

# **GOVERNMENT OF UGANDA**



THE REPUBLIC OF UGANDA

## **MINISTRY OF ENERGY AND MINERAL DEVELOPMENT**

### **THE FUEL EFFICIENCY INITIATIVE**

### **PROJECT PROPOSAL**

**March 2014**

# **THE FUEL EFFICIENCY INITIATIVE**

## **PROJECT PROPOSAL**

### **1.0 NAME: PROMOTION OF FUEL EFFICIENCY IN MOTOR VEHICLES**

The purpose of this project is to promote sustainable development in the energy sector through the implementation of a Fuel Efficiency Initiative (FEI) (the Project) that includes the development of policies and regulations that will promote the adoption of more cleaner and more fuel efficient vehicle strategies. The Project is to reduce greenhouse gas emissions and at the same time help to address the government's goal of meeting the energy needs of Uganda's population for social and economic development in an environmentally sustainable manner.

### **2.0 DESCRIPTION OF THE MITIGATING ACTION**

#### **2.1 Linkage to National Policies and Plans.**

The FEI is linked to the National Development Plan and responds to objective 4 Promotion of Energy Efficiency in the Energy Sector, which is considered one of the Complementary Sectors in the economy.

The project is part of the implementation of the Energy Policy whose goal is to meet the energy needs of Uganda's population for social and economic development in an environmentally sustainable manner. The Energy Policy has two sided objectives and strategies i.e. supply side and demand side strategies. The demand side strategies focus on efficient utilization of energy resources in high energy demand sectors such as Households and institutions, industry and commerce, transport and agriculture.

In the transport sector, the Energy Policy aims at promoting optimum and efficient utilisation of fuel and substitutes. The Policy aims at highlighting the importance of transport energy and to put in place actions to develop a more energy efficient transport systems, and also to reduce environmental pollution and associated health problems.

Therefore, the FEI is also in line with the Renewable Energy Policy of Uganda (2007), the Energy Efficiency Strategy and Plan 2009 and is also linked to Climate Change Policy through priority No. 9 on Energy, which seeks to promote sustainable energy access and

utilization development in the face of uncertainties of climate change. The Uganda National Climate Change Policy, 2013 specific strategies for the transport sector include:

- Promote and encourage use of fuel efficient vehicles
- Promote and encourage reduction of greenhouse emissions from the transport sector; and
- Promote use and production of cleaner fuels
- Establish national standards for emissions and implement strict vehicular emissions standards in tandem with measures to gradually phase out old, inefficient motor vehicles, while encouraging the importation of efficient ones.

This FEI also promotes the long term national transport policy and plan that accounts for Green House Gases (GHG) mitigation concerns. The FEI will contribute to structural change in the Energy and Transport sectors, which will result in energy savings and more efficient transport system.

## **2.2 Brief Description of FEI**

The FEI would promote the adoption of more cleaner and fuel efficient vehicle strategies and reduce emissions on a per vehicle basis. The FEI will initially focus on increasing fuel efficiency in light and heavy duty vehicles. The activities will include;

- development of a fuel efficiency policy;
- development of a regulatory framework for vehicle age,
- development of a National database on vehicle fleet, fuel consumption and efficiency
- promote the adoption of cleaner fuel standards;
- develop a vehicle inspection and maintenance framework;
- develop a fiscal system/ incentives to encourage acquisition of more fuel efficient vehicles;
- develop fiscal incentives for old vehicle replacement scheme;
- undertake an intense and massive public information campaign.

Reductions in fuel consumption per vehicle will lead to emission reductions from a Business As Usual (BAU).

## **Background to the Fuel Efficiency Initiative**

### **Sector details**

Uganda has achieved strong economic growth averaging about 6% per annum as well as macro-economic stability over the last decade, owing largely to the implementation of an ambitious programme of macro-economic adjustment and structural reforms. Maintaining the current growth and, ultimately, achieving sustainable development is a challenge that calls for long term strategic planning in turn, can only be realized with adequate supplies of energy. Energy planning and Development is key input on the overall strategic planning.

