if the construction of a bridge benefits all people in the village and does not adversely affect anybody else, we say the project is desirable on Pareto grounds.
23. There are four conditions to be met for the Pareto optimality to be achieved. They are:
 - (i) all consumers maximize utility
 - (ii) all producers maximize profits
 - (iii) competitive markets exist for all scarce resources, and
 - (iv) a full set of property rights exist over all resources
24. In the real world situation, the above conditions for economic efficiency do not exist in the use of resources. From environmental point of view, this raises interest over the following:
 - (i) the deficiencies in the operation of the market and how to correct them
 - (ii) the role the government, or public sector can play, especially when the market economy produces very unequal distribution, and
 - (iii) how to reconcile the interests of the losers under a natural resource or environmental policy

2.2 The need for government intervention in environmental management

25. According to the economic theory, the market mechanism provides an efficient (though not necessarily the most equitable) means of allocating scarce resources. This is possible under certain conditions, like:

- (i) having many potential buyers and sellers of similar products
 - (ii) having many identical or very close substitutes for the product being exchanged
 - (iii) the quantity of the resource or goods purchased during one transaction does not influence the price at which all other goods are sold (both buyers and sellers' markets are competitive)
 - (iv) there is perfect information about the existence, quality and potential performance of the resource and its substitutes
26. When the above conditions are satisfied, we say there is allocative efficiency, that is, efficient allocation of resources. In short, this means two conditions, namely:
- (i) the most highly valued outputs are created, and
 - (ii) the least cost inputs are used to make these outputs.
27. The second condition is also known as **production efficiency**. The question that has to be answered is "how do we measure allocative efficiency?" Economically, the most valued output is measured by the maximum amount that people would be **willing to pay** for the products they enjoy. To achieve this state of affairs, there are two production conditions that must be met, that is:
- (i) each commodity be produced at the least possible cost for the quantity actually produced; and
 - (ii) each selling price to be set equal to the marginal cost of producing the commodity, where the marginal cost is the cost of production of the last unit produced.
28. With the above in mind, allocative efficiency is maximized when the benefit that an individual derives from the last unit of consumption of a product is just equal to its cost of production.
29. Owing to the fact that many of the environmental goods and services are not traded on the market, the market mechanism cannot be relied upon in the efficient allocation of scarce resources. We say that there is market failure. Under such circumstances, the government is justified to intervene to influence sustainable use of environment and natural resources. One of the policy instruments at its disposal is EFR. It does so by administratively setting the price for some of the environmental goods and services not traded on the market or those under-supplied or oversupplied. The sources of market failures are many (See Box 1).
30. The aim is to ensure that those who negatively use the related costs which those whose activities also benefit the wider society are rewarded.

Box 1: Market failures and the environment

Much of the mismanagement and inefficient use of natural resources and the environment can be traced to malfunctioning, distorted or totally absent markets. Prices generated by such markets do not reflect the true social costs and benefits of resource use. They convey misleading information about resource scarcity and provide inadequate incentives for management, efficient use, and conservation of natural resources.

Sources of market failure are:

- Externalities, when an action by one individual affects others, and these impacts are not accounted for
- Unpriced assets and missing markets, where environmental goods and services are not traded commodities
- Public goods i.e good for which it is possible to exclude individual consumption
- Transactions costs, which might prevent gainful trade from taking place
- Unassigned or not enforced property rights
- Ignorance and uncertainty, both potential impacts of some actions, and about the functioning of ecosystems
- Short-sightedness which leads to future costs not being considered in current decision (this can bias decision against future generations)
- Irreversibility, leading to the permanent reduction of options, and/or to the collapse of some services

Source: Panayotou, 1993

2.3 EFR as an instrument to contribute to sustainable development

31. EFR/EIs are not an end in themselves, rather, one set of policy instruments used to contribute to sustainable development objectives in the country. A widely held definition of sustainable development comes from the Bruntland's Report, WCED 1987, where it is stated:

“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs”.
(World Commission on Environment and Development, 1987, p. 8).

32. However, the Bruntland Commission left its definition so general that the concept of sustainable development has been subjected to wide ranging interpretations. While that is the case, suffice it to mention those interpretations that seem to be popular.
33. First, sustainable development is considered to be built on three pillars-economic, social and environmental. According to this view, there is no single focus or object of sustainability. Rather, all the three pillars must be simultaneously sustainable in and of themselves. Satisfying any one of them is deemed insufficient because of a number of reasons, namely:
- (i) each of them is independently crucial
 - (ii) each of them is urgent, and
 - (iii) the three pillars are interconnected

34. There is, therefore, a risk of unwittingly causing (or worsening) problems in one system while attempting to correct problems in another. The only sure way to avoid this is to integrate decisions such that effects in all three systems are considered before action is taken (Robinson and Tinker, 1998). A participatory and transparent approach to decision-making is thus essential for decision making.
35. Further, an ecological approach to sustainable development refers to “capacity of [an ecosystem] to respond positively to change and opportunity” or the maintenance of [ecosystems] dynamic capacity to respond adaptively. (Golley, 1990). The key property to be sustained then is the capacity of ecosystems to respond with resilience to external perturbations and changes. The “pressures” placed on ecosystems by human activities (material and energy extraction, physical restructuring, pollutant emissions, human appropriation of space and ecosystem productivity, etc.) are often the cause of reduced ecosystem health as manifested in degraded service flows and/or reduced management options.
36. Thirdly, the natural capital is generally considered to comprise three principal categories: natural resource stocks, land and ecosystems. All are considered essential to the long-term sustainability of development for their provision of “functions” to the economy, as well as to mankind outside the economy and other living beings. It is helpful to consider these functions as falling into one of three groups:
 - Resource functions cover natural resources drawn into the economy to be converted into goods and services for the benefit of mankind. Examples are mineral deposits, timber from natural forests, and fish from lakes and rivers;
 - Sink functions absorb the unwanted by-products of production and consumption; exhaust gases from combustion or chemical processing, water used to clean products or people, discarded packaging and goods no longer wanted. These waste products are vented into the air, water or are buried in landfill sites. These three destinations are often referred to as “sinks”;
 - Service functions provide the habitat for all living beings including mankind. Some aspects of habitat are essential, such as air to breathe and water to drink. These are called survival functions. If the quantity and quality of survival functions are diminished, biodiversity of species is threatened, and so are the human species. Some service functions are not essential in the same way but improve the quality of life, for example by providing a pleasing landscape for leisure pursuits.
37. According to the above capital approach, the long-term sustainability of development is seen to depend upon the maintenance of natural capital (in addition to the other forms of capital). If stocks of natural capital decline to the point where they are no longer able to adequately provide the functions listed above, any pattern of development that relies on these functions is not sustainable.

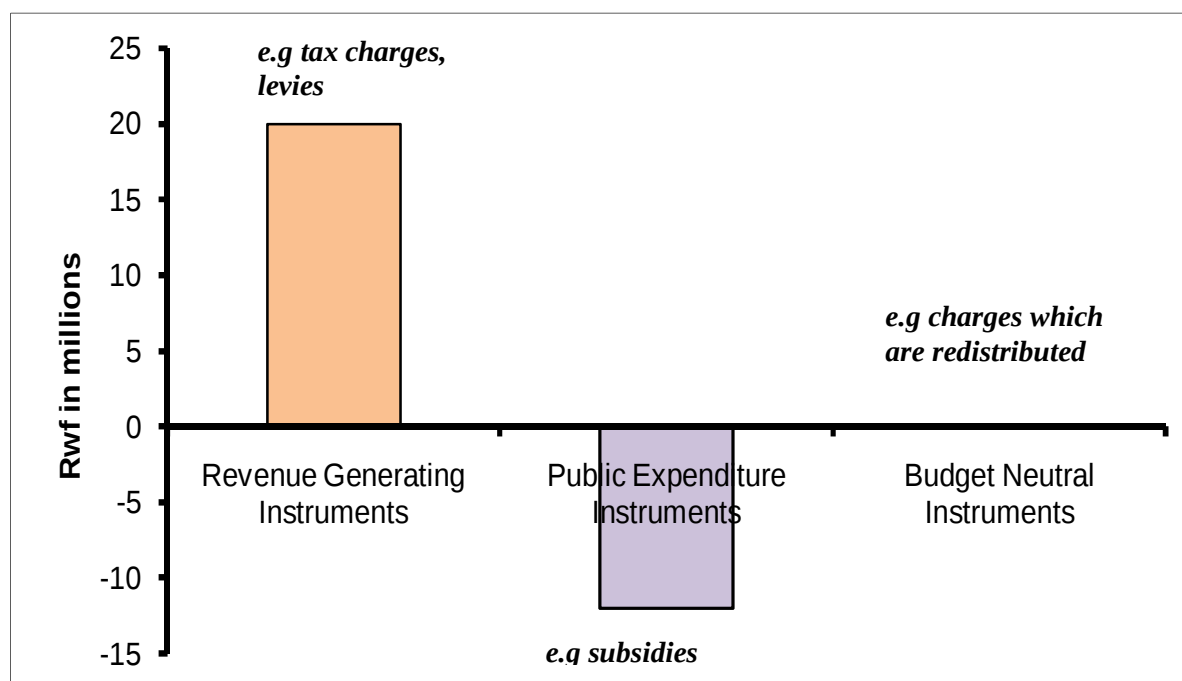
38. Many researchers argue that produced and human capital are very often, if not always, substitutes for natural capital. Others argue that the possibilities for substitution are more limited, even completely absent in some cases. The controversy over the degree of substitutability for natural capital has translated into a continuum of capital-based approaches to sustainable development. At the opposing ends of this spectrum are found the concepts of weak and strong sustainability.
39. Weak sustainability seeks to maintain from year-to-year the per capita income generated from the total capital stock available to a nation (measured in monetary terms). No regard is given to the composition of this stock, as it is assumed that all forms of capital are substitutes for one another. Weak sustainability clearly allows for the depletion or degradation of natural resources, so long as such depletion is offset by increases in the stocks of other forms of capital (for example, by investing royalties from depleting mineral reserves in factories).
40. Strong sustainability requires that all forms of capital be maintained intact independent of one another. The assumption implicit in this interpretation is that different forms of capital are mainly complementary; that is, all forms are generally necessary for any form to be of value. Produced capital used in harvesting and processing timber, for example, is of no value in the absence of stocks of timber to harvest. Only by maintaining both natural and produced capital stocks intact, the proponents of strong sustainability argue, can non-declining income be assured.
41. The caution called for by strong sustainability is often expressed in terms of the “precautionary principles” expressed below:
 - Renewable resources should not be used in excess of their natural regeneration;
 - Non-renewable resources should be used prudently and efficiently with care that the same function is available to future generations, say by technological development or shift to use of renewable resources;
 - Sink functions should not be used beyond their assimilative capacities;
42. Activities which cause deterioration in service functions should be avoided or at least minimized. So the government can use EFR to ensure that the above attributes are complied by in the use of environmental resources.

2.4 Relationship between EFR/EIs and the government budget

43. The implementation of EFR must be placed in the legal provision for fiscal discipline of the government. Article 91 of the Constitution of Rwanda gives guidance to this effect. It limits the legislature’s ability to modify the Finance Act by providing that bills and statutory amendments which have the potential to reduce government revenue or increase state expenditure to the anticipated expenditure. Such provisions contribute to fiscal discipline. Further, for purposes of operating the central government budget, the organic budget law establishes a consolidated fund, which constitutes all revenues public monies, including earmarked revenues for extra budgetary funds and external loans and grants raised or received for the purpose of, or on behalf, of the central government.

44. There are three implications the EFR have on the government budget. They are;
- (i) **Revenue Generating Instruments (RGIs):** These raise money for government budgets.
 - (ii) **Public Expenditure Instruments (PEIs):** These cost governments money. They show up as spending allocations in budgets.
 - (iii) **Budget Neutral Instruments (BNIs):** These neither cost nor generate money for governments. They simply redistribute it.
45. The above budget instruments are shown in Figure 4 with examples. To note is the fact that strategically, government can forgo revenue in the short-run through Public Expenditure Instruments (PEIs) to stimulate investments which in the long-run would be source of revenue to the government. The GoR is already demonstrating that through many incentives it is giving to investors under the Investment Code. Sectors must therefore identify environment based investments that should benefit from existing incentives or for which new ones should be announced.

Figure 4: Classification of EFR/EIs according to their Direct Financial Impact on Government Budget



46. In view of the fact that EFR/EIs cut across many sectors in Rwanda, they should centrally be coordinated so that their overall impacts on the national budget, environmental sustainability and poverty reduction can systematically be measured, monitored and reported. MINECOFIN would be the most appropriate ministry to oversee such coordination. In Box 2, example is given to show how South Africa, based on its long history of a coordinated approach, mainstreamed EFR/EIs in its national budget of 2009.

Box 2: South African budget 2009 mainstreams environmental fiscal reform

South African Minister of Finance, Trevor Manuel, delivered his 2009 Budget Speech to Parliament in February 2009. The budget links the environment and the economy by noting that environmental considerations will affect the sustainability of economic growth in the long term. With this in mind, government intends to promote the efficient use of energy and water resources by producers and households, along with measures to mitigate the effects of climate change.

The 2009 Budget addresses environmental fiscal reform in various ways, including through the following key measures:

- Introducing incentives for cleaner production (energy efficiency).
- Increasing the levy on plastic bags.
- Introducing taxation of incandescent light bulbs.
- Proposing a tax incentive for carbon credits from Clean Development Mechanism.
- Increasing motor vehicle *ad valorem* excise duties.
- Increasing international air passenger departure tax.
- Increasing fuel levies.
- Providing ZAR45-million to Working for Energy, a programme which uses biomass to generate electricity.
- Providing ZAR30-million to support research on climate change mitigation and adaptation strategies to inform the development of a national climate change strategy.
- Implementing, as from 1 July 2009, the electricity levy announced in the 2008 Budget. The levy, which is intended as the first step towards the introduction of a more comprehensive greenhouse gas emissions-based carbon tax, is a tax of ZAR0,02c/kWh levied on the sale of electricity generated from non-renewable sources, to be collected at sources by the producers / generators of electricity. The electricity levy acts as a disincentive to fossil-fuel-based power generation.
- Providing ZAR 1-billion to the Department of Water Affairs and Forestry for the installation and rehabilitation of 71 regional bulk water and sanitation schemes.
- Most of the environmental interventions proposed in the 2009 Budget will take effect from the beginning of the 2010/2011 fiscal year.

Source: South Africa, Budget Speech [2009]

3: ASSESSMENT OF EXISTING AND POTENTIAL EFR/EIs BY SECTOR

3.1 Lands

47. Rwanda is a small country with an area of 26,336 km². Out of this, as high as 70% is exploited for agriculture [ROR 2008]. About 80% of the population is dependent on agriculture. It also has 165,000 ha of marshlands. The country incurs a lot of costs due to soil erosion, continuous farming without fallow, de-vegetation, and land fragmentation. Rainy seasons are becoming less predictable. A high correlation between food insecurity, population density and poverty has been documented in some districts (RSOE, 2009 pg 29). In this situation, the poor continue to be both victims and agents of environmental degradation.
48. The government is committed to using land as an asset for economic transformation. The Vision 2020 and EDPRS have focused on land administration and land use management as key areas in support of sustainable development. Many policy instruments have been made, and continue to be made to restore and harness the productivity of land, and the use of the resources thereon. The key areas are:
- (i) Organic Law determining the use and management of land in Rwanda, No 08/2005
 - (ii) Strategic Plan for the Transformation of Agriculture in Rwanda-Phase II (PSTA II)
 - (iii) Draft Law determining the use and Management of Marshlands in Rwanda
 - (iv) Draft Law for Land Consolidation
49. In particular, the Organic Law no. 08/2005 which determines the use and management of land in Rwanda guarantees the right to own and use the land. The categories of land it recognizes are;
- (i) Urban and rural land
 - (ii) Individual land
 - (iii) State land in public domain e.g. land containing lakes and rivers, natural forests, national parks, reserve swamps, tourist sites and roads
 - (iv) Private state owned land e.g. land occupied by state owned forest, vacant land without owner and
 - (v) District, town and municipal land.
50. The Organic Law also contains certain principles in the ownership and use of land. For example, the wife and husband have equal rights over the land⁶. The lake and river waters and underground water are a public domain. No one is allowed to pollute water⁷. The land owner, as well as any other user of the land is obliged to obey laws and regulations relating to production, conservation and better exploitation of the land⁸.
51. The law allows land lease for agricultural production. Further, it states that the landlord has an obligation to pay tax determined by a specific law. The law allows consolidation of land particularly small plots.

⁶ Article 14

⁷ Article 13

⁸ Article 61

52. According to the Land law, swamp land belongs to the state. For such land to be effectively and efficiently exploited, the order of the minister having his/her portfolio shall determine a list of swamps and their boundaries. Such a list shall indicate the structure of the swamp, their use and how they can be utilized to remain sustainable. The GoR has completed an inventory of its marshlands and is now in the process of formulating a law to regulate their sustainable use.
53. Further, there are efforts to develop a national land use master plan which will subsequently be translated into local plans to guide zoning for activities including agriculture, urbanization, resettlement, public infrastructures, and biodiversity conservation.
54. All in all, the Organic Law on Land offers a lot of entry points for using land in order to address other wider aspects for conservation and environmental management. It is however, a framework legislation requiring enactment of several other laws and regulations. It also requires harmony with other laws during its implementation. The formulation of supportive laws and regulations should thus be used as entry points for EFR. For example, the law proposes the land tax. A separate law would thus be needed.
55. Among the existing EFR/EIs are land titles and lease agreements. These belong to the category of property based instruments. They are supposed to give incentives for sustainable use of land including investment thereon. Further, as opportunities for payment for ecosystem services are being explored, the land reform program will create enabling environment for their implementation.
56. Evidence on the relationship between land tenure and conservation is mixed, implying that, there are wider societal issues also to be aware of. In a study by Deininger 2003⁹, it was found that there is a strong positive correlation between equity of ownership of land for a baseline date and subsequent national economic growth rates. The conclusion was that good governance of land based resources¹⁰ means positive outcomes of land and related policy in terms of equity, efficiency and environmental sustainability.
57. However, other studies have also shown that lack of tenure is not solely responsible for land degradation. Under customary land tenure in southern Africa, it was found that other factors like ignorance about conservation, unsustainable traditional agricultural production and lack of inputs such as labour were a bigger contribution to land degradation than in secure customary tenure [ECA, 2003].
58. Another key finding of the same study is that the HIV/AIDS epidemic has brought a new dimension to already existing challenges of land tenure problems in the region. Cases have been reported where the epidemic has increased vulnerability of women, the children and poor households to land dispossession by patrilineal kin on the death of the male household heads and risks of losing unutilized/ underutilized land. It would thus be imperative that protecting the land rights of women and people living with HIV/AIDS must be integral to sustainable land management.

⁹ Quoted by UNDP-DDC in "Governance of Land Resources and Drylands Development"

¹⁰ Land governance, as referred to here, is the formal and informal rules which determine who gets to use or own which land-based resource and under what conditions.

59. However, Rwanda needs to continue evaluating impacts of its land reform on productivity, conservation and access by the poor. This is because evidence from many countries suggests that it may not be easy to ensure the above goals. According to Adrian Cullis and Cathy Watson [2006] many developing countries have privatized grazing land to encourage the development of a commercial livestock sector. Botswana's beef industry is often referred to as a successful model to be emulated. However, this success has been described as controversial because policies have formed a small, commercial elite group whilst neglecting pastoralist populations and traditional rangeland policies.
60. It was also found out that **land consolidation** is possible. It has been implemented under 'Support Project for the Agricultural Transformation Strategic Plan' (PAPSTA). In Kirehe (Eastern province), households have consolidated land for enhanced maize production, while Nyanza and Muhanga districts in southern province have consolidated land for cassava growing. In all cases, emphasis has been put on crops that are ecologically sustainable. There is no doubt that these initiatives will greatly inform the land reform processes in the country including the implementation of the law on land consolidation. Importantly, acceptance of land consolidation offers entry point for government to offer incentives that protect natural resources on private land that equally benefit the wider society e.g. watershed management. Secondly, it was found that **administrative fees** are collected for the processing of land titles.
61. There **is scope for additional EFR/EIs**. Following successful completion of the inventory of marshlands, the GoR is in process of formulating a law for the sustainable use of marshlands. The draft law proposes two important instruments, namely the **access and use rights** of marshlands and **fees and royalties**. The proposal is that these levies will be paid by those collecting or removing any of natural marshland products. According to the draft bill, it would be the Ministry responsible for Environment and Natural Resources and Rwanda Natural Resources Board that shall establish and maintain the accounts and systems required to manage the financial resources for reserved marshlands. The Minister of the above Ministry is also supposed to make among others, the regulation for setting the royalties and how they are to be managed.
62. **However, the government is challenged to practically demonstrate the operationalisation of important provisions in the land law to the many small, informal and privately employed rural farmers.** In present form, it only sets broad guidance on sustainable use of land. This is because as a law, it can only state the principle for sustainable land management. Practical operationalisation has to recognize the bio-physical and ecological variations in the country. It is also hoped that when other laws and regulations are made, they will take into account the varying land uses for crop, livestock, recreation and conservation. Accordingly, the current processes to make land suitability mapping and land use plans could offer guidance in the above regard. In particular, Article 62 states:

"Any person who owns land must use it in a productive way and in accordance with its nature and intended purpose

The use of land in a productive way is to protect it from erosion, safeguard its fertility and ensuring its production in a sustainable way.

Any person who uses another person's land, either basing on the contract he or she entered into with the owner of the land or whether he or she acquired it through legal procedures is required to properly maintain it and use it in a productive manner".

63. Presently, the government is making funds transfers to districts some of them supporting terracing, water and soils conservation and afforestation. The use of such funds would make a difference if there are standards for sustainable use of land as provided above. Further, the government could start to study the feasibility of a land tax to promote sustainable land use and to discourage land speculation, particularly by the rich.
64. Finally, government's efforts to provide land titles provide a conducive environment for the introduction of yet another incentive under discussion in Rwanda, namely the Payments for Ecosystem Services (PES). This would recognize the beneficiary principle. Several awareness workshops are being conducted to get understanding how PES could ultimately work.

