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# Stimulating Geothermal Development in Eastern Africa: the Establishment of the African Rift Geothermal Facility

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## ABSTRACT

Despite the high geothermal potential of the African Rift, only Kenya is currently exploiting this potential, with a producing capacity of 127 MW. Although geothermal energy is an economically viable energy option in Eastern Africa, the need for detailed exploration and the high cost and risk of exploratory drilling, compounded by institutional and regulatory barriers, have hampered the exploitation of this indigenous and environmentally friendly energy source in the region. In order to overcome the financial, investment and technical risks and barriers, and to replicate the success of geothermal development in Olkaria, Kenya, throughout the region, an African Rift Geothermal Facility (ARGeo) is being established. ARGeo is a project proposal funded by the Global Environment Facility (GEF), initiated by several countries in Eastern Africa, and implemented by the United Nations Environment Programme (UNEP) and the German Development Bank (KfW). The project will be executed in partnership with UNU-GTP, ICEIDA, the Italian Ministry of Environment, the USA Government, the German Geological Agency (BGR) and others. The project proposes to establish a comprehensive program of financial, policy and technical instruments for the promotion of geothermal energy that will directly support the development of viable geothermal energy resources in the African Rift. The project is designed to actively reduce barriers and to stimulate and facilitate investment through public and private sector partnership through a drilling risk guarantee fund and a technical assistance program and institutional strengthening. A pipeline of eligible projects is being developed, and an initial 4 prospects will be targeted for immediate support by the project. In this paper, we present the objectives, approach, rationale, planned activities and the targeted geothermal prospects of this initiative.

## 1. INTRODUCTION

The African Rift Valley system extends from the Red Sea to Mozambique and comprises Sudan, Ethiopia, Eritrea, Djibouti, Somalia, Kenya, Uganda, Rwanda, Burundi, the Democratic Republic of Congo, Tanzania, Malwai, Mozambique, and Madagascar and Yemen from the Arabian half island. A recent report prepared by the US Geothermal Energy Association determined that the geothermal energy potential in Africa's Rift Valley using present-day technology was in the 2.5 to 6.5 GW range.[1]

[1] Geothermal Energy Association (1999) and the US Department of Energy (1998).

Despite the high geothermal potential of the African Rift, only Kenya is currently generating electricity from its geothermal resources, with 121 MW installed. However, compelled by rising cost of fossil fuels, drought and siltation affecting hydro dams in Eastern Africa, and current and projected electricity needs far exceeding installed generation capacity, countries in Eastern Africa are seeking to develop alternative indigenous energy resources. Geothermal energy fits the profile of an indigenous renewable energy resource that provides base-load, reliable, affordable and environmentally friendly power. For semi-arid areas in Ethiopia and for Eritrea and Djibouti, it is the only available indigenous energy source.

The reasons for the largely unexploited geothermal resources in the African Rift countries compared to some other developing countries, have their roots in the lack of supporting policies, regulatory frameworks, technical capacity, and resource information on one hand, and the low level of funding of exploration activities and the high-cost and high-risk exploration and appraisal drilling on the other hand. At the exception of Kenya, awareness of high-level policy-makers that geothermal energy is a least-cost option in Eastern Africa is low, and generally there has been a lack of promotion of the enormous geothermal potential in the region.

While some exploration activities and drilling have taken place in the past decades, only a few prospects were actually developed. Although the exact nature of the barriers differs among the Eastern African countries, the types of barriers encountered are: (i) financial due to the high up-front investment cost, (ii) legal and regulatory barriers as a result of inadequate legal and regulatory frameworks to support geothermal energy development and stimulate private-sector investment, (iii) institutional barriers in the form of institutional weaknesses to promote geothermal development, and to identify, prepare, and implement feasible geothermal projects and (iv) technical barriers, both at the level of human resources, equipment and technological know-how, and (v) market barriers rooted in insufficient information on competitiveness of proposed geothermal development vis-à-vis traditional energy sources and in the lack of geothermal development targets in national or regional energy planning. . Moreover, the difficult access to foreign financial sources, the scarcity of funds in the countries, and in some cases the lack of creditworthiness, collateral, and equity among interested project promoters have further hampered or slowed development of geothermal prospects in the Rift Valley.