There is significant potential for Energy Efficiency (EE) through improved use in the transport sector. Since expenditure on energy constitutes a large proportion of the country's GDP and a particularly large proportion of poor households' expenditure, it is necessary to emphasise the effective and efficient use of energy the effective and efficient use of Energy. Cleaner fuels and cleaner efficient vehicles are important to reduce the level of GHG from the vehicle emissions and save the environment in addition to reducing the cost of energy and operational costs to households.

Energy Sector is one of the key sectors in the Ugandan economy and plays a major role in economic activities, supporting productivity in the agricultural and industrial sectors, transport trade and tourism, and social and administrative services, and ultimately promoting integration for overall economic growth. There is a heavy dependence on fossil fuels for transport, both public and private.

Further to, Uganda is experiencing high rates of growth of vehicle ownership, with the number of newly registered vehicles having increased by 18.2% per cent in 2011 from 2010 levels.<sup>i</sup> Approximately 50 per cent of the vehicle fleet is registered in the Kampala District, which is experiencing traffic congestion, high fuel consumption and high GHG emissions.<sup>ii</sup> With the proffered growth the vehicle emissions are likely to continue increasing.

### **2.3 GHG emissions and sources in the sector**

The 2013 Climate Change Policy reports that the energy and transport sectors have the highest GHG emissions. Oil products, which comprise 9.2 per cent of the country's energy needs, are mainly used in the transport sector and generate a considerable amount of greenhouse gasses. Fossil Fuel has grown by exchange rate of consumption increasing from 0.3billion m<sup>3</sup> in 1990 to over 1.4billion m<sup>3</sup> in 2012 representing a growth of over 6%. With planned oil production in Uganda, oil utilisation and GHG emissions will increase significantly.

## **2.4 Rationale for FEI**

The rapidly growing consumption of fossil fuels due to increases in vehicle ownership is changing Uganda's carbon dioxide trajectory. Uganda lacks an official "approved" national transport policy, meaning that growth of vehicles is occurring in a mainly unregulated and unplanned manner. The continued increase in importation of old vehicles not only continues to increase emissions of GHG but also continues to exert a significant cost to the household budget expenditure through increased expenses on fuel. The continued use of unclean fuels continues to reduce the local air quality. A lack of capacity within government and among potential partners to undertake the required analysis to support development of a sound policy framework further limits progress in this area. A lack of public acceptance can limit government action in this sector, indicating the need for awareness campaigns.

Uganda potentially could benefit from Global Fuel Economy Initiative (GFEI), which seeks to support developing countries. Through this the country can access best practices and expertise to guide policy and regulatory development. With regional countries such as Kenya, Ethiopia, Madagascar, Tanzania are already progressing on FEI, Uganda risks lying behind the region and distracting regional progress and development.

## **2.5 Geographic Coverage**

The Initial phase will focus on the central urban region around Kampala Capital City; and the project will eventually cover the entire country. Although the initial campaign will be in urban centres, which account for more than 90 per cent of fuel consumption, the impact of the programme will be national since the imported vehicles and fuel are used in all regions of the country.

## **2.6 GHG emissions and sources addressed by the FEI**

The FEI addresses carbon dioxide emissions produced through the use of light and heavy-duty vehicles. The 2013 Climate Change Policy reports that the transport sector has the highest GHG emissions of all sectors in Uganda, and the growth in vehicle ownership is equally causing GHG emissions to increase.

## **2.7 Emission data sets / emissions information**

The oil imported and sold in the country is tracked by the Ministry of Energy and Mineral Development (MEMD) and Uganda Bureau of Statistics (UBOS), with this information available from 1965 to date. Factors influencing future emissions include standard of fuels, rate of growth in fuel consumption, rate of growth of vehicles. The MEMD and UBOS publish information on oil consumption. The Bureau of Statistics further publishes information on newly registered motor vehicles data that is collected by the Uganda National Roads Authority (UNRA) and Uganda Revenue Authority.

However, there is very little baseline data. Information gaps include total number of registered vehicles and the types of vehicles (e.g. light-duty, heavy-duty). In addition, there is no study of the tailpipe emissions from vehicles in Uganda.

## **2.8 Proposed activities of the FEI**

The Fuel Efficiency Initiative focuses on adoption of strategies, policies and regulations to promote ownership and use of cleaner fuels and more fuel-efficient vehicles. The use of modern fuel-effective vehicle technologies is intended to reduce CO<sub>2</sub> emissions per vehicle. This will be achieved through the development of fuel efficiency policies, along with information dissemination, capacity development and awareness creation that promotes behavioural change and supports markets for fuel-efficient technologies. It will involve also developing a national fuel and vehicle database and toolset.