3.2 Mining

65. According to the Mine and Geology policy, Rwanda's mining sector is on the path of recovery after the 1994 genocide. The value of export rose from a mere US \$ 1.5 in 1995 to US \$ 42 in 2001, but fell to 15.8m in 2002. By 2007, the sector's earnings had grown to US\$ 202 million accounting for 77% of the foreign exchange earnings [RIEPA, 2007]. The most important minerals are Colombo tantalite, Cassiterite, and Wolfram. (National TDA 2006). The sector also has minerals for **construction** which account for close to 10% of GDP. This is particularly because of extensive construction and rehabilitation works. Over 50,000 people are employed in mining.
66. According to the ENR Sector Strategic Plan, it is the objective of the government to "*promote productive, equitable and environmentally friendly utilization of the country's mineral and other earth resources.*" Other things being equal, it is probable that the minerals will fetch a target of US\$120 million by 2013 set by the above plan.
67. The mining industry is potentially constrained by the lack of large scale mining and lack of exploration research and analysis to determine the size of the natural resource base in Rwanda and the future potential of the industry, which is largely unknown. Another concern is lack of respect of environmental issues.
68. In the context of the EDPRS, the National policy on mining puts emphasis on the processing of minerals using the latest technology for geologic exploitation in order to enhance mineral exports. A new mining code perceived to be more investor-friendly and establishment of the Rwanda Geological and Mining Agency (OGMR) are part of the GoR's recent efforts to reform the mining sub-sector, through human resources and institutional capacity building; research and innovation.

69. The sector is undergoing reform with privatization. In the 2006-2007 fiscal year, the mining sector experienced intensive privatization that led to growth. The Mining and Exploration Authority (REDEMI) which has been under Government management is currently undergoing privatization with 17 out of a total of 20 concessions already under private ownership. Seven foreign companies have already received permits to conduct research and exploration for gold, nickel, cobalt, platinum, copper and wolfram (PSF 2009).
70. Following the research stage, the companies will formally report results on the reserves prior to being granted concessions for mining. It should be noted here is that privatization is not being pursued mainly for environmental reasons. However, the government has responsibility to regulate the private companies to comply with national laws and standards on environment.
71. Mining **concessions and municipality tax** are some of the existing EFR. Artisan miners get municipal mining licenses and pay a per hectare **local mining land tax**. In addition, they appear to be paying a local municipality tax based on the amount of natural resources produced which in some cases is considerable in nature and appears to have a questionable basis in law. Artisan miners treat this as a type of turnover tax, which in the future will make it more difficult for the authorities to formalize them. There are also **mining guarantee fees** for the big companies. The fees are deposited into the National Bank and are used to rehabilitate degraded mining sites.
72. Traders buy from artisans and sell to the larger producers and exporters. These traders are also not VAT registered, nor are they regulated. This may result in the promotion of small scale cross border smuggling of minerals. The larger organizations, producers and exporters in this sector form part of the tax system and pay corporate tax at the national rate. Future and current large investors in the mining industry, stand to benefit from the incentives in the tax code - a reduction in tax on profits based on exports (3% reduction on corporation tax of exports between USD 3 million and 5 million and a 5 % USD 5 million), capital investment allowances and an exemption on imports of raw materials and machinery. However, these incentives need to be reviewed over time and in the context of macro-economic context, including the desire to maintain fiscal discipline.
73. Once the surveys of minerals is complete, it will be important that the government attaches true **royalties** to its minerals. A report entitled “Mining Companies deprive Africa of many Millions in Lost Revenue,” has shown that Tanzania collected only US \$ 17.4 million in royalties, charged at 3% of market value. Yet it exported minerals worth US \$ 2.9 billion between 2002 and 2006. If it raises its royalties to 5% as has been recommended by the presidential commission, its revenue could rise to US \$ 145 million over five years [Christian Aid, *et al*, 2009].
74. Mining companies have long ensured that they pay as little tax as possible to the countries that own such resources. As a result, the citizens of mineral-rich countries in Africa continue to live in poverty. The losses are fuelled by a lack of transparency concerning the financial remittances mining companies make to government institutions, coupled with the inability of revenue departments in poorer countries to audit the complicated accounts of multinational mining countries. However, as governments try to renegotiate better deals with mining companies, they should remember that mines could contribute to environmental financing.

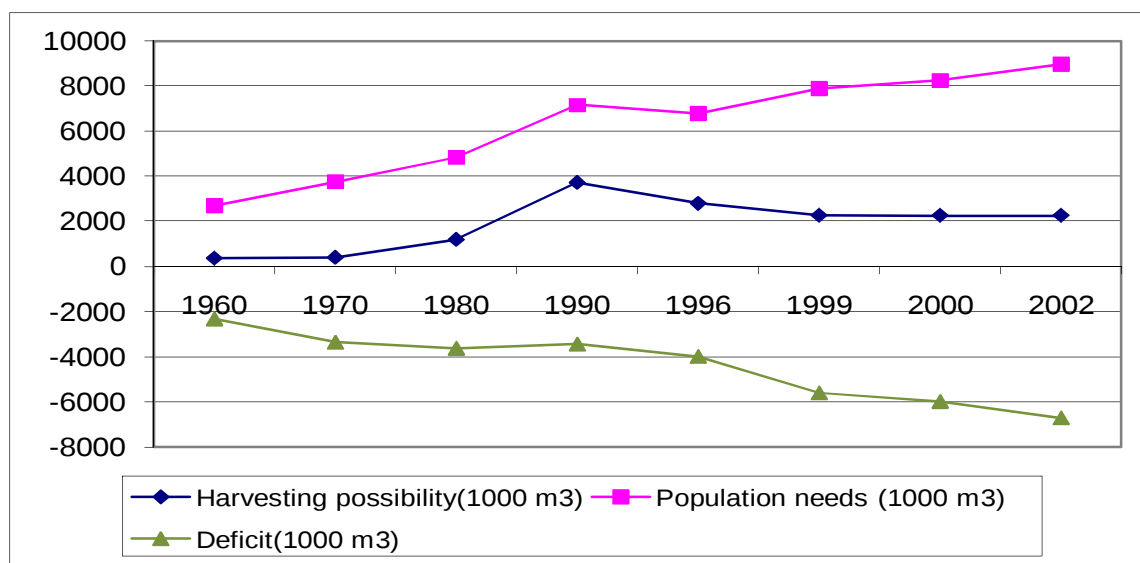
75. Mining companies operating in Zambia have responded to government's statutory requirement to contribute towards environmental protection in their respective areas of mining and have paid more than US \$ 70 million in five years since a statutory requirement was introduced. Their contribution goes to the Environment Protection Fund. The government would hold the contributions in trust until the mines closed and the same would go towards addressing any environmental impacts¹¹.
76. A Christian Aid [2009] study has observed that the trend of lowering corporate taxes has benefited all businesses, including those operating in the extractives sector. Developing countries have been encouraged by the World Bank to lower royalties and taxes charged on minerals as a key part of strategies to attract foreign investors to their countries. The use of tax incentives to attract investors has been increasingly questioned, given that investors make location decisions based on many issues (market access, infrastructure, skilled work force, political stability), including geological factors that are crucial for mineral companies. Offering overly generous tax incentives has resulted in many developing countries simply sacrificing significant tax revenue to companies who are operating very successfully within their territory for long periods. The main lesson for Rwanda is that it needs to carry out more specific studies on mineral specific incentives.
77. Increasingly, Rwanda is using the private sector for service delivery. However, it must bear into account that private sector and privatization too need very strong and transparent regulatory framework. This will not only be relevant in the mining sector, but also in other sectors.
78. Market-based reforms, including privatization, have encountered considerable challenges and failures, especially in developing countries. This has led policy makers to argue that in natural monopolies, such as the water industry where competition is difficult, the state should set up independent regulatory institutions. Within the general restructuring and privatization framework, the establishment of regulation was generally prescribed by donors in order to attract more aid and provide the private sector with incentives for investment in infrastructure sectors. It was argued that regulatory institutions should be coherent, accountable, transparent and predictable independent bodies (Kessides 2004). Furthermore, they should have the capacity to protect consumers, investors and the environment.
79. However, scholars such as Buchanan (1972), Newbery (1999) and Laffont (2000) have argued that interest groups have often controlled the regulatory process, while others such as Stiglitz (1998) have argued that politicians have controlled regulation. Recent research has shown that building independent regulatory institutions in developing and transition economies presents a major challenge, and that the results have been rather disappointing, as a result of poor accountability, deficient transparency and lack of consistency (Parker 1999).
80. A World Bank (2006) publication also recognized that after the creation of over 200 regulatory entities worldwide during the past 15 years, there is now ample evidence to show that regulatory systems have failed to achieve the expected sector outcomes. Very often, regulation becomes an end in itself rather than a means of achieving social, economic and environmental objectives for the well-being of the population.

¹¹ http://www.southerntimesafrica.com/article.php?title=Mining_firms

81. Similarly, previous UNRISD research has shown that regulation of water services through independent bodies has encountered difficulties in many developing countries (Ugaz 2006). This is a result of a poor tradition of independent policy-making bodies, weak institutions and uneven bargaining power between the stakeholders. Lack of effective and transparent regulation hampers the accountability of any service provider. Accordingly, as Rwanda continues to pursue privatization, it must develop the capacity of its regulatory agencies like REMA to monitor and supervise the private sector for environmental compliance.
82. Rwanda is in the process of developing code of practice for the companies in the mining sector. It could go a step further to institutionalize an annual environmental award to the same companies. By way of an example, the Government of Tanzania's Chamber of Minerals and Energy has since 2002 organized "Award for Leadership and Excellence in Environmental Management in Mining". The award is to recognize excellence in environmental management and achievement of outstanding contribution and commitments which go beyond compliance with regulations. Such awards could be applied to other sectors.

3.3 Forestry

83. According to the Forest Mapping, 2007, Rwanda's forests have fallen from 659,000 ha in 1960 to only 240,700 ha in 2007. This represents a loss of about 64% of forests during the period, which is more than 1.3% per year. Further, the same mapping exercise established that degraded national forests accounted for 38,000 ha or 16%. The rapid increase in population searching land for agriculture and settlement, and for construction and wood fuel materials has exerted pressure.
84. Further, Rwanda exhibits uneven distribution of forest reserves. Most of them lie on the Congo-Nile Ridge. The east (from Bugesera to Umutara) has less forest due to harsh ecological conditions (drought, termites) and traditional lifestyle (cattle keeping) and recent settlement. Yet the demands for forestry products and services for household energy, housing, agricultural productivity, water regulation and supply, adaptation to climate change are growing. At 0.059 per capita, the FAO standard of 1 ha per person to simultaneously meet ecological balance and wood demand is far from being achieved. The current coping mechanisms to either use steel for housing/roofing or import timber is not within the reach of the majority poor.
85. It is estimated that in order to fill the gap between demand and supply of wood (6.719 millions m³), it will, theoretically, be required to plant additional 400,000ha and increase the forest productivity up to an average of 15m³/ha/year.(see Figure 5) However, such area is not available for conventional forestry (probably only around 50,000ha). It will thus be necessary to rely on new sources of energy and to help households be less dependent on wood.

Figure 5: Widening deficit of forest products in Rwanda

Source: National Forestry Policy, Rwanda, 2009

86. Since the years 1970, the Government of Rwanda has received considerable support for afforestation and has used it mainly for establishing pine forests plantations around Nyungwe, in Gitarama, Gisenyi and Byumba. Today, these plantations are in poor conditions following lack of silvicultural treatments since 1990 (pruning, clearing). Now, many of those forests are mature and some of them were ready for exploitation since 1998. While waiting for investors to decide on how to implement studies conducted on these plantations for transformation and treatment, it is obvious that trees are undergoing heart-rot or subject to wind throw and windbreak. Another problem facing forestry is forest fires as shown below (See Table 3).

Table 3: Forest surfaces damaged by fire, from 2000 to 2002

	Year		
	2000	2001	2002
Surface (ha)	6,129.19	2,657.6	4,343.87

87. The Rwanda forest landscape is dominated by eucalyptus plantations. The majority of plantations of this specie were created before independence and are in poor state because of soil degradation and poor management. The government is considering conversion of some of the plantations and replacing the respective ecological zones and types of soils. The government had set a target of increasing the national forest cover from the present 10% to 30% by 2020. However, it needs to adopt both “supply” and “demand” side approaches to meet its target. On the supply side, 15 out of 30 districts have finalised the forest management plans with support from the African Development Bank, the Embassy of the Netherlands, Switerzland and FAO. The districts want to plant more trees and manage forests. On the demand side, it is educating the public to adopt energy cooking stoves, including training small enterprise operators to regularly produce them. It is in this context that the subsequent paragraphs review the existing and potential EFR in the forestry sub-sector.

88. To note is that forest ecosystems in Rwanda provide multiple benefits and functions such as wood for fuel and construction, water catchment protection, water purification, tourism, non-timber forest products such as medicinal plants, honey and raw materials for crafts. Some of the functions are of public goods nature e.g. water catchment protection and water purification. Where some of these functions are provided by households, government is challenged to offer them incentives so that they cover the social benefits they offer to society. Accordingly, the government is in the early stages of exploring payments for ecosystem services.
89. Table 4 provides the chain of custody for timber. Key among the issues are the inefficient recovery rates, encroachment in the buffer zone, forest fires, and over dependency on biomass for fuel. According to the forest policy GoR is to: a) develop forest resources so as to meet the timber and non-timber forest products needs of the population at domestic and industrial/commercial levels; b) manage forests to optimize their ecological functions, notably soil erosion control, climate regulation and biodiversity conservation; c) promote a forest product based industry to better contribute to the national economy through *inter alia* promotion of wood processing and non-timber products extraction technologies; and d) establish a strong institutional framework for technical support and supervision of forestry activities in order to improve and sustain the quality of products and services offered.

Table 4: Chain of custody for forestry and entry points for EFR/EIs

Chain of custody	Forestry conservation/ establishment	Pre-harvest planning	Harvesting	Processing	Utilization
Main actors	- NAFA - Private firms - Households	- NAFA - Private firms - Households	- NAFA - Private firms - Households	- Private firms	- Government Agencies - General public
Issues of concern interest	- Encroachment into natural forests - Inadequate supply of forest products and services - Degraded areas - Low empowerment of communities in forest management - Forest fires - Failure to reward those whose forests also offer societal benefits	- Ensure full cost pricing	- Technology choice - Recovery rate - Post harvest replacement	- Value addition	- Over-dependence on biomass for cooking - High costs of alternatives
Existing EFR/EIs	- Incentives to promote afforestation, reforestation and conservation e.g National Forestry Fund - Property rights	- Concession fees - Standing volume fees - Allowable cut fees - Performance bonds - Development tax	- Volume based fees - Value based fees - Per tree based fees	- Tax incentives	- Tax exemption on paraffin for domestic use

Table 4: Chain of custody for forestry and entry points for EFR/EIs cont'd

Chain of custody	Forestry conservation/ establishment	Pre-harvest planning	Harvesting	Processing	Utilization
Potential EFR/EIs	- Fines for setting fire in a forest concessions for establishing commercial forestry - CFM agreements with communities - Carbon funds and Payment for Ecosystem Services (PES)	-	- Reforestation fees - Tax exemption on state-of-art technology	-	- Tax incentives for substitutes e.g LPG
Other supportive policy instruments	- Forestry regulations and guidelines - Public-private partnerships - Non-consumptive use of forestry e.g eco-tourism	- Forestry regulations and standards	- Regulations and guidelines	-	- Product certification - Standards for charcoal production

90. **Among the existing EFR are property rights for planting and using forest resources.** The government is giving concessions as access rights to harvest commercial products like timber from Nyungwe National Park. PAFOR and Nyamagabe district are overseeing that the terms and conditions are met.
91. In Central forest reserves a **competitive bidding** is used to identify the contractors willing to pay more than the reserve price. This is in conformity with the beneficiary pays principle. In order to make forest related transactions easy to understand among the potential bidders for forest products, it is advisable to agree on the unit of pricing. It could be volume of timber (m³), value or area it covers to avoid ambiguity. This price is set confidently. In Nyamagabe district, the contractors go above by 20-25% and some times up to 30% in case of eucalyptus. Eucalyptus in Rwanda compared to other countries sell higher than pine. It is considered heavy, durable and known for its habits. The contractors winning the award deposits the amount into the National Forest Fund account directly in the bank using a pre-marked deposit slip. On surrendering it to the district, the contractor is allowed to harvest. From thinning alone, more than Rwf 232 million has been raised from the plantation of Nyungwe National Park.
92. In a bid to raise their revenue, Districts too levy various types of charges. Table 5 is based on charges found in Nyamagabe District at the time of study. That District supplies 70% of charcoal to Kigali.

Table 5: Tariff structure for Nyamagabe district 2009

	Start up charges		Taxes	
Pitsawing	20,000	20,000		
Trade in timber				
4m piece			100@	100@
2m piece			50@	50@
Charcoal trading	20,000	20,000	150@ bag	150@ bag
Permit for carrying timber	-	-	20000@12 bags	20,000@ 15bags
Loading timber				
• Lorry			60,000@trip	60,000@trip
• Fuso			25,000@trip	25,000@trip
• DAIHATSU			15,000@trip	15,000@trip
• Firewood			100@heap	100@heap
Permit(private land)			10,000@month	10,000@month

93. From the Private forests, the rates charged differ by districts. In Nyamagabe , if the private person harvests more than 2ha, he/she pays 1% fee to the National Forest Fund. The **Fund** has existed since 1998. It is capitalised by proceeds from forest exploitation, and related charges and taxes and contribution from the central government. The fund is solely earmarked for reforestation and related activities, including supporting districts in related activities. When the Fund realised substantial revenue in 2006-2007, it was able to transfer about 25% of the revenue to source of earning.
94. The limitation of this Fund is that because it was placed under NAFA without its own legal status, it cannot attract and raise additional resources beyond current capitalisation methods. Institutionally, it is also not independent as the parent Ministry chairs the Committee that determines the use of funds. Tying support to purely governments and districts is not going to be sustainable in revitalizing the sector.
95. **Property Rights** for communities and private sector to participate in reforestation need to be improved. There are many small forests, sometimes below 5ha under NAFA. As already mentioned, NAFA is not only under funded but also understaffed. It cannot therefore be expected to make a turnaround in the sector to address the deficit depicted in Figure 5. Two opportunities present themselves.
96. The first one is that the NAFA/or Districts can adopt Collaborative Forest Management (CFM) whereby they give communities access to some of the small forest reserves so that they participate in reforestation. This is proposed under Articles 25 to 29 relating to Forest User Rights of the Draft Law for Sustainable Management and Utilization of Forests in Rwanda.
97. The second opportunity is that NAFA can license management of the whole or part of a classified forestry to a private company, within the framework of public-private partnerships. It was gratifying to learn that this option has already been explored by NAFA .Both MINIRENA as parent Ministry of NAFA and MINECOFIN are discussing the details of agreements for the successful bidders to undertake commercial forestry plantations and forest rehabilitation in Nyungwe National Park.

98. **Loans, subsidies and grants for afforestation and reforestation** are also needed because of the long gestation periods of some investments like commercial forestry. With clear property rights addressed as described above, the government would be creating enabling environment for the holders to those rights to attract subsidies, grants or even loans for forestry establishment. In Uganda, a British private company called New Forest Company has raised over \$ 9 million for commercial forestry to plant 6,000 hectares. This was possible because government gave it a 50 year license to grow trees in a Central Forest Reserve, Mubende District. In addition, the government attracted an incentive scheme from both the European Union and the Government of Norway under the auspices of Sawlog Production Grant Scheme (SPGS) whereby each commercial forestry farmer is reimbursed a subsidy of 50% of establishment cost on satisfying the pre-set standards. More than 25,000 acres of plantation are targeted.
99. The above example shows that as long as enabling environment is supportive, say through **clear property rights** and catalytic incentives, the private sector can invest in those areas that have traditionally been a preserve of government agencies. The important lesson is that by attracting private sector capital, government is left to solely fund the investments in the sector. Besides, it could as well use the borrowed funds to other sectors like education and health. Of course, one cannot ignore the employment opportunities that come with private sector investment in the sector.
100. **Carbon funds** and other funds are increasing under the auspices of climate change. Table 6 provides examples. The table illustrates a wide range of economic instruments that can support forestry in Rwanda. Further, as shown in Box 3 from a case study of Costa Rica, Rwanda can apply a mix of incentives in its forestry sector.

Table 6: Emerging financing opportunities for ENR

Financing opportunity	How to tap the Opportunity
1. Climate Change Adaptation Fund	- To obtain details of procedures to access the funds
2. CDC group p/c is setting up a commercial forestry fund for sub-Saharan Africa	- Provide information to potential private investors in Rwanda. - Lease public land for private commercial forestry development
3. COMESA to ask up a fund for carbon reduction projects for governments and private sector be run by PTA Bank	- RDB needs to made a fallow up to establish the terms and conditions for eligibility of these funds
4. Carbon funds under the auspices of REDD	- The Government needs to finalise its readiness plan under NAFA.
5. Carbon credits under clean development mechanism	- To demonstrate management of sources that release gases that pollute ozone layer e.g methane from landfills.

Box 3: A package of incentives and forestry conservation in Costa Rica

Costa Rica provides an inspiring case study to Rwanda that a package of EFR/EIs can lead to afforestation, reforestation and conservation. It is documented as the only developing country that has made a turn around in forest loss.

Costa Rica's Forestry Act, 1969 started a set of policies based on incentives. Since then, the law has changed three times, with additional incentives (1986, 1990, and 1996). Over the last 25, a large number of incentives have been tried; soft loans, designated trust fund, tax allowances and grants of different types. The impacts of the first generation forest incentives (1979-1996) are shown below:

Incentive	Ha planted or managed
(i) Forest bond Incentive	45,500
(ii) Advanced payment	40,750
(iii) Forest management	45,200
(iv) Forest Development Fund	12,800
(v) Forest Protection Certificate	22,000
(vi) Income tax deduction	35,000

In addition to the above, Costa Rica has implemented a successful payment for ecosystem services (PES) and a Forestry Financing Fund (FONAFIFO) since 1997. Presently, over 400,000 ha (8% of land area) is covered by PES. It is the only developing country to have adopted a "carbon tax" over a decade ago, and is the largest buyer of forest carbon in the world.

