



# ***5<sup>th</sup> Annual Report***

## ***2001***

***Kumasi Institute of Technology  
Energy and the Environment (KITE)  
Ghana***

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**KITE**

# KITE Personnel

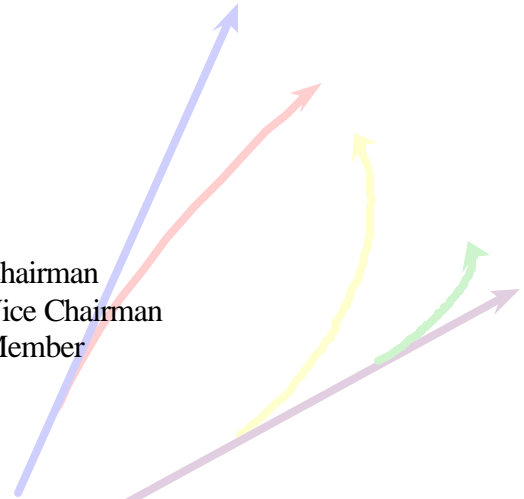
## **Members**

1. Ms. Theresa Osei-Tutu
2. Dr. Jerome Antonio
3. Dr. Abeeku Brew-Hammond
4. Dr. Dotse Tsikata

## **Executive Council**

1. Mr. Siapha Kamara
2. Dr. Jerome Antonio
3. Ms. Theresa Osei-Tutu

- Chairman
- Vice Chairman
- Member



## **Staff and Resident Consultants**

1. Director – Abeeku Brew-Hammond, DPhil (Policy)
2. Senior Projects Manager (Accra) – Harriette Amissah-Arthur, MBA (Finance)
3. Senior Project Officer – Ishmael Edjekumhene, MSc (Economics)
4. Project Officer – Dominic Derzu, BSc (Mechanical Engineering)
5. Project Officer – Sarah Agbey, MSc (Development Planning)
6. Administrative Officer – Victoria Hewlett, MSc (Electro-Mechanical Engineering)
7. Assistant Project Officer (Accra) – Kofi Nketsia-Tabiri, BSc (Mechanical Engineering)
8. Administrative Assistant (Accra) – Evelyn Seddoh, BA (Social Sciences)
9. National Serviceman – Solomon Quansah BSc (Mechanical Engineering)
10. Logistics Assistant – Charles Reindorf
11. Resident Consultant – Henry Mensah-Brown, PhD (Chemical Engineering)

## Chairman's Remarks



**Siapha Kamara, Chairman**

KITE reached the youthful age of 5 years during the past year. That may be very young in the life of a human being but for an NGO this marks the onset of maturity. We in KITE are therefore proud to celebrate 5 years of existence during which we have grown to become an internationally-recognized policy research institute with a strong project development wing.

*So, what have we really achieved during these 5 years?*

We have conducted authoritative studies on energy and environment policy in Ghana and we have led the way in building up a credible science and technology policy research community in the country. We have succeeded on many occasions to bring together multiple stakeholders to deliberate on issues of national and regional interest, such as Renewable Energy Technologies (RETs) and Clean Development Mechanism (CDM) policy frameworks for poverty reduction. We have also embarked on the difficult journey of mobilizing financial resources for clean energy enterprises and projects, and we have become the focal point for the diffusion of knowledge resources on sustainable energy in Africa.

*Now, what are the main challenges confronting us as we seek to chalk another 5 years and more, not of mere existence, but of “Schumpeterian” growth?*

We will need to move beyond a project-based approach to a more programmatic engagement with our key national and regional stakeholders on the one hand, and our local and international funding partners on the other hand. We have started to publish our project reports but we will need to considerably scale-up our outreach activities in order to feed our research and experiential findings into the policy and impact making processes at home and abroad. And, our staff training programmes must be intensified so that we can build up the corps of expertise that lies at the heart of an international center of excellence, which is what we are striving towards.

I would like to take this opportunity to congratulate all the hardworking staff of KITE for a job well done and to urge them not to rest on their oars but rather go all-out to attain greater heights in the years ahead. I would also like to express our very sincere thanks to all our partners and to assure them that we are determined to work even more creatively to keep our KITE flying higher and higher, and we shall continue to count on their active support.

# Completed Projects

## ***Renewable Energy Technologies (RETs) Project***

The Renewable Energy Technologies (RETs) Project was jointly initiated by United Nations Environment Programme (UNEP), United Nations Development Programme (UNDP) and the Riso National Laboratory in Denmark. It was sponsored by DANIDA and coordinated by the UNEP Collaborating Centre on Energy and Environment (UNCEE). The project which was implemented in three countries – Egypt, Ghana and Zimbabwe – aimed at using case studies of renewable energy implementation projects in each country to analyse the reasons for success or failure of specific projects or technologies. The project aimed in particular at identifying possibilities for removing the barriers to RETs, thus promoting increased implementation of RETs.

The final report on the project entitled “Renewable Energy Technologies in Ghana: Opportunities and Barriers” has been submitted to UNCEE after a series of reviews. UNCEE has posted the report on its website and has in addition indicated their intention to publish the report in hard print latest by June 2002.