A phased approach will be used, where initial information gathering and analysis will contribute to the development of the emissions baseline and reference case, and more accurate measurement of GHG emission in the sector and the impact of the FEI. Data will have to be generated, gathered and updated. It is important to note that this data will have a value beyond the measurement, reporting and verification (MRV) requirements of the project:

Detailed and reliable data on transport issues is the key for all kinds of transport policies, regulations and strategies, such as road safety and air quality enhancements. The data and analysis will contribute to the development of the regulatory framework, helping to identify effective and enforceable regulations, as well as planning in the energy and transport sector. This analysis would allow the initiative to strengthen the technical and institutional capacity to develop national greenhouse gas inventories.

A national database on fuel consumption and efficiency is to be developed which will lead to better planning for emissions reduction and achievements of emissions target.

The FEI will first concentrate on light-duty vehicles in Metropolitan Kampala. In subsequent phases, the initiative will be extended to other parts of the country, mainly urban centres, and other types of vehicles.

The FEI will develop capacities of Government, specifically, in the Energy and Transport sectors to develop regulations, and improve compliance and enforcement of regulations in the sectors. The FEI will involve stakeholders like the vehicle importers, manufacturers and the general public through an awareness raising campaign that promotes attitudinal change and increased acceptance of the need for new regulations.

The key activities of the FEI are thus:

- Development of a national database on vehicle fleet, fuel consumption and efficiency
- Development of a fuel efficiency policy and standards

- Development of a regulation limiting the age of imported vehicles (compliance linked to pre-shipment inspection)
- Promotion of cleaner fuels and setting of fuel standards
- Establishment of a vehicle inspection and maintenance system
- Development of tax incentives to encourage acquisition of more fuel efficient vehicles
- Establishment of a financial incentives scheme for vehicle replacement
- Public information and awareness campaign

The Fuel Efficiency Initiative will result in improved vehicle fuel efficiency which will lead to reduced emissions of greenhouse gases per vehicle, and reductions overall compared to projected BAU emissions.

## 2.9 Current Activities

There are a number of on-going related activities including:

- The United Nations Environment Program (UNEP) to promote the Global Fuel Initiatives. The UNEP is supporting the Ministry to promote cleaner fuels, a small component of FEI. The support aims at promoting the improvement of fuel standards and specifically reduce the sulphur content in fuel to 50 ppm or below. When fuels are prerequisite for clean vehicles and clean vehicle technologies. The support aims at bringing the country together with regional progress on fuel standards.
- The Ministry in partnership with UNEP organised in December 2013, a national workshop on the Fuel Efficiency Initiative. The major objectives for the workshop were to create a platform on fuel efficiency and establish a strategic development basis, establish and enhance more efficient transport system in Uganda and also to create awareness on fuel efficiency and its benefit. Participants were from government Ministries and Agencies, Local Authorities, public transport, law enforcement, research and academic institutions and the civil society, Public transport companies, and the public. Institutions represented included among others, Ministry of Finance, Planning and Economic Development (MoFPED), Ministry of Energy and Mineral Development (MEMD, Ministry of Water and Environment, National Environmental Management Authority, Uganda National Bureau of standards (UNBS), Uganda Revenue Authority (URA), development partners (UNDP, UNEP), Uganda Police Force-Traffic department, Ministry of Health, Ministry of Justice and Constitutional Affairs, public transport (Taxi association, Uganda Bus Operators,) Kampala Capital City Authority (KCCA), Makerere University, licensing boards and the public. The national workshop discussed the initiative and developed a roadmap for the project.

- The Ministry is working in collaboration with the French Development Agency Francaise de Development (Afd) and the French Public Interest Entity “Assistance au Developpement des Echanges en Technologies Economiques et Financières (adetef). The collaboration aims at supporting the early implementation of the National Climate Change Policy with respect to the energy sector. The collaboration covers technical assistance support for building the capacities of Government in terms of understanding the impacts of climate on its intervention sector, climate mitigation and adaptation, as well as planning, budgeting and monitoring and evaluation capacities, so as to ensure proper reporting on the Climate Change Policy implementation process. Key activities include training of staff in the energy and related sectors on Climate Change and Energy, climate mitigation and adoption; and Technical support to annual planning processes and budgeting, mainstreaming of climate change sector priorities in annual sector work plans and budgets.