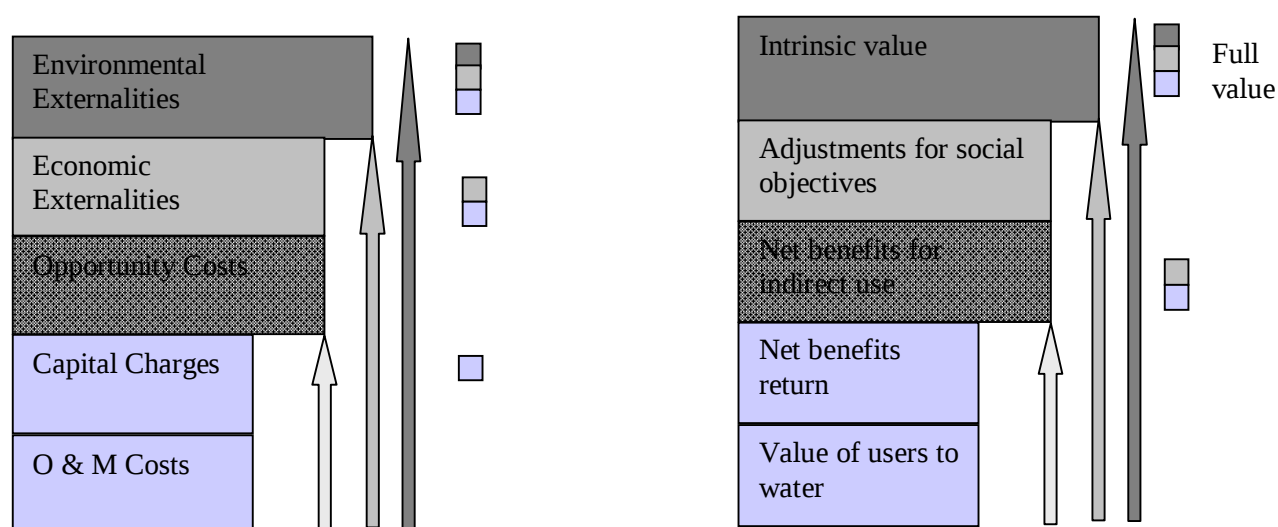
Source: Alvaro Umana [2009]

101. However, in order for both existing and proposed EFR/EI instruments to generate the required impacts in the forestry sector, NAFA must move first to consult and pass the draft law, formulate regulations, standards and guidelines, make forest management plans and secure the boundaries of forests from any form of encroachment. In addition, NAFA has to provide technical guidance to the private forestry investors on optimal social harvesting and value-addition.

3.4 Water supply and waste water management

102. Rwanda's water policy emphasizes equitable access to clean water by all; efficient and balanced use on economic production and ecosystem functioning. The GoR's water resources management vision and strategy envisage a decentralized and participatory management regime in line with the overall governance structure. Under the EDPRS, water resources utilization for growth is expected to increase, as more land will be put under irrigation; more hydro-power generation potential will be exploited; and more industrial activities is anticipated (especially the water-intensive washed coffee processing). Strategic natural water bodies will be exploited for recreation including hotels and other recreation facilities. All these potentially imply more water abstraction that requires a rational management regime. Another feature to mention is that urbanization in Rwanda is increasing, putting pressure on the government to provide for such population.

103. Presently, the water in streams and lakes and underground aquifers belongs to the Government of Rwanda and water rights pertaining to the individual are not currently recognized. The right to use such water is common to all, subject to the provision of administrative law or regulations that govern the use of such water and to concessions that may be awarded by the appropriate public authorities. Currently, the **concessions** that have been granted address the water supply responsibilities of Electrogaz and the rights of small private suppliers to access and pipe water over the land of others [World Bank 2005].
104. Electrogaz subsidizes the water operations by 40 percent. Water revenue is principally through commodity **charges**. A tiered rate structure is in place but does not overly exploit or penalize high-volume water users enough to make water more accessible and affordable to low-volume water users. The following is current water pricing from the Rwanda Utilities Regulatory Agency (RURA) for plumbed and metered customers:
- 0 - 25 m³: Lifeline block: 200 Rwf/m³
 - 26 - 60 m³: Medium customers: 300 Rwf/m³
 - 61 - 100 m³: Large customer: 350 Rwf/m³
 - above 100 m³: Very large customer: 375 Rwf/m³
 - Average cost to hire someone to fetch water: 137 Rwf per trip
105. Water losses are undocumented by ELG, but reported by others to be higher than 40% [World Bank, 2005a]. The majority of the overall losses are reportedly administrative, and losses due to leaky pipes are not viewed as significant. Under the law for VAT, **government exempts water supply for non-profit organizations**.
106. Different price structures can send different signals. For example, a flat rate is often said to provide the wrong signals, since it consists of an identical constant fee independent of water used and, hence, is assumed to lead to water-wasteful behaviours (Renzetti, Robinson, Horbulyk, Symposium). With a declining block rate, the price decreases with successive increases in pre-defined volumes (blocks) of water used, which is clearly not a strong incentive to reduce water use. Increasing block rates, conversely, are believed to encourage water reduction as the price increases with a pre-defined amount of water use. Municipalities get subsidies in the form of capital grants from provincial and federal governments for their water infrastructure, and most subsidize both the consumption of water and the extension of their pipe networks into new developments (Environment Canada, 2001). This can have the effect of reducing the price to all consumers irrespective of water use or income, and may be seen as a signal that governments view water as an essential service rather than a good. However, some would argue that from an equity point of view, “income subsidies needed for some people living in a community should be provided directly and not by reducing costs of water and wastewater system use.” (Robinson, Symposium; see also OECD, 1999b).
107. Figure 6 shows how the relationship between the pricing and value of water. In theory, there triple dividends when a country moves to towards full economic costs of water by taking into account the supply cost and opportunity cost of water. They are environmental benefits, revenue and poverty reduction. Rarely is such a situation achieved. Governments make a lot of trade-offs. In order to ensure equity and protect the poor; they continue to offer subsidies in the provision of water. This practice also pertains in Rwanda.

Figure 6: Underlying principles for the cost and value of water

108. Although subsidies for utility consumers are popular among policy makers and the general public, a World Bank (2005) study shows that they tend to benefit the middle class and the well-to-do. Broadly, there are two categories of utility subsidies- consumption subsidies and connection subsidies. The former reduce the charge for consuming water service, while the latter are a one-time reduction in connection charges. The above referred to study found that:

- (i) quantity-based subsidies are not effective in targeting the poor where access to the network is less than universal.
- (ii) poor households are less likely than non-poor households to have metres
- (iii) fixed charges mean that households that consume very low quantities (e.g the poor households) may face a much higher unit price than the large consumers.

109. The study recommended other more promising measures either in combination with, or instead of current subsidies, namely:

- (i) Reducing the cost of service, through efficiencies in operating and capital expenditures or by improving revenue collection, would benefit all consumers.
- (ii) More frequent billing and elimination of minimum consumption requirements and fixed charges could ease cash-flow problems faced by low-income households. Other options include prepayment, financing connection costs, and providing devices that help households control their consumption.
- (iii) Legal restrictions often work against the expansion of services to the poor. These restrictions include technical norms that oblige utilities to use inappropriate high-cost technologies, legal-tenure requirements that prevent services provided by small-scale providers. Relieving these restrictions would widen services access by the poor.
- (iv) To the extent they can be more accurately targeted to the poor, other measures of social protection may achieve redistributive goals better than utility subsidies.

110. With regard to potential EFR/EIs, the GoR needs to explore the introduction of waste water charges in accordance with the polluter- pays-principle. To do that objectively, it will have to first make waste effluent standards.
111. Further, the government needs to look at water in totality, both from the demand and supply sides. This is because of its desire to promote irrigation under MINAGRI and in fulfillment of EDPRS. Processes are under way to make a master irrigation plan. However, no studies have been made to establish both the demand and supply sides for water. Given the multiple and competing uses of water, the study is urgent. Rwanda has proposed tradable permits for water for irrigation under the agricultural strategy. This is a complex EFR. It would be plausible for Rwanda to begin small, with perhaps the introduction of water user fees for irrigation.

3.5 Housing and settlement

112. In the wake of increased land scarcity, and driven by the need to optimize productive land use, Rwanda's urbanization and human settlement policy 2002 envisaged 40% of the population to live in urban areas by 2020, and the entire population to live in organized clustered settlements (*Imidugudu*). This policy is expected to free up more land for production and facilitate cost-effective service delivery to the population. The implementation of the National Settlement Policy (particularly the aspect of *Umudugudu*) has been revitalized under the Integrated Development Programme (IDP)/ Vision 2020-Umurenge. The IDP is an important pillar of the EDPRS.
113. The government is already implementing the concept of *imidugudu*. The reorganization of settlements into clustered villages (*Imidugudu*) is meant to encourage rational use of land and natural resources and to facilitate cost-effective provision of services such as infrastructure, education, security and agricultural extension, and waste management. It is therefore imperative that government continually assesses the attractiveness of *imidugudu*, including from the perspective of improving the provision of environmental services.
114. On the other hand, however, increased urbanization raises challenges of utility supplies (water, energy, and housing) as well as waste disposal, in as much as it will provide opportunities for alleviating pressure on rural land and biodiversity resources.
115. Presently, local governments are raising substantial revenue as **administrative fees** to process and approve building plans. It is mainly the rich who pay these fees as they search to construct commercial buildings. Since government decentralized collection of property and rental income, districts are raising their own revenue
116. With time, the government can consider introducing **betterment Fees**. This is a tax that can be assessed by the city for properties that have been "bettered" by the construction of a public water or sewer line. Therefore, a property may have some assessment paid but still have a water or sewer betterment fee. Most of the betterment fees are for vacant lots in the older sections of the cities. The fee is paid when the building permit is purchased. This fee may be a good source of revenue for all major towns in Rwanda.

3.6 Solid waste management

117. The GoR has won itself world acclamation for banning the use of dangerous non-biodegradable polythene bags. It has gone a step further, through REMA, to collect them from ignorant travelers at the points of entry. This gives it even a stronger position to deal with other types of waste in the country in a pragmatic and innovative ways, including using EFR. In Rwanda solid waste is generated in homes (domestic), industries, mining and quarrying establishments, medical facilities, and commercial locations like hotels, markets and from municipalities. According to the MoH Policy, key components of environmental health that are critical for improving the environmental health situation in Rwanda includes liquid and solid waste management. The same policy recommended that medical waste should be well handled and treated separately. Incinerators to burn medical and other waste must conform to the relevant international standards.
118. According to the City of Kigali Economic Development Strategy, the number and geographical distribution of the biggest producers of solid waste are located in the three districts of Nyarugenge, Kacyiru, and Kicukiro with total combined number of 394 restaurants 10 markets, 18 hostels and 47 industries. These districts need to be target of reform so that they set good examples for the rest of districts. Figures 7 and 8 are helpful in the understanding of the nature and classification of waste in Kigali respectively. The figures are helpful from the point of view of setting a baseline for implementation of EFR. For example, only 60% of the garbage generated at household is collected.

Figure 7: Classification of waste streams in Kigali city according to their nature

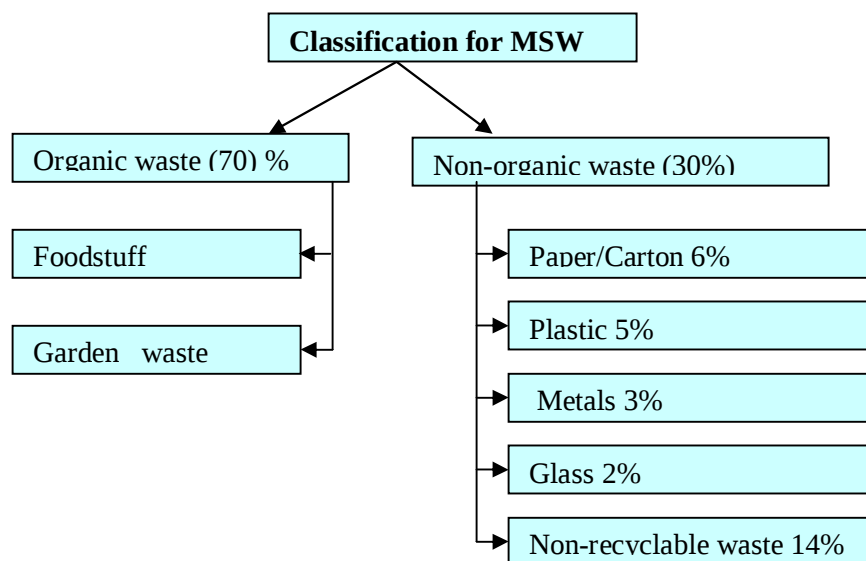
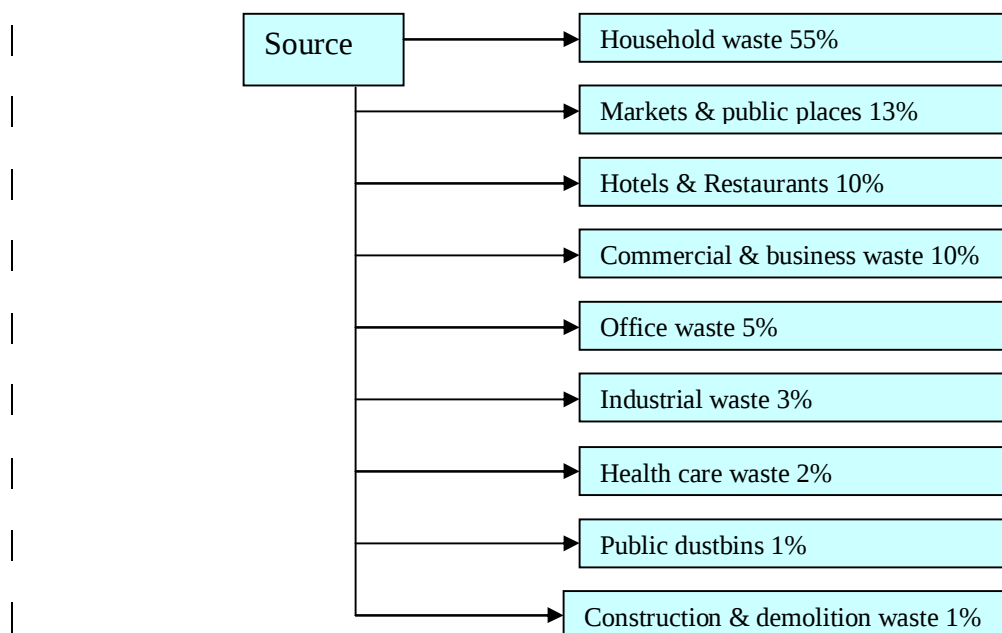


Figure 8: Classification of waste according to Source



119. The current policy and legal framework for waste management has two dimensions. The first one emphasizes management of waste in a manner to prevent diseases, protection of environment and to restrict importation of dangerous waste. On the other hand the second one puts special emphasis on turning the “bads” into “goods”. In particular, **Article 56 obligates the State** to establish appropriate standards for treatment of waste in order to produce more productivity. In that regard, the responsible organs are obliged to promote and disseminate modern technical knowledge; establish means of properly recycling the wastes; and establish appropriate methods of manufacturing and using certain materials in order to facilitate the recovery of elements in their composition.
120. Table 7 depicts the basic chain of waste management in Kigali, the actors and the main issues. Broadly, the actors can be placed in three categories, namely those who generate waste, those who manage infrastructure like landfill, and those who regulate the actors, namely Rwanda Utility Regulatory Agency (RURA). It also depicts the existing and potential EFR/EIs. Decentralised entities too are responsible for waste management in their jurisdiction.
121. Currently there are two private firms and more than twenty non-for profit associations and cooperatives in waste collection in Kigali. This provides evidence that in Rwanda, there is even more scope for public-private partnership (PPP) in the management of urban waste. However, at the Government and the municipalities should provide clear standards and regulation so that waste management.
122. It is Kigali City Council (KCC) that offers authorization and licences to firms and associations to operate waste collection business in the whole of Kigali. In turn firms have differential charges according to waste. KCC is authorized to fine firms which dump waste in ungazetted place. If the firm chooses to operate only in one district, it gets authorization and licence from respective district.

123. Many districts are not charging for **dumping fees**. Yet they will either have to pay to clean up or relocate. They could start to charge for dumping. Of recent, Rwanda Utility Regulatory Agency (RURA) was formed to set guidelines for tariffs and licensing. This implies that RCC will relinquish the regulatory function it has been exercising. The industry prays that RURA and REMA come up with comprehensive standards and regulations for integrated and sustainable waste management, including leveling the play ground for fair competition. The private firms have to pay 30% income tax which cooperatives and associations do not pay.
124. KCC charges a **landfill dumping fee** of between 2,000 and 5,000Frw. The rates are deemed by waste collection operators as fair. Presently, there is only one dumping site (Nyanza) for the whole of Kigali. There are operators who have requested for alternative where they could also broaden on by-products from waste, all in vain. KCC tells them it is still making the master plan.

Table 7: Chain of Custody for Solid Waste management and Entry Points for EFR/EIs

Chain of custody	Waste generation	Waste sorting	Waste collection	Waste transportation	Waste recycling/production of by-products	Dumping in un-gazetted places	Dumping in gazetted places
Actors	- Households - Commercial establishments - Industries - Government institutions	- Households - Commercial establishments - Industries - Government institutions	- KCC - Private operators - Cooperatives - Associations - RURA	- KCC - Private operators - Cooperatives - Associations - RURA	- Private operators - Cooperatives	- Households - Associations - RURA	- KCC - Private operators - Cooperatives - Associations - RURA
Issues of concern /interest	- Prohibition of certain waste - Phasing out importation/production of certain goods - Indiscriminate citing of industries	- Lumping waste together	- Type of containers - Workers protection	- Type of car - Dumping in un-gazetted areas	- Employment generation - Technology used to maximize efficiency - Location of recycling industries	- Water quality - Odour - Disease outbreak - Cost of clean up - Interference with movement	- Location in relation to settlement - Random dumping - Management and maintenance
Existing EFR/EI	- Fines for importing prohibited items		- Collection charge - Differential charges by category of waste	- Fines if dumping done in un-gazetted areas		- Fines	- Dumping fee - Dumping fee for categories of waste
Potential EFR/EI	- Environmental levy on old imported items e.g. e-waste		- Bond for contracted collector	- Low tax or exemption for special vehicles - Bond to dump in gazetted areas	- Tax rebate - Tax exemption - Soft loans - Grants	- Bond to dump in gazetted areas	- Carbon credits from Clean Development Mechanisms - Tax incentives for companies generating electricity from waste
Other policy instruments	- Public education - Legislation - Standards - Zoning where certain waste can be generated	- Guidelines for sorting - Public education	- Standards for workers protection - Competitive bidding	- Environmental inspections and audits	- Eco-labelling - Non-financial recognition and awards	- Public information disclosure - Black listing	- Zoning landfill for categories of waste - Privatising or contracting out management of landfill - Public-private partnership in the management of landfill.

125. **In addition to the existing EFR/EIs, the government could offer tax exemption on garbage trucks.** At the pre-Budget Consultations of the EAC Partners States in June 2008 in Nairobi, the Ministers of Finance reviewed the import duty structure on a number of items and agreed to the tax exemption on garbage trucks. Kenya, Tanzania and Uganda subsequently announced this EFR in their budgets that year but Rwanda did not. The waste management operators of Rwanda have a good case to present as it is an emerging practice in the region.
126. By giving exemption, it means that the government would be forfeiting the revenue it would have earned in order for the importers to find these vehicles more affordable than without the exemption. When one looks at the structure and source of waste in Kigali shown in Table 7 one notices that in addition to waste operators, the household dwellers would also benefit, through affordable and timely removal. From environmental point of view, this would prevent odour, and water contamination among others.(See Box 4)
127. However, Rwanda offers other incentives. Its Investment Code gives a registered investor who imports specialized vehicles, that is to say, hotel shuttles, refrigerated vehicles, tourist vehicles, ambulances and fire-extinguishing vehicles tax exemption from payment of import and excise duty.

Box 4: Turning the “bads” into “goods”- A case study of COPED in Kigali

COPED was formed as a sole proprietorship in 1999 to offer cleaning services in Kigali. By 2004, it had transformed into a cooperative for environment, and development. In 2008, it further transformed into a private limited company. In that history, it has demonstrated that the “bads” (waste) can become “goods”. It collects and appropriately disposes waste it collects from Kigali. It also maximizes the recovery of recoverable materials and turns these into saleable “goods” like compost manure, plastics and charcoal briquettes. In all these enterprises, “green” jobs to both men and women are generated. COPED is planning new product lines that further increase such jobs. They are paper recycling, glass recycling and conversion of waste to energy through Clean Development Mechanism.

However, like other private operators in waste management in Kigali, COPED is unable to reach the entire urban population. The use of wheelbarrows is inefficient while the use of ordinary trucks leaves the staff exposed to health risks. Any support like tax exemption on specialized vehicles for garbage collection could benefit both COPED and the urban population. This is particularly urgent because of a growing urban population

128. **There are additional measures that should be implemented in support of EFR/EIs for waste management. Setting minimum standards** should be considered in order to bring professionalism into the garbage collection. It would be in compliance with Organic Law No.4/2005. The movement and disposal of used oil from petrol stations and tyres should be studied because many people consider that used oil is not getting the attention they deserve. It was reported that some of the used oil is used in burning bricks. Most of these enterprises are close to communities and could pose health risks.
129. **Public-Private Partnership (PPP)** in the management of the landfill should also be considered. There is a concern that KCC has not invested in roads leading to the dump site. Its failure to appreciate the “goods” that could be generated from the “bads” is another concern. Yet, 80% of the waste could be recycled or used for making by-products. The employment and revenue generated would be enormous. For this to happen a ‘private’ perspective to the management of landfill is needed. The sooner, the better. Many solid waste based enterprises are transforming, even capable of further growth (Box 4).

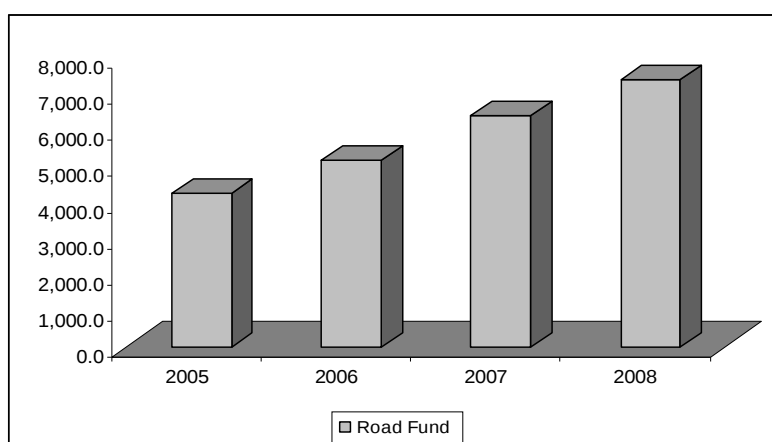
130. Dijkraaf .E. and Vollebergh H.R.J [2005] carried out a literature review of social costs and benefits of waste disposal and recycling. Basically, they were testing the validity of the hierarchy the European Union had adopted for waste management. According to the hierarchy, the principle of prevention of waste generation remains the first priority, followed by recovery and finally by the safe disposal of waste i.e. land filling. Their social cost-benefit studies raised serious doubts on the above described waste hierarchy advocated within the European Union. They found that:
- (i) Waste to energy plans reduce the net social costs of final waste disposal only if waste incineration without energy recovery is applied already or if infrastructures for the use of heat exist in the status quo
 - (ii) it is not conclusive that the overall environmental cost savings from the current hierarchy are large enough to compensate for the sometimes substantial large private costs, and
 - (iii) waste is heterogeneous, and its local circumstances differ so substantially that a one-size-fits all solution is unlikely
 - (iv) widespread policy preference for incineration over land filling would be supported only if the analysis is restricted to environmental costs alone and
 - (v) gross private costs are much higher for incineration than land filling is the social cost minimizing option at the margin
131. It can be stated therefore that the choice a country adopts for waste management can be influenced by several factors, including financial, social, economic and environmental considerations. There is no one-size-fits all solution.