## ***Evaluation of Renewable Energy Service Centres in Ghana***

In May 2000, KITE was commissioned by the DANIDA-sponsored Renewable Energy Development Project (REDP) to do an evaluation of Renewable Energy Service Companies (RESCs) in Ghana. The main objective of this evaluation was to review the current situation regarding operations of existing RESCs with respect to the adequacy of the RESC concept and to make recommendations for future establishment of RESCs.

During Phase 1 of the project, KITE reviewed existing RESCs and identified prospective RESCs, and then submitted a progress report to the REDP. Findings from Phase 1 formed the basis of an invited paper titled “Solar Service Centres in Ghana: A Critical Appraisal” which was presented at the Renewable Energy Experts/Stakeholders Workshop organized by REDP in Accra, August 2000.

The period under review witnessed the completion of the remaining project activities, notably feasibility studies of prospective RESCs and socio-economic impact assessment of two donor-funded solar PV projects, and the subsequent submission of the final report to REDP. The recommendations of this evaluation report by KITE were well embraced by REDP leading to the organisation of an entrepreneurial training session for operators of RESCs to enhance their business management practices and make them more commercially viable. The existing RESCs are being reinforced by REDP to operate on acceptable commercial lines and new ones already identified and given the necessary entrepreneurship training are going to be established in the first quarter of year 2002.

## ***Power Sector Reforms in Developing and Transition Countries***

This World Resources Institute (WRI) collaborative research project is aimed at understanding whether and how opportunities for environmental and social gains have been utilised, and whether and how the potential for environmental and social damages have been mitigated in the power sector reform programmes being implemented in six developing and transition economies. The countries are Argentina, Bulgaria, India, Indonesia, South Africa and Ghana. The premise of this research project was that in order for reforms to yield public benefits, explicit attention to social and environmental concerns is required in the design of power sector reform. The goal of this project therefore was to promote such explicit attention to the public benefits agenda.

The final report on the Ghana case study has been submitted to the WRI, an abridged version of which is to be published in a WRI volume to be released by April 2002. KITE intends to publish the full version of the report within the first quarter of 2002 for wider circulation among key stakeholders in Ghana.

## ***Sustainable Livelihood Applications of Sub-Sector Analysis***

This Intermediate Technology Consultants (ITC), UK, research project aims at enriching analysis of sustainable livelihoods involving micro and small-scale enterprises, by integrating concepts and research methods derived from systemic analysis (e.g. sub-sector analysis) and studies on technological capabilities of firms into the Sustainable Livelihoods Framework (SLF). SLF is intended to provide a comprehensive framework for thinking about the objectives, scope and priorities for development, by analysing poor people's assets, their vulnerability context and the prevailing social, institutional and organisational environments that help determine poor people's livelihood strategies.



Mountain of Sawdust at a Sawmill Site in Kumasi

As part of the project activities, KITE was awarded a consultancy to undertake SLF analysis with owners and employees of small-scale sawmills and furniture production workshops located at Anloga, Kumasi, where sub-sector analysis and studies of technological capabilities were already underway. The aim of the study was to put to test the respective methodologies associated with SLF, technological capabilities and sub-sector analysis. The field study report on Anloga was completed and submitted to ITC in March 2001.

### ***Cogeneration Feasibility Study***

Econergy International Corporation (EIC) of USA, whose portfolio included energy development projects around the world, secured a grant from USAID/USDOE to conduct a feasibility study in partnership with KITE. This feasibility study examined the viability of a wood wastes fuelled cogeneration plant in Kumasi, Ghana. The study included a technical, financial, regulatory, and carbon offsetting analyses of the project. KITE gave the entire local technical backstopping to ensure the completion of the feasibility. The project titled “Wood Waste Cogeneration Feasibility In Ghana” was implemented over a period of six months (January - June 2001).

The technical analysis supported the choice of a Combined Heat and Power (CHP) Plant with an installed capacity of 3.60 MW<sub>e</sub>. This capacity will meet the electrical and steam needs of two major power purchasers in Kumasi. The plant will utilize wood wastes (sawdust and other residues) as the primary fuel source. Approximately, 80,000 m<sup>3</sup> of wood wastes will be needed to meet these generation demands. The results from financial analysis of the feasibility were encouraging and the document is currently being used to solicit funding for implementation of the report.

## **Projects in Progress**

### ***Power Sector Reform and the Expanded Provision of Public Benefits***

As reforms are introduced into the power sectors of many countries around the world, the provision of some important “public benefits” (such as energy efficiency and environmental protection programmes as well as programmes enabling greater access to energy by the urban and rural poor) is being questioned – not by society as a whole but by those traditionally responsible for the design and implementation of these programmes. The concern being raised is that power sector reform can introduce significant barriers inhibiting investments in these public benefits. It is however argued that reforms at the same time introduce an important opportunity for regulatory authorities and policy makers to achieve challenging social and environmental objectives by introducing more innovative and cost-effective ways of providing for public benefits in a sustainable manner.



