



## **FINAL REPORT ON FOUR ECONOMIC INSTRUMENTS**

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## 1. Introduction

1. This report is hereby submitted to satisfy *Result 6: Four studies on financial instruments*. Annex 1 provides the initial list from which the four were prioritized and studied. The terms of reference set the rule that the EIs had to be identified in four different sectors. Further, the consultant identified the EIs with guidance from the PEI team in Rwanda.
2. Suffice it to mention a few factors that influenced the choice. Although is not yet a very attractive source of energy among the population and particularly the poor, it was studied because the 2010 Annual Leadership Meeting recommended it as one of the alternatives to curbing the high degree of deforestation in Rwanda. Secondly, the consultant found that the MINIRENA had been split into MINELA and MINIFOR. Because MINELA was involved in the formulation of Water Policy and Strategy, the timing was opportune to market the concept of water user fees for irrigation.
3. Briefly, the team wanted to use this assignment to set in motion process to create a menu of EIs and describe them using a systematic approach so that when the National Fund for Environment (FONERWA) is established, it will be easy for management to prioritize them for implementation. In turn this influenced the design of a generic framework for their assessment described below.
4. In the inception report, the consultant listed 8 criteria that would influence prioritization of the economic instruments (EIs). In the course of the assignment, the list was further broadened. It was found necessary to provide information on the existing situation, and case studies of good practice from other countries. Importantly, the EIs were analyzed for their feasibility for implementation. Annex 2 provides a generic framework that was used for the four case studies.
5. Basically, the framework is organized as follows:
  - (i) the name and purpose of the proposed EI come upfront in Part A
  - (ii) the existing situation is analysed from the environmental, economic and social dimensions in Part B
  - (iii) the impact of the previous efforts to address the problems above are described in Part C. It should be made clear here that because the framework assesses the potential rather than existing EIs, this section describes the impact of other policy measures and not those of EIs. Nonetheless, the impacts of the proposed EIs will be assessed in future and the framework has provided for that too.
  - (iv) the potential positive and negative impacts that the EIs may create are described in Part D
  - (v) the measures to address the likely negative impacts are described in Part E

- (vi) the assessment for implementation feasibility is under Part F
- (vii) the proposed start up implementation strategies are in Part G
- (viii) the environmental, economic and social aspects that should be monitored once the EI is implemented are described in Part H
- (ix) recommendations are summed in Part I.

6. The following table shows the Annexes for each case study.

**Table 1: Prioritised environmental economic instruments by sector**

No.	Annex	Environmental economic instrument	Sector
(i)	Annex 3	Tax exemption or subsidy on Liquefied Petroleum Gas (LPG)	Infrastructure (Energy)
(ii)	Annex 4	Water user fees for irrigation	Agriculture
(iii)	Annex 5	Annual Environmental Awards for best (Industrial) practice	Trade, Commerce and Industry
(iv)	Annex 6	Property rights for communities to participate in reforestation and afforestation on public land in all districts	Forestry and Mining

7. It had been scheduled to submit the report by end of the second week in July. This was not possible because the consultant's travel to Kigali specifically to make final sectoral consultations and presentation was delayed until towards end of July to coincide with another activity of training sectoral planners, EDPRS facilitators and budget officers by MINECOFIN (30<sup>th</sup> July, 2010). This is because the consultant had an additional task to support the technical assistance at MINECOFIN.

## 2. Methodology

8. In the study, the consultant relied on the earlier findings from the EFR study. This was complemented by additional information search from the four sectors in Rwanda, and from other countries. Consultations were also made with sector specialists who provided information on existing and planned activities. The draft EI were sent for review after which the additional contributions were incorporated

## 3. Summary of findings and policy response

9. First and importantly, all the four case studies have featured in several government policies, strategies and policy meetings. It is for this reason that there are several processes taking place. If there are all fully completed, they will improve the enabling environment for the implementation of EIs. Top on the priority list of the activities is the formulation of supportive legislation for water use rights and fees, and tax exemptions on LPG.

10. Secondly, even as these processes are continuing, the PEI would remain a strategic partner to Rwanda by investing in the actual implementation of the EI e.g supporting activities to actually make an annual environmental award; to pilot the popularization of LPG among households in a selected *imudugudu* to mention but a few.
11. Thirdly, all the EIs could be implemented under the auspices of the National Fund for Environment (FONERWA) because they constitute the incentives that are listed by the Organic Law No. 04/2005 to be supported by FONERWA. To expedite this, the government would be obliged to make the legislation for FONERWA as required under Organic Law No. 04/2005.
12. Thirdly, it was gratifying to find that MINECOFIN is appreciating EFR. However, it would require support in order to centrally oversee, provide advisory services and monitor the extent to which the several EFR and EIs spread in several sectors are generating the impacts for which they were introduced. This is particularly important because they have a bearing on fiscal discipline, either as Revenue Generating Instruments (RGIs) or Expenditure Generating Instruments (EGIs).
13. Besides the training that the consultant provided, there is a need for further hands on training for a few MINECOFIN staff preferably in another country where the EIs are centrally coordinated. A case in point would be the Treasury in South Africa. This activity would be appealing after MINECOFIN has dully assigned some staff for this role so that it such staff to be selected for training.
14. Like in other good practices referred to, the mere announcing of the EI may not suffice. For example, a tax exemption on LPG may not suffice as it has to be complemented with an array of activities intended to overcome other technical, economic and socio-cultural barriers. It is in this regard that the operationalisation of FONERWA would add value by piloting out these EIs on the ground to demonstrate how to overcome the above barriers.
15. Further, building the capacity of specially selected active private sector firms, NGOs, cooperatives and associations to popularize the implementation of EIs would be critical. In fact, some of them could develop business enterprises e.g distributing and marketing LPGs to potential customers or establishing tree nurseries or managing an irrigation scheme. Such activities can be pioneered by sectors or FONERWA once it is formed. It was gratifying for example to find that MININFRA is playing a catalytic role in to training technicians to make and popularize energy technologies particularly the energy cooking stoves, and biogas as their potential enterprises.

#### **4. Way forward**

16. Practically, it is the respective sectoral institutions that should continue to pursue the EIs. This will include mobilization of resources and technical assistance so that when the EIs are finally approved, they can be implemented to a level of success that would be catalytic for further replication and upscale in the respective sectors.
17. Accordingly, the sectors should continue to identify potential sources of financing and technical assistance for the implementation of EIs. They could also use their approved public budgets. The formation of FONERWA will only add value to their efforts. In any case the responsibility to monitor the extent to which the EIs are delivering environmental objectives will remain with the respective sectors. The special role of MINECOFIN will be to monitor them for their fiscal discipline and poverty reduction .On the other hand REMA could play a role within its mandate to undertake research, investigations, studies and other relevant activities in the field of environment and disseminate the findings and to render advice and technical support, where possible, to entities engaged in natural resource management and environmental conservation.
18. PEI in Rwanda should explore the possibility of securing an attachment for a few MINECOFIN staff to the Treasury of South Africa within the remaining resources and time for capacity building in the implementation and coordination of EIs in addition to providing further support to actually implement some EIs.