3.7 Transport

132. The transport sector in Rwanda is small but growing with unique challenges .About 75 per cent of all imported petroleum is consumed within the transport sector; and transport costs are quite high. In Rwanda transport costs are estimated to be at least two and half times higher than in the neighboring countries. The development of the sector, therefore, has both direct and indirect implications for the total energy consumption and socio-economic growth. The energy challenge within the transport sector is to ensure efficient and safe use of petroleum products. Transport business is predominantly in the hands of the private sector
133. Efficient petroleum use is determined by the standard of vehicles, the quality of the transport systems and the use of most energy efficient transport means. It is worth noting that all motor vehicles are imported and a majority of them are used cars which would otherwise need standard assessments to ascertain that emission levels meet air quality standards. The uncontrolled environmental pollution caused by vehicles is potentially dangerous especially in urban settlements like Kigali where the number of used cars are increasing at an extremely high rate.

134. The Law N°26/2006 determining and establishing consumption tax on some imported and locally manufactured products charges vehicles according to their capacity. However, it gives incentives in form of tax **exemption** for cars which carry 14 persons and above. The number of 30-seater vehicles have grown in the recent past to take advantage of the incentive. To allow trade within the region, member states have agreed to exempt commercial vehicles of 25 tons and above from taxation. That would translate into revenue loss. But the aim is to benefit the poor, by allowing enough vehicles in circulation and making costs more competitive than in the absence of the incentive.
135. Government has been imposing a **levy on petroleum products** to raise funds for the Road Maintenance Fund (Figure 9). It would also be justifiable if some of the part of the revenue generated is used for afforestation to recognize that vehicles emit and therefore need a sink. Costa Rica took such an approach

Figure 9: Trends in growth of Road Maintenance Fund, in ‘000 US\$



136. In line with the practice in the region to phase second hand vehicles which are 8 years and above, the GoR could do the same by introducing an **environmental levy and continually monitoring them** (See Box 5.). There would not be much negative impact for the poor because already, the number of big seater vehicles has grown because of other existing tax incentives. Secondly, the GoR could also impose a **charge on car emissions** during their annual testing. To do that, it requires standards and regulations for air quality. The government is already in the process of formulating them.

Box 5: Environmental levy on old vehicles in Uganda¹²

In 2004, the government of Uganda announced that it would take measures to minimize the importation of used goods. Two years later, it announced a 10% environmental levy on motor vehicles, excluding goods vehicles aged eight years above in order to discourage what it termed “environmentally hazardous used goods”. Other goods subjected to the same levy at different rates were the fridges, television sets, cookers, radios and second hand household appliances. In addition to the above objective, the government set another one to raise Shs 4.6 billion as revenue. In 2007, the government went a step further and introduced a 10% environmental levy on vehicle parts, used motor cycles and bicycles, all being critical constituents of the transport sector.

However, as the table below shows, the number of second hand vehicles (above 8 years old) continued to be imported in the Uganda. But the government earned a lot of revenue, that is, shs. 3.7 billion in 2006, and shs 10.5 billion in 2007. The 2007 revenue far exceeds the target of shs. 4.6 billion that had been anticipated. In two years alone, equivalent of \$ 8.6 million has been earned through the environmental levy on old vehicles.

Further, the environmental levy has not yet caused a fundamental shift in the age mix of imported vehicles for two main reasons namely: (i) the cost of old vehicles are only 1/5th of the new vehicle and hence a 10% levy is not a factor in the decisions of importers and (ii) the people have not yet commanded such purchasing power to shift to newer vehicles. Nonetheless, the case study reemphasizes the point that governments, including that of Rwanda need to establish systems to continually monitor whether the objectives for EFR/EIs are being realized

Changes in the registration of vehicles and related environmental levy, Uganda 2003-2007

Type of Vehicle	2003	2004	2005	2006	2007
Quantity	'Before' EI			'After' EI	
1.Tractors	167	336	352	518	340
2.Passenger vehicles ¹	2,725	3,283	2,886	1,956	2,731
3.Personal cars	8,843	9,930	13,987	14,383	17,112
4.Commercial vehicles ¹	5,922	6,063	5,805	5,677	6,928
5.Special purpose vehicles	51	85	90	102	81
Total	17,708	19,697	23,120	22,636	27,192
Environmental levy (Shs. '000,000)					
1.Tractors	0	0	0	0	0
2.Passenger vehicles ¹	0	0	0	455	1,640
3.Personal cars	0	0	0	3,246	8,509
4.Commercial vehicles ¹	0	0	0	0	437
5.Special purpose vehicles	0	0	0	0	0
Total	0	0	0	3,701	10,586

Source: Uganda Revenue Authority

Source: Cornelius Kazoora, et al [2008]

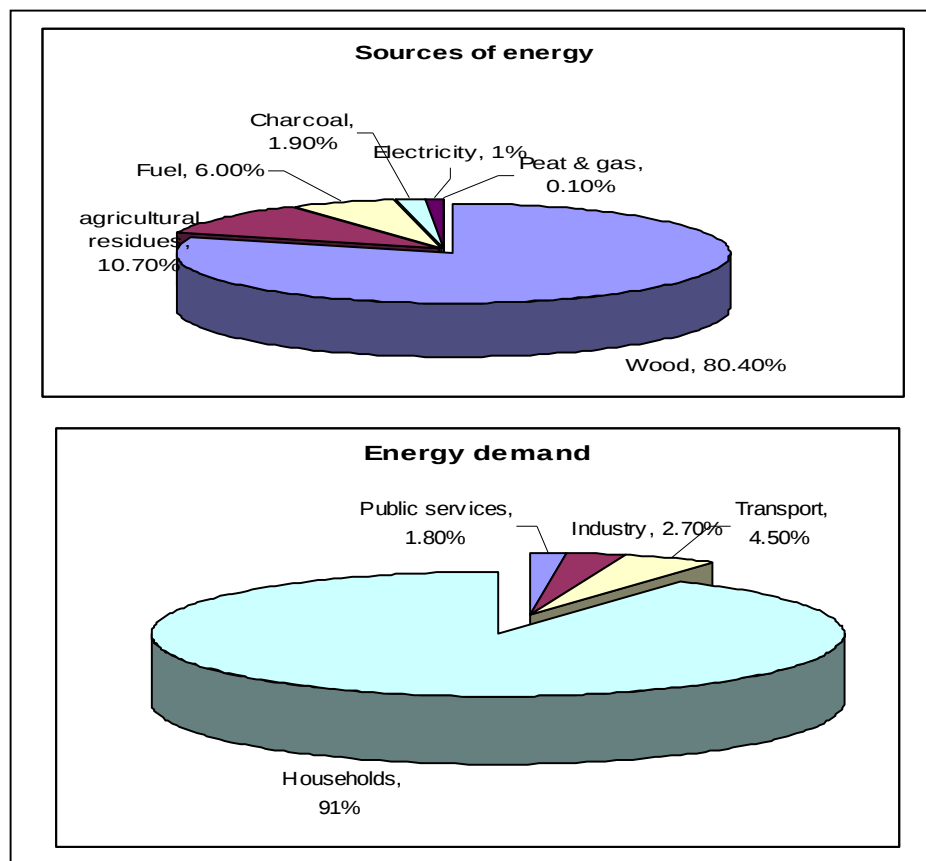
3.8 Energy

137. In Rwanda, wood is still the major source of energy for the population .At the same time, much of the demand comes from households (see Figure 10). Several indicators point to an energy crisis in Rwanda including: accelerated deforestation, a biomass energy deficit and deterioration in electricity generation and distribution systems.

¹² Cornelius Kazoora, Feddy Mwerinde, Patrick Birungi and Gil Yaron [2008] Economic instruments for sustainable natural resource use, environmental sustainability and response to climate change in Uganda. A PEI sponsored study

138. However due to uncertainty in introduction of LPG and solar thermal applications, the high levels of production for Improved Cooking Stoves will be maintained and the market influenced to evolve with the entry of the new fuels and technologies. The East African Community Scaling-up strategy is to undertake a serious campaign to introduce Improvised Cook Stoves (ICS) on a sustained business model to keep the supply and demand balanced. The firewood ICS are cheaper than the charcoal ICS at US \$3 compared to US \$6 respectively.

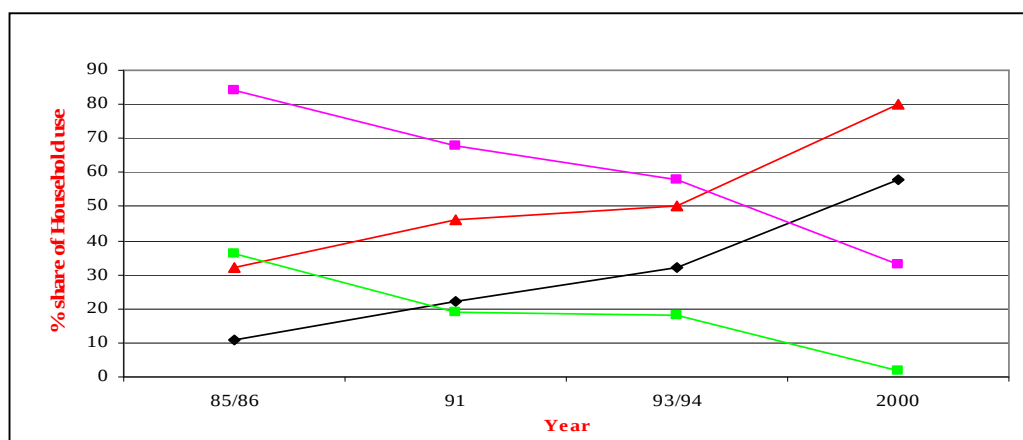
Figure 10. The supply and demand of energy in Rwanda



Source: Privatisation Secretariat []: Energy and Water

139. In July 2009, Rwanda signed its first Greenhouse Gas Reduction Deal. Rwandans and the environment will benefit from a greenhouse gas reductions agreement signed between Electrogaz and the World Bank acting as a trustee of the **Community Development Carbon Fund**. This is Rwanda's first carbon finance project under the Clean Development Mechanism (CDM) of the Kyoto Protocol. Even though Rwanda is not a big emitter of greenhouse gases, it should not deny itself any incentives that set in motion practices to a low carbon economy. Under the deal, Electrogaz is implementing a Compact Fluorescent Lamp (CFL) Distribution Project which is expanding the use of high-efficiency lighting technology in Rwanda's residential sector through the distribution of high-quality Compact Fluorescent Lamps. This is a Country wide project that will be primarily located in urban areas, which are or will be covered by Electrogaz. The light bulb distribution will take place through the decentralized distribution outlets run by Electrogaz.

140. The CFL distribution project is implemented through four phases starting mid-2007 to 2010. A pilot phase was completed in September 2007; the second phase, started in September 2008, distributing 150,000 CFLs over the residential sector; the third phase and the fourth phase will be implemented respectively by the middle of 2009 and the end of 2009. The 156,000 tCO₂e emissions reduced will be sold to the Community Development Carbon Fund (CDCF).
141. The **electricity tariffs** by type of customer were relatively kept stable until 2005 when they were almost doubled. However, the tariff structure across types of consumers does not recognize the variation in affordability. For example, the domestic tariff is higher than the industrial and commercial tariffs.
142. **Tax exemption to certified emission reductions under CDM** could motivate investments in Rwanda. The Clean Development Mechanism (CDM) established in terms of the Kyoto Protocol allows for Certified Emission Reductions (CERs) to be issued to recognize progress in reducing the release of greenhouse gases into the atmosphere. Although Rwanda is not among the big polluters, it has to be strategic by providing enabling environment through EFR for the private sector that may want to take advantage of these global incentives. As an example, South Africa took long to do that, a factor that delayed companies to take advantage of these credits. It was imposing income tax on the proceeds from those credits. [Cecil Morden 2009] .In its 2009 budget, it changed. In his budget speech, the Finance Minister noted that South Africa “should encourage companies to take advantage of the clean development mechanism established in the Kyoto Protocol”, and that, consequently, “a favourable tax treatment will be introduced for the recognition of income derived from the sale of emissions reductions, as certified through this mechanism”.
143. **Tax exemption on liquid petroleum gas (LPG)** could also shift demand for biomass. The key message captured under forestry is that there is urgency to develop alternative sources of energy particularly for cooking. It is gratifying to note that the government’s biogas project, and one cow, one family programme could offer some of the alternatives. It would not be bad to add on the above list by exempting liquid petroleum gas (LPG) from taxes so that it can start to penetrate homes for cooking. There are lessons to borrow from other countries like Senegal, Ghana, Sudan, Botswana, India and Uganda.
144. In Botswana, an LPG programme was successful in reducing the use of charcoal by households both in urban and rural areas. (Figure 11). It would have been ecologically catastrophic if Botswana did not reduce its dependency on charcoal.

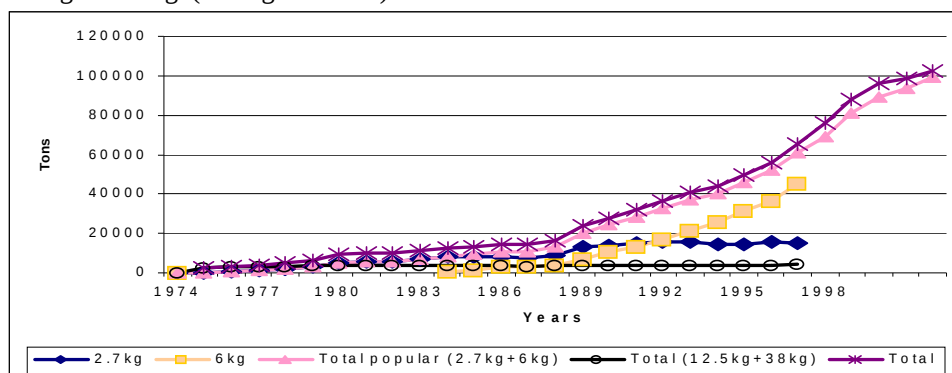
Figure 11: The relationship between LPG and charcoal use in Botswana, 1985-2000

Source: Ogunlade R. Davidson [2007]

145. In Uganda, the government removed VAT on LPG in 2006 with the objective of making them accessible by the poor. It was concerned that the high dependency on biomass for cooking (78%) was not ecologically sustainable. Unfortunately, the public, let alone the poor did not benefit from the tax exemption. Instead, the prices of LPG cylinders went up. The main lesson is that government must ensure that it has capacities and systems to ensure that the benefits for which EFR are introduced, are not eroded. Senegal's example in Box 6 is encouraging. But it shows the importance of support measures to the incentives given through EFR.

Box 6: The marketing of LPG in Senegal, 1974-2000

In 1974, Senegal launched the LPG programme through EFR, namely removing duties on imported equipment. By 2000, sales had reached 100,000 tons from the baseline of 3,000 tons in 1974. However, the removal of duty was not a sufficient incentive. Other measures were put in place to complement it. These included introduction of subsidy on the fuel itself, the establishment of a reliable and effective supply system, attractive incentive for distributors, the introduction & enforcement of regulations to discourage deforestation and an effective information and awareness-raising campaign. Most importantly, the government introduced small size technologies which were affordable by the poor, that the bottle size of 2.7kg only. As incomes improved, the government introduced another choice of 6.0kg. These sizes were more popular than the traditional bottles of 12.5kg and 38kg. (See figure below).



Source: Youba Sokona, Jean-Philippe Taomas, Oussouby Toure [2003]

146. In November 2008, the GoR updated its energy policy which among others seeks to promote the development and utilization of energy efficiency. As stipulated in its EDPRS, Rwanda intends to increase its access to electricity from the 5% to 16% by 2012. It plans to promote efficiency using Compact Fluorescent Lamps (CFLs), solar water heaters, inverters in tea factories, Liquefied Petroleum Gas (LPGs) and energy cooking stoves, among others.
147. Based on some financial analysis which MININFRA has made, there is indication that supporting the above programme would generate savings to different segments of society-government, institutions and households. (Table 8).

Table 8: Potential savings from the adaptation of energy saving

Energy efficiency reform	Savings per annum	Savings over EDPRS period
(i) Promotion of CFLs (800,000)	US \$ 22million	US \$ 88 million
(ii) Solar heating systems for 5,000 households	145 billion Rwf	US \$ 10.56 million
(iii) Inverters	US \$ 342,562	
(iv) LPG 5,000 tons for 20,000 households	Would replace 190,080 tons of charcoal or 1,900,800 tons of wood	

Source: MININFRA; Energy efficiency

3.9 Agriculture and animal husbandry

148. Land losses from erosion per year are close to 14 million tons. One of the main causes of the degradation of natural resources is erosion which scraps down many cultivated lands of 945,200 tons of organic materials; 41,210 tons of nitrogen, 280 tons of phosphorus; 3,055 tons of potash. It is estimated that erosion affects the ability to feed 40 000 persons per year.
149. Erosion has direct consequences on the leaching of the arable crops, but also indirect consequences including the increase of transport of solid parts from pollution to the waterways downstream. An increase in sedimentation on the cultivated lands, downstream risks crop destruction and sandbar of marshlands and low grounds.
150. The government has a fertilizer distribution strategy whereby farmers receive a 50% subsidized price as well as a further discount (29%) through the voucher.
151. The use of irrigation in agriculture is in the infancy stage. About 3000 hectares have been planted by RADA with rice in the marshlands. This is being done under the Land husbandry, water harvesting and hill side irrigation programme. The programme has in-built incentives and innovations to improve agricultural productivity. New crops will be introduced. Conservation measures to retain humidity will be piloted. Water harvesting will be supported and radical terracing will be continued. Agricultural zoning according to agro-ecological suitability will be done. To achieve all these, the Ministry in agreement with the development partners have formed a sector-wide approach.

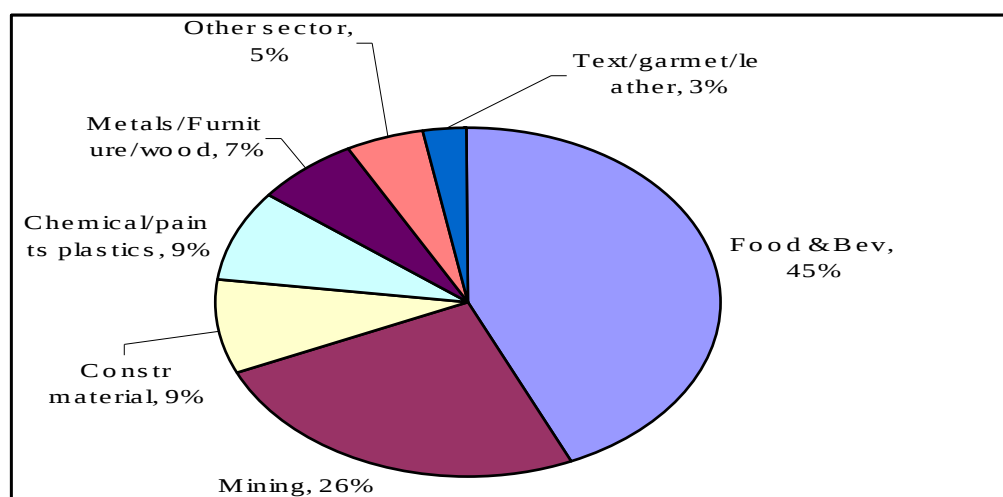
152. A remarkable development in Rwanda is that some households are coming forward to consolidate their small pieces of land. The *Umudugudu* programme of settling households in one village is releasing land for consolidation. The benefits are expected to be realized in the economies of scale in production and marketing. Other programmes like one cow one family programme and bio-gas programme under energy will bring additional benefits to the poor.
153. Some incentives in agriculture, like in industry, mining, tourism are of general nature. According to **Article 18 of income tax**, income derived from agricultural activities is exempt, if the proceeds from these activities do not exceed twelve million (12,000,000) Rwandan francs in tax period. Even larger farmers with employees do not withhold PAYE from their employees' salaries. The new Investment Code proposes a 50% investment credit allowance in year one of operation, as agriculture is a 'priority sector'.
154. As observed from the above, there are many promising incentives to agriculture in form of time bound project interventions. The worry is that once the projects end, the continuity may not be guaranteed. There is scope to build on such successes to formally recommend EFR. In Kanombe, the local leadership has expressed interest to support villages to borrow on revolving basis to popularise rain water harvesting. The lesson one can draw is that once FONERWA is operationalised, it could among others provide that type of assistance.
155. The water law also allows for the formulation of the Basin Committee which can designate the aquifer for which an integrated management of the water resource must be done. Such a committee must be composed of the diverse stakeholders and users. The above provisions of the law would dictate that the government defines the geographical boundary where it wants to practice the Integrated Water Resources Management. It has not done so. From the EFR point of view, it would require that the volume of water for potentially users is determined.
156. Thereafter, the **quotas** for use by different users can then be decided. Ideally, the Commission would then institutionalize a system of giving use rights, through say, water extraction permits and the concomitant user charges. However, in determining the quotas, more studies would need to be made to ensure that no group, including the poor is disadvantaged.

3.10 Industry and pollution

157. The overall aim of Rwanda's industrialization policy is to increase value addition to primary production in order to boost exports and create more jobs for the growing population. The main strategy is to develop the private sector (by attracting industrialists, and strengthening SMEs) and improving the operational environment for the business sector. The Sector Strategic Plan recognises that in order for Rwanda's natural resources and environment to be sustainably managed, there is a need to adopt economic and business approaches that provide incentives for sustainability, raise revenue, increase employment as well as increase financial resources for the sector.
158. Industrialization is part of the Government of Rwanda's strategy for achieving the Vision 2020 (ROR 2000). Despite the developments in the last 5 years, Rwanda's industrial base remains generally weak and uncompetitive.