Ishmael Edjekumhene  
Senior Project Officer

The overall purpose of the project titled “The Expanded Provision of Public Benefits as Power Sectors in Developing Countries are Reformed” is to develop an in-depth understanding of how, practically, the provision of public benefits can be sustained and more importantly, grown, as power sectors in developing countries are reformed. The International Energy Initiative (IEI) and its collaborators initiated the project which is being implemented in India, Thailand, Pakistan, Brazil, Indonesia, South Africa and Ghana. The main output of the project will be a book on advancing public benefits in changing electricity markets in developing countries. Each of the country teams will produce a chapter on a particular public benefit and KITE has been assigned the responsibility of writing the chapter on renewable energy and power sector reforms. After the publication of the book, KITE is also expected to assist in the dissemination of the findings via a series of stakeholders’ workshops.

A total of five project activities have been planned under the project. The project is to be rolled out in five different phases, with the phases corresponding to the five project activities. KITE has, since the commencement of the project in the last quarter of 2001, completed Phase 1 of the project and has just signed the contract for the commencement of the Phase 2 activities. The project is expected to be completed by the middle of 2002.

### ***Moving towards Emissions Neutral Development (MEND) Project***

Moving Towards Emission Neutral Development (MEND) is a project, funded by the UK Department for International Development (DFID) in four developing countries namely; Bangladesh, Columbia, Ghana and Sri-Lanka. The purpose of the project is to work with small to medium developing country governments and key stakeholders in defining needs for Clean Development Mechanism (CDM) framework to optimise poverty reduction benefits and to provide DFID and other donors with guidance on how to assist in the CDM framework process. The project has a time frame of 15months and will be ending in March 2002.

KITE, has implemented most of the activities earmarked for the three phases of the project which were aimed at increasing awareness on CDM, identification of potential poverty reduction CDM projects as well as the identification of CDM capacity building needs in Ghana with regards to policies and institutions that would be involved in the implementation of CDM activities. The main methodologies used in collecting information for this research included the organisation of two National Stakeholders Workshops, four Steering Committee Meetings, Desk Study and Individual Consultations. Participants for the meetings were



Mrs. Sarah Agbey  
Project Officer

drawn from relevant ministries, departments and agencies as well as the financial institutions notably the banks. Some private concerns also took part in the meetings and assisted in data collection.

Currently, KITE is at the stage of finalising the Country Framework Paper, the results of which will be disseminated locally amongst national stakeholders by the end of January 2002, and subsequently forwarded to the U.K team for publication.

### ***Enabling Small-Scale CDM Projects in Least Developed Countries***

Enabling Small – Scale CDM Projects in Least Developed Countries is a project, funded by the Climate Change Challenge Fund of the UK Foreign and Commonwealth Office and being implemented jointly by IT Power Limited, UK, and KITE. The project aims at determining how small-scale projects can be cost-effectively supported by CDM and how the transaction costs and risks associated with developing small-scale projects under CDM can be reduced. The project commenced in January 2001 and will end in March 2002. The expected outputs include the following:



Mrs. Harriette Amissah-Arthur

- a report assessing the practicalities, costs, benefits and framework requirements for small-scale projects to be bundled together under the CDM;
- development of criteria for the selection of projects for inclusion in a bundled small-scale schemes;
- production of case studies that demonstrate how small-scale renewable energy and energy efficiency projects can be bundled together to reduce their transaction costs thus making them attractive for CDM investments; and
- a workshop in Ghana that will enable organisations that have an interest in the development of CDM projects, to gain an increased awareness of the issues surrounding the CDM and to state their requirements for potential projects.

KITE, has implemented two of the outlined outputs namely, the development of criteria for the selection of projects for inclusion in a bundle of small-scale schemes and submission of a report for assessing the practicalities, costs, benefits and framework requirements for small-scale projects to be bundled together under the CDM. Currently, KITE as part of the project is planning a workshop for forty (40) participants in February 2002 to create awareness among stakeholders

### ***CDM and Poverty Alleviation***

Clean Development Mechanism (CDM) and Poverty Alleviation (CAPA) is a project being funded by the UK Department for International Development (DFID) in three African countries namely; Ghana, Kenya and Tanzania. The project is coordinated by the Centre for Environmental Strategy, University of Surrey in collaboration with Intermediate Technology Consultants (ITC). The purpose of the project is to contribute

to the design of CDM under the Executive Board for the CDM so as to encourage energy projects that address/improve the needs of the poor. One major activity would be assessing capacity building in the host countries to aid the implementation of these small-scale types of projects. A range of energy projects will be studied and issues such as baselines for accounting for GHG reductions for these small-scale projects and sustainability benefits will be assessed. The project has a time frame of 18 months and it is expected to end in March 2003.

Activities that have been implemented so far include participation in an initial project partners meeting at Nairobi, Kenya in November 2001 and the submission of a draft Country Context Report to the coordinating team. Currently, KITE is planning towards an introductory workshop in March 2003.

### ***Participatory Learning and Action (PLA) in Small and Medium Enterprise***

This action research project is intended to develop a methodology for assisting micro and small metalworking enterprises to improve upon their productivity and grow. The Participatory Learning and Action (PLA) methodology being used in the project is designed to bring out the deep-seated knowledge on how the entrepreneurs perceive various policy interventions and what they themselves see as effective ways of dealing with their problems.