## References

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2. Batchelor, C [1999]: Improving water use efficiency as part of integrated catchment management; Agricultural Water management 40(2): 249-263
3. David Sawyer, Genevieve Perron and Mary Trudeau [ ]: Analysis of economic instruments for water conservation.
4. Inter American Development Bank [2003]Global Review of economic instruments for water management in Latin America
5. Kazoorra C, et al [2008]: Economic Instruments for promoting sustainable natural resource use, environmental sustainability and response to climate change.
6. MINIRENA : Five Year Strategic Plan
7. Organic Law No.04/2005
8. National Leadership Retreat, 2010

### Annex 1: Screening list of potential economic instruments by sector for study in Rwanda

Sector	Potential EI	Comments	Decision
<b>1. Infrastructure (Energy)</b>	1. Tax exemption or subsidy on LPG	1. Government plans to have one LPG bottle operation on line by end of 2011 2. PEI's contribution could be to study how to integrate the EI in the banking industry, including Micro-Finance Institutions (MFIs) for long term sustainability of funding	Study
	2. Subsidy for solar water heaters	1. Government plans to have 100 procured for 60 beneficiaries by 2011	Postpone
<b>2. Agriculture</b>	1. Water user fees for irrigation	1. Government plans to construct hillside irrigation infrastructure, and to have 2000 ha of extra hillside irrigation 2. Government also plans to invest in legal framework for water user rights	Study
	2. New financial markets tailored for agriculture	1. Government plans to pilot out "Access to finance" for 60 agri-based SMEs, 2 per district	Postpone
	3. Insurance against climate change induced risks	1. This is already under pilot by MINAGRI	Postpone
	1. Tax differential for private vehicles	1. Private vehicles are among the high value imports into the country 2. There could be resistance	Postpone
	2. Environmental levy on second hand imports	1. Most of these imports are used by the poor 2. There could be resistance	Postpone
	3. Charges on effluents and solid waste	1. The government has not yet developed standards for effluents	Postpone



**Annex 2: Generic framework for assessing 4 different sector environmental economic instruments for Rwanda**

<b>A: SECTOR</b>	
Economic instrument proposed	
<b>Environmental objective to be met by the EI:</b>	
<b>B: Problem definition</b>	
Describe briefly the sector situation with respect to:	
- Environmental impacts or issues	
- Economic impacts or issues	
- Social impacts or issues	
<b>C: Assessment of previous efforts to address the same problem</b>	
- What policy instrument(s) was used?	
- How effective has it been	
- What are success (+) or failure (-) factors?	
- What are the unknowns or unanswered or pending questions?	
- What was cost or ease of implementation?	
- What was the lead institution in handling the problem?	
- What good practice do we borrow from other countries?	
<b>D: Impact assessment of proposed EI</b>	
i) Environmental impacts	
- To what degree will the EI lead to sustainable use of resources and ecosystem services?	
- To what degree will the EI reduce waste and pollution ?	
- How likely will EI reduce the negative health impacts?	
- To what degree will EI reduce risks due to vulnerability?	
ii) Economic	
- How will the EI enhance resource productivity?	
- How will the EI promote backward /forward linkages?	
- How will the EI enhance enterprise development and growth opportunities?	
- How will the EI enhance competitiveness and trade?	
- How will the EI enhance cost savings by government, firms or households?	

- How will the EI promote technology transfer and adoption?	
iii) Social Through which of the following channels is the EI likely to generate social impacts, positive (+) and negative (-) alike?	
- Access to assets	
- Access to goods/services	
- Prices & wages	
- Taxes & transfers	
- Employment	
- Authority and empowerment	

**E: Proposed flanking measures to deal with negative impacts**

- How should the negative (-) impacts be mitigated?	
- What are the cost implications in dealing with flanking measures?	

**F: Feasibility for implementation**

Assess the implementation feasibility of the EI with respect to :	
- Fiscal implications	
- Cost-effectiveness	
- Capacity of lead institution and its systems	
- Public / market acceptance	
- Understandability by the lead institution	
- Transparency	
- Complementarity and consistency with other policy instruments	
- Equity	
- Timing	
- Political acceptance	
- Other factors	

**G: Implementation**

What are the practical steps to be taken for implementation?	
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**H: Monitoring**

What parameters should be monitored and evaluated during the implementation of the EI?	
- Environmental	
- Economic	

**I: Recommendation**

- Legal framework	
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### Annex 3: Tax exemption on subsidy on Liquefied Petroleum Gas (LPG)

<b>A: SECTOR</b>	
<b>Economic instrument proposed</b>	INFRASTRUCTURE Tax exemption or subsidy on Liquefied Petroleum Gas (LPG)
<b>Environmental objective to be met by the EI: To provide alternative affordable source of energy for cooking to biomass energy</b>	
<b>B: Problem definition</b>	
Describe briefly the sector situation with respect to:	
- Environmental impacts or issues	As high as 91% of energy demand for Rwanda comes from households. Wood still supplies 94% of the population with energy for cooking. Owing to the increasing population and the low rate of reforestation. Rwanda's deficit of wood balance is continuing to widen. The EDPRS indicator of increasing wood fuel is not yet met. This was the greatest concern at the 2010 Annual Leadership Meeting where the nexus among population-poverty-environment dominated the discussions.
- Economic impacts or issues	As high as 56.9% of the population in Rwanda is classified as poor. This poses the biggest barrier to popularization of LPG. However, there are other several other barriers to accessing LPG including:(i) weak private sector to offer supply chains in the distribution of LPG as an economic enterprise,(ii) limited low cost financing (iii) minimum purchase volume set very high at 6.5 kg (iv) fears among potential consumers that LPG is risky. Otherwise LPG is recognized as an efficient, clean and portable form of energy.
- Social impacts or issues	LPG is accessed by less than 0.1 % of the population, implying that it is not yet accessible or the most preferred alternative for the majority poor. Its high price in comparison with biomass makes it less attractive. The implication is that parallel efforts to improve efficient energy production and use-including energy saving stoves, use of alternative sources for cooking e,g solar, crop residue, briquettes, should be sustained in the short run. It was gratifying that this is the strategy MININFRA has actually adopted. Despite the fact above that the 0.1% access is an indicator of Rwanda being far from being able to benefit greatly from this EI, it was studied because 2010 Annual Leadership Meeting proposed the use of LPG as a measure to address deforestation in the country.
<b>C: Assessment of previous efforts to address the same problem</b>	
- What policy instrument(s) was used?	The Ministry of Infrastructure (MININFRA) supported by GTZ has prepared the Biomass Energy Strategy (BEST), in which one of the interventions is substitution of biomass with alternatives such LPG , biogas, carbonized peat and papyrus and other biomass briquettes, methane gas and solar energy. Further, MININFRA is carrying out a promotional campaign for LPG use in households and community institutions. Some educational institutions have also expressed interest in switching to natural gas for cooking. The Rwanda Revenue Authority (RRA) in collaboration with MININFRA is drafting a law on tax exemptions to make LPG affordable for cooking and heating.  Further, the government supported LPG distribution and consumption in Kabuga-Kigali Ngali province through a woman's organization targeting