159. According to the Rwandan Industrial and Mining Survey [2005], the majority of establishments are concentrated in the food and beverages sub-sector (41%) followed by the mining activities (26%) [Figure 12]. Further, close to two-thirds of the establishment (63%) are in the micro and small-size category. About 63 per cent of industries are located in and around Kigali. The manufacturing sector accounts for about 8% of GDP, and mainly consists of food processing (in particular brewing), as well as chemical industries and textiles. The median age of establishments located in Kigali is 9 years, while for those located outside Kigali the median age is just 4 years (NISR 2006).
160. This implies that development of the industrial sector in Rwanda, particularly in locations outside Kigali, is basically a very recent phenomenon. Currently, there are efforts to conduct a comprehensive national distribution of industries which will pave the way for an industrial master plan based on suitable zones for location of industries by type. The domestic manufacturing sector in Rwanda continues to struggle as it confronts strong regional competition, erratic power supply, and high transport costs

Figure 12. Sectoral Distribution of data (%)



Source: RIMS, 2005

161. At the moment, the manufacturing sector is subject to the standard tax regime. As mentioned, this sector also receives general incentives, but which can be reoriented for the environment in future. The major capital incentive provided under the new law is a 40% investment allowance in year one, if the investment exceeds RWF 30 million. To avoid a situation whereby firms promote dirty industries using such general incentives, the government must strengthen its regulatory framework for environmental compliance.
162. There is scope to tame the young industrial sector in Rwanda for environmental compliance by putting in place standards and regulations for industrial effluents. However, as firms do not like command and control instruments, there is need for EFR like effluent charges to complement Command and Control. The charges should be set in regard of the polluter-pays-principle. In addition, the government should try out non financial award system for industries demonstrating good practices in environmental management. Similar awards have been proposed for mining companies.

3.11 Trade

163. According to Rwanda's trade policy and strategies the major constraints to the rapid growth and to expanding trade stem from the geographical and historical situation of the country. For example, being landlocked and without cheap air or rail links greatly hinders Rwanda's current export capabilities. It has recently joined the East African Community, which in the early years brings challenges of harmonizing taxation, including EFR. The following example in Box 7 makes the point very clear.

Box 7: Kenya, Uganda at crossroads on electronic waste

East African countries are at a crossroads on the promotion of used computers in remote areas and the issue of deterring the dumping of electronic waste.

Uganda has placed a total ban on imports of refurbished computers while Kenya has imposed a 25 percent tax on refurbished computers. Rwanda and Tanzania are still accepting refurbished computers for rural communities and schools.

At the heart of the decision to ban and impose duty is the desire by the Ugandan and Kenyan governments to ban dumping of electronic waste from the West to Africa.

To address the problems of computer dumping and limited access, the governments need to develop strict guidelines for testing imported refurbished PCs to ensure that they can serve a community for at least three years, and that there needs to be established electronic waste disposal projects some which could be given incentives in form of EFR.

164. There are several examples of EFR/EIs benefiting other sectors that have been described in several parts of this report. They can also benefit trade. They include tax exemptions on agricultural equipment, exemption on solar equipment and exemptions on industrial equipment.
165. **Among potential EFR/EIs, environmental levy on imported used items** should be considered. Owing to the high poverty levels in Rwanda and the region, and within the framework of trade liberalisation, many used items are being imported. They include domestic appliances like fridges, computers, kettles, flat irons and vehicles to mention but a few. There are two concerns related to those products. (Old fridges, computers with e-waste). They pollute the environment. Secondly, their life-span is short-lived, and they quickly turn into waste. For example, the risks of e-waste featured at the 2nd International Chemicals Conference of Members States (ICCM).
166. The government may consider imposing an **environmental levy** on second hand goods whose lifespan is low. They turn into waste very fast. Rwanda would need to avoid being a dumping ground for these goods under the reasoning that many people are poor and cannot afford always new ones. The concern is that some of them contain dangerous substances e.g. electronic waste (See Box 7 above).

3.12 Wildlife and tourism

167. Rwanda's main protected areas currently consist of the *Nyungwe National Park*, *Volcanoes National Park* and *Akagera National Park*. Nyungwe National Park is the largest single mountain forest in Africa in terms of biological diversity and forms the watershed of 70% of Rwanda's streams and feeds both the Congo and Nile River Basins.
168. Rwanda does not have any explicit sector specific law or policy on wildlife conservation and protected area management. Its wildlife sector is currently governed by a number of other laws which include the Constitution of the Republic of Rwanda and Organic Law on the Protection and Management of Environment.
169. The latter establishes responsibility for compliance with international conventions such as those relating to biodiversity, Climate Change, RAMSAR, and CITES within MINITERE. It also vests the management of wildlife habitats outside gazetted parks in the jurisdiction of REMA. Such habitats would include rivers, swamps and lakes which in Rwanda are actually critical wildlife habitats. Sectoral law No. 47/1988 of December 5th 1988 addresses issues of forest management.
170. The relevant government agency in charge of wildlife in protected areas is Rwanda Wildlife Agency which is under the Rwanda Development Board. The Board is under the Ministry of Commerce (MINICOM). The Board has the dual mandate of protecting the nation's parks and wildlife while at the same time generating sustainable revenue from tourism.
171. At the moment government pays **compensation** for crop raiding and predation. It also pays compensation for deaths or injuries caused by wildlife. The reality currently is that the compensation is viewed as quite minimal and inadequate. This has acted as a disincentive for conservation of wildlife outside protected areas. Wildlife is not necessarily viewed very positively. The policy and law must address these issues.
172. Currently the benefit received by the tourism sector relates to the **zero-rating** of certain tourism services for VAT. The sector benefits from the national corporate tax reductions and increased sector specific incentives. Registered investors in the tourism sector benefit from 50% investment allowances in year one on investment over RWF 30 million. In addition the exemption on customs duties on tourist vehicles and on a long list of furniture, fixture and equipment imports used in the development of hotels reduces the burden on capital costs and improves the profitability of the sector. As it can be seen, these incentives benefit the rich.
173. Guesthouses and hotels below the RWF 20 million threshold are currently not paying the 4% turnover tax. These operators are apparently negotiating with the RRA and agreeing on a reasonable 'amount payable', a subjective application of the law.
174. There is a **revenue sharing scheme** whereby 5% of the total revenue resources earned from tourism is given to communities living adjacent or in proximity with wildlife. It is administered by the Rwanda Wildlife Agency. The money is meant strictly for community local development projects. Government should formerly legalise the scheme within the proposed wildlife legislation. This incentive is higher than that of Uganda for example. In that latter, the 5% is levied on entrance fees only.

175. It is important that Rwanda Wildlife Agency supports communities to use the revenue to develop micro enterprises, add value to them or integrate them in the market. Such enterprises are grouped into three categories to recognize the varying demands for outreach and extension. (Table 9).

Table 9: Categories of small and medium enterprises around protected areas

Category Location	Non-extractive enterprises	Extractive enterprises	Substitution enterprises
Inside PA	- Tourism	- Harvesting of NTFPs - Bee keeping	N/A
Adjacent to PA	- Tourism - Payment for ecosystem services e.g carbon sequestration	- Communal Forest Management - Wildlife Management Area - Value addition - Contractual labour - Butterfly rearing - Crafts	- High yield technologies e.g zero grazing , apples - Sustainable organic agriculture and aquaculture - Agro-forestry - Bamboo domestication - Afforestation - Mushrooms

176. Amidst challenges of conservation, many countries have given **wildlife user rights** as an incentive for investing in wildlife ranching and regulated use. Rwanda's wildlife resources were seriously depleted by political instability and the 1994 genocide. Most protected areas are under stocked and in need of restocking of species that were depleted.
177. Apparently, government is cautiously weighing this policy of giving wildlife use rights. The fear is that granting communities' user rights may deplete the remaining stock of wildlife outside protected areas given that human wildlife conflicts have led to the killing of huge numbers of wildlife. The government needs to reconsider because at worst scenario, communities or other people can illegally trading wildlife with neighbouring countries where such rights exist.

3.13 Finance and banking

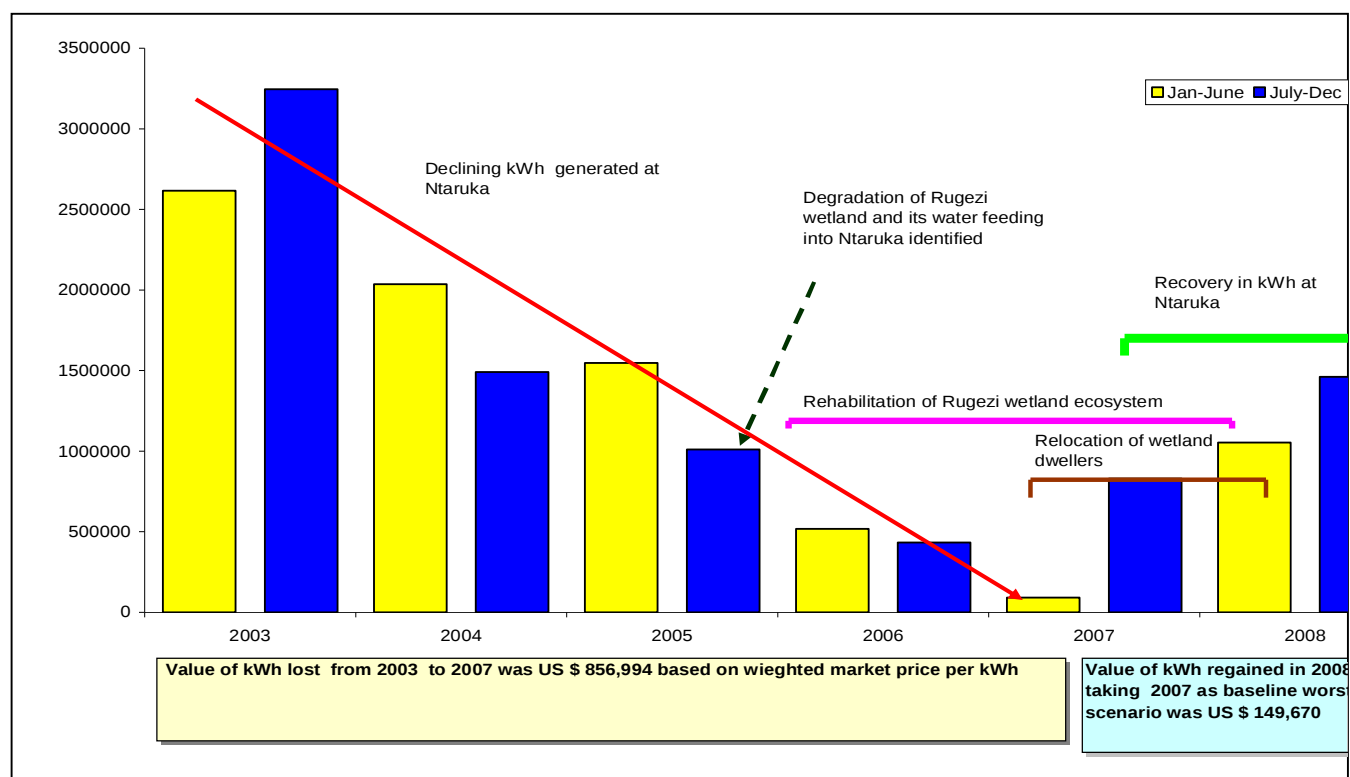
178. Rwanda has a small, but growing, financial sector. There are six licensed commercial banks and over 100 micro-finance institutions, only eight of which are currently licensed by the BNR. In common with many tax regimes, certain elements of the financial sector are VAT exempt.
179. There is income tax exemption for micro-finance institutions. This incentive is indirect for the environment. Micro-finance institutions (as licensed by the BNR) pay 0% corporate income tax under the new tax code. The move is designed to create incentives for micro-finance institutions to expand into markets currently not served by commercial banks. However, this assumed: (a) there are many bankable projects that the current banking system is simply unwilling or unable to support; and (b) that the elimination of corporate income tax will lower the price of micro-loans. It is not evident that either of these aims is being met by this exemption.
180. MINAGRI is facilitating a **micro-insurance** pilot, which will see a cooperative of tomato growers receive weather-based insurance for the first time in early 2009. A new Rural Investment Fund has been agreed with the World Bank. The lessons from this scheme could inform the scaling up of this incentive particularly now with climate variability.

4: ASSESSMENT OF CAPACITY NEEDS FOR EFR

181. An improved attitude towards sustainable development in general will create enabling environment for EFR/EI. That attitude is slowly but systematically evolving. It has been improved by the formulation of the apex legislation on environment, namely Organic Law N° 4/2004. Rwanda is now in the early years of implementing it. Many other African countries were able to complete theirs in the early 1990s during the National Environment Action Plan (NEAP) processes. The genocide interrupted Rwanda for the same. It is now time to inculcate a positive attitude towards the concept of sustainable development in general and EFR in particular. Many individuals and organizations still pursue “business as usual”. The positive attitude is particularly needed for EFR because taxation and imposing user charges can face resistance. Rwanda had similar incident when ELECTROGAZ raised the electricity tariff for industries. They resisted and government reduced them. The main lesson and implication is that a program for EFR must be managed in an open, participatory manner with the involvement of policy makers, the industry, the communities and the technocrats.
182. Secondly, Rwanda’s sectors and institutions need to improve knowledge on (i) how they can contribute to sustainable development and (ii) how their actions impact on other sectors. That understanding is a pre-requisite to the environmental mainstreaming efforts. It is common to find in sectoral plans a listing of environmental issues without critical analysis for sustainability. That knowledge and analysis will be vital if planners and policy makers have to bring innovation in the way plans are made and resources are prioritized.
183. There are two examples to illustrate the above gap. On one hand the government recognizes that majority of its people are poor, on the other hand it prioritised its investment in the energy sector among the large hydro investments. The poor who are still dependent on biomass for cooking with negative impacts to the environment and their health would not afford even if the electricity was availed tomorrow.
184. A parallel and strategic approach of investing in the pro-poor energy alternatives like that started by MININFRA with support of EFR should prioritised. That would also include helping the poor to overcome the barriers to accessing cleaner energy alternatives where EFR incentives have already been put in place e.g. tax exemption on solar equipment and accessories. Further a communication and awareness campaign has to be carried out to inform the general public about these opportunities and where, and how they can access them
185. The second example relates to the use of fertilizers in agriculture. No doubt, fertilizer use may be justified to increase agricultural productivity. The concern is that because it offers quick short run fix, it overshadows the alternatives of say investing in restoring the functionality of the ecosystems.
186. Another gap is the lack of knowledge about cross-sectoral environmental impacts. Sectors lack systematic understanding and analysis of how the activities in their sectors positively or negatively impact on others.

187. By way of example, de-vegetation opens up land to soil erosion. Siltation downstream is translated in expenditures for desilting by the Ministry responsible for infrastructure. Reduced water flow translates in shortage of energy and concomitant high tariffs. The pace for industrialization is affected with negative consequences for job creation. In turn, that affects the competitiveness of the country that already bears the costs of being landlocked.
188. Figure 13 provides a good case study of cross-sectoral impacts in Rwanda. Owing to the degradation of Rugezi wetland ecosystem and other causes, the Nturuca power generation dropped systematically between 2003 and 2007. Based on the weighted average price per kWh, for three categories of consumers (households, industry and services), ELECTROGAZ lost US \$ 856,994 between 2003 and 2007. REMA started restoring the ecosystem after the decline in water levels became noticed in 2005. In 2008, there was recovery in kWh worth US \$ 149,670.
189. This case illustrates that the costs of ecosystem degradation is felt in other sectors- decline in water supply, decline in energy, high power tariffs to consumers, and borrowing for energy by MINECOFIN e.t.c. The main lesson is that firms and individuals should be made to pay for ecosystem services. For example, ELECTROGAZ paying for restoration of ecosystems it depends upon for power generation.
190. To sum up the knowledge about Sectoral or resource inter-connectedness needs to be improved if institutions have to change the way they plan, allocate, and use the scarce financial resources. On a positive note, the recently formed ENR sector working group provides a platform that should be supported to address this gap.

Figure 13: Relationship between rehabilitation of Rugezi Ecosystem, power generation and revenue



191. Thirdly, Rwanda needs to develop analytical skills for sustainable development. EFR promotes sustainable development within the framework of the polluter-pays-principle and the beneficiary-pays-principle. It overcomes the inherent problems causing degradation. They are the market failures, institutional and policy failures. When these failures are not addressed, those who use the natural resources either do not pay the full cost or they even treat the environment as a free good. In order to negotiate and defend EFR, analytical skills are particularly needed in the following disciplines:

- **extended benefit cost analysis**

192. This analytical tool would incorporate the external costs and/or benefits which often are left out of the analysis. Because of that, negative externalities are not taxed or charged nor are positive ones rewarded. This shortcoming has to be addressed.

- **valuation of natural resources and environmental impacts**

193. Owing to the gap in the above, government cannot attach true values to its natural resources or a cost to their unsustainable use. This in turn undermines successful implementation of the EFR. The above needs can start to be addressed if training modules are developed on impact assessment, extended benefit cost analysis and resource valuation

- **impact analysis of economy wide policies**

194. Economy wide policies like privatization, decentralization, merger of several institutions under RDB, the integration of Rwanda into the East African Community, attracting of foreign investment may have both positive and negative impacts to the environment. The existing legislation does not put enough emphasis on the requirement to subject economy-wide policies to impact assessment in the same way it does for projects. Yet, they could have bearing to prices, wages, access to resources and they could alter the authority. Skills to assess them are equally needed.

- **environmental planning**

195. Government has given sectors chance to formulate their sector plans. MINECOFIN has also put in place a requirement that sectors or institutions should prepare issues papers accompanying their budget requests at the beginning of the financial year. Some institutions are making them to satisfy the procedural requirement without very serious assessment. Clearing ministries like MINECOFIN and MINILOC need to challenge the ministries and districts to improve the mainstreaming of environmental issues.

196. Fourthly, there are other institutional needs to be met. The key ones are described below:

- *Technical competences to test or measure environmental standards*

197. Some opportunities to enhance revenue from EFR are still being lost because of inter related gaps. Standards for say effluents, emission are not yet made. In turn, tailor made training on how to measure and test the standards cannot be meaningfully carried out. Charges and levies cannot be imposed and revenue becomes lost. Testing equipments will have to be procured over time

- *Systems, methodologies to measure the performance of the sectors including the cross-cutting issues.*

198. Over the recent past and presently, the government is improving the systems for fiscal decentralization, budgeting and accountability. Codes have been designed to identify expenditure lines. There is no consensus yet on how to capture the lines for cross-cutting issues.

199. At district level, there is a need to standardize the systems so that it can be easy to measure the revenue generated at that level by source.

200. Secondly, there is still a gap in giving an **environmental lens** to the annual joint reviews of sectors, the evaluation of contracts for mayors, let alone the macro-performance of the economy.

- *Systems for coordinating and evaluating EFR*

201. The existing EFR in Rwanda are spread in several legislations and their implementation in many institutions. There is a gap in centrally coordinating their implementation, let alone their evaluation. Their total picture on environmental sustainability, fiscal discipline and poverty reduction cannot be gauged very easily. MINECOFIN should take a leading role for coordinating EFR.

- *Inter-institutional coordination among ENR sectors.*

202. The above has been echoed by many people as perhaps the most critical need to be satisfied. There aren't enough incentives for such coordination .It takes strong leadership and commitment to achieve it.

5: SYNTHESIS OF FINDINGS AND KEY POLICY MESSAGES

203. It has been found that Rwanda has several EFR/EIs introduced under different legislation. There are also emerging opportunities to introduce more. However, the government needs to bear in mind the following key findings and policy messages as it pursues EFR programme.

- EFR/EIs are not implemented for their own sake, but rather to complement other policy instruments in support of the sustainable development objectives in the country. Accordingly, government should always ensure that other support measures for EFR/EI are in place. They include enabling legislation, standards, competitive market or industry and a public awareness strategy.
- EFR/EIs generate social and economic impacts through six main channels. They are prices, employment, access, transfers, assets, and authority. It is strongly recommended that EFR/EI should be subjected to social assessment so that the likely negative impacts are mitigated during implementation.
- Although EFR/EIs in general can contribute to environmental, poverty reduction and fiscal discipline objectives, there may be instances where trade-offs have to be made. Such trade-offs calls for multi-disciplinary collaboration in the design of EFR/EIs.
- Rwanda has several EFR/EIs and there are opportunities for additional ones. However, in order to continually monitor whether they are generating the impacts for which they are implemented, the government, preferably through MINECOFIN should take the lead in coordinating their implementation across their sectors, with a view to reporting on them periodically.
- EFR/EIs may require additional measures to get their impact felt. Such measures may vary according to the instrument but may include awareness creation among the public or industry to be targeted, providing feasible alternatives to the likely losers, protecting the poor through mitigation measures and developing the capacities of sectoral institutions in analytical skills.
- Several legislations advocate for the establishment of several funds. The motivation was to enable sub-sectors have earmarked funds to address some of the environmental problems at source. Examples include FONERWA, the Water Fund, and the National Forest Fund. There is now talk of the Climate Adoption Fund. However, establishing several funds could also reduce their potential resource mobilization, let alone increasing the costs of managing them. The GoR should consider the possibility of merging them as windows under a single Umbrella Fund. The same recommendation has been under the concept note for the operationalisation of FONERWA. The various EFRs that generate revenue could be used to directly or indirectly capitalize FONERWA.
- In as much as EFR/EIs can contribute to environmental financing, they should be seen as only one of the many financing mechanisms in Rwanda. Other mechanisms which form the bigger picture include general budget support, donor-funded projects, funding by international NGOs and foreign direct investment. These too, must be subject of periodic review for their contribution to environmental financing.

6: IMPLICATIONS FOR TAKING FORWARD EFR PROGRAM

6.1 Policy and legal reform

204. This report has given examples of existing and potential EFR in Rwanda. In view of the fact that EFR is not new to Rwanda, in this chapter we review the policy, legal and institutional changes needed to add value to the EFR programme in the country.
205. First, and as it has been a practice, the government can always amend the existing laws like those relating to investment, taxation and income if it so wishes to adjust the provisions already existing. The amendments offer entry points either to improve the impacts of EFR based on evidence to date or to introduce new ones.
206. Secondly, as part of its budget speech which is now harmonized with the rest of East Africa, the government can announce new EFR at the time the budget is being read. Changes it proposes can always be reflected in the Finance Bill.
207. A third approach is to mainstream EFR in sectoral laws and regulations at the time of their formulation or revision. At the moment there are four bills in formulation and they have some provisions pertaining to EFR. They are the bills for sustainable management of marshlands, forestry, wildlife and land consolidation.
208. The government also needs to make a specific law for the establishment of the National Fund for Environment, abbreviated as FONERWA in French. Unless the above law is made, the government would lose out a lot of money which it would otherwise raise as administrative fees for handling and approving Environmental Impact Assessment (EIA). This is because of Organic Law N° 4/2005 made any charge for EIA contingent on that law. It states;
- “The promoter pays a levy reduced from the operating cost of his/her project, excluding the working capital. This tax is determined by the law establishing the National Fund for the Environment.”*
209. Further, the government has to **formulate regulations**. The government is also losing revenue because some of the activities that could attract fees, levies or charges lack regulations. Yet, the principal laws (e.g. Organic Law No.4) mentions the need for such regulations. For example, Article 26 of Organic Law No.4/2005 states that “burning of garbage, waste or any other object (tyres, plastics, polythene bags and others) shall respect regulations of competent authorities.” Concern was raised that tyres are haphazardly used in the burning of bricks in some places, sometimes close to residences. The same law cited above calls for regulations governing water dams, waste pipe lines, dumping places and the treatment plants.
210. Equally important, the government will have to invest in the formulation of standards. They are vital in the EFR because they define the limits of what is permissible and what is not. In accordance with the polluter-pays-principle, the pollution taxes, charges, fees etc can be varied.