The African Technology Policy Studies Network (ATPS) funded project is expected to be implemented in two phases over a fifteen-month period. The year under review saw the execution of the Phase 1 activities. Following the completion of the activities an interim technical and financial report has been submitted to the ATPS' Secretariat in Nairobi, Kenya. Subject to the acceptance of the reports by ATPS and subsequent disbursement of project funds, the Phase 2 activities would commence in February 2002 with completion set for the last quarter of 2002.

### ***Information and Communication Technologies (ICTs) Suame Magazine***



Dr. Rudith King  
Consultant

This United Nations University – Institute of New Technologies (UNU-INTECH) funded research project is aimed at assessing the impact and potential of ICTs in Small, Micro and Medium Enterprise (SMME) clusters in Ghana (Suame) and Kenya. The project seeks to bring together three bodies of literature that have been developed largely in parallel but which are highly complementary in the age of globalisation. These are the literature related to clustering and innovation as well as learning and innovation in SMMEs and ICTs. Specifically the study aims at investigating the extent to which enterprises in these clusters use and/or are aware of

ICTs; exploring the effects of clustering on the ability of SMMEs to absorb, utilize and adopt ICTs effectively; investigating the potential role that use of ICTs by the enterprises

in these clusters might play in the development and/or strengthening of National Systems of Innovation in a globalising world economy; and providing data and analysis that will enable local and national government officials as well as NGO and private sector intermediaries to design policies, programmes and support structures.

KITE began implementing the Ghana study in April 2001. Activities carried out so far include preparation of a descriptive case study on the Suame cluster, design and administration of questionnaires/conducting of interviews and coding/analysis of data. Currently the Ghana project team is preparing a paper on the preliminary findings for circulation amongst the Kenyan team, and vice versa. The project is expected to be completed by August 2002 and its final output would synthesize the main findings of the case studies in one volume.

### ***Knowledge Networks for Sustainable Energy in Africa***



Solomon Quansah  
National Serviceman

Ideas for a project on Knowledge Networks for Sustainable Energy in Africa were developed by a partnership of African energy experts from ENDA-TM<sup>1</sup> in Senegal, KITE, AFREPREN<sup>2</sup> in Nairobi and EDRC<sup>3</sup> in Cape Town, working in collaboration with several colleagues in the World Bank. The aim is to link up African energy researchers and policy makers together with private sector entrepreneurs and other stakeholders through internet-based knowledge platforms with the view of ensuring a sustainable process of increasing access to energy service by all sectors of the economy especially the poor.

During the year under review funds were secured from the World Bank for the organisation of an initiation workshop on the project in Accra with KITE as the main organiser. A total of about forty (40) African energy researchers and policy makers drawn from ten (10) African countries participated in the workshop which was held in June 2001. Notable among the participants were Ghana's Minister of Energy, Mr. Kan Dapaah and the then Special Advisor to the President, Dr. Charles Wereko-Brobby. The two-day workshop, which was under the theme "Mobilising Knowledge Resources for Increasing Access to Modern Energy Services", provided a forum for all project participants to meet and agree on a common project. After two days of deliberations, certain key decisions were taken one of which was to set up a website on the World Bank's server and to include in this website a database of African energy experts and their publications. Participants also agreed on major thematic areas around which knowledge will be

<sup>1</sup> ENDA-TM is an international NGO with offices in several developing country cities including Dakar, Senegal, where our lead partners for this project are based.

<sup>2</sup> AFREPREN – African Energy Policy Research Network – is based in Nairobi, Kenya, and brings together energy policy researchers in 15 East and Southern African Countries.

<sup>3</sup> EDRC is the Energy Development Research Centre of the University of Cape Town, Republic of South Africa.

generated and shared. The themes, which are expected to be revised from time to time, include rural access; renewable energy; energy sector reform; energy and the environment nexus; energy and gender; and energy and ICTs.

Following the initiation workshop a full proposal has been submitted to the World Bank for funding. Although funding is yet to be received, KNSEA under the leadership of KITE has made giant strides towards the realization of the project goals. Publication of a monthly electronic newsletter – Energy Afrika – started in July 2001; six editions of Energy Africa have so far being circulated to all KNSEA members. The networks' website is however still under construction. Beginning January 2002, KNSEA will be introducing an electronic newflash, which will provide constant update on major energy events in Africa and the world over.

### ***African Rural Energy Enterprise Development***

KITE is the local partner for the African Rural Energy Enterprise Development (AREED) project which is a UNEP initiative being implemented with funds from the UN Foundation and technical support from E&Co of New Jersey, USA. AREED helps entrepreneurs to build successful businesses that supply clean energy technologies and services to rural African customers by providing enterprise development services and early-stage funding to the entrepreneurs. The project is being implemented in five countries: Senegal, Mali, Ghana, Tanzania and Zambia

AREED Ghana organised three major workshops in 2001. The first workshop was organised for entrepreneurs involved in the promotion of renewable energy technologies on commercial basis. The aim of this workshop was to take the entrepreneurs through the process of translating core business ideas into bankable business plans. The second workshop was organised, in collaboration with the Energy Foundation, for financial institutions in Ghana with the main object of introducing the institutions to the RETs so as to demystify their view about such energy projects. The third workshop was sponsored by the REDP and was put together for 26 existing/potential operators of Renewable Energy Service Centres (RESCs). The objective of that workshop was to introduce the entrepreneurs to the principles of business planning and management so as to assist them to better run their businesses.