Encouraged by Kenya's plans to further develop its geothermal resources, and by the growing interest to do so in other countries in the Rift Valley, the United Nations Environment Programme (UNEP), the Business Council for Sustainable Energy (BCSE), the US Trade and Development Agency and a number of other US agencies

and international organizations, organized an Eastern Africa Market Acceleration Conference back to back with the 2nd Kenya Electricity Generating Company (Kengen) Conference in April 2003, in Nairobi, Kenya. The conference brought together high-level representatives from Energy Ministries, utilities and geothermal agencies from Kenya, Tanzania, Zambia, Djibouti, Uganda, Ethiopia, Eritrea, Rwanda and Malawi as well as leading representatives from industry, bilateral and multilateral organizations and private financing agencies, to explore commercial opportunities for geothermal development in the region and options for overcoming financial, regulatory and institutional barriers.

One of the main outcomes of the conference was the agreement of the Eastern African Geothermal Development Initiative resolution, setting a challenging yet achieveable target of 1000 MW of geothermal power by the year 2025 and calling for technical assistance and financial instruments to achieve this target. It was also agreed that the initiative, which will be promoted through NEPAD, should include risk guarantee instruments against drilling risk, technical assistance, independent transaction advice, policy support, and linkage to preferable finance.

The resolution led to the development of a project proposal to establish an African Rift Geothermal Facility (ARGeo). ARGeo is a project proposal which received Global Environment Facility development funds, initiated by six countries in Eastern Africa, and implemented by the United Nations EnvironmentProgramme (UNEP) and the German Development Bank (KfW). In May 2003, the GEF Council approved the funds to develop the full project proposal, and in January 2004, project development activities started, the outcome of which will be an agreed full project proposal. Subject to final GEF endorsement, the project will start in 2005. The project will be executed in partnership with the United Nations University Geothermal Training Programme (UNU-GT), ICEIDA, the Italian Ministry of Environment, the USA Government, the German Geological Agency (BGR) and others. The project proposes to establish a comprehensive program of financial, policy and technical instruments for the promotion of geothermal energy that will directly support the development of viable geothermal energy resources in the African Rift. The project is designed to actively reduce barriers and to stimulate and facilitate investment through public and private sector partnership through a drilling risk guarantee fund and a technical assistance program and institutional strengthening. A pipeline of eligible projects is being developed, and an initial 4 prospects will be targeted for immediate support by the project. In this paper, we present the objectives, approach, rationale, planned activities and the targeted geothermal prospects of this initiative.

## 2. THE ESTABLISHMENT OF THE AFRICAN RIFT GEOTHERMAL FACILITY (ARGEO)

Whereas the overall goal of the African Rift Geothermal Development Facility is to reduce greenhouse gas emissions by promoting the adoption of geothermal energy as a clean, renewable and economically viable energy source for the African Rift region, the immediate objective is to facilitate broadened scale geothermal energy investment along the African Rift by removing exploratory and financial investment risks[2]. To achieve the objective, a comprehensive program of financial, policy and technical assistance instruments to stimulate geothermal energy developed is being eleborated by UNEP and KfW in consultation with the countries, mulitalateral organizations and technical cooperation and financial agencies.

The premises on which ARGeo is founded are: only an integrated and systematic approach to overcome regulatory, technical and institutional barriers and to assist countries to access finance and attract private sector investment will lead to the development and acceleration of the geothermal resources for electricity generation; countries have to take on the bulk of the risk of surface exploration and drilling and will need technical and financial assistance to do so; without private sector investment, geothermal development will not take off, the systematic asssessment of geothermal prospects in order to prioritize ARGeo funding; the demonstrated commitment by the countries to develop geothermal resources for power generation.

Both a short and longer term view are taken, which is translated into two main instruments, namely the risk guarantee fund and the regional geothermal network and by considering mechanisms for a sustained impact through the facility over possibly 25 years as the more significant geothermal resources of the region are tapped. In addition to an initial 3 or 4 projected investments in priority prospects, it is expected that replication efforts will engage countries in the region in a sustained and systematic effort to develop geothermal energy. This will be fostered and through capacity building activities, support for surface studies, socio-economic analysis, and policy support, including in countries that are at a very early stage of geothermal exploration.

While the facility is geared towards overcoming barriers in the whole region, accelerated geothermal development in pioneer countries is considered important by the project proponents for replication and broadened acceptance in the rest of the region. The technical capacity and experience of pioneer countries will serve as an example upon which to improve and replicate the process of geothermal energy development in the region. Taking advantage from the Olkaria III (Kenya) and Aluto Langano (Ethiopia) experience, lessons learned are incorporated in the project design, whereas a regional approach will ensure cooperation and a more effective use of available resources in the region. Participation in ARGeo of bilateral and multilateral agencies is encouraged and facilitated at the design and implementation stages, with the view to create a broad international partnership for the facility. The partnership will make it possible to build on current and planned activities, to bring to bear the expertise and experience of these agencies, and to complement the funding from GEF to achieve the project's objectives. The six countries that have endorsed ARGeo are: Djibouti, Eritrea, Ethiopia, Kenya, Uganda and Tanzania.