211. Once standards are made, then regulations have to be made to give sectoral institutions legitimacy to enforce them. There are many standards referred to in various existing laws e.g. Standards for treatment of waste in order to produce more productivity, Standards for waste management etc.
212. Individuals and firms can marshal their own resources to invest in environmental management and sustainable use of natural resources provided government defines, clarifies and enforces property rights. But equally it is necessary for curtailing on natural resource based conflicts. It was encouraging to find that several policies and draft laws are planning to address this important source of incentive. A third draft legislation for sustainable management of wetlands is an example. It proposes access rights for individual and groups to participate in reforestation and afforestation under collaborative forest management arrangement. The Wildlife law in the early stages of drafting is incorporating wildlife user rights
213. However, even if these legislations come through with clear provisions on defining property rights, investment will be needed to raise awareness among communities about the opportunities for broadening their livelihood, and above all, building the capacity of local institutions and NGOs to sustainably manage the resources. Training in participatory planning, inventory assessment and mapping, formulation of site specific management plans have to be planned for. The GEF-World Bank supported integrated ecosystem management project has piloted out these initiatives and its lessons could be up-scaled.
214. Countries like Kenya and Tanzania, have formulated guidelines for collaborative resource agreements in order to reduce the transaction costs of negotiating with many community groups. The Guidelines highlight the pertinent issues which should form part of negotiation and agreement.
215. One area that needs to be thoroughly studied is water user rights and fees for irrigation. The totality of water balance in the country has to be established before determining how to allocate the rights of water use among competing uses like irrigation, domestic use, animal husbandry and power generation.

6.2 Institutional reform and staffing

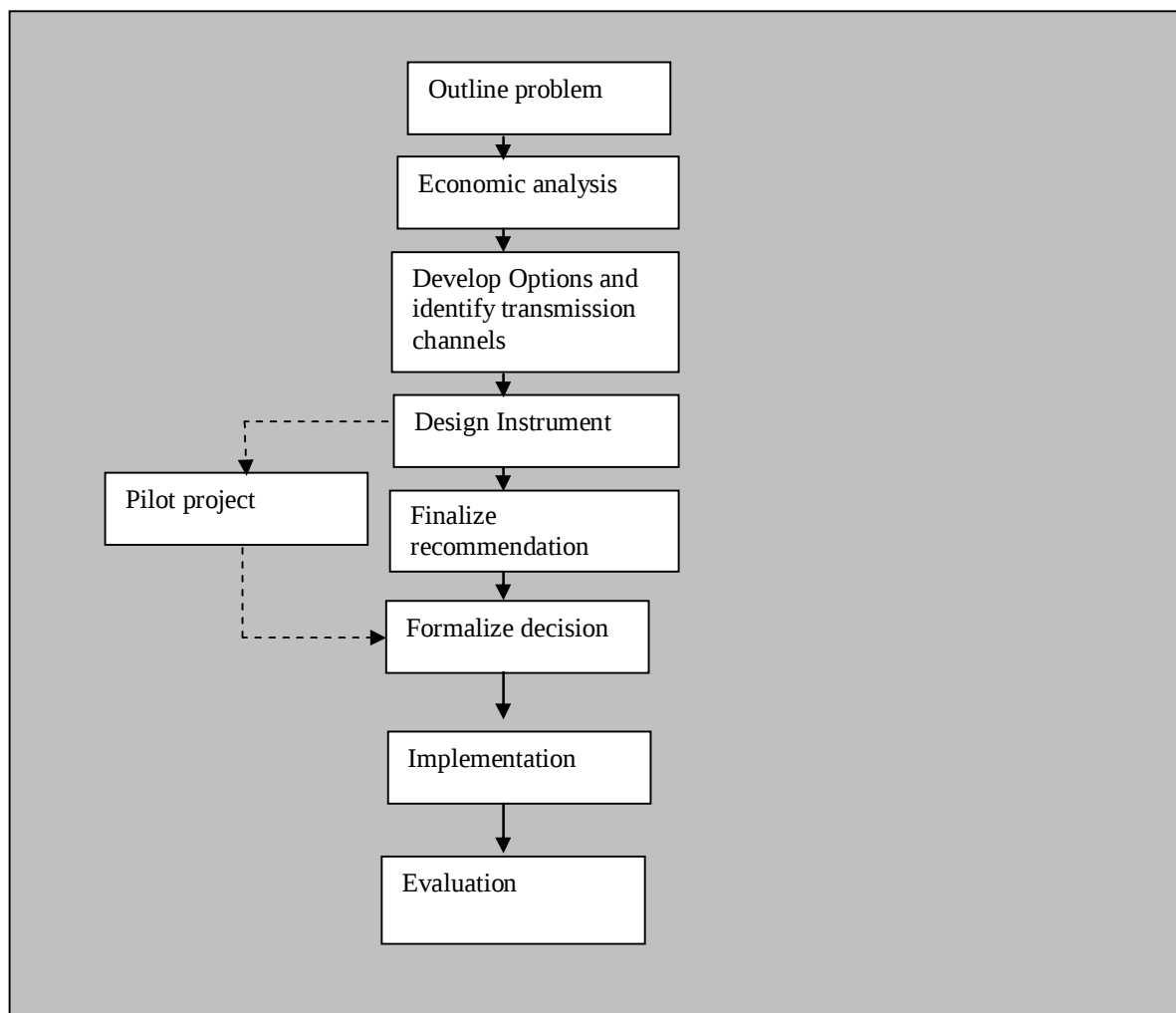
216. The spread of EFR among sectors calls for **inter-institutional coordination**. It is proposed that this role be taken up by Director General in MINECOFIN because he oversees macroeconomic planning, budgeting and development planning. Another function the directorate could execute is to develop **systems and database** that can be used to periodically evaluate the impacts of these instruments. Unless they are developed, it may prove difficult to play an advocacy role for furthering EFR. The starting point is to build on Annex 4 of existing EFR and translate it into a database.
217. Secondly, the increasing work load within REMA requiring valuation of natural resources and environmental impacts now necessitates a position of an environmental economist. Importantly, the staffing of REMA should be completed as soon as possible so that it gets enough manpower to support other sectors for environmental management.

6.3 Improving the procedural process for implementing EFR

218. As earlier observed, the implementation of EFR should be preceded by a critical assessment of potential impacts. A collaborative approach involving economists, technology experts and environmental professionals should be addressed.

219. Figure 14 provides a guiding framework for developing an EFR/EI.

Figure 14: Framework for developing EFR/EI



6.3.1 Define the problem for which EFR/EI is needed

220. The use of EFR/EI to deal with environmental problems complements regulatory approaches. It is important to underline once again that these instruments are not meant to replace legislation. They work hand in hand with legislation.

221. When an authority or government agency decides to use EFR/EI, the first task is to consider carefully: Can we make the current approach more efficient? Problem definition is very important and the beginning of the process.

222. Efforts must be made to map out the problem such as the nature of the pollutant, source, impacts, relevant parties, etc., and the reasons why the existing regulation or mechanism can be made more efficient. Further, trade-off choices where necessary should be clarified.
223. Once the reasons for introducing EFR/EI as a solution to the problem have been defined, the terms of reference for carrying forward the decision can be drafted. Two elements should be taken into account: 1) environmental problems are usually spread beyond the administrative jurisdiction of one department, which is why an overall, multi-disciplinary approach is required and not one defined by the management responsibility of the most relevant department; 2) success depends on the ability to take into account the local, social, cultural and political situation. Mapping out the environmental problem as just described below in Table 10 makes it easier to develop appropriate economic instruments to deal with it.

Table 10: Defining the problem

Factors	Examples
Nature of the pollutant These factors determine the need for close monitoring and strict enforcement	The impacts of the pollutant in terms of; • Human beings, environment and economy; • Toxicity (toxic level, accumulation in the environment, cancer causing, etc); • Dose-response functions (whether the effects are linear, exponential in relation to their dosage, or a threshold to be reached before the effects are felt, etc).
Demographic characteristics These factors must be considered when designing an economic instrument. They will influence technical and administrative decisions, monitoring and enforcement costs.	• Pollution sources- a few major sources or many small sources; • Geographic distribution- stationery or mobile sources.
Economic characteristics These provide an insight into how to introduce economic instruments. Strategies can then be developed to make economic instruments more acceptable and minimize resistance.	• Profile of the polluters- whether operating in competitive or non-competitive industries; whether facing budget constraints; whether facing similar or widely differing reduction costs
Substitutes These factors help predict responses to the proposed options.	• Availability of economic substitutes/alternatives to polluting products or processes.
Weaknesses/gaps of current systems	• Knowledge of weaknesses or gaps in the current system helps prevent them from being repeated.

Source: Adapted from O'Connor (1996)

6.3.2 Establish a working group

224. As environmental problems span across administrative boundaries, several government departments, agencies or ministries could well be involved and also more than one level of government. Apart from the government, the private sector, non-governmental organizations and communities could also be stakeholders

225. To take all these interests into account and to manage EFR/EI process, a working group needs to be set up. Members should be as many of the stakeholders linked to the environmental problem as possible. They might include:

- relevant government agency;
- the EFR/EI design team;
- monitoring agency;
- enforcement agency;
- industry association;
- industry (companies in the private sector); and
- non-governmental organisations.

226. The lead agency should be the organisation that bears the main responsibility for managing the problem. Its representative should clearly explain the terms of reference of the working group (WG). The initial discussion by the WG of its purpose and objective is important, because it anchors the ownership of the EFR/EI process.

6.3.3 Undertake economic analysis

227. Economic analysis is the process that seeks to understand why people behave in an environmentally-unfriendly manner. The premise here is that people behave “badly”, because they benefit from behaving badly, or that they suffer if they behave properly. In many cases there are no data, or at the most insufficient information on which an informed judgment can be made. Thus, a quick survey needs to be commissioned to assess:

- the nature of the problem;
- the impacts of the environmental problem;
- the players in industry and their role in generating pollution;
- the industry or market and how it operates;
- the existing government policies to understand current incentives affecting behaviour and response of key stakeholders;
- the existing legal and administrative system and its shortcomings;
- the potential for applying EFR/EI to address the pollutant or issue; and
- the economic cost to readdress environmental issues covering different approaches and technologies.

228. For example read how the results from a benefit-cost analysis informed the discussion to adopt a multi-million dollar investment for the solar in Barbados (Box 8). However where benefits, and costs cannot be quantified, they should be described. One can for example, describe the positive image Rwanda has gained because of its bold stand on the ban of polythene bags, let alone investing in a green, secure and healthy environment.

Box 8: Benefit-Cost Analysis study in Barbados

In early 1970s, a benefit-cost analysis study made a major in the development of the solar energy industry. It commissioned a study on “A Review of the costs of the tax incentives to the solar industry in Barbados”, by solar dynamics ltd. The study found the tax incentives could save the island an estimated US \$ 50million in energy in less than two decades, with the cost to the government of us \$6.6 in tax revenue.

Source: James Husbands [1970]

229. The duration and depth of the analysis to be made could be determined by the financial support available and the data, and the capacity of the team.
230. An outcome of the economic analysis should be a background paper. The paper provides a careful and thorough analysis of the market situation, describes the legal and regulatory environment, and gives answers to the key questions on the cause of the environmental problem and why the conventional management system has failed. The analysis/ background paper provides the common basis for understanding how one or a range of EFR/EI approaches can be used to resolve the problems.

6.3.4 Develop options and main criteria to design EFR/EI

231. The background paper will most likely list a number of viable options for dealing with the problem. They may include a number of economic instruments or one economic instrument using different rates. These options must be compared to each other using criteria such as effectiveness, efficiency, feasibility and impact. The WG must actively be involved in the deliberations and the development and analysis of options. This should result in a paper presenting the various options.
232. The most important criteria for choosing among them are:
- *Objective of instrument*: “What is the objective of the economic instrument and what is it trying to achieve?” This should be stated so clearly that the rest of the study can always make reference to this rationale.
 - *Type of instrument*: The proposed economic instrument has to focus exactly on the nature of the environmental problem. It must be able to help the main stakeholder or government agency achieve the desired outcome or manage the problem more effectively.
 - *Environmental effectiveness*: Compare options in terms of environmental effectiveness: How many of the environmental objectives would be met if the behaviour of targeted stakeholders is changed? Would the outcome actually reduce generation of solid waste, or increase recycling.
 - *Economic and financial efficiency*: The environmental objective must be achieved in a cost-efficient manner. Efficiency is the amount of input required to achieve the necessary outputs or targets. This can be assessed by comparing the cost of administering, monitoring and enforcing various options.
 - *Keep the interest of the poor in focus for likely Distributive effect*: Economic instruments cause the price of a product to change relative to its substitutes and its complements, which affects demand. The intention is to shift environmental costs to the polluter. However, this will probably raise the production price of the product which will most likely be passed on to the consumer. Hence, when assessing the feasibility of an economic instrument, distribution and equity issues must be considered.

6.3.5 Identification of the transmission channels, winners and losers

233. EFR is likely to create “winner” and “loser”. For Rwanda where 60 % of the population is poor, the designers of EFR must ensure that the poor are not hurt. If there are likely to be some short term negative impacts on the poor, then the designers should put in place measures to mitigate those impacts.
234. Broadly, EFR is likely to affect the poor through six transmission channels [World Bank, 2009]. They are described briefly below.
- (i) **Employment** may be affected directly (e.g. creating new enterprises) or indirectly (market liberalization)
 - (ii) **Price** may also change. They relate those for consumption, production and labor (wage)
 - (iii) **Access** to goods, services, markets, the use of infrastructure , etc may also be affected either positively or negatively.
 - (iv) **Transfer** and taxes can affect welfare and reform can alter them.
 - (v) **Assets** equally have bearing on welfare; EFR can alter the flows of benefits from them. Key assets to keep in mind are physical (e.g. housing), natural (e.g. land and water), human (e.g. education), finance (e.g credit) and social(e.g. social network)
 - (vi) **Authority** alters flow of benefit because it changes power, structure, processes that govern the working of institutions. Decentralisation and privatization in Rwanda are altering authority

6.3.6 Design the economic instrument

235. Once the final option has been decided upon, detailed design of the EFR/EI can begin. Consideration should be given to:
- *Implementation costs and financial implications*
236. Detailed calculations on implementation costs should again be made, because the estimates made earlier may be too brief.
- *Jurisdiction and legal framework*
237. When environmental policies are being formulated, the legal framework should be considered. In case there is no legal framework to support a proposal for EFR, make sure it is made or an existing legislation is amended to support the EFR proposed

- *Institutional capacity*

238. An agency's organisational and resource capacity to implement an economic instrument needs to be assessed. Key weaknesses must be identified and where possible, the instrument's design should compensate for them, or suggest how they can be overcome. Even so, trained personnel capable of administering and implementing economic instruments are crucial. Other relevant issues are:

- effectiveness of public institutions, particularly those responsible for managing the environment; and
- level of development of market institutions for market-based instrument

- *Consistency with government policies*

239. Economic instruments should be consistent with the national laws and those that are supporting decentralization in the country. The current government policy is polluter must pay. This means that polluters or users cannot expect the government at its own cost to clean up for them or subsidise them. The environment is a national resource that must be protected for public purposes.

- *Revenue neutrality*

240. An instrument is considered "revenue neutral" if revenues generated from the instrument (such as taxes) are redistributed. This tends to reduce opposition from taxpayers or voters. As these instruments should favour environmental efficiency, revenues could be redirected towards improving the environment. An example of a revenue-neutral tax is one that redistributes the tax collected from polluting companies to non- or less polluting ones.

- *Political support*

241. Economic instruments must have top political support to gain widespread acceptance. This can be achieved through:

- Political transparency: A mechanism or platform for furthering communication with the public thus enabling it to express opinions and preferences enhances the policy-making process;
- Transparency of fiscal objectives: Taxpayers are more willing to bear the burden of a new pollution tax if they understand what is being introduced and why. Earmarking¹ tax revenues for environmental expenditure enhances transparency;
- Disseminating the rationale: Helping the public understand why the government is introducing an EFR/EI will enhance its acceptability. This will focus the discussion on the "what's" rather than the "why's". If possible, use the media to disseminate information to the public. But one must educate the media first on the origin and rationale of the reform. For example, by Rwanda Revenue Authority educating the public about the importance of taxes for development it has, among others, improved tax compliance.

6.3.7 Finalise recommendation

242. Once the economic instrument is designed, its recommendations should be finalised and presented in a proposal paper to the relevant ministry or government agency. Details to be included are the instrument's objectives, scope, implications, approach, required legal and institutional changes, and expected outcome. For example, if the EFR/EI is to be announced as part of the annual budget speech, then MINECOFIN should have approved it.

6.3.8 Propose pilot project

243. Where necessary, a pilot project helps illustrate the instrument's effect and tests public reaction. It is an approach used in a delimited area to sound out strengths and weaknesses of a new policy that may involve a degree of political risk. It allows the WG to iron out the imperfections of the instrument before it is officially launched. If completed successfully, its results are submitted to the relevant authorities to consider implementation on a wider scale. Further, one can also use lessons from on going projects and initiatives to identify opportunities for either introducing or up-scaling EFR. The willingness by many households to pay a collection charge for waste is a good example

6.3.9 Formalise decision

244. After the proposal paper is submitted, it will be reviewed by relevant ministries and government agencies through a consultative process. If it is convincing and successful, it will be submitted to the Cabinet for a formal decision.

6.3.10 Implement the economic instrument

245. Once the proposal is approved and the decision made, the instrument can be implemented. However, before implementation takes place, the following matters should receive serious attention:

- *Public announcement*

246. The public (individuals and companies) must be informed of the impending instrument. Appropriate communication channels must be used to ensure stakeholders become aware of the instrument. This will give them time to respond to it through measures such as pollution reduction technology or substitution of production methods and input materials. Sometimes, a grace period may be provided before the implementation of the EFR is fully effected. Public announcement helps those targeted to adjust, seek alternatives and to reduce resistance. The following examples are illustrative from Uganda.

EFR	Year 1 announced	Year first introduced	Year revised
Government announced it would take measures to discourage the use of degrading non-biodegradable polythene bags, and promote environmentally friendly alternative	2002	2007 (120% tax)	2009 total ban
Government announced that it would take measures to minimize importation of used cars	2004	2006(10% levy on old cars)	2007 (levy increased to 20%)

- *Supervision*

247. The relevant authority needs to supervise and guide companies to comply with the requirements brought about by the instrument, and to create new agencies or organisations to perform roles related to implementation. The aim is to ensure the highest possible compliance at lowest cost.

- *Calculation*

248. Although the basis for calculating an economic instrument such as a tax varies according to type, it should be simple and clear. The calculation of the level of the instrument's cost is best left to the regulatory or public agency. The EFR/ EI should also be linked to externalities such as the cost of polluting emissions or recycling.

- *Collection of revenue from EFR*

249. This depends on the type and nature of the economic instrument and the law governing them. For example, the government has already made a schedule of taxes and fees that Districts can collect to enhance their local revenue. In other words, the power to collect is given under law. To the extent possible, the use to which revenue from EFR should be put should be spelt out in advance.

- *Compliance*

250. Collection rates depend on the effectiveness of the enforcement system. Enforcement is the best option in instances where willingness to comply has not reached desirable levels.

- *Sanctions*

251. Sanctions are imposed to ensure that the EFR/EI achieves the required outcome. As long as evading or avoiding an instrument is cheaper than compliance, loopholes will be found by the less responsible. Non-compliance can be discouraged by threatening with additional actions such as:

- additional interest on tax for late payments;
- fines;
- forfeit of deposit;
- imprisonment; and
- suspension of licence to operate until amount due is paid with interest.

- *Monitoring*

252. The overall impact of the economic instrument must be monitored with special focus on the environmental issues the instrument is designed to address. This role should be assigned to a relevant agency.
253. EFR in Rwanda is young but very promising. In order to maintain the momentum with related benefits for environmental management, revenue generation and poverty reduction, a focused support programme for capacity building is necessary among strategic institutions that have some responsibility for EFR. The capacity building will have to be tailored and on the job training. Staff should also be sponsored to attend short-term courses and seminars when they are announced.
254. At individual level, capacity building should aim to impart basic knowledge on EFR, and to improve the attitude for sustainable management using these instruments. It must also target institutions overseeing the implementation of EFR in various sectors, as well as to those they are targeted. The same institutions must improve systems for reporting, measuring and verifying impacts. Without these, EFR would fall short of transparency and accountability to the public. In turn, the public would be skeptical about EFR, particularly those that have a tax element. Below an assessment is made of those strategic institutions and implications are drawn.

6.3.11 Evaluation

255. A process for evaluating an economic instrument once implemented will contribute to better policy design and improve implementation. The following evaluation points are recommended:
- the performance or effectiveness of the policy instruments;
 - the efficiency of the administration of the current policy; and
 - feedback on its advantages and disadvantages.

6.3.12 Analysis of stakeholders for EFR/EIs

- **REMA's responsibilities for EFR**

256. REMA's strategic role in the EFR derives from the main responsibilities bestowed upon it by Law no 16/2006 determining the organization, functioning and responsibilities of REMA. Key of those responsibilities are:
- ensuring that issues relating to environment receive attention in all national development plans.
 - implementing government environmental policy
 - advising the government on policies, strategies and legislation related to the management of the environment and implementation of multi-lateral environmental agreements
 - undertaking research, investigations, studies and other relevant activities in the field of environment and disseminate the findings.

- render advice and technical support, where possible, to entities engaged in natural resource management and environmental conservation.

257. On the strength of the already existing mandate for environment, REMA could re-orient its work plans in order to deliver the following additional tasks:

- ensure that sectors monitor the impacts of EFR/EIs on the environment with a view of correcting perverse incentives
- advise government on potential EFR/EIs for the environment in liaison with MINECOFIN
- undertake or commission research, studies, etc on EFR/EIs and disseminate the findings widely.

- **MINECOFIN's responsibilities for EFR**

258. The Ministry already has responsibility to mobilize internal and external resources (i.e tax, non-tax, social security contributions, grants, loans, etc.). Since EFR generates revenue through taxes or forfeits revenue through tax exemptions, it should take interest in measuring the overall impacts of these policy instruments. It should do this closely in collaboration with RRA.