**3.0 Measuring, Reporting and Verification**

The MRV framework is aimed at ensuring that the initiative and its implementation is carefully monitored, progress reported and results verified.

The data to be used in the MRV will be gathered in the initial phase of the project since there is no existing baseline data. The objectives and information requirements for MRV are included in the table below:

**Table : MRV Key Objectives and Information Requirements**

<b>Key Objectives</b>	<b>What information is needed to provide a response?</b>
Developing a national vehicle fuel economy database and baseline	<ul style="list-style-type: none"> <li>• Development of a baseline emission inventory (vehicle registration database, vehicle testing program)</li> </ul>
Contribution to fuel efficiency	<ul style="list-style-type: none"> <li>• The number of efficient vehicles that replace inefficient vehicles and overall fuel usage reduced</li> </ul>
Reduction in GHG emissions	<ul style="list-style-type: none"> <li>• GHG emissions reductions as a result of reduced fuel usage of efficient vehicles from baseline</li> </ul>
Contribution to Uganda’s	<ul style="list-style-type: none"> <li>• Reduction in air pollution</li> </ul>



sustainable development	<ul style="list-style-type: none"> <li>• Reduction in imported fossil fuels</li> <li>• Reduction in imported old vehicles</li> <li>• Secondary impacts such as economic development</li> </ul>
Efficient management and accountability of FEI	<ul style="list-style-type: none"> <li>• Funds mobilised</li> <li>• Resources allocated</li> <li>• Activities performed</li> <li>• Reductions in GHG emissions achieved</li> </ul>

The information to be used will include a database of the current vehicle stock in Uganda by region (vehicle type, make, model, transmission type, weight, production year, registration year, fuel type, engine size, rated fuel economy per model and test cycle basis). A significant sample of vehicles will be tested to determine the fuel consumption and emissions of greenhouse gases and air pollutants based on a standard test drive cycle.

The reduction in GHG emissions due to the FEI will be determined by using a CO2 emission factor for transport fuels; applying default values from Chapter 2 of Volume 2, 2006 IPCC Guidelines for Greenhouse Gas Inventories to calculate the CO2 equivalent emissions from CO2, methane and nitrous oxides.

The multisectoral engagement is dictated by the nature or support of FEI activities which spread across sectors.

**3.1 Implementation Framework**

The Ministry of Energy and Mineral Development will be the lead agency in this FEI, working with the Ministry of Works and Transport. Other important stakeholders include the Ministry of Finance Planning and Economic Development, Uganda Revenue Authority, Uganda National Bureau of Standards, National Planning Authority, Kampala Capital City Authority, Uganda Police, Transport Licensing Board, National Environmental Management Authority and Civil Society. Other important supporters and promoters could include the Global Fuel Economy Initiative, particularly through the United Nations Environment Programme.

### **3.2 Time Frame**

The project implementation is estimated to be spread over a period of 6 years with the first 6 months devoted to the project preparation and development.

## **4.0 Project Cost Support**

### **4.1 Financial**

The Project is estimated to cost US\$5.835m. The cost covers the cost of background, baseline studies, technical assessments and designs, consultations with stakeholders, work plans and the project specific activities.

Uganda is requesting US\$ 250,000 through the submission of a proposal seeking support for preparation through the UNFCCC NAMA registry. Project cost includes US\$250,000 needed to support the project preparatory and development activities International grant financing will be required to support the project preparation.

## **5.0 Capacity Building**

The project will support capacity building national efforts in climate change. The capacity building is needed in development of project proposals monitoring verification and reporting on climate change. Capacity is also needed in emissions data collection and greenhouse gas meeting systems, gas inventory systems, fuel economy policy designs regulation and implementation.

The capacity building will take 3 forms; Short-term capacity building, long term capacity building and specific country visits to learn from successful cases. The capacity building will be provided by national and international experts and international Institutions (training centres and colleges).