	5000-6000 beneficiaries.
- How effective has it been	So far, the impact is still very limited partly because of the social and economic barriers already described above. This explains why it is only 0.1% of the population accessing LPG.
- What are success (+) or failure (-) factors?	(-) The use of LPG is still low in Rwanda due to the high price of 2200 RWF/kg. This is partly due to the import duty of 30% and VAT of 18%, compared to other countries where these taxes are exempted. However, it is estimated that if these taxes are removed, an opportunity of a filling station with 3000 tons/year in Kigali City is given to boost the LPG market[MININFRA, 2010] (-) There are several social economic barriers already described above.
- What are the unknowns or unanswered or pending questions?	Even if the government introduced the EI, it cannot predict the willingness and capacity of the private sector to take advantage of the incentive in addition to make business by establishing selling outlets. It is the integration of the EI into the private sector operations that would ensure long term sustainability. In Uganda, the announcement of similar incentive in 2006 through the annual budget did not result in improved access of LPG because there were no additional support measures to the private sector[Kazooru, C <i>et al.</i> 2008]. As a consequence, government did not achieve the environmental objective for which the EI was introduced. At the same time it forfeited a lot of tax revenue because of the exemption. The main lesson therefore is that MININFRA should engage the oil companies with a view of identifying the potential barriers to the successful implementation of the EI. The case study referred to later shows how Senegal had to design small gas cylinders which the poor could afford before the incentive of subsidy generate the desired impacts.
- What was cost or ease of implementation?	GTZ provided financial and technical support in the design of the BEST programme already described above. In addition MININFRA has budgeted .for the popularisation of LPG and dissemination of energy cooking stoves in its current budget.
- What was the lead institution in handling the problem?	MININFRA, under whose portfolio energy falls is the lead institution in the implementation of energy related projects. On the other hand. Rwanda Utility Regulatory Agency (RURA) sets standards and guidelines for use by the actors in the sector. On a positive note, RURA has already developed “ <i>Provisional Technical Guidelines for LPG Operations</i> ” covering aspects such as transportation, storage, utilisation and dealing with risks from LPG
- What good practices do we borrow from other countries?	(i)Senegal has successfully popularized LPG especially since 1984 when it designed LPG cylinders of 2.5kg that were within the affordability by the poor, and continued subsidising LPG [..... ] (ii) Botswana too has successfully disseminated LPG, with the resultant impact of reduced dependency on charcoal both in urban and rural areas[Ogunlade R.Davidson, 2007]
<b>D: Impact assessment of proposed EI</b>	
i) Environmental impacts - To what degree will the EI lead to sustainable use of resources and ecosystem	Substituting to LPG would gradually reduce dependency on biomass energy with its attendant problems of deforestation, land degradation and disturbance to the hydrological cycle. Similar reduction on biomass energy was registered in Botswana referred to above but after a long

services?	time [Ogunlade R.Davidson, 2007].The substitution followed improvement in household incomes. In Rwanda, LPG dissemination could be made integral to <i>imidugudu</i> settlements. The success with water harvesting technologies give promise that with support, even LPG would spread in poor settlements. For example, some households have adopted biogas. This has been possible because of the One Cow per Household programme and awareness creation. The main lesson is that the introduction of the EI would be one measure but government would equally have to invest in other measures like energy extension service, training of private sector etc
- To what degree will the EI reduce waste and pollution?	It will also reduce exposure of mothers and their children to indoor air pollution associated with the use of biomass related energy.
- How likely will EI reduce the negative health impacts?	With less indoor air pollution and less time spent for fuel collection, there would be improved health and time saving due to childhood and adult illness averted; in turn that would also translate into health care savings both at household and national level.
- To what degree will EI reduce risks due to vulnerability?	This would be indirect, through reduction on dependency on biomass, hence providing cushion against floods and slides. However, it must be borne in mind that there are inherent risks with LPG production and use. For example breakout of fire could result in the loss of property and even life. Aware of this, RURA has developed “ <i>Provisional Technical Guidelines for LPG Operations</i> ” covering aspects such as transportation, storage, utilisation and dealing with risks from LPG
ii) Economic	
- How will the EI enhance resource productivity?	Owing to averting children illness, school attendance will be gained. Likewise, productivity of adults will also be improved
- How will the EI promote backward /forward linkages?	This will come about with the development of the supply chains for distribution. In addition, there will be broadened opportunities for employment generation. However, there could also be loss of employment among those engaged in the collection and sale of firewood. Government will need to include them in the scheme to reduce their fear of remaining without income.
- How will the EI enhance enterprise development and growth opportunities?	Once more households access LPG, opportunities for LPG distribution, financing through banks and micro-finance institutions will increase, thereby generating employment. For example, Shell Foundation and Grofin are already funding some energy enterprises through Banque Commerciale du Rwanda
- How will the EI enhance competitiveness and trade?	Trade will be possible through the supply chains for distribution
- How will the EI enhance cost savings by government, firms or households?	In the short run the costs to the government is likely to be high through forfeiture of revenue because of tax exemption and increased imports of LPG. In the long run, the benefits from avoided deforestation and averted illness would probably outweigh the costs. Additional costs could be associated with subsidies to enhance access by the poor and vulnerable groups. However, these could be phased out over time.
- How will the EI promote technology transfer and adoption?	N/A
iii) Social	
How is the EI likely to generate	

