

Development and Energy in Africa



Ghana Country Report

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September 2005

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Acknowledgements

KITE wishes to express her sincere appreciation to the Ministry of Energy who have actively participated in the consultation process. We also wish to thank the representatives of the Ministries, Departments and Agencies, the Civil Society Organisations and the Private Sector for participating in, and supporting efforts to develop an Assessment Framework to assess the development impacts of energy interventions in Ghana. Our gratitude also goes to the Risoe Centre in the Denmark for developing such a unique project and being available to contribute to the successful outcome of the deliberations.

1.0 Introduction

The Development and Energy in Africa (DEA) is a 30-month long project funded by the European Commission under its Intelligent Energy - Europe (IEE) COOPENER Programme and co-financed by the Danish Government. The project is being implemented by Risoe National Laboratory of Denmark, the project coordinator, and in collaboration with Energy Center of Netherlands (ECN) in partnership with six African centers. The Kumasi Institute of Technology and Environment is the project partner in Ghana.

The principal aims of the DEA project are:

1. To identify and examine the developmental impacts of energy interventions linked to improving energy access and poverty alleviation.
2. To use the information and insights gained to improve on-going and future energy interventions by energy policymakers and institutions in six Sub-Saharan African countries: Botswana, Ghana, Mali, Senegal, Tanzania and Zambia.

The project will be implemented in three stages. In the first stage, information will be obtained through three parallel Work Packages that will facilitate and form the basis for the development of an Assessment Framework, specifically for evaluating the impacts of energy innovations on sustainable development. The three parallel activities are:

- (i) A literature survey
- (ii) A cataloguing of experience with relevant energy projects and innovations in the target countries
- (iii) A process of consultation with stakeholders in the respective countries.

In the next stage, the Assessment Framework itself will be developed, then tested through national Case Studies and refined. Finally, in the third phase, the Assessment Framework will be presented to policy makers and stakeholders in the six countries and eventually introduced further in the region and other developing countries.

The key output of the DEA is an Assessment Framework which will be an operational tool for policy makers and other stakeholders to integrate the complex linkages between energy interventions and socio-economic development into poverty reduction programs. The tool will allow energy interventions to be better designed to contribute to real development needs, especially poverty alleviation and income generation, and to achieving the millennium development goals

2.0 Country Background

Geography and Demography

Ghana is located near the equator and on the Greenwich meridian between latitude 4⁰ and 12⁰N and longitude 30⁰W and 1⁰E. It is bounded by the Atlantic Ocean to the south, Cote d'Ivoire to the west, Burkina Faso to the north and Togo to the east. Ghana has a total land area of 238,540km which is demarcated into ten administrative regions with Accra as the capital. Ghana's population is 18.9m and growing at an estimated annual growth rate of 2.7% (GSS, 2002). About 56% of the population live in rural areas with the remaining 44% living in urban areas.

Energy Situation

Ghana's energy consumption is estimated at 6.6 million tonnes of oil equivalents (TOE) and per capita energy consumption is estimated at 360 kilograms of oil equivalent (KOE). The majority of Ghana's energy use is from biomass in the form of firewood and charcoal. These two account for about 59 % of the total energy consumption. Petroleum products and electricity constitute 32% and 9% respectively.

Traditional fuels such as firewood and charcoal provide the bulk of energy needs followed by petroleum and then electricity. It is estimated that about 84% of households in rural Ghana use fuel-wood in its untransformed state as their source of fuel. A further 13% depend on charcoal as their fuel of choice for cooking. All other sources, for example electricity, kerosene and LPG, together account for less than 3% of consumption and are therefore relatively insignificant.

Electricity and kerosene are the main sources of energy for lighting in Ghana. About 60% of all households in the country (both urban and rural) still use kerosene for lighting, while 39% of household use grid-connected electricity for lighting. In the rural areas, as much as 82% of households still use kerosene, candles and other traditional fuels as sources of light. In addition, 17.1% of rural households obtain their lighting from grid-connected electricity.

3.0 Stakeholder Consultations

3.1 First National Workshop

As part of the DEA project, a consultation workshop was held in Ghana on September 1, 2005. The purpose of this first national workshop in Ghana was to introduce the DEA project to key stakeholders as well as set up a communication and collaboration network with the view of sharing information, lessons and ideas on the development impacts of energy interventions. It was also to consult with national policy makers and stakeholders' regarding the relationships between energy interventions and sustainable

development, with the aim of achieving consensus on the needs for an Assessment Framework and how it can contribute to the energy and development process.

Participants at the workshop were mainly from the Ministries, Departments and Agencies (MDAs) as well as the private sector and non-governmental organization (NGO). There were a total of 17 participants. A number of presentations were made by the project team as well as a team from the Ghana Ministry of Energy. The presentations were to provide stakeholders with an overview of the DEA as well as impact assessment methodologies to assess impact of projects in Ghana and elsewhere. The presentations were followed by a discussion segment which aimed at soliciting stakeholder views on how information on the socioeconomic impact of projects can be obtained on a regular basis and how that information can be effectively used to influence policy formulation and program design. The discussion was facilitated by Mr. Gordon Mackenzie and Mrs. Harriette Amisssah-Arthur. A summary of workshop proceedings is attached.

3.2 Synthesis of Policy Makers' Needs and Views

Based on discussions at the workshop and further consultations with key stakeholders, a synthesis of the needs and views with respect to the Assessment Framework has been prepared. The purpose is to ensure that the needs of users are taken into account in the development of the Assessment Framework. These views are presented below.