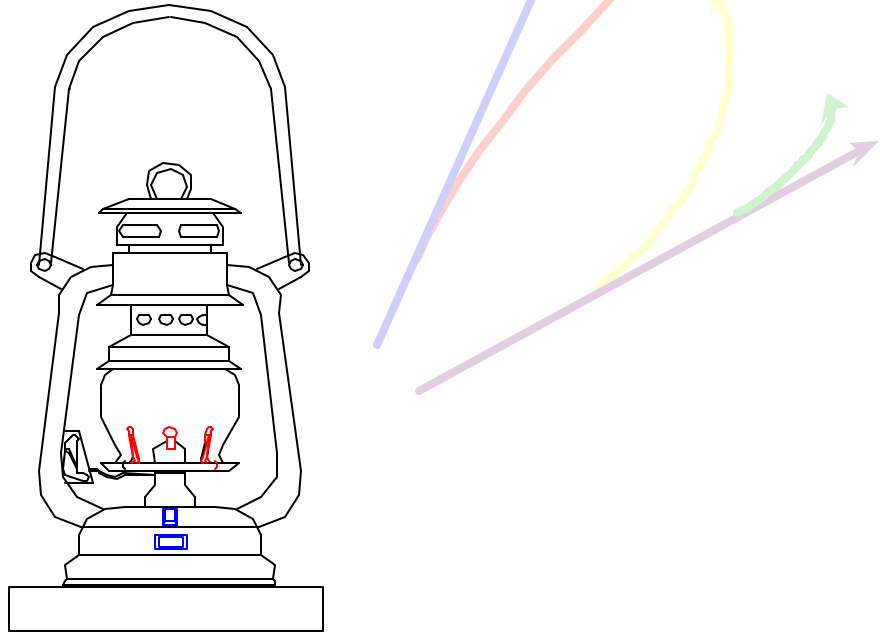


Kofi Nketsia-Tabiri,  
Assistant Project Officer

AREED-Ghana received a total of 61 project enquiries in 2001. Eighteen (18) of these met the AREED project requirements. Nine (9) enquirers submitted proposals, six of which were given enterprise development services. Two projects were approved for funding one of which has had its loan disbursed.

## ***Manufacture & Marketing of K-Electric Solar Lanterns***

In line with its mission of pursuing cleaner energy technologies, KITE in collaboration with the Department of Mechanical Engineering of the Kwame Nkrumah University of Science and Technology (DME-KNUST) organised a workshop funded by UNESCO on ***Capacity Building For Manufacture Of Solar Energy System Components*** in April 2001. One outcome of this workshop was the identification of a local firm – Afrik Solar Energy Technik Company Ltd. – to produce the K-Electric solar lantern (developed by the Solar Energy Laboratory of DME-KNUST) under a technology transfer programme.



The K-Electric Solar Lantern

Before the technology could be transferred, KITE secured funding from the African Regional Office of UNESCO in Nairobi to help the DME-KNUST re-engineer the K-Electric to meet the taste of the local market as well as ensure that the technology competes favourably with imported solar lanterns. Whilst awaiting the completion of the re-engineering, KITE has been working in collaboration with the Afrik Solar to develop a project proposal to be submitted to REDP for possible funding to manufacture 500 pieces of the lanterns for sale on the Ghanaian market, using the RESCs as sale outlets.

## **Other Activities**

### ***African Technology Policy Studies Network (ATPS) Ghana Chapter***

Since 1998 the KITE office has served as the “National Secretariat” for the Ghana Chapter of the African Technology Policy Studies Network (ATPS) Ghana Chapter following the appointment of Dr. Abeeku Brew-Hammond as the National Coordinator

for ATPS Ghana. With no dedicated staff for ATPS Ghana, KITE staff (in some cases with the support of some ATPS-Ghana members) have over the years been implementing activities of ATPS-Ghana and the year 2001 was no different.

The year 2001 can be regarded as one of the most memorable years for ATPS Ghana Chapter. The Chapter was privilege to play host to the newly appointed Executive Director of the parent Network, Dr. Osita Ogbu, barely two months after assuming office in February 2001. Dr. Ogbu's visit (his first after assuming the highest executive office in ATPS) was at the instance of ATPS-Ghana and it was planned to coincide with the Chapter's 1<sup>st</sup> National Workshop. During his visit Dr. Ogbu toured all the three sub-chapters and paid courtesy calls on the Minister for Environment, Science and Technology and the Vice Chancellors of KNUST and Legon. The call on the Minister brought to the fore the key S&T concerns and needs of the ministry and this helped ATPS Ghana to re-plan its activities for the year so as to address those concerns. The Minister, Prof. Dominic Fobih, expressed keen interest in the mission of ATPS and indicated his Ministry's preparedness to work in close collaboration with the Chapter to push forward the frontiers of S&T in Ghana. The National Coordinator was consequently invited to serve on the National S&T Management Committee. To demonstrate his commitment to the "newly formed alliance" between MEST and ATPS-Ghana, the Minister accepted the latter's invitation to attend and deliver the keynote address at the first National Workshop. At the same meeting members adopted and ratified the constitution for the Chapter.