social impacts, positive (+) and negative (-) alike through the following channels?	
- Access to assets	N/A
- Access to goods/services	(+) Access to alternative source of energy for cooking
- Prices & wages	(+) Reduced cost because of tax exemption would enable more middle income earners to shift from fuelwood to LPG
- Taxes & transfers	(-) Reduced government revenue because of forfeited revenue from taxation
- Employment	(+) Employment would be generated through supply chains
- Authority and empowerment	Potential for increased school school attendance, improved health and more time to be spent on other activities could have an empowering effect particularly on women and children
<b>E: Proposed flanking measures to deal with negative impacts</b>	
- How should the negative (-) impacts be mitigated?	Government should accept trade-offs between revenue generation and environmental protection and poverty reduction
- What are the cost implications in dealing with flanking measures?	N/A
<b>F: Feasibility for implementation</b>	
Assess the implementation feasibility of the EI with respect to :	
1. Legal framework	MININFRA and MINECOFIN are in the process of providing the legal basis for the tax exemption
2. Fiscal implications	In the short run, the government may forfeit revenue but once the private sector expands business in LPG distribution, it will earn some revenue
3. Cost-effectiveness	The EI is attractive because it will create an attractive environment for encouraging private sector to use some of its own resources to take on LPG distribution as an enterprise. This would particularly be possible if tax free access is guaranteed for a fixed duration to allow investors to recoup on their investment However, in the short run, the government should prioritise targeting middle income earners in urban and peri-urban centres. Even then, it should invest in a clear strategy to expand the access of LPG to poorer and rural households.
4. Capacity of lead institution	Government is gradually improving the staffing of MININFRA. On a happy note, RURA has already developed “ <i>Provisional Technical Guidelines for LPG Operations</i> ” covering aspects such as transportation, storage, utilisation and dealing with risks from LPG. The guidelines can be used different categories of people including the wholesale distributors, transporters and households Further, MININFRA has staff with responsibilities for policy guidance on LPG. They gather data and information on the subsector.
5. Public / market acceptance	The market understandability and acceptance are still very low. Accordingly, it is recommended that MININFRA develops and implements a market awareness and communication strategy alongside the implementation of the EI.
6. Understandability by the lead institution	MININFRA fully understands and appreciates the importance of the proposed EI. However, it would be challenged to play a catalytic role to interest the private sector, particularly the medium and small operators including building its capacity for supply chain management.

7. Transparency	The consultations going on between MININFRA, MINECOFIN, REMA and other stakeholders are meant to enhance transparency and acceptability among others.
8. Complementarity and consistency with other policy instruments	The EI would go a long way in complementing other planned government policies and strategies. For example, the National Biodiversity and Action Plan 2003, sets the strategy for development of alternatives to exploitation of biodiversity, including energy alternatives. Secondly, the development of energy sources alternative to firewood is NAPA's 6 <sup>th</sup> top priority. Further, according to EDPRS government intends to ensure security of energy supplies by increasing domestic energy production from several sources.
9. Equity	Although it will be strategic to initially target the middle income earners, government would need to put in place incentives for poor households to equally access LPG. In the long run, costs will go down as the demand for LPG countrywide picks up. It is hoped that households would see benefits in terms of time saving and improved health.
10. Timing	The timing is opportune because the concerns of deforestation are expressed by both ordinary citizens and policy makers .Replanting of trees has become the environmental intervention in Rwanda, which naturally is the simplified version of doing something visibly about the problem
11. Political acceptance	LPG was one of the alternatives to deforestation endorsed at the National Leadership Retreat, 2010
12. Other factors	In addition to the introduction of the EI, the government would need to make additional investment particularly to bring on board the participation of the private sector. This could also be supported under FONERWA if it is established in time. In particular, this support would be necessary to: (i) identify, train, and support a few private firms ,cooperatives and associations to develop supply chains of distribution. Among the criteria to consider in their selection are their willingness to take on LPG distribution as an enterprise and commitment to provide staff to be trained. The cooperatives and associations should also be willing to play an important role not only on the supply side, but also in increasing demand, spread awareness, train selected households and provide microfinance to poor households / members in order to increase accessibility (ii) solicit for innovative form of financing, though banks and micro-finance institutions for the above trained organisations (iii) train some selected household consumers and identify other complementary actions required to facilitate access to LPGs a means of demystifying the fear of using LPG for cooking (vi) develop and sustain a campaign that would reach a wider group (v) support the design or importation of a pro-poor size of LPG cylinder that would be affordable following the Senegal model described above.
<b>G: Implementation</b>	
What are the practical steps to be taken for implementation?	MININFRA and MINECOFIN need to finalise the consultations already started on tax exemption for LPG. However, MININFRA would need to pilot out the implementation of the EI once approved purposely to demonstrate how to overcome other barriers.

<b>H: Monitoring</b>	
What parameters should be monitored during the implementation of the EI?	
- Environmental	-The proportion of households dependent on LPG or shifting to it - Degree of reduced deforestation (reduced soil erosion etc.) -Safety aspects;
- Economic	-Number of private sector firms involved in the supply chain for LPG -Number of banks and micro-finance institutions lending for LPG -Beneficiary satisfaction -Barriers to further access
- Social	-Degree of reduced incidence of disease from indoor air pollution -Gender, age and education of those adopting LPG - Number of poor households shifting to LPG (equity dimension)
<b>I: Recommendation</b>	-Expedite the consultations with a view of formally announcing the introduction of the EI -Start to identify the willing cooperatives and associations that will be trained and supported to popularize the LPG -Identify the <i>imidugudu</i> where a pilot scheme of popularizing LPG among the poor could be tried



#### Annex 4: Water user fees for irrigation

<b>A: SECTOR</b>	<b>AGRICULTURE</b>
<b>Economic instrument proposed</b>	Water user fees for irrigation
<b>Environmental objective to be met by the EI: To ensure that lawful land owners participating in irrigation pay for water to offset some of the costs for accessing it</b>	
<b>B: Problem definition</b>	
Describe briefly the sector situation with respect to:	
- Environmental impacts or issues	Although Rwanda is interested in pursuing irrigation, its draft Water Resources Management Policy 2010/11-2014/15 states that the country lacks data in the water use agricultural sector as irrigation is not yet well developed. On a positive note, the newly created Ministry of Lands and Environment is formulating <b>a strategic plan</b> which includes activities to address this gap. MINIRENA's Five Strategic Plan for the Environment and Natural Resources 2009-2013 anticipated increased competition for water and advocates for a rational management regime. It should also be kept in mind that irrigation in Rwanda would be sustainable if it is also accompanied with soil conservation, rational fertiliser application and right choices of crop mix. Further, until Rwanda takes stock of its water inventory, it would be advisable that it starts on a small rather than large scale.
- Economic impacts or issues	Only 2% of arable land is irrigated. Gravity land irrigation is practiced in swampy areas, but there is strategy to extend irrigation to hilly areas. According to EDPRS, the government plans to increase the area under irrigation from 15,000 to 24,000 hectares during its period, and of this, the hillside area irrigated will expand from 130 hectares to 1,100 hectares. A new project, the Land Husbandry, Water Harvesting and Hillside Irrigation Project under MINAGRI, was planned and funding is currently being sought for it. Preliminary studies, including Environmental Impact Assessment are being carried out.
- Social impacts or issues	ADB [2008] established that there is lack of institutions and capacity for management of water resources for multipurpose use (irrigation, household, energy and transport). However, once the water policy and strategic plan is finalised, it will pave way for a coordinated approach to the capacity building.
<b>C: Assessment of previous efforts to address the same problem</b>	
- What policy instrument(s) was used?	With support from ADB, Rwanda is (a) developing Integrated Water Resources Management and Development Plans in Nyabarongo and Mivumbi Water Basins (b) establishing local water management associations in all districts and (c) developing Water Resources Management Master Plan based on Integrated Water Resources Management and Development approach.  In addition, MINAGRI commissioned Ebony Logistics Services and Trade Limited, an Israeli firm, to develop an Irrigation Master Plan (IMP) for management of water resources, promotion of irrigation and enhancement of food security. Ebony subsequently subcontracted the World Agroforestry Centre (ICRAF) to undertake this task. On the 19th