## **6.0 Outcomes of FEI**

### **6.1 Estimated Emission Reductions Resulting from the Activities**

According to a recent Kampala GHG inventory, the total emissions are *Mt* 2,229 for the base year 2012. With an estimated 40 per cent of total national vehicles in Kampala region,

the estimated emissions from transportation are *Mt 4,903*. Global estimates of GHG reduction from improved vehicles are between 14-22%. The FEI can aim at +10% given the current national vehicle fleet. The estimated annual average emission reductions encouraged through the FEI ( $\text{MtCO}_2$  / year) would be *Mt 882.5*  $\text{MtCO}_2$  annually assuming 2012 base year estimated on the information available in regard to the Kampala city region and adjusted to the national vehicle fleet.

There will be other indicators of implementation. These will include the policies enacted, the regulations formulated, the standards for fuel and motor vehicles adopted.

## **6.2 Co-benefits of the FEI**

The FEI will result in significant co-benefits, categorized below using the three pillars of sustainable development: economic, social and environmental impacts. Co-benefits will be accounted for using a qualitative assessment, with a full proposal examining what statistics are readily available to measure and monitor sustainable development impacts.

### **Economic Impacts**

- Foreign exchange savings and lower oil import bills – Reduced national expenditure on fuel imports on a per vehicle basis.
- Improves energy security – Uganda is a net fuel importer and vulnerable to volatile oil prices in international markets; reducing the size of oil import bill relative to GDP lessens future price shocks.
- Household / Business fuel savings – Reduce expenditure on fuel on a per vehicle basis (although this may be offset by more expensive vehicles or higher total fuel expenditure because of increases in fuel prices). The inspection and maintenance programme may lead to lower vehicle operating costs, but this may be offset by increased expenditure on maintenance and repair.
- Employment creation – Inspection agencies and depending on the method used for certification such as stickers, will offer jobs and possibly generate products that private sector can engage in.

### **Social Impacts**

- Improved health – Reduction in number of cases of ill health from diseases related to fuel emission reductions.

- Reduced expenditure on health – Reduced expenditure on treatment for illnesses resulting from fuel emissions-related diseases.
- Reduced number of accidents – the inspection and maintenance programme will lead to better maintained and safer vehicles, which implies improved road safety through reduction in vehicle accidents.

### **Environmental Impact**

- Improved local air quality – improving vehicle efficiency is one of the cost effective interventions to reduce transport-related emissions per kilometre (such as nitrogen dioxide, sulphur oxide, carbon monoxide and particulate matter). It is important to measure these improvements, which reinforces the need for a monitoring system.

### **Financing of FEI**

The initiative requires significant costs. The funds are expected to come from Government development partners and supporting organisations. International grant financing may be required to support project.

<sup>1</sup> Uganda Bureau of Statistics (2012), *2012 Statistical Abstract*, page 52.

<sup>1</sup> Ministry of Water and Environment (2013), *National Climate Change Policy*, page 33.

<sup>iii</sup> Ministry Environment (2002), *First National Communication of Uganda to the Conference of the Parties to the United Nations Framework Convention on Climate Change*, page 9.

<sup>iv</sup> Ministry of Water and Environment, page 31.

## THE FUEL EFFICIENCY INITIATIVE ROAD MAP

	Field Parameter /Output	Actions/Activities	Stakeholders / Lead Agency	Timeframe	Financial Implications
1	Consultative meeting with key stakeholders	- National Workshop		December 2013	
2	Baseline study on vehicle fleet, fuel consumption, efficiency and low emission scenarios	- Develop Terms of reference - Recruitment and contracting of consultant - Consultative workshops for validation of study findings and recommendation - Publication and dissemination of results	MEMD, NEMA, MoWT, URA, Vehicle Importers UNRA, Bus operators, KCCA, Police, MoH, School of Public Health, Cancer Institute, UNBS, MoLG, LGs, Civil Society, Driving Schools, Academia	June 2014- Feb 2015	\$375,000
3	Review of the legal regimes on fuel efficiency and recommendation for policy and legal changes	- Develop TOR - Secure financing - Engagement of consultant - Consultative workshops	MEMD, MoF, MoJ, UNBS, NEMA, URA, MoWT, Police, KCCA, LGs, Civil Society	Sept 2014-March 2015	\$150,000
4	Develop a database on vehicle fleet, consumption, efficiency and level of emissions	- Undertake stakeholder consultations - Develop TOR - Engage the consultant - Procure the hardware and software - Install the software and develop the database - Monitor and maintain the database	MEMD, MoWT, MoWE/CCU, MoFPED, URA, NEMA, UNBS, Vehicle importers	Sept 2014 - June 2015	\$300,000
5	Development of a fuel efficiency policy	- Develop TOR - Engage the consultant - Public consultations of the policy - Support the process approval and adoption	MEMD, MoF, MoJ, UNBS, NEMA, URA, MoWT, Police, KCCA, LGs, Civil Society	March 2015–Feb 2016	\$225,000
6	An intensive public	- Engage a Consultant to: Develop a communication strategy	MEMD, NEMA, MoWT, URA, Vehicle Importers	June 2014-June 2017	\$475,000