Other activities undertaken in the course of the year were the organisation of a Peer Review Workshop in Cape Coast in July and a workshop on the Budgetary Allocation for Science and Technology in Ghana in November. Unfortunately efforts to register ATPS-Ghana as a company limited by guarantee before the end of the year could not materialise because signatures of some subscribers could not be obtained. The subscribers have now signed the registration document and it is expected that registration of ATPS Ghana Chapter would be completed by the end of January 2002.

### ***Centre for Innovation and Enterprise Development (CIED)***

There were two Centres for Innovation and Enterprise Development (CIEDs) – one in Ghana and the other in Zimbabwe – and these centres were established as pilot projects in response to the challenge of promoting technological innovation in African manufacturing firms. The CIEDs aimed at assisting small and medium manufacturing firms to define their problems and mobilise the necessary resources for resolving these problems. The CIEDs were also designed to stimulate the development of networks for innovation among firms, and between firms and local knowledge-producing institutions (universities, R&D institutes, engineering consultancy firms, etc.) The International Development Research Centre (IDRC) of Canada provided seed funding for the CIEDs while UNCTAD provided project management services.

From the inception of the CIEDs project KITE provided organisational support to CIED-Ghana. The year 2001 unfortunately did not see much of CIED-Ghana's activities owing to the failure of donors to provide funds for the next phase of the project. In view of this development the Director of CIED-Ghana, at the 4<sup>th</sup> KITE Executive Committee meeting, informed members that the project would be wound-up and that its assets/liabilities would be transferred to KITE, subject to the approval of the CIED Board.

### ***Kumasi Energy Company Limited (KE)***

Kumasi Energy – KE – is a limited liability company established under the Companies Code of Ghana with the aim of providing clean energy and technology-related services. The principal shareholders of KE are KITE and CIED; there are also some twelve individual shareholders most of whom are KITE/CIED staff and associates. In the medium term KE plans to embark on cogeneration projects using residues from the sawmills in the timber-processing areas of Ghana and neighbouring countries like Côte d'Ivoire. KE seeks in the long term to develop Clean Development Mechanism (CDM) projects, which will explore new technologies in clean energy generation, like fuel cells and biomass-to-alcohol systems.



Dominic Derzu – Project Officer (KE)

During the period under review, KE developed a project proposal, which sought to generate 120kWe of electricity from sawdust using gasification technology from India. E & Co, and energy investment firm based in New Jersey (USA), and DOEN Foundation of The Netherlands expressed interest in financing the project and staff of both companies visited Ghana during the last quarter of 2001 to obtain first hand information on the proposed end-user of the power to be generated. During negotiations for the signing of a Memorandum of Understanding between KE and the targeted customer, the latter expressed a demand for process heat in addition to the power initially proposed. The proposal therefore had to be rewritten as a cogeneration project to provide power and process heat. The sudden change in project focus delayed considerably the implementation of the project as KE has had to spend a lot of time trying to get new quotations for the cogeneration option from equipment manufacturers.

The quotations for the cogeneration plant have been received and KE is currently in the process of redoing the financial analysis to establish the financial viability of the proposed cogeneration plant.

## **Workshops and Conferences**

Several workshops were organised during the year as part of KITE project activities. Notable among them was the KNSEA initiation workshop, which as reported already, brought together two scores of participants from ten African countries. Below is a group photograph of the KNSEA participants.



Group Photograph of Participants at the 1<sup>st</sup> KNSEA Workshop

KITE personnel also attended many international workshops and conferences through out the year. For the second year running KITE was represented at the Conference of Parties to the Kyoto Propocol (COP 7) which was held in Marakesh, Morocco. One person from KITE also attended and presented a paper at an international conference on implementation strategies for biomass utilization in Europe and developing countries held in Sweden.

The Director of KITE was invited by the Shell Foundation to participate in a consultative meeting in the UK to help Shell Foundation define its energy programmes. The Director also served as one of two key resource persons for a regional workshop organised by UNDP, in Mali, on past experiences and the future of Multifunctional Platforms in Africa.