	February 2010, Rwanda Agricultural Development Authority (RADA), which chairs the Steering Committee for the IMP, officially approved the selection of sites for irrigation design under Phase II of the IMP.
- How effective has it been	All the above efforts are young and in progress. Nonetheless, collectively they would further improve enabling environment for the implementation of water user fees for irrigation. So, it can be stated that charging for water has not been the focus of the previous efforts. For example: (i) Water harvesting infrastructures were created on 35ha of hillsides of Rilima sector in collaboration with the UNFAO; (ii) 68ha of hillside have been irrigated using upland irrigation in partnership with PDERB/Lux
- What are success (+) or failure (-) factors?	(-) Lack of a policy and legal framework clearly stipulating how, when and who to charge for water for irrigation. According to Article 76 of the Water Act 2007 there is supposed to be modes for cost recovery of public service which should be set by a competent authority and made public. These modes have not been established.
- What are the unknowns or unanswered or pending questions?	The Draft Water Resources Management Policy 2010/11-2014/15 lists lack of data on total water resources available for competing uses and a weak institutional framework. The lack of understanding of the potential supply and demand of water resources under each Water Basin is an area of concern. This is a critical issue which will have a bearing on the ability to set user fees at appropriate levels.
- What was cost or ease of implementation?	Not known
- What was the lead institution in handling the problem?	Prior to the establishment of MINELA, the water resources management in general fell under MINIRENA. As a newly formed Ministry, MINELA has been preoccupied in putting in place a water policy and strategic plan, which is yet to be approved
- What good practice do we borrow from other countries	Under the 1997 Water Law, Brazil introduced water management practices much similar to those advocated for in the Rwandan Water Law. They include planning and management of water uses at river basin scale, decentralization of the management process, stakeholder participation, controlled and coordinated issuance of water permits for intakes and for dilution of effluents, development of Water Resources Plans and introducing water user fees. In addition the Water Agencies compiled a roster of the users of the water resources. They also collected the water user fees. The purpose of the fees was to balance water demand and supply by sending an economic message to users that they may be constraining the use of others. The revenue from the fees was used to sustain the operations of the River Basin Committees. Only 7.5% of the financial resources collected in the Basin was transferred out of the Basin [Inter American Development Bank,2003]
<b>D: Impact assessment of proposed EI</b>	
i) Environmental impacts - To what degree will the EI lead to sustainable use of resources and ecosystem services?	In principle, the EI would benefit what Rwanda has described as disadvantaged environmentally and natural calamities prone areas by ensuring that they get water for irrigation.[Ludovick Shirima].

- To what degree will the EI reduce waste and pollution ?	This would depend on the pricing method that the GoR would use. Sometimes, the method that promotes efficiency and conservation may not necessarily be administratively cost-effective to implement [David Sawyer, Genevieve Perron and Mary Trudeau]. It is too early to push for full cost pricing that considers economic, social and environmental aspects. What is important in the short run is to create awareness among the potential water users for irrigation to accept the concept of cost recovery as stipulated in the law.
- How likely will EI reduce the negative health impacts?	N/A
- To what degree will EI reduce risks due to vulnerability?	The EI in particular may not directly reduce risks due to vulnerability (e.g droughts) but irrigation in general will.
ii) Economic	The EI may only contribute by raising revenue for use in maintaining equipment and structure. However, there are other factors that contribute to the economic efficiency of using water for irrigation. They are agronomic (e.g improving crop husbandry and cropping strategies), technical (e.g the choice of irrigation technology and design, and managerial [Batchelor, 1999]
- How will the EI enhance resource productivity?	
- How will the EI promote backward /forward linkages?	N/A
- How will the EI enhance enterprise development and growth opportunities?	It must be borne in mind that regulating water use and charging for its use may result in winners and losers – both upstream and downstream. Accordingly, government would need to identify the losers and put in place mitigation measures.
- How will the EI enhance competitiveness and trade?	N/A
- How will the EI enhance cost savings by government, firms or households?	The EI will raise some revenue which may directly or indirectly be reinvested into some of the activities like maintaining the irrigation systems Revenue may also be used to compensate or mitigate the impact of downstream users who may be adversely affected by a higher rate of extraction upstream.
- How will the EI promote technology transfer and adoption?	N/A
iii) Social	
Through which of the following channels is the EI likely to generate social impacts, positive (+) and negative (-) alike?	
- Access to assets	(+) Regulated access to the water for irrigation
- Access to goods/services	(-) There is likely to be conflicts due to competing uses of water
- Prices & wages	N/A
- Taxes & transfers	(+) Likely to raise revenue
- Employment	N/A
- Authority and empowerment	N/A
<b>E: Proposed flanking measures to deal with negative impacts</b>	
- How should the negative (-) impacts be mitigated?	The government needs to determine the supply and demand for water under each of the Water Basins before going into full scale allocation of

	<p>water for irrigation. The government also needs to identify the various categories of users and their access rights – both formal and informal</p>
- What are the cost implications in dealing with flanking measures?	It cannot be immediately determined
<b>F: Feasibility for implementation</b>	
Assess the implementation feasibility of the EI with respect to :	
- Legal framework	Law No 62/2008 putting in place the conservation, protection and management of water resources regulations provides for water use for irrigation under Article 48. They are not yet made. Further, government would need to develop legal framework for water user rights and ownership of the irrigation systems. These barriers have been lined up to be addressed under the water policy and strategic plan under formulation.
- Fiscal implications	From the point of view of contributing revenue that could be reinvested, the EI would be attractive. However, since there will not be full cost recovery initially, this may lead to additional costs/subsidy to maintain irrigation equipment and ensure equitable distribution of benefits/compensation Nonetheless, it would be imperative that the regulation for water use in irrigation clarifies the position and percentage of revenue to be earmarked.
- Cost-effectiveness	In the short run, the lack of strong structures may render the implementation of EI costly.
- Capacity of lead institution	The regulation referred to above under Law No. 62/2008 provided for the establishment of the National Water Authority under special law for water resources management. It is not yet formed.
- Public / market acceptance	The farmers had been used to free water for irrigation. It will therefore require public awareness to sensitise them in order to avoid resistance
- Understandability by the lead institution	Until the National Water Authority is formed, MINELA will continue to shoulder the responsibility for water resources management. It needs orientation and training to make it understand better the rationale behind the concept of water user fees for irrigation. MINELA is a young Ministry carved out of former MINIRENA in May, 2010. The concept of water user fees and how it should be managed is not widely understood
- Transparency	The government would need to clearly identify who of the many water users for irrigation would be eligible to pay the fees and thereafter consult them before actual introduction. In the short run, it could consult those that will benefit from the pilot program being studied by ICRAF under Irrigation Master Plan
- Complementarity and consistency with other policy instruments	If introduced, the water user fees would complement the land consolidation of agricultural land use which is being promoted to improve land management and productivity. It is also important to address the issue of sustainability and improved efficiency in water use  Secondly, it would help the country adapt to climate change impacts. The promotion of non rain-fed agriculture is Rwanda's 1 <sup>st</sup> priority under NAPA while IWRM, including irrigation is NAPA's 4 <sup>th</sup> priority. Thirdly, it would complement the Crop Intensification Programme (CIP)