Acting as implementing and executing agencies of the project, UNEP and KfW have experience in and have developed appropriate technical and financial tools for an adaptable and sustainable geothermal development facility. KfW has experience in cofinancing individual geothermal plants with the World Bank, KenGen, the European Investment Bank (for Olkaria II in Kenya). UNEP on the other hand has extensive experience with regional networking and technical assistance, and has its headquarters in Nairobi, Kenya. The Global Environment Facility (GEF) is a joint partnership between UNEP, UNDP and the World Bank to forge international cooperation and to finance activities addressing biodivesity loss, climate change, international waters, ozone depletion, land

[2] UNEP/GEF (2003)

degradation and Persistent Organic Pollutants (POPs) within the framework of sustainable development.
This section will describe the approach and components of ARGeo, in so far that the latter have been developed.

### 2.1 ARGeo: Approach and Components

Four building blocks make up the ARGeo structure: a regional network, a technical assistance component, a transaction advice fund and a financial risk mitigation instrument.
The regional network of geothermal agencies will not only deliver capacity building activities, build the information base in the region and promote clear policies and regulatory frameworks but will also promote a more effective use of resources and available expertise in the region and facilitate learning across countries. The project proponents see it as the basis on which the other components will build. It is expected that Kenya will be an important source of expertise and equipment for the rest of the region. A strong argument for ARGeo's regional approach, aside from maximizing the use of regional expertise and the more effective use of resources, is the unified geological setting of the rift and the similar challenges in geophysical data collection and interpretation that countries are facing. Regional fora for exchanging information and experience, and for establishing contacts are therefore included as key project activities.

The technical and financial assistance is being designed to overcome the initial barrier of resource confirmation, and will consist of a package of technical assistance and finance to carry out surface assessments and to bring prospects to the pre-feasibility stage. For prospects that have sufficient data and information, which will be assessed by a scientific advisory panel that the facility will establish, the partial risk guarantee fund will be open. At the stage where an private-sector investor has been identified, the transaction advice window can be accessed. Further details about the four instruments are contained in sections 2.2 and 2.3.
Bilateral, multilateral and financial agencies are invited to participate in the regional network, technical assistance activities, and the risk guarantee instrument. Whilst UNEP and KfW will actively promote and apply the project's broad principles of country ownership, technology transfer, the independent scientific and technical review of proposed surface assessments and exploration drilling funded by ARGeo, and the effective use of regional resources, sufficient flexibility is built in the project to accommodate partners wishing to participate in and contribute to specific activities.

Effective communication, broad participation and management of the project will be ensured through structures and mechanisms at the national, regional and international level that will be established during the appraisal phase of the project. The project implementation structure is clarified in section 2.3.

An important and unique aspect of ARGeo is its systematic and comprehensive approach that will address all the barriers, starting from the early stages of resource confirmation up to the preparation of bankable projects for priority prospects, and the transaction advice in the case of private sector investment.

### 2.2 The Regional Network and Technical Assistance Components of ARGeo

The regional network will deliver three main programmes to address existing institutional, regulatory and technical barriers. They are: a regional geothermal information exchange programme, a capacity building programme and a programme for the promotion of policies and legal and regulatory frameworks supportive of geothermal development. The network itself will consist of geothermal agencies in the region designated as focal agencies for ARGeo, and will rely on network hubs in the focal agencies supported by the facility, and on the Project Management Unit (PMU) located in UNEP, Nairobi for coordination and outreach. In addition, a regional technical coordination group will provide an essential coordination mechanism at the regional level. The network hubs will be connected through a web-based platform that will host a geothermal information metadatabase, directories and technical reports, a newsletter and project related information. Dedicated staff in each of the focal agencies supported by the GEF project funds will be responsible for maintaining the network and for the network coordination at the national level. The network will be designed as an instrument of cooperation and collaboration between institutions in each country engaged in geothermal resources related research, exploration and development.

The rationale for building a geothermal information base in the region is that the geothermal resource information in the region is generally scattered, unorganized and difficult to access, and thus forms an additional barrier to geothermal development. Many valuable reports and data collected during the 1980's exist only in hard copy and risk to be lost. The experience with geothermal exploration in East and South East Asia for example has shown that a critical part of geothermal development is the adoption of a long term resource data collection plan and a systematic methodology of exploration and prioritization. The project proponents believe that the ready availability of the information among a wide range of users in the region will be useful in progressing geothermal resource exploration in several areas starting from higher levels of knowledge.