# Publications

## ***Journal Articles and Conference papers***

1. Brew-Hammond, A. and A. Crole-Rees, 2001, “Multifunctional Platforms in Africa – A Forward-Looking Review”, UNDP Sustainable Energy Group, New York.
2. Edjekumhene, I and Brew-Hammond, A, 2001, “Barriers to the Use of Renewable Energy Technologies for Sustainable Development in Ghana”, In Njeri, W , Proceedings of Africa High Level Regional Meeting on Energy and Sustainable Development, UNEP, Paris, France.
3. Edjekumhene, I, M A Bawa and A Brew-Hammond, 2001, “Preserving and Enhancing Public Benefits Under Power Sector Reform: The Case of Ghana”, Energy for Sustainable Development (The Journal of the International Energy Initiative), Vol 5, No 2, pp 39 - 47.
4. Derzu, D and A Brew-Hammond, 2001, “Wood Waste Co-generation in Kumasi, Ghana”, Paper presented at Conference on Implementation Strategies for Biomass Utilisation in Europe and Developing Countries Eskilstuna, Sweden.
5. Derzu, D and A Brew-Hammond, 2001, “Sawdust Gasification for Power Generation in Ghana”, Paper prepared for 1<sup>st</sup> International Congress of Biomass for Metal Production & Electricity Generation, Brazil.
6. Brew-Hammond, A., 2000, “Solar Service Centres in Ghana - A Critical Appraisal”, Invited Paper presented at DANIDA Renewable Energy Expert/Stakeholder Workshop, Science and Technology Policy Research Institute (STEPRI), Accra.
7. Edjekumhene, I, 2000, “Socio-Economic Impacts of Electricity Privatisation in Ghana” 4<sup>th</sup> International Conference on Power Systems Operations and Planning – Conference Proceedings, Accra.
8. Brew-Hammond, A., 1999, “The Challenge of delivering Energy Services to the Poor”, Keynote Address delivered at Donors Roundtable for the UNDP/World Bank Energy Sector Management Assistance Program (ESMAP), April, The World Bank, Washington, DC.
9. Brew-Hammond, A., 1999, “Energy Resources in Ghana – Critical Issues and Challenges for the 21<sup>st</sup> Century”, Invited paper presented to the Ghana Academy of Arts and Sciences, Accra.

## ***Book Chapters and Published/Special Reports***

1. Edjekumhene, I, S-B Atakora, R. Atta-Konadu and A Brew-Hammond, 2001, “Implementations of Renewable Energy Technologies- Opportunities and Barriers: Ghana Country Study” UNEP Collaborating Centre on Energy and Environment, Roskilde, Denmark.
2. Nketiah, K S, S-B Atakora and A Brew-Hammond, 2001, Sawmill Energy Efficiency in Ghana, KITE Publication, Kumasi, Ghana.

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2. Country context report for the CDM and Poverty Alleviation (CAPA)
3. Bundling of Small Scale Projects for the CDM
4. Kumasi Cogeneration Project Feasibility Study
5. Information and Communication Technologies for Small and Micro Enterprise Clusters
6. Socio-Economic Impacts of Renewable Energy Systems in Ghana
7. Evaluation of Renewable Energy Service Centres in Ghana
8. Energy Service Companies in Ghana: Issues and Options for performance Contracting
9. African Technology Policy Studies (ATPS) Annual & Workshop Reports
10. African Rural Energy Enterprise Development (AREED) - Annual & Workshop Reports
11. Knowledge Networks for Sustainable Energy in Africa (KNSEA) - Workshop Report
12. Facilitation of Local Manufacture of the K-Electric Solar PV Lantern - Interim Report

# Organisational Resources

## Staffing and Internship

Following the establishment of the Accra office, KITE employed three new personnel – a Senior Project Manager, an Assistant Project Officer and an Administrative Assistant – to run the office. In addition, one Project Officer whose research activities took her to Accra quite often, was transferred to Accra towards the end of the year. The Kumasi office however lost two key staff, –the founding staff member – Mr. Sefa Bonsu Atakora – and the Assistant Project Officer (Ms. Sarah Gilbert) who left for the UK to pursue further studies. The only addition to the Kumasi staff was a national service personnel who was primarily brought on board to address the IT needs of KITE and also to assist in the development of electronic products (website, newsletter, etc) for KNSEA. These recruitments/departures brings to ten the number of full time employees in KITE at the end of 2001. Figure 1 presents the current organizational structure for KITE.