	under MINAGRI which already has support measures like extension.
- Equity	There are other several users of water who are not paying, e.g wet coffee processing companies, miners, etc. It will not be considered fair to leave these behind. Government should consider introducing progressive water fees among such users. It should also be borne in mind that some communities have received water harvesting technologies for production without meeting their full costs. The implication is that mobilization and awareness creation have to be made on the rationale for water user fees for irrigation.
- Timing	Owing to lack of legal framework defining the water user property rights, it is not yet timely to implement water user fees for irrigation separately.
- Political acceptance	This is crucial, and should be sought through processes that would culminate in the formulation of the regulation for water for irrigation.
- Other factors	-It would be necessary to develop the capacity of cooperatives and local water management associations to manage irrigation infrastructure.
<b>G: Implementation</b>	
What are the practical steps to be taken for implementation?	-To present the case for water user fees during the process of developing the Irrigation Master Plan by MINAGRI, and under the Water Policy and strategic plan. Above all these efforts need to be supported by a legal instrument clearly defining the water user rights and obligations by all stakeholders including communities
<b>H: Monitoring</b>	
What parameters should be monitored during the implementation of the EI?	
- Environmental	-Water availability and quality -Level of stream flows downstream “before” and “after” the introduction of irrigation -Land quality -Prevailing climate and weather patterns -Changing crop mix (since they create varying water requirements)
- Economic	-Scale of production (hectares) -Crop type, and whether commercial or subsistence -The irrigation technology used -Inputs other than water (and their relative prices) -Agricultural productivity per unit area e.g hectare -Amount of revenue raised from water user fees and the use to which they are put -Cost of maintaining irrigation technologies -Market values of land
- Social	-Type of community organisation and institutions for regulating water use - Health implications – Malaria incidence etc. -Gender access to water for irrigation -Demand for household labour and other labour -Social conflicts in the use of water
<b>: Recommendation</b>	
	- Incorporate the concept of water user fees for irrigation in the (i) Irrigation Master Plan, (ii) National Water Policy and Strategic Plan and (iii) Water regulation for irrigation.

## Annex 5: Annual Environmental Award for Best (Industrial) practice

A: SECTOR	INDUSTRY
<b>Economic instrument proposed</b>	Annual Environmental Award for Best (Industrial) practice
<b>Environmental objective to be met by the EI: To recognise excellence in environmental management and to acknowledge outstanding social corporate responsibility which goes beyond compliance with regulations.</b>	
<b>B: Problem definition</b>	
Describe briefly the sector situation with respect to:	
- Environmental impacts or issues	63% of the industries are located in Kigali. They use out-dated technologies that are associated with energy demands and waste generation to levels that have adverse impact operations expensive, unsustainable and uncompetitive. The factories have no proper liquid waste disposal systems, and consequently pollute soils, ground water and surface water [SOE, 2009].
- Economic impacts or issues	Industries in Rwanda use old technologies, a factor that renders them inefficient, unsustainable and uncompetitive. Many factors account for that namely, lack of access to financing, new technology and the high cost associated with newer technologies. The Rwanda Cleaner Production Centre has been established, and it is hoped it will be one of the support measures to guide factories in efficient operations.
- Social impacts or issues	A weak culture of environmental compliance creates a risk to employees and members of the general public who may be exposed to pollution. Pollution of ground water and surface water represents a serious public health problem, including the pollution of soils
<b>C: Assessment of previous efforts to address the same problem</b>	
- What policy instrument(s) was used?	As already mentioned the relocation of the industries and the introduction of the Cleaner Production Centre are some of the instruments to reduce wastage and pollution in fragile ecosystem
- How effective has it been	They are promising but they are young
- What are success (+) or failure (-) factors?	(+)The promise that profitability can be enhanced due to enhanced efficiency in the use of resources is motivating private firms to come board under Clean Production Centre. (+)The donors have provided funding to support relocation of industries
- What are the unknowns or unanswered or pending questions?	The lack of standards for industrial effluents may mar the objectivity and transparency of the award.
- What was cost or ease of implementation?	Not known
- What was the lead institution in handling the problem?	MINICOM
- What good practices do we borrow from other countries?	(i)The Government of Tanzania has had “Award for Leadership and Excellence in Environmental Management in Mining” since 2002.The impact is that the number of companies coming forward to compete for the award increases year by year. (ii) In Pakistan, the National Forum for Environment and Health has run 6 “Annual Environmental Excellence Awards” with the one of 2009 being organised in conjunction with UNEP The purpose is to recognise

	and promote the organisations, which make an outstanding contribution to sustainable development. They aim to highlight policies, practices, processes and products from all sectors of business in the country, which help achieve economic and social development without harming the environment and natural resources.
<b>D: Impact assessment of proposed EI</b>	
i) Environmental impacts	Though not of financial nature, awards is one of the incentives proposed under the Organic Law No 4/2005
- To what degree will the EI lead to sustainable use of resources and ecosystem services?	-It would mobilise industries, the private sector and the public at large to gradually accept environmental standards, to pay for pollution and the use of ecosystem services and to stimulate a culture of corporate social responsibility and voluntary compliance. -The award could be one of the landmarks on the annual World Environment Days.
- To what degree will the EI reduce waste and pollution ?	Through voluntary compliance .However, indirectly the EI may mobilize the private sector to gradually accept environmental standards and change practices.
- How likely will EI reduce the negative health impacts?	By stimulating firms to change to more environmentally sustainable standards, such as liquid waste treatment, it has a potential to substantially reduce negative health impacts associated with “no action”
- To what degree will EI reduce risks due to vulnerability?	As above
ii) Economic	
- How will the EI enhance resource productivity?	Through efficient use of all resources e.g materials, energy, water, waste etc
- How will the EI promote backward /forward linkages?	There may grow increased opportunities for providers of sustainable / clean technologies
- How will the EI enhance enterprise development and growth opportunities?	By creating savings from the efficient use of the resources Further, there would be potential to develop a more competitive edge with the production of environmentally friendly and cost-effective products.
- How will the EI enhance competitiveness and trade?	The award would create enabling environment for acceptance of other support measures that enhance both environmental and economic competitiveness e.g Cleaner production, certification under ISO 14000 It would also i)enhance visibility and use of cleaner and efficient technologies and (ii) introduces and harmonizes with international standards
- How will the EI enhance cost savings by government, firms or households?	Through the adoption of more environmentally friendly technologies and making the employees aware of the need to uphold good environmental practice
- How will the EI promote technology transfer and adoption?	This will not be direct. It will be firms that find it profitable that will invest more to be more profitable, including accessing better technologies
iii) Social	
Through which of the following channels is the EI likely to generate social impacts, positive (+) and negative (-) alike?	
- Access to assets	
- Access to goods/services	(+) The resultant social corporate responsibility would put the