- **Rwanda Revenue Authority**

259. The Rwanda Revenue Authority was established under law N° 15/97 of 8 November 1997 as a quasi-autonomous body charged with the task of assessing, collecting, and accounting for tax, customs and other specified revenues. This is achieved through effective administration and enforcement of the laws relating to those revenues. In addition, it is mandated to collect non-tax revenues.

260. The Authority is also responsible for providing advice to the Government on tax policy matters relating to revenue collections. It performs other duties in relation to tax administration, as may be directed from time to time by the Cabinet. A review of laws on VAT, income and customs has revealed that the authority has been managing provisions relating to EFR. Additional support could cover the following:

- collecting and accounting for the revenue by product or service affected by EFR.
- providing statistics on changes of products or services affected by EFR so that they can be compared with the situation “**before**” the introduction of EFR.
- monitoring the movement of goods because of different EFR regimes in East Africa.

- **Rwanda Development Board**

261. The Board is spearheading investment in the country. It has strategic role to play in EFR because many investors apply for, and would be interested in the incentives under the Investment Code. In that position, it can contribute to EFR by:

- monitoring the extent to which the projects it licences are likely to benefit the environment.
- monitoring the extent to which the machinery imported for use compares with the state-of-the art technology for environmental management
- recommending new incentives if they are likely to promote sustainable environmental management
- recommending suspension of perverse incentives to the environment

- **The responsibilities of local governments in EFR**

262. Local governments too have a role to play in the implementation of EFR because they have been authorized to levy, collect and retain some revenue. Their additional role would involve the following:

- ensuring that their drive for revenue generation does not compromise ecological and environmental sustainability e.g production and sale of charcoal, sand mining
- investing some of the revenue in activities that add value to the productivity of the environment

- **The responsibilities of member associations in EFR**

263. The member organizations too have a role to play in the implementation of EFR. Such organizations in Rwanda are the Private Sector Federation and the cooperatives. Their roles can take on many angles including: (i) informing the fellow members about the business opportunities that may be presented by the EFR, (ii) educating and preparing their members for EFR, including helping them to lobby for support to manage the transitional period, (iii) sensitizing them on how to attract and maintain “green” consumers of their products, and (iv) contributing information to enable government improve the implementation of EFR. For example, the government has already charged the Private Sector Federation to advise it on how to broaden the revenue base of the country. Indeed, EFR is one of those avenues. Likewise, the Investment Code provides many incentives, some of which can benefit the environment. A World Bank study found that the intended beneficiaries were not actually aware of such incentives¹³.

- **Building technical competencies among mandated institutions**

264. The formulation of environmental standards and related regulations mentioned above create demands for building the technical competencies of mandated institutions in the country.

¹³ World Bank[2005] Study of the effective tax impact in five priority sectors.

265. First, many of them will require to purchase the state-of the art technologies to do their work. The Police Control Unit would requires air quality testing machines once the air quality standards are passed. The Analytical Laboratory would also require a water quality testing kit once the water (waste discharge) standards and regulations are out. To note is that the investment would be worthwhile since it would pay for itself from the revenue earned on charges above set limits. On an encouraging note, the law for customs exempts equipment for environmental management and conservation.
266. Within the Police, an environmental crime unit has been formed. It can add value to environmental compliance and payment of fines provided of course if its capacity is built to investigate and prosecute those committing environmental offences.

- **Development partners**

267. In writing this report, examples where drawn from the programmes and projects supported by several donors in Rwanda and elsewhere. The key message is that donors have a contribution to enhance EFR in Rwanda in the listed ways:
- transferring good and bad lessons alike from countries where they have presence which can come to bear on Rwanda's approach.
 - financing the transfer and adoption of environmentally friendly technologies
 - translating the good lessons from their projects and use them for up-scaling using EFR, where possible.
 - financing the transition period in which the poor are switching from bad practices or technologies to better ones, e,g from biomass use to the use of bio-gas
 - financing and /or transferring technical assistance

7. CONCLUSIONS AND WAY FORWARD

268. EFR/EIs in Rwanda have been identified in several legislations of investment, customs, personal and corporate tax, consumption and other sectoral laws. Their relevance for environmental management, revenue generation, and poverty reduction has not been marketed among policy makers sufficiently and consistently. The main problem is that they are not centrally coordinated in a single institution. For the same reason, they have not regularly been monitored and enhanced for the purpose they were introduced.
269. It has therefore been strongly recommended that MINECOFIN should take a lead for coordination EFR/EIS across sectors because they have bearing to fiscal discipline either as revenue generating or public expenditure instruments. However, MINECOFIN will have to work in collaboration with other institutions like REMA, RDB, RRA, and RBS so as to tap into multiple competencies and disciplines.
270. There are other several EFR/EIs in pipeline even under existing legislation. Three key aspects that the government will need to improve as it introduces them relate to: (i) benchmarking the levels of degradation or pollution (ii) carrying out social assessment and (iii) adopting a transparent and participatory approach in their design.
271. Further, as it implements them, the government should always bear in mind that EFR/EIs complement other environmental management instruments. Accordingly, it should invest in data and information gathering process so that it can assess the relative contribution of policy instruments to the sustainable development agenda. This strengthens the case for a centrally coordinated EFR under MINECOFIN.
272. It has also emerged that the design of EFR/EIs calls for collaboration of multiple disciplines-economists, physical and biological scientists, social scientists to mention but a few. Rwanda now faces a challenge that some of the critical skills (e.g. economics analytical skills, standards setting etc) are low. Accordingly, a long term EFR programme should incorporate the capacity building programme as a necessity.
273. The integration of Rwanda into the East African Community in the recent past is creating a need to study and harmonise its tax regime with that of other member states. This is because over the last 10 years, Uganda, Tanzania and Kenya have been announcing EFRs as part of their annual budgets. Rwanda has already adopted the fiscal year of the old East African member states.
274. The Organic Law N° 4/2005 lists many incentives to be given to public services, local authorities, private sector and individuals for conservation, pollution control, afforestation and reforestation to mention but a few. These incentives are to be given under the auspices of the National Fund for Environment abbreviated as FONERWA in French. FONERWA is supposed to be operationalised under a specific law. The law has not yet been made. This is creating three repercussions. First the several incentives cannot be given. Secondly, resources to be given as incentives cannot be mobilized. Thirdly, revenues like EIA fees which were to be set under the Bill for FONERWA cannot be collected either. It is therefore urgent that the GoR makes the Bill

for FONERWA. The possibility to bring other sub-sector funds under one legislation should also be considered.

References

1. [2005]: The Sector Policy on Tourism
2. [2006]: National Industrial Sector Promotion Policy
3. [2006]: National Institute of Statistics of Rwanda
4. [2006]: Private Sector Development; Diagnosis and Programme [2006-2008]
5. [2006]: Sector Strategies Document: Cooperatives Sector
6. [2006]: Trade Policy and Strategies
7. [2009]: Rwanda State of the Environment Report
8. Adrian Cullis and Cathy Watson [2006]: Privatising Common Land in Botswana.
9. Ahmed Garadi & Charles Twesigye-Batwatsa [2005] Pilot Project on Poverty-Environment Mapping. Funded under PEI Phase II
10. Alain Lambert [2006] Sustainable financing for environmental projects in Africa: some ideas for considerations
11. Allen Blackman, Winston Harrington [1999]: The Use of Economic Incentives in Developing Countries; Lessons from International Experience with Industrialised Air Pollution.
12. Andrew Lawson and Neil Bird [2008] Government institutions, public expenditure and the role of development partners: meeting the new environmental challenge of the developing world.
13. Anthony Letsoalo, James Blignanf, Theuns de Wet, Martin de Wit, Sebastian Hess, Richard S.J Tol and Jan Van Heerden [] Triple Dividends of Water Consumption Charges in South Africa
14. Asselin, Robert, Ana Maria Linares and Ruth Norris (1996). *Evaluation of the Enterprise for the Americas Account*. Management Systems International, for USAID.
15. Buchanan, J.M [1972]: Theory of Public Choice. University of Michigan Press, Ann Arbor.
16. Cecil Morden [2009] Environmental Fiscal Reform in South Africa. A presentation made to the EFR Summit, 2009 in South Africa
17. Cecil Morden and Sharlin Hemraj [2007] South Africa's Path Towards an Environmental Fiscal Reform Agenda.
18. Christian Aid Report [2009] Undermining the Poor: Mineral Taxation Reforms in Latin America
19. Christian Aid, ActionAid Action Aid International, Third World Network Africa, Tax Justice Network Africa and Southern Africa resource Watch [2009]: Mining Companies deprive Africa of many millions in lost revenue
20. City of Kigali [2002] Kigali Economic Development Strategy
21. Cornelius Kazoora, Feddy Mwerinde, Patrick Birungi and Gil Yaron [2008] Economic instruments for sustainable natural resource use, environmental use, environmental sustainability and response to climate change in Uganda. A PEI sponsored study
22. Cornelius Kazoora, Patrick Ogwang [2009]: Public Environmental Expenditure Review for Rwanda
23. DFID, FIAS and WB [2005] Study on the Effective Tax Impact in Five Priority Sectors
24. Dijkgraaf E. and Vollebergh H.R.J [2005] Literature Review of Social Costs and Benefits of Waste Disposal and Recycling
25. Dong Koplow [2004]: The Use of Economic Instruments in Environmental Policy; Opportunities Policy; Opportunities and Challenges.
26. Dr. Steven Renzetti [2005]: Analysis of Economic Instruments for Water Conservation.
27. ECA [2003] Land Tenure Systems and Sustainable Development in Southern Africa
28. Economic Planning Unit [2004]: Handbook; Economic Instruments for Environmental Management of Malaysia.

29. FAO [1995] Sustainability Issues in agricultural and rural development policies Vol. 1: Trainee's Manual
30. GEF (1999). Global Environment Facility, *Experience with Conservation Trust Funds*. Evaluation Report #1-99. Washington, D.C., January 1999. 80pp.
31. Golley, F. B. (1990). The Ecological Context of a National Policy of Sustainability. In *Towards an Ecologically Sustainable Economy*, Aniansson, B. and U. Svedin (eds.), Stockholm: Swedish Council for Planning and Coordination of Research, p. 16 as quoted in Rapport, D., 1995. Approaches to Reporting on Ecosystem Health. In Hodge, T., S. Holtz, C. Smith and K. Hawke Baker eds. *Pathways to Sustainability: Assessing Our Progress*, Ottawa: National Round Table on the Environment and the Economy, p. 61.
32. Hennie Bester, Doubell Chamberlain, Stephen and Stephen Malherbe, Richard Walker [2004]: Making Insurance Markets Work for the Poor in Botswana, Botswana, Lesotho, Namibia, and Swaziland. Scoping Study
33. HM Treasury [1998]: Consultation on Reform of Vehicle Excise Duty to Ensure a Cleaner Environment.
34. James Alm, H. Spencer Banzhaf [2007]: Designing Economic Instruments for the Environment in a Decentralized Fiscal System.
35. James Husbands [1970]. A Review of the costs of the Tax Incentives to the Solar Industry in Barbados
36. Jan Peter Schemmel [2004]: Environmental Fiscal Reform for Sustainable Development and Poverty Reduction.
37. Jean Philippe Gatarayiha, Tilahun Temesgen, Kene Ezemenari, Loius Munyakazi and Emmanuel Gatera [2005] The Rwanda Industrial and Mining Survey, 2005
38. Kessides, I.N. [2004]: Reforming Infrastructure: Privatization, Regul
39. Laffont, J.J [2000]: Incentives and Political Economy. Oxford University Press, New York.
40. Land Policies for growth and poverty reduction: Key issues and challenges ahead Klavs Deininger [2003]
41. Lucy Emerton: Community Based Incentives for Nature Conservation.
42. Milton Ayoki, Marios Obwana, Moses Ogwapus [2005]: Tax Reforms and Domestic Revenue Mobilisation in Uganda.
43. MINAGRIC [2004] Strategic Plan for Agricultural Transformation in Rwanda. MAIN Document
44. MINAGRIC [2009] Sector Evaluation Report for Joint Agriculture Sector Review of 2008
45. Mine and Geology Policy
46. MINECOFIN [2007] Budget Framework Paper 2008-2010
47. MINECOFIN [2009] Budget Execution Report for the year 2008
48. MINECOFIN [2009] Report of the Joint Budget Support and Public Financial Management Review VIII, September 2008
49. MINELOC & MINECOFIN [2006] Fiscal and Financial Decentralisation Policy
50. MINIREMA [2009] ENRSSP
51. MINIRENA [2008] Draft Law for Sustainable Management and Utilisation of forests in Rwanda
52. MINIRENA [2008] Draft National Forestry Policy
53. Moses Ikiara, Adolf Mkenda, Daniel Slunge and Thomas Sterner [2007] Potential for Revenue Generation through environmental fiscal reforms in Tanzania and Kenya
54. Newbery, D.M.G [1999]: Privatization, Restructuring and Regulation of Network Utilities. MIT Press, Cambridge, MA.
55. Nicole Boregaard, Mathew Stilwel [2004]: Economic Instruments in Biodiversity Related Multilateral Environmental Agreements
56. Odd-Helge Fjeldstad, Lise Rakner [2003]: Taxation and Tax Reforms in Developing Countries; Illustration from Sub-Saharan Africa.

57. Parker, D. [1999]: “Regulation of privatised public utilities in the UK: Performance and governance.” *International Journal of Public Sector Management*, Vol. 12, No. 3, pp. 213–235.
58. RADA [] Rainwater harvesting for Agricultural Production, Rwanda
59. Ricardo Bayon, Carolyn Deere Ruth Norris and Scott E. Smith [2001] *Environmental funds: Lessons and future prospects*
60. RIEPA [2007] *Investment and Export Performance Report*
61. Robinson and Tinker [1998]: Reconciling Ecological, Economic, and Social Imperatives. In Schnurr, J. and S. Holtz eds. *The Cornerstone of Development: Integrating Environmental, Social and Economic Policies*, Ottawa: International Development Research Centre, pp. 9-44.
62. Starke, L (1995), *Environmental Funds: The First Five Years*, (Commissioned by UNDP/GEF for the Interagency Planning Group on Environmental Funds), New York:
63. Stiglitz, J. [1998]: “The private uses of public interests: Incentives and institutions.” *The Journal of Economic Perspectives*, Vol. 12, No. 2, pp. 3–22.
64. The Canadian Network[2004] *Economic instruments for water demand management in an integrated water resources management framework*
65. The Republic of Rwanda [2007] *Economic Development and Poverty Reduction Strategy, 2008-2012*
66. Theodore Panayotou [1994]: *Economic Instruments for Environmental Management and Sustainable Development*.ket-based policy instruments for environmental reform.
67. Thomas Steiner editor [1998] *The Market and Environment: The effectiveness of mar*
68. Ugaz, C. [2006]: *Commercialization, Privatization and Universal Access to Water*. UNRISD, Geneva. Mimeo.
69. UN, [1992] *Agenda 21* pages 70-77
70. UNEP [2003]: *Economic Instruments and Fiscal Policy*.
71. UNEP [2005]: *Selection, Design and Implementation of Economic Instruments in the Solid Waste Management Sector in Kenya*.
72. *Vision 2020*
73. World Bank (2007). *Report on Making Finance work for Africa*
74. World Bank [2005]: *Environmental Fiscal Reform: What should be done and How to achieve it?*
75. World Bank [2005]: *Water, Electricity and the Poor; who benefits from utility subsidies?* Washington DC
76. World Bank [2005]: *Who Benefits from Water Utility Subsidies?*
77. World Bank [2006]: *Handbook for Evaluating Infrastructure Regulatory Systems*. World Bank, Washington, DC.
78. World Commission on Environment and Development [1987]: *Our Common Future*, Oxford: Oxford University Press. p. 8
79. Youba Sokono, Jean-Philippe Taoma, Oussouby Toure [2003]: *Development and Climate, Country Strategy Study*. Senegal
80. Yussuf Uwamahoro [2009]: *National Electricity Access scale Up program: 2009-2012*

Annex 1: Terms of Reference

Republic of Rwanda



Rwanda Environment
Management Authority
(REMA)

TERMS OF REFERENCE

Consultancy_EOI (46709-2009-002)

Environment Fiscal Reform for Poverty and Environment
Initiative Project (PEI)



1 OBJECTIVE

To improve national funding levels for investing in environmental sustainability. This will involve exploring opportunities for raising revenues, while creating incentives that generate environmental benefits to support poverty alleviation efforts. Secondly to build capacity in sectors which have key partnership with the environment sector that will support investments in the environment sector.

2 BACKGROUND

About 57% of Rwandans, a majority of them women, live in abject poverty, surviving on less than US\$1 per day and in most instances creating conditions where many children do not receive even a basic education. Additionally, many households do not have access to basic sanitation or water supplies. In recognition of the strong linkages between poverty and environment issues, one of the Millennium Development Goals, MDG 7, seeks to integrate the principles of sustainable development into country policies and programmes, and reverse the loss of environmental resources. The livelihoods and food security of the poor often depend directly on ecosystems, and the diversity of goods and services they provide. Moreover, healthy ecosystems provide a range of "invisible services" that are essential for sustainable development. To help achieve the MDGs, developing country governments need to raise revenues to invest in schools, healthcare, infrastructure and the environment. As recognized at the Financing for Development Conference in Monterrey, equitable and efficient tax systems, as well as improvements in the pattern of domestic public spending are essential to meeting the MDGs.

Environmental Fiscal Reform (EFR) can play an important role in this regard, helping countries raise revenues, while creating incentives that generate environmental benefits and support poverty reduction efforts. EFR has the potential to free-up economic resources and generate revenues that can help finance poverty reduction measures, for example infrastructure that improves access of the poor to water, sanitation and energy services. By encouraging more sustainable use of natural resources (such as forests or fisheries), reducing pollution from energy use and industrial activities, and stimulating the use of innovative "clean" technologies, EFR can also improve management of the environment. In these ways, EFR can directly and indirectly address environmental problems that threaten the livelihoods of the poor.

EFR encompasses a wide range of taxation and pricing instruments, including taxes on the exploitation of natural resources, taxes and charges on water or air pollution, and the reform of water or energy subsidies. Although it may present a challenge to design and implement, EFR to encourage sustainable natural resource use will be particularly relevant to low income countries such as Rwanda, which often rely heavily on natural resources for their development. A growing number of such countries have embarked on such reforms as part of their Poverty Reduction Strategies. Based on experience, there is no generally applicable blueprint for EFR. Rather, effective policies are sector specific and depend on the institutional and political context in which they are introduced, and are therefore best developed by countries themselves.

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In this spirit, the Poverty Environment Initiative (PEI) project, Rwanda is supporting the environment sector to carry out EFR and help capacity building for that will facilitate on-going efforts towards EFR efforts.

The Government, UNDP and UNEP Rwanda Poverty and Environment Initiative aims to enhance the contribution of sound environmental management to poverty reduction, sustainable economic growth and achievement of the Millennium Development Goals. Led by the Rwanda Environment Management Authority (REMA), Ministry of Natural Resources (MINIRENA), the intended outcome of the Rwanda PEI Phase II is the integration of environment into national policy and district planning, policy and budget processes to implement the Economic Development and Poverty Reduction Strategy. Phase II has five main outputs: 1) Improved capacity within key ministries and institutions to understand and analyse links between poverty and environment and to integrate environment into policymaking, planning and budgets; 2) Improved capacity at district level to understand and analyse links between poverty and environment and to integrate environment into development planning; 3) Increased awareness and more effective participation of stakeholders in environmental policy and planning processes at both district and national level; 4) Improved national funding levels for investing in environmental sustainability; Improved capacity for monitoring poverty and environment linkages at both national and district level. These Terms of Reference relates specifically to the fourth output. PEI is supporting the GoR to investigate the possibilities of Economic Instruments in promoting the sustainable management of natural resources and environmental sustainability. There is a number of different Economic Instruments which can be utilised by the Government to influence the understanding and behaviour towards the environment in Rwanda.

The Environment Fund operates and functions under the supervision of REMA. The Fund can financially contribute to general aspects that relate to environmental conservation and other activities aimed at promoting environmental management e.g. research, provide grants for conservation and protection and support rehabilitation of degraded areas. The funding of the Environment Fund comes from a number of different sources e.g. the national budget, grants and special aid. Secondly the funding sources are income from fines emanating from penalties determined by the Organic Law n° 04/2005 of 08/04/2005.

Specific reference to Organic Law on where the opportunities are for introducing different Economic Instruments are made in the environmental Law NO 04/2005 of 08/04/2005, in Chapter 3, article 7 paragraph 3. 4. Environmental related revenue can be used by the Environment Fund and Environment Sector through the Organic Law on environment No. 04/2005 of 08/04/2005 Chapter 4 in articles 69, 71, 72 and 73 to improve the status of the environment in Rwanda and increase investments in rehabilitation and improved management systems. The FONERWA bill which is still in the draft form also stipulate some good practices for fiscal reform as stipulated in Chapter 2, article 3 on attributions and chapter 3, article 4 on Patrimony.

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TERMS OF REFERENCE

Consultancy_EOI (46709-2009-002)

Environment Fiscal Reform for Poverty and Environment Initiative Project (PEI)



3	SCOPE OF WORK
3.1	The Consultant will report directly to the National Project Manager of PEI and will be supported by the PEI Project Management Unit (PMU) and UNDP during the assignment;
3.2	The work under this consultancy will be undertaken in collaboration with one national consultant to;
3.2.1	Assess needs and capacity gaps within key sectors for staff involved in FR processes in their understanding of Poverty & Environment for public employees;
3.2.2	Based on the assessed needs develop training modules to address capacity gaps in ways that will improve the understanding of environment and poverty linkages relevant to the sector;
3.2.3	Prepare tailored training sessions for above mentioned staff;
3.2.4	Assess need for assistance within key ministries to develop annual EFR work plan;
3.2.5	Assist identified sectors in developing EFR work plans and teach concept;
3.2.6	Develop training module in identification of comprehensive environmental goods and services and a clear methodology that facilitates Environmental Accounting of the goods and services;
3.2.7	Explore and list different relevant Economic Instruments firstly which could fit within existing Government legal framework. Secondly, list different opportunities for expanding the legal framework in this area. These could include suggestions to remove potential environmentally damaging, distorting and costly subsidies, environmentally damaging taxes or exemptions introduction of tax-incentives as well as disincentives;
3.2.8	Identify implications for the legal and institutional framework:
	a) Monitoring and enforcement;
	b) Disclosure and transparency;
	c) Political capture of subsidies;
	d) Government-owned enterprises;
	e) Property rights of resource users;
	f) Technical capability and institution building.
3.2.9	Undertake study to influence policy on best practises for effective implementation of the polluter pays principle, controlling soil erosion and drought, afforestation and reforestation, using renewable energy in a sustainable manner, using modern cooking stoves and any other means that can be used to protect forestry. Policy focus on best practices should be guided by the environmental Law NO 04/2005 of 08/04/2005 As well as areas outlined in The FONERWA bill (draft);
3.2.10	Investigate good practises in similar/relevant countries for distribution of tax revenues and fiscal decentralization and recommend those that bear relevancy to Rwanda.