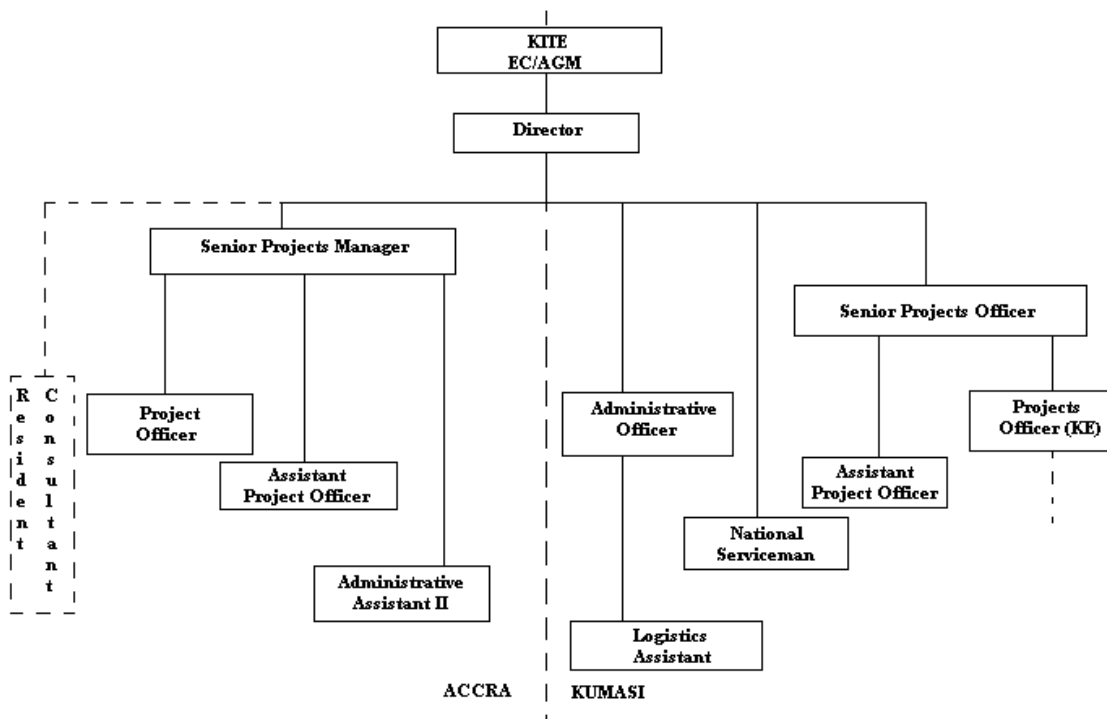


Figure 1: Organisational Structure for KITE as at the end of 2001

For the second year running KITE received an intern from Policy Research International, Canada. The intern – Adrian Mohareb – spent close to three month in KITE researching on Ghana biomass resources, specifically looking at past experiences, current utilisation and future potential of the resources.

## ***Training and Knowledge Sharing***

During the period under review, KITE enrolled three of its staff in management training programmes organised by recognised training institutions such as the MDPI and French language training at Alliance Francaise. As a follow up to the RETs project, one project officer spent a month in Risoe, Denmark, conducting economic analyses on some RETs. KITE also started the weekly in-house learning sessions at which staff took turns to share specific skills with their colleagues. A periodic in-house seminar series was also instituted during the year at which staff make presentations before or after attending workshops and other fora.

## ***Finance***

KITE's income over the years has shown a consistent upward trend, as shown in Figure 2, and in the year 2001 the total income was a little over US\$ 150,000 representing more than 50% over that of 2000. Audited annual accounts are available on request.

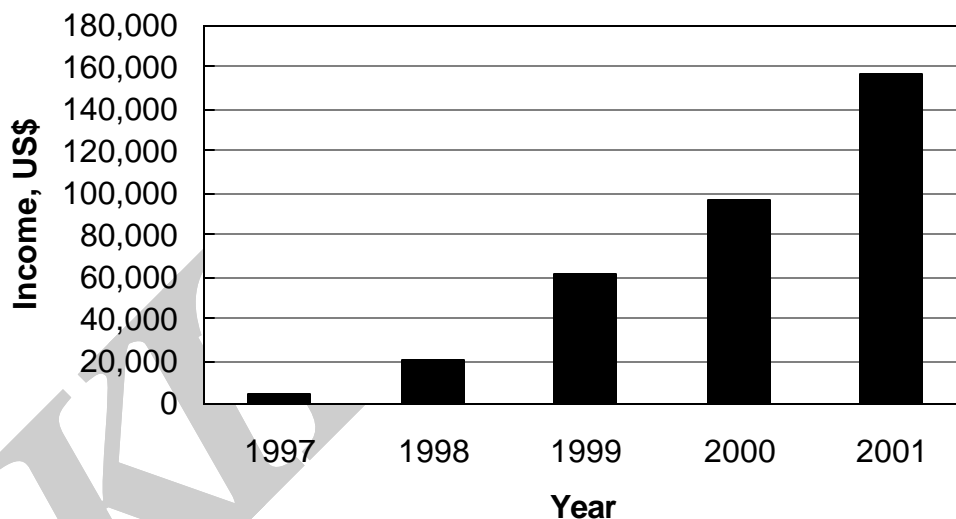


Figure 2: Income Trends for KITE since its Inception

# General Information

## ***The Kumasi Institute of Technology and Environment (KITE)***

KITE is a non-governmental organisation registered in Ghana as a company limited by guarantee. KITE has been in existence for five years and there are more than twenty projects either completed or in progress with funding from a wide range of international donor agencies including the World Bank, the UK Department for International Development (DFID) and DANIDA. Staff strength currently stands at ten (four women and six men) and there are two offices, one recently opened in Ghana's capital city of Accra and the other – the headquarters – in Kumasi.

### ***Mission Statement***

KITE is committed to contributing towards sustainable energy and industrial development based on technological capabilities, in harmony with the environment.

### ***Expertise***

The fields of expertise within KITE include the following:

- Energy policy research;
- Science and technology policy analysis;
- Environment-friendly technology transfer;
- Technological capacity-building and bench-marking; and
- Energy efficiency improvement and pollution abatement in industry.

### ***Activities***

KITE implements action research projects and undertakes feasibility studies as well as project management and evaluation for local and international organisations (governmental and non-governmental). KITE also provides training for personnel from both the public and private sectors in areas ranging from technological learning and technical change, through technology and energy policy research methodologies, to integrated energy resource planning and climate-change mitigation.

## **Contact Details**

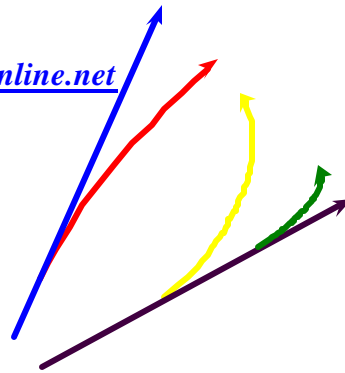
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# **KITE**