- Prices & wages	companies at an edge in attracting environmentally conscious customers
- Taxes & transfers	(+) Through the improved image of the firms
- Employment	
- Authority and empowerment	
<b>E: Proposed flanking measures to deal with negative impacts</b>	
- How should the negative (-) impacts be mitigated?	N/A
- What are the cost implications in dealing with flanking measures?	N/A
<b>F: Feasibility for implementation</b>	
Assess the implementation feasibility of the EI with respect to :	
1. Legal framework	The Organic Law No 04/2005 already lists awards as some of the incentives that could be supported under FONERWA
2. Fiscal implications	FONERWA would require sufficient resources for the organization of the award events
3. Cost-effectiveness	The organization of the award could be made cost effective if after screening based on a publicized evaluation criteria, the general public is invited to vote
4. Capacity of lead institution	The capacity of FONERWA cannot be evaluated because it is not yet formed. However, it could opt other competent institutions in organizing the event including the press
5. Public / market acceptance	The concept of awards is well understood in Rwanda with the recent example of the Global Energy Award to His Excellency the President of Rwanda , Paul Kagame on the World Environment Day, 5 <sup>th</sup> June 2010
6. Understandability by the lead institution	As mentioned above, institutions in Rwanda understand and value awards of excellence
7. Transparency	The transparency of the award can be enhanced by establishing a committee of respected and competent people to oversee the organization of the award. Importantly, the same committee would need to make and publicize the evaluation criteria ahead of inviting nominations for the awards
8. Complementarity and consistency with other policy instruments	The environmental award would complement other processes Rwanda is investing in for a clean, healthy and productive environment. They include environmental mainstreaming, development of environmental standards and environmental fiscal reform
9. Equity	
10. Timing	Resources permitting, this is an EI that could be implemented immediately
11. Political acceptance	It is politically appealing
12. Other factors	In order to appeal to the wider audience, and resources permitting, the government could agree on awards to key categories of institutions e.g industries, schools, central government ministries and agencies, districts, and cooperatives and associations to mention but a few
<b>G: Implementation</b>	
What are the practical steps to be taken for implementation?	Basically, there are three important steps, namely: (i)to mobilise and set aside annual budget for use in screening the potential applicants and nominations for the award (ii)to either set up an independent minded technical committee to screen



	and recommend the awards or to delegate this task to a competent authority and (iii)create publicity about the awards.
<b>H: Monitoring</b>	
What parameters should be monitored during the implementation of the EI?	
- Environmental	- Number of applicants per year by category - - Numbers of firms adopting and complying to environmental standards
- Economic	- Estimates of expenditure by firms to voluntarily comply - Savings made by REMA in monitoring and enforcement - Savings in terms of increased productivity and cost-effectiveness - Less fines for non-compliance
- Social	- Number of firms adopting social corporate responsibilities, including those on environment - Public attitude and appreciation of the awards
<b>I: Recommendation</b>	-In anticipation for the formation of FONERWA, REMA should start to market this idea to potential donors -REMA should also set in motion processes to constitute the technical committee for the screening and approval of the award and the identification and categorization of the target audience to interest in the award.

## Annex 6: Property rights for communities to participate in reforestation and afforestation on public land in all districts

A: SECTOR	NATURAL RESOURCES (Forestry)
<b>Economic instrument proposed</b>	Property rights for communities to participate in reforestation and afforestation on public land in all districts
<b>Environmental objective to be met by the EI: To increase the supply of sustainable woody biomass and forest products particularly for household energy for cooking</b>	
<b>B: Problem definition</b>	
Describe briefly the sector situation with respect to:	
- Environmental impacts or issues	-Deforestation partly caused by search of fuelwood for cooking is contributing to land degradation, soil and, biodiversity losses, land slides, siltation of rivers and global warming to mention but a few.
- Economic impacts or issues	As long as 60% of the population is poor, and growing biomass products are going to remain the basic source of energy in the daily life of many Rwandan households (+96%) for foreseeable future. Besides fuelwood there are building materials and Non Timber Forest Products (NTFP) like medicinal plants, honey etc which are important for rural livelihoods
- Social impacts or issues	-The growing scarcity of fuelwood is increasing the workload of women and children as they have to travel longer distances and spend more time searching for firewood.
<b>C: Assessment of previous efforts to address the same problem</b>	
- What policy instrument(s) was used?	-In 2000, MINAGRI issued a ministerial order banning the harvesting of trees in public forests -In the past, the government took a lead in setting up plantations. Further, the growing of eucalyptus by households is common although this is usually done on marginal lands.
- How effective has it been	Overall, the forestry policy observes that <i>'afforestation efforts have not compensated the accumulated losses of forest areas.'</i> Wood deficit has grown from 3,446 m <sup>3</sup> in 1990 to 6719 m <sup>3</sup> in 2002. For a country whose population is growing and still dependent on fuelwood for cooking, this is not sustainable.
- What are success (+) or failure (-) factors?	(-) Public funding to forestry has been low and sometimes falling (-) The sector has lacked enough capacity and extension service (-)The dominance of government in plantation establishment is now considered insufficient and a new approach involving local communities is advocated for under the forest policy (+) In 2002, the government started the Rwanda Forest Management Support Project (PAFOR) in 5 provinces, but, it is not yet to a scale to address the gaps in wood supply.
- What are the unknowns or unanswered or pending questions?	The widespread household and other eucalyptus establishments are seriously questioned as it is suspected that this species is associated with serious ecological problems, known and/or suspected, adding up to economical and ecological damages that may result from forest monoculture.
- What was cost or ease of implementation?	Not known