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**Environment Fiscal Reform for Poverty and Environment
Initiative Project (PEI)**



4 DELIVERABLES

- 4.1 During the Assignment, the Consultant will deliver the following:
 - 4.1.1 The work plan for the assignment that should be submitted not later than three days following the commencement of the assignment;
 - 4.1.2 An inception report for the assignment that should be submitted not more than five days following the commencement of the assignment;
 - 4.2.3 A user friendly training and operational manual for public employees on EFR with identification of sector specific environmental goods and services with a particular focus Environmental Accounting within four weeks from commencement of the assignment.
 - 4.2.4 A training report including the recommendations for next steps within six weeks from start of the assignment.
 - 4.2.5 Study/Survey Report which details out how to influence and utilise mechanisms to facilitate operationalization of the Environment Fund – within six weeks from start of assignment.
 - 4.2.6 An overview of opportunities within the existing legal framework for increasing the revenue for environment sector – list of Economic Instruments and potential sources of funding;
 - 4.2.7 A summary report including major findings, proposal of future opportunities in an expanded legal framework and recommendations that should be submitted not later than the contract period.

5 QUALIFICATIONS

- 5.1 Candidates must demonstrate the following qualifications and experience
 - 5.1.1 Masters Degree in a relevant field such as Environment Management, Environmental policy, Natural Resources Management, Agronomy, Development Economics, environmental engineering;
 - 5.1.2 Minimum five (5) years work experience in related fields;
 - 5.1.3 Good understanding of relevant legal and regulatory instruments;
 - 5.1.4 Proven capacity to organize and facilitate workshops and meetings;
 - 5.1.5 Fluency in Kinyarwanda, English and/or French (preferably both).
- 5.2 Competency and skills
 - 5.2.1 Strong interpersonal skills with ability to work under pressure and to establish and maintain effective work relationships with people of different backgrounds;
 - 5.2.2 Ability to take initiative and to work independently, as well as part of a team;
 - 5.2.3 Proven capacity to organize and facilitate workshops and meetings;

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- 5.2.4 Excellent communication skills, reporting with ability to express ideas clearly, concisely and effectively, both orally and in writing;
- 5.2.5 Computer literacy in full Microsoft Office Package and web browser capability;
- 5.2.6 Ready to travel extensively in rural areas and districts.

6 REMUNERATION AND OTHER CONSIDERATIONS

The successful consultant will start his/her assignment as soon as possible following the completion of the selection process.

- 6.1 Submissions will be accepted from Individual Consultants only (National or International)
- 6.2 The Successful Result of this Process will be a Special Service Agreement Contract (SSA) .
 - 6.2.1 Defining an overall period of two (2) months worked.
 - 6.2.2 Payment for this consultancy will be done monthly upon certification of work completed satisfactorily .

7 SUBMISSIONS

- 7.1 Qualified individual consultants that meet the above requirements are invited to submit:
 - 7.1.1 Motivation letter expressing suitability for the assignment;
 - 7.1.2 Curriculum Vitae with the required supporting documents;
 - 7.1.3 List of previous work, contractual responsibility and successful completion of similar services ;
- 7.2 The Submissions should be made in One envelope or attachments (if submitted via email) indicating; **DO NOT OPEN IN ADVANCE**).
- 7.3 Please note that Submissions by E-mail **WILL BE ACCEPTED** (see details in the Expression of Interest)

8 SELECTION PROCESS

- 8.1 Submissions will be evaluated in consideration of the evaluation criteria as stated below:
 - 8.1.1 Evaluation Criteria (Total of 100 points):
 - a) Masters Degree in a relevant field such as Environment Management, Environmental policy, Natural Resources Management, Agronomy, Development Economics, environmental engineering [20 points];
 - b) Minimum five (5) years work experience in related fields such as Poverty Reduction Strategies, policies, Monitoring and Evaluation and strategic planning [30 points];

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Environment Fiscal Reform for Poverty and Environment Initiative Project (PEI)



- c) Good understanding of relevant legal and regulatory instruments [20 points];
 - d) Proven capacity to organize and facilitate workshops and meetings [20 points]
 - e) Fluency in Kinyarwanda, English or French with a working knowledge of the other; [10 points];
- 8.1.2 In order to qualify for further consideration the Individual Consultant must accomplish a minimum score of 70 points;
- 8.1.3 Candidates who qualify for further consideration may be invited for a personal interview.
- 8.2 **The Basis of Award will be to the Individual Consultant who qualifies in both - Evaluation by Desk Review and Personal Interview.**
- 8.2 **This Opportunity is open to female and male candidates. Applications from qualified female candidates are encouraged.**

Annex 2: List of people consulted

Name	Organization	Title	Contacts
1. Alex Mulisa	REMA	Consultant, PEI	Amlisa2@gmail.com +250-788302107
2. Catherine Kyakwera	Rwanda Revenue Authority	Legal Officer	+250 788 536036
3. Dr. Paul Scholte	UNDP	Senior Technical Advisor	+250783281096
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6. Dr. Rubhera Ram Mato	MINECOFIN	Senior Environmental Expert	Mato@arn.ac.tz, +255- 754 -898592
7. Eng Jayans Hakizimana	KICUKIRO District	Director of Infrastructure	
8. Eng. Kente lilian Sandra	ALN Consultants	EAI Specialist	Aln.consultants@gmail.com +250-788-354734
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27. Mark OH, PHD	REMA	Consultant, PER	Mott1943@hotmail.com
28. Mugiraneza Yusuf	MINECOFIN	Director, Fiscal Decentrilisation	Mugy5@yahoo.fr +250750219411
29. Musoni Jean de Dieu	KICUKIRO District	Director of planning	

Annex 2: List of people consulted cont'd

Name	Organization	Title	Contacts
30. Mutuyimana Catherine	Nyamagabe District	Director of Finance	Manarine2002@yahoo.fr
31. Mwiseneza jones	GATSIRO District	District environmental Officer	Unejones@yahoo.fr +250 788771016
32. Myambi Celestine	REMA		
33. Ndayitabi Serge	Nyamagabe District	The In-charge of Environment	ndayiserge@yahoo.com +250-788562220
34. Niyibizi Wencestas	MINALOC	Director Local Government Finance Unit	wniyibizi@yahoo.com +250 788 352744
35. NShimiyimana jean Pierre	NYAMAGABE District	Executive Secretary	nshijeapic@yahoo.fr
36. Nyirishema Felix	MINAGRI		
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44. Ruziga Emmanuel	KICUKIRO District	Executive District Secretary	
45. Sefomma Andre	KICUKIRO District	Director of Finance	
46. Theobald 47. Nyatanyi Mashinga	Rwanda Development Board	Director of Environment Compliance	mashingatheo@yahoo.com +250-788851461
48. Twagirayezu Emmanuel	MINAGRI		twagem@yahoo.fr

Annex 3: Existing EFR/EIS and their implications on the budget and resource mobilisation

Existing EFR/EI	Purpose	Brief comments	Likely budget consequences		
			RGI	PEI	BNI
LANDS					
1.Land titles	-To recognize ownership rights and give incentive for sustainable use and investment	-Very very few people are able to use land titles as collateral in banks Nonetheless, they are serving as good instruments for resolving conflict			✓
2.Lease agreements	-To give access and use rights to land	-The government should always monitor the impact of its land reform to ensure the poor are not displaced through leases			✓
MINES					
1.Municipal mining license	-To give access to mining sites		✓		
2.Local municipal tax	-To raise some revenue	-Until a full exploration is made, it may not be easy for the government to obtain what it deserves	✓		
3.Mining guarantee	-To rehabilitate degraded mining sites	- The fees are deposited into the National Bank	✓		
FORESTRY					
1.Concessions	-To give access rights for harvesting authorized products	-These now apply to Nyungwe National Park and they are given on competitive basis	✓		
2.Competitive bidding	-To develop a competitive and transparent market for timber	-This practice is also being applied for harvesting of timber from Nyungwe National Park	✓		
3.Forest royalties	-To gain value from forest products	-They are based on competition among the bidders	✓		
4.National Forest Fund	-To be used for investing back in the forestry sector, particularly where the revenue was generated	-The amount depends on products available for disposing	✓		
5.Forest taxation	-To contribute to district revenue	-This varies by district	✓		
WATER AND SANITATION					
1.VAT exemption	-Improve access to water supply for non-profit	-Some NGOs are already taking advantage of this incentive		✓	
2.Concession for water abstraction	-To raise revenue	-This concession is given to ELECTROGAZ	✓		

Existing EFR/EI	Purpose	Brief comments	Likely budget consequences		
			RGI	PEI	BNI
ENVIRONMENT					
1.Full or partial exemption from customs equipment and instruments for conservation and protecting the environment	-To promote conservation and protection of the environment	-This incentive is given only to those whose responsibility it is to conserve and protect the environment.		✓	
2-Various fines	-To penalize non compliance for environmental management	-It would be difficult to predict the potential revenue from the fines.	✓		
HOUSING AND SETTLEMENT					
1.Administrative fees for approving housing	-To raise revenue	This is one of the biggests sources of revenue for KCC	✓		
SOLID WASTE AND WASTE WATER MANAGEMENT					
1.Solid waste charge	-To clean up and recover cost of collection	-The charges differ by the operator	✓		
2.Landfill dumping fee	-To recognize use of space and build up a fund for future clean up or relocation	-This is mainly applied in Kigali City Council	✓		
TRANSPORT					
1.Exemption of consumption tax on vehicles that carry 14 people and above	-To promote the use of bigger pro-poor vehicles	-This incentive is already having positive impact reflected in the increased number of Coaster vehicles.		✓	
2.Tax in accordance to vehicle capacity	-To raise revenue from individuals in accordance to their preference for luxurious vehicles	-There is scope to raise even more revenue by say introducing an environmental levy on very old cars.	✓		
ENERGY					
1.VAT exemption on kerosene for domestic use	-Improve access to energy by the poor			✓	
2.Customs exemption of solar equipment and accessories	-To popularize alternative, more environmentally friendly energy technologies.	-Additional investment is requires in awareness creation, training of technicians, and provision of credit		✓	
3.Community Development and Carbon Fund	-To reduce greenhouse gases	-This is Rwanda’s first deal under CDM	✓		
CROP AND LIVESTOCK					
1.Investment Credit Allowance	-To reduce the cost of investment in agriculture	-This incentive has attracted equipment especially in commercial agriculture.		✓	
1.VAT exemption on agricultural livestock and products	-Increase agricultural production	-As above		✓	
2.VAT exemption on agricultural equipment, livestock and agricultural inputs	-Increase access to factors of production	-As above		✓	

Existing EFR/EI	Purpose	Brief comments	Likely budget consequences		
			RGI	PEI	BNI
3.VAT exemption for fertilisers, fungicides, herbicides, and coffee processing equipment	-Encourage investment in the mainstay of the economy	-The use of low cost external imports should not undermine continued effort in restoring ecosystem functionality		✓	
3.Customs exemption of agricultural inputs	-Encourage investment in the mainstay of the economy	-Importation has to be by the registered business		✓	
INTEGRATED WATER RESOURCES MANAGEMENT/WATER FOR IRRIGATION					
1.Water use charge	-To maintain water infrastructure	-This is being practiced under RSSP on agricultural production in marshlands	✓		
FISHERIES					
1.VAT exemption on fishing equipment				✓	
INDUSTRY AND POLLUTION					
1.VAT exemption on machinery and raw materials for industries with investment certificate	-Promote industrialization	-The importer must have an investment certificate		✓	
2.Deductable expense that would lead to decrease in net loss of assets allowed for tax purposes	-Protect industries that would otherwise close without some form of bail-out	-This incentive would equally apply to industries that are producing environmentally friendly products.		✓	
TOURISM/WILDLIFE					
1. 1.Compensation scheme for crop raid and predation	-To compensate losers from conservation	-The amount of compensation is considered low	✓		
2.Revenue sharing scheme	-To compensate park adjacent communities for the opportunity costs incurred due to conservation	-The scheme is attractive among communities.	✓		
FINANCE AND BANKING					
1.VAT exemption on several transactions of the National Bank of Rwanda		-It is not evident that these exemptions are also benefiting the environment		✓	
2.Deductable expense that would lead to decrease in net loss of assets allowed for tax purposes	-To promote access to banking	-Many commercial banks are taking advantage of this incentive		✓	

Existing EFR/EI	Purpose	Brief comments	Likely budget consequences		
			RGI	PEI	BNI
INSURANCE					
1.Agricultural insurance	-To mitigate against agricultural losses	-This is still on pilot basis	✓		
INNOVATIVE FUNDING MECHANISMS					
1.Payment for ecosystem services	-To reward those contributing to the functionality of ecosystems	-The country is in the start-up-process to tap into the opportunity	✓		
2.Global Environmental Facility	-To support countries in the management of global commons	-GoR has implemented several projects using GEF	✓		
3.Small grants to communities	-To involve communities in the management of global commons	-There are several, including GEF/Small grants programme	✓		
LOCAL GOVERNMENT FINANCE					
1.Cleaning fees	-To raise revenue in addition to maintaining clean environment		✓		
2.Tax on charcoal	-To raise revenue and regulate this ecological damaging enterprise	-Rwanda needs to shift some of energy demand to LPG	✓		

Potential EFR/EIs	Purpose	Brief comments	Likely budget consequences			Likely timing for introduction		
			RGI	PEI	BNI	S	M	L
LANDS								
1.Access and use rights of marshlands	-To regulate access and allow the poor use the marshlands	-This is proposed under draft law for sustainable use of marshlands	✓					
2.User fees and royalties	-To offset administrative costs of handling applications, and monitoring	- This is proposed under draft law for sustainable use of marshlands	✓					
3.Fines	-To deter those whose land use practices in the marshlands are not in conformity with the management plan	-Here, the challenge is to formulate the management plans with in-built standards of practices, inputs and technologies to use, etc	✓					
4.Grants for land consolidation	-To motivate small landholders improve the economies of scale in agricultural production	-This would build on a few cases of land consolidation.		✓				
5. Land tax	-To raise revenue -To discourage land speculation	-A specific regulation would be needed to support land tax.	✓					
6.Payment for Ecosystem Services(PES)	-To raise revenue based on the principle of “beneficiary-pays-principle”	-Several workshops have been conducted aimed at reaching consensus as to how PES may actually work in Rwanda	✓					
MINES and INDUSTRY								
1.Performance bond	- To act as a countermeasure against environmental damage.	-Would require that all those who mine are licensed.	✓					
2.Annual Environmental Award	-To recognize companies that not only comply with environmental standards but also make contribution to society	-The award could build a practice of voluntary compliance.		✓				
FORESTRY								
1.Fines for setting fires inside protected areas.	-To deter destruction of ecologically sensitive areas	-Between 2000 and 2002, Rwanda lost 13,134 ha of pine valued	✓					
2..Permits for Collaborative Forest Management	-To allow access to forestry land for restricted activities like tree planting by adjacent communities	-There are provisions for this arrangement in the Draft Legislation for forestry	✓					
3.Tax rebates	-To give incentives to commercial forest harveaccess to the use of forestry land to investors who have mobilized substantial capital	-The government is already helping investors interested in taking this route.	✓					

Potential EFR/EIs	Purpose	Brief comments	Likely budget consequences			Likely timing for introduction		
			RGI	PEI	BNI	S	M	L
5.Grants and subsidies for commercial forestry	-To promote large scale investment in long gestation forestry	-Funds for these investments are increasing but governments must address problems of encroachment to avoid conflict and disrupted investments		✓				
4.Carbon funds	-Promote conservation, and restoration of degraded areas	-First proposal being developed in Nyungwe N.P	✓					
WATER AND SANITATION								
1.Unit based charging for water	-To recover cost of supplying water and possibly contribute to expansion	-Presently, the water charges by Elecogaz cover a range of m3 consumed	✓					
2.Unit based charging for domestic waste water discharge	-To pay for treatment before discharge into the environment	-The absence of large waste water treatment plant is holding back such charges	✓					
3.Waste effluent charges according to the level of Biological Oxygen Demand(BOD) among industries	-To charge polluters in accordance with the Polluter-Pays-Principle	-The government needs to anchor these charges in the standards and regulations for waste discharge.	✓					
ENVIRONMENT								
1.Performance bond for waste oil disposal	-To direct that oil companies and garages dispose of waste oil in designated places	-There is unregulated management of this category of waste	✓					
2.Performance bond for used tyres	-To encourage the imports to call back old tyres for recycling or safer disposal	-This waste is also unregulated	✓					
3.Penalties for bush fires	-To protect property and ensure allow for return of biomass to soil	-These would need to be set very high to deter people as is the practice in Zimbabwe	✓					

Annex 4: Potential environmental fiscal reform and economic instruments for Rwanda cont'd

Potential EFR/EIs	Purpose	Brief comments	Likely budget consequences			Likely timing for introduction		
			RGI	PEI	BNI	S	M	L
4.Environmental levy on old products	-To shift people to newer ones with longer lifespan	-Old items like computers, fridges, refrigerators turn into waste fast, putting the country among dumping grounds for such products and related waste	✓					
5.EIA fees	-To defray administrative costs of processing and approving EIA in addition to monitoring compliance with conditions set or the mitigation plan	-These fees are not yet collected in Rwanda because the Organic Law No 4/2004 tied their collection to the Establishment of FONERWA	✓					
6.Licencee fee for noise pollution	-To regulate noise pollution	-This would require the government to set the standards for noise levels	✓					
SOLID WASTE AND WASTE WATER MANAGEMENT								
1.Dumping fee to the land fill	-	-Although KCC charges this fee, districts like Rwemigana were not charging	✓					
2.Tax exemption on garbage collection vehicles	-To promote “green” investment in the management of waste	- The Pre-Budget Consultations of the EAC Partners States Ministers of Finance, on 2nd June 2008 in Nairobi agreed to this proposal, and Uganda, Kenya and Tanzania announced it in the 2009 budget.		✓				

Potential EFR/EIs	Purpose	Brief comments	Likely budget consequences			Likely timing for introduction		
			RGI	PEI	BNI	S	M	L
TRANSPORT								
1. Differential customs by age of second hand personal vehicles above a certain age, e.g. 10 years.	-To gradually shift buyers to newer, less polluting vehicles likely to have longer lifespan, and thus reducing accumulation of related water	-It would not disrupt transport for the poor because passenger vehicles for 14 people and above are exempted from tax, and they are on the increase in Rwanda.	✓					
2.Emission charges for CO2 lead	-To maintain clean air quality by influencing car owners to install converters	-The Technical Control Centre would needs to be equipped and trained for the purpose, in addition to establishing air quality standards.	✓					
3.Tax on international planes for pollution	-To raise revenue and control noise pollution	-This again would require standards. Two options of levying practiced around the world are levying each passenger(South Africa,2009 or fuel (Australia)(read the alternate below)	✓					
4.Tax exemption on income of airlines.	-To encourage airlines and tourists penetrate remote, and land locked countries	-Airlines too have been hit by recession and are rationalizing their destinations. Uganda has exempted the from income tax wef 2007 only on account that as a landlocked country, it has to give incentives to airlines so that they can stay around.	✓					
ENERGY								
1.Taxation of incandescent light bulbs	-To shift to energy saving bulbs	-Rwanda is distributing energy saving bulbs free, a practice Uganda and Kenya seem to have followed but can still allow those preferring incandescent bulbs to pay more.	✓					
2.Tax exemption on Liquid Petroleum Gas(LPG)	-To shift energy demand for cooking from charcoal and firewood to LPG	-The ecological cost due to the high dependency on biomass will not be sustainable.		✓				
3.Tax exemption on Certified Emission Reductions(CERs) under Clean Development Mechanism(CDM)	-To quicken the utilization of increasing waste in the CCK	-Africa is lagging behind in tapping these opportunities partly because the procedures to qualify for CERs are tedious and expensive.		✓				
4.Tax exemption for small and medium enterprises converting waste into charcoal bridgets	-To promote production of by-products from waste	-This would give landfills longer lifespan, and related savings from frequent clean ups or relocations		✓				
5.Energy Fund	-To establish a long term financing mechanism for expansion of energy infrastructure	-This could be capitalised by small levy on petroleum products and charges on thermal based electricity	✓					

Potential EFR/EIs	Purpose	Brief comments	Likely budget consequences			Likely timing for introduction		
			RGI	PEI	BNI	S	M	L
CROP AND LIVESTOCK								
1.Water charges for extensive commercial use of water	-To make the beneficiaries contribute to restoration of water conserving ecosystems	-The government would need to establish the amounts used and the enterprises to fall within the brackets for paying these charges	✓					
INTEGRATED WATER RESOURCES MANAGEMENT/WATER FOR IRRIGATION								
1.Water extraction rights	-To reconcile water availability among competing users	-This is subject to government defining areas where to practice IWRM	✓					
2.Water user charges	-To raise revenue in the use of water	-A water use regulation would be necessary	✓					
1.Pollution charge	-To encourage industries invest in adoption of environmentally friendly technologies and processes like Cleaner Production	-The government would need to establish standards for waste effluent discharge	✓					
TRADE								
1.Tax on old electronic equipment	-To discourage importation of goods that would quickly turn into waste in the country.	-In 2009, Kenya imposed a 25% tax on used computers while Uganda completely banned old computers, fridges and refrigerators. But Rwanda and Tanzania still allow them	✓					
TOURISM/WILDLIFE								
1.Fines for trading in endangered species	-To discourage trade in prohibited species according to CITES	-It would be advisable to include thes fines in the draft wildlife legislation	✓					
2.Wildlife user rights	-To regulate and give access to wildlife for domestication and trade	-The policy and law on wildlife are now in the formulation stage.	✓					
5.Levy on high value tourism e.g gorilla	-To raise revenue in support of adjacent communities’ livelihood initiatives.	-In addition to the revenue sharing scheme, is introducing a US \$ 5 levy on gorilla viewing tariffs to go to the communities	✓					

Potential EFR/EIs	Purpose	Brief comments	Likely budget consequences			Likely timing for introduction		
			RGI	PEI	BNI	S	M	L
INNOVATIVE FUNDING MECHANISMS								
1. Carbon Funds	-To invest in adaptation to climate change	-Given that some of these funds are tied to long term contracts, the government needs to put in place a policy framework to ensure fair contracts.	✓					
2. Payment for ecosystem services	-	-The concept of ecosystem services is becoming popular following realization of the values of these services	✓					
3. CDC Commercial Forestry Fund		-CDC wants to invest between US\$50m-100m in commercial forestry through the private sector. The private sector in Rwanda can compete if they meet the funding criteria.	✓					