- All stakeholders acknowledge the importance of impact assessment in providing information on project impacts to guide policy formulation. However, impact assessments have not been integrated into the activities of the various institutions. Stakeholders also acknowledge that an Assessment Framework will be useful to their operations if it is designed to be simple, easy to use, and flexible and can be used within the existing resource and information constraints.
- Policy Planning, Monitoring and Evaluating (PPME) units within the institutions generally lack the necessary human resource capacity to be effective. Consequently, the DEA project may need to include capacity building in basic principles of program evaluation as well as training in the application of the Assessment Framework.
- There is the general perception that project evaluations need to be carried out by an external entity reporting to a higher authority (e.g. project funders or government) on project performance. It is not seen as a tool for program staff to know how their programs are performing so that they can improve on them and build institutional capacity. This perception may pose serious challenges to the use of the Assessment Framework as staff may not be inclined to use the tool. In addition, Project staff may be reluctant to apply the framework for fear that failures may be exposed and their careers suffer as a result. It is therefore important for

the DEA project team to emphasize the importance of the framework as a tool for staff to learn from the success and failure of their programs in order to improve their own performance.

- There are a number of external factors (eg political interference) that could affect program performance which are not easily captured in an assessment study. Therefore the framework should be able to identify the impact of such external factors on project performance.
- Impact assessment should be participatory involving beneficiaries, local authorities as well the national level institutions. It is usually the best way of assessing how the program is related to community and local needs.
- Most stakeholders make no distinction between the immediate outputs of a program (e.g. physical infrastructure) and the long term outcomes arising from these outputs (development impacts). Since most of the interventions are project based, project evaluation seems more focused on the immediate outputs. This is reasonable since projects are expected to deliver certain outputs over a specified timeframe. However, the project based approach does not give adequate priority to evaluating development impacts of interventions which are expected to occur in the medium to long term. Meanwhile, project staffs usually try to relate project outputs to development on the basis of limited information. A well functioning assessment framework would make it easier to relate project outputs to development impacts in a transparent and systematic manner.

4.0 Synthesis of Development Impacts

A Catalogue of Energy Interventions, highlighting some energy interventions in Ghana and their social and economic impacts has been prepared. The catalogue has two purposes:

- To identify and characterize relevant energy interventions in the countries as input to the development of the Assessment Framework, indicating the spread of intervention types and data availability that the Assessment Framework should be able to address.
- To provide candidates Case Studies to test the Assessment Framework when it has been developed.

Table 1 below summarizes the energy interventions contained in the catalogue and their socioeconomic impacts. The detailed catalogue and synthesis report is attached.

Intervention	Social and Economic Impacts
Rural Grid and Off-grid Electricity	<p><u>Home Environment/Quality of Life</u></p> <ul style="list-style-type: none"> • Improved comfort at home • Access to information and entertainment through radio and television. • Options for food preservation through refrigeration • Reduce snake/scorpion bites <p><u>Social Services</u></p> <ul style="list-style-type: none"> • Improved health services • Improved education • Improved water supply • Increased public safety <p><u>Livelihoods/Income Generation</u></p> <ul style="list-style-type: none"> • Establishment of micro enterprises • Increased income from commercial activities
Ghana Household Energy Project (Gyapa Stove)	<p><u>Home Environment/Quality of Life</u></p> <ul style="list-style-type: none"> • Reduced burden of cooking- easier to light, less fanning required, easier regulating. <p><u>Livelihoods/Income</u></p> <ul style="list-style-type: none"> • Reduce charcoal use – estimated at \$35/year/household • Employment created for artisans trained in fabrication building of stoves.
Rural Kerosene Improvement Project	<p><u>Home Environment/Quality of Life</u></p> <ul style="list-style-type: none"> • Better access to kerosene leading to reliable lighting • Access to cleaner fuel for cooking <p><u>Livelihoods/Income</u></p> <ul style="list-style-type: none"> • Reliable supply of kerosene at approved price reduces expenditure compared to previously high prices and unreliable supply.
Rural Telephony	<p><u>Social service</u></p> <ul style="list-style-type: none"> • Better access to relations living outside the communities <p><u>Income Generation</u></p> <ul style="list-style-type: none"> • Additional income to owners of telecentres • Better access to market information by rural farmers
Fabrication of LPG Stoves manufacture - AREED Project	<p><u>Home Environment/Quality of Life</u></p> <ul style="list-style-type: none"> • Access to cheaper LPG stoves allows transition from biomass and charcoal, leading to reduced indoor air pollution and cleaner homes • LPG is a cleaner and more convenient fuel to cook with <p><u>Social Services</u></p> <p>Reduced health impact of biomass use Time required to collect wood fuel for cooking eliminated</p>

	<u>Income generation</u> <ul style="list-style-type: none"> • Employment created • Additional income for owners
LPG Refilling Station – AREED Project	<u>Home Environment/Quality of Life</u> <ul style="list-style-type: none"> • Access to LPG allows transition from biomass and charcoal, leading to reduced indoor air pollution and cleaner homes • LPG is cleaner and more convenient cooking fuel <u>Social Services</u> <ul style="list-style-type: none"> • Reduced indoor air pollution • Time required to collect wood fuel for cooking eliminated <u>Income generation</u> <ul style="list-style-type: none"> • Employment created • Additional income available to owners

5.0 Conclusions

The needs identified during the workshop and the consultations will feed into the design of the Assessment Framework. The project will also engage policy makers in the process of developing the tool to ensure their views are continuously taken into account and they are adequately informed on progress.