<ul style="list-style-type: none"> <li>- What was the lead institution in handling the problem?</li> </ul>	<p>National Forestry Authority (NAFA) is a young institution, established under Law No .../2006. It is in “charge of supervision, following up and ensuring that issues relating to forestry receive attention in all national development plans”.</p> <p>According to the same law, NAFA should “support local authorities in the implementation of all programmes related to afforestation, to the management and the promotion of forestry.” In addition, the Organic law No.04/2005 provides that National Fund for Environment (FONERWA) should provide incentives for reforestation and afforestation.</p>
<ul style="list-style-type: none"> <li>- What good practices do we borrow from other countries?</li> </ul>	<p>(i) National Forestry Authority (NFA) Uganda has Guidelines for Collaborative Forest Management. More than 20 agreements have been signed since 2005 with community groups for reforestation in Central Forest Reserves, and for regulating access into such reserves for harvesting non-timber forest products.</p> <p>(ii) Tanzania too is implementing the concept of collaborative forest management</p>
<b>D: Impact assessment of proposed EI</b>	
<p>i) Environmental impacts</p> <ul style="list-style-type: none"> <li>- To what degree will the EI lead to sustainable use of resources and ecosystem services?</li> </ul>	<p>By adding to the stock of woody biomass to the economy, the EI would make a contribution in addressing the environmental problems described above. It would also contribute to the restoration of degraded areas. According to Forests Cartography and Inventory of Wood Resources in Rwanda 2007, there is 81,308 ha across districts available for reforestation. In addition, there is 38,000 ha of degraded natural forest to which the private sector could be invited to participate in reforestation. The proposal is that for start up efforts the government should allow communities to plant in reserves under the ownership of NAFA or districts. With time, this could inspire the private individuals also to start bringing their own land under forestry plantations.</p>
<ul style="list-style-type: none"> <li>- To what degree will the EI reduce waste and pollution ?</li> </ul>	<p>The EI would contribute to forest cover, which in turn would act as a ‘sink’ for carbon emissions.</p>
<ul style="list-style-type: none"> <li>- How likely will EI reduce the negative health impacts?</li> </ul>	<p>This will be indirect, by ensuring that households have enough energy resources to afford cooking all meals. It will also lead to shorter distance for fuelwood collection.</p>
<ul style="list-style-type: none"> <li>- To what degree will EI reduce risks due to vulnerability?</li> </ul>	<p>By increasing vegetation cover, the EI would reduce vulnerability to slides and flooding, which according to NAPA, have been on the rise in recent years.</p>
<p>ii) Economic</p> <ul style="list-style-type: none"> <li>- How will the EI enhance resource productivity?</li> </ul>	<p>EIs will improve access to energy resources by the poor. By increasing supply, the cost is also likely to fall or remain stable. Women in particular will save time for fuelwood collection. Above all, communities involved in planting will reap some income from sale of firewood.</p> <p>However ,the more sustainable strategy will be to address both supply and demand issues as supply is unlikely to fulfill increasing demand. Demand has to be managed by providing alternative energy sources – solar, biogas.LPG etc</p>
<ul style="list-style-type: none"> <li>- How will the EI promote backward /forward linkages?</li> </ul>	<p>Through the establishment of enterprises e.g carpentry</p>
<ul style="list-style-type: none"> <li>- How will the EI enhance enterprise development and</li> </ul>	<p>If forest products increase, it may stimulate growth of small and medium enterprises like furniture making. They may also be used in the fast</p>

growth opportunities?	growing construction sector.
- How will the EI enhance competitiveness and trade?	Through production of enough firewood
- How will the EI enhance cost savings by government, firms or households?	The time saved by household members in collection of fuelwood would be directed to other economic and social activities.
- How will the EI promote technology transfer and adoption?	The EI could promote the introduction of more ecologically adaptable tree species, away from the monoculture of eucalyptus. However, this will be contingent on NFA's capacity to identify, raise and disseminate such species. This is one of its mandates.
iii) Social How is the EI likely to generate social impacts, positive (+) and negative (-) alike through the following channels?	
- Access to assets	(+) It will enhance access to fuelwood
- Access to goods/services	(+) It will enhance access to energy services
- Prices & wages	(+) Prices of fuelwood is likely to fall or remain stable amidst increase in supply (+) Income of the communities is likely to increase
- Taxes & transfers	(+) Local governments may earn some revenue
- Employment	(+) Employment will be created during both production and marketing of forest products and the management of the forests.
- Authority and empowerment	(+) It will empower communities to plant and own their own energy resources. For this EI to work, it will also involve a lot of training in sustainable forest management..
<b>E: Proposed flanking measures to deal with negative impacts</b>	
- How should the negative (-) impacts be mitigated?	N/A
- What are the cost implications in dealing with flanking measures?	N/A
<b>F: Feasibility for implementation</b>	
Assess the implementation feasibility of the EI with respect to :	
1. Legal framework	Although the policy framework accepts in principle the concept of community participation in forestry, it would be advisable to improve the feasibility by: (i) NAFA formulating regulations and guidelines for community participation in order to provide clarity about eligibility criteria, procedures to be followed and responsibilities and obligations of the parties, (ii) government enacting the FONERWA law without which the proposed incentives under Organic Law No.04/2005 would be operational.
2. Fiscal implications	The EI would be attractive from fiscal point of view because it would save public funding. Instead it would create enabling environment for communities and the private sector to invest in specially designated and degraded areas under the ownership of government.
3. Cost-effectiveness	It would reduce dependency on public expenditure
4. Capacity of lead institution	NAFA would need to work closely in collaboration with districts and community based organisations

5. Public / market acceptance	The public fully understands and appreciates the need for tree planting , sustainable forest management and utilization and inter cropping opportunities etc.
6. Understandability by the lead institution	NAFA and local governments do understand the need for this EI
7. Transparency	The formulation of guidelines already referred to would promote transparency.
8. Complementarity and consistency with other policy instruments	The EI is attractive now because (i) it give effect to the implementation of the forestry policy, (ii) NAPA and (iii) National Biodiversity Strategy and Action Plan and (iv) the Organic Law No 04/2005.
9. Equity	.Government should strive to give priority to communities adjacent to the designated forest reserves
10. Timing	The timing is opportune
11. Political acceptance	At the 2010 Annual Leadership Meeting, the participants strongly advocated for, and recommended afforestation and reforestation because the country was falling short of the EDPRS targets.
12. Other factors	
<b>G: Implementation</b>	
What are the practical steps to be taken for implementation?	Even though FONERWA is yet to be operationalised to offer incentives, it is still possible to start afforestation and reforestation immediately provided NAFA (i) demarcates all degraded areas to which the adjacent communities can have access for planting and (ii) makes guidelines stipulating eligibility criteria for accessing degraded areas and roles and responsibilities of parties and (iii) builds strategic partnerships with districts and community based organizations to implement this EI.
<b>H: Monitoring</b>	
What parameters should be monitored during the implementation of the EI?	
- Environmental	- Total afforested and reforested area - Tree species planted
- Economic	- Trends in prices of woodfuel - Increased supply of forest products particularly for household energy - Prices of alternative sources of energy for cooking (biogas, LPG, Kerosene, electricity)
- Social	- Number of community groups/cooperatives in afforestation - Women and marginalised/ vulnerable groups participation
<b>I: Recommendation</b>	
	NAFA should take up this EI immediately by piloting it in a few locations so that it can use the lessons to upscale countrywide.