	Field Parameter /Output	Actions/Activities	Stakeholders / Lead Agency	Timeframe	Financial Implications
	awareness campaign	<ul style="list-style-type: none"> <li>- Develop awareness materials</li> <li>- Launch the awareness campaign</li> <li>- Undertake the national and regional awareness campaign</li> <li>- Review the progress and effectiveness of the public awareness campaign</li> <li>- Include programmes / get education in schools</li> </ul>	UNRA, Bus operators, KCCA, Police, MoH, School of Public Health, Cancer Institute, UNBS, MoLG, LGs, Civil Society, Driving Schools, Academia, The media, Parliament		
7	Development of a regulatory framework for vehicle age for new imports.	<ul style="list-style-type: none"> <li>- Review the Policy in place</li> <li>- Develop an appropriate Legal framework for prohibitions.</li> <li>- Stakeholder consultations</li> <li>- Engage the consultant</li> <li>- Develop the draft framework</li> <li>- Undertake consultations on the framework</li> <li>- Undertake approval of the framework</li> <li>- Adoption of the framework</li> <li>- Implementation of the framework</li> <li>- Establish a maintenance and monitoring system of the framework</li> </ul>	MoWT, MoFPED, URA, UNBS, MEMD, NEMA, MoJCA, EAC, Civil Society, Law Reform Commission, FIA	Jan 2015 - April 2016	\$225,000
8	Development of fiscal system to encourage acquisition of fuel efficient vehicles;	<ul style="list-style-type: none"> <li>- Stakeholder consultations</li> <li>- Develop a TOR</li> <li>- Engage a consultant</li> <li>- Undertake the feasibility study and plan for the scheme</li> <li>- Stakeholder consultations on the scheme</li> <li>- Approval of the scheme</li> <li>- Source of financing of the scheme</li> </ul>	MoWT, MoFPED, URA, UNBS, MEMD, NEMA, MoJCA, EAC, Civil Society, Law Reform Commission, FIA	Jan 2016 - Jan 2017	\$1,750,000
9	Development of fiscal system for old vehicle replacement scheme	<ul style="list-style-type: none"> <li>- Implementation of the scheme</li> <li>- Stakeholder consultations</li> <li>- Develop a TOR</li> <li>- Engage a consultant</li> <li>- Undertake the feasibility study and plan for</li> </ul>	MoFPED, MEMD, MoWT, URA, Vehicle Importers UNRA, Bus operators, KCCA, Police, MoH, School of	Jan 2017 - Jan 2018	\$2,225,000

	Field Parameter /Output	Actions/Activities	Stakeholders / Lead Agency	Timeframe	Financial Implications
		<p>the scheme</p> <ul style="list-style-type: none"> <li>- Develop a disposal and scrapping system.</li> <li>- Stakeholder consultations on the scheme</li> <li>- Approval of the scheme</li> <li>- Source of financing of the scheme</li> <li>- Implementation of the scheme</li> </ul>	Public Health, Cancer Institute, UNBS, MoLG, LGs, Civil Society, Driving Schools, Academia, Garages, Financial Institutions, Insurers, Office of the President.		
10	Promotion and adoption of cleaner fuel standards;	<ul style="list-style-type: none"> <li>- Review the standards</li> <li>- Stakeholder consultations and awareness of the standards</li> <li>- Adopt the cleaner standards</li> </ul>	UNBS, MEMD, Oil Marketers, NEMA, URA	Jan 2015 – June 2015	\$110,000