The second element of strengthening the regional information base and promote learning is the organization of regional technical workshops and biennial East African Geothermal Conferences, as well as participation by experts from the region in international geothermal events. The rationale for this element is that working in the same geological environment, the professionals and technicians of the region have knowledge and experiences which are largely transferable and widely applicable within the region. Forums for the exchange of knowledge and experience will provide a platform for experience and information sharing as well as for regional cooperation, and will contribute towards the overall improvement of performance, whilst new knowledge and skills created or brought into the region can easily be propagated in this manner.

Sustainable geothermal resource development is dependent on the existence of national technical capacities. This is well demonstrated by Kenya and countries in South East Asia. Kenya has made considerable investments in its human resources. Although existing technical capacity varies among the countries, with Kenya strong in geophysics and environmental issues, and Ethiopia in geochemistry, many gaps exist that will need to be filled over the coming decade. The need to strengthen the human resource base in the region will be addressed through the provision of technical training by UNU-GTP and other sources of training, the participation of geothermal professionals in field operations to obtain practical experience, and the organization of short training courses in the region in collaboration with UNU-GTP that respond to

the specific needs of the countries. The UNU-GTP will therefore play a leading role in guiding and implementing the training component of the project.

The third element of the regional component involves the mainstreaming of geothermal energy into the national and regional planning process and power development plans and the promotion of clear regulatory and legal frameworks supportive of geothermal development. The project will promote policy and legislative regimes that allow the integration of geothermal energy resources into overall plans of socio-economic development and specific energy development plans. The aim is to reduce the institutional and regulatory barriers to geothermal investments.

Collaboration with geological surveys and international, regional and national geothermal centers outside the region will be actively sought through the network to ensure that the best available expertise will be brought to bear on the regional network. The regional network activities will be fully integrated with and support the technical assistance and finance components of the project. The combined activities under this programme will directly support the main goal of Argeo, namely facilitating a number of geothermal investments in the region.

At a next level, supported by the regional network, a package of technical assistance and finance will be provided to bring the proposals to the pre-feasibility stage and to assist in preparation of bankable documents. An important element of the support will be geared towards surface exploration to confirm the potential of priority geothermal prospect in each country. The latter will directly address the barriers related to resource confirmation. GEF grants will be available for a limited number of surface exploration campaigns and agencies like BGR will offer technical assistance in undertaking surface assessments. An assessment and expert review of the exploration results at each stage will be carried out in order to achieve high quality conclusions and to make the most efficient use of resources.

The optimization of resource use in the region will be realized by fostering cooperation among the countries and by pooling existing resources. The use of regional expertise and the rotation and sharing of equipment and instruments will be facilitated through the regional network. The sharing of equipment will be modelled on the IRIS-Passcal centre in the US, with which the project will seek affiliation to increase the size of the equipment pool. The geophysical equipment purchased under the JGI project in Kenya for example, will be deployed in the other countries under the Argeo umbrella. Use of the JGI methodology will effectively map high permeability zones and lead to the location of high production wells that will increase the average well production in Kenya from 2.5 MWe to over 5 MWe. It is expected that the JGI methodology will directly contribute to the removal of resource exploration and assessment barriers and will therefore reduce implementation costs related to geothermal energy development.

Where possible, the activities under this component will build on and link up with existing programmes and on-going and planned initiatives with similar objectives at the national, regional and international level.

### 2.3 The Risk Guarantee and Transaction Advice Funds

The financial investment risk barrier associated with the exploration and appraisal drilling phases will be reduced by the risk guarantee fund that will be established by the project with GEF and cofinanciers funds. It will provide guarantees that will allow public entities as well as private developers to trigger the most expensive and risky stages of geothermal exploration and appraisal. The guarantee will provide partial compensation (a fixed percentage to be determined) of the costs incurred in case of failure of one or more wells. Therefore, the rate of success of drilling will determine the rate of depletion of the risk guarantee fund. The structure of the drilling risk guarantee is being designed by KfW.

A Scientific Advisory Panel (SAP), to be established by the facility will advise on eligibility of applications to the fund on the basis of surface exploration and previous drilling results. Applications from both private and public entities will be considered, under conditions which are transparent and the same for all applicants. A fixed premium kept at a relatively symbolic level will have to be paid by the applicant. The SAP will be an advisory body of the ARGEO Steering Committee with a wide scope of work to ensure , and will be composed of internationally recognized experts, selected on the basis of their experience and knowledge of the geologicy of and geothermal activities in East Africa. Its role in the risk guarantee fund, is to determine projects eligibility criteria, provide a scientific opinion on proposed drilling programms, to recommend that the risk guarantee covers part of eligible costs of the drilling or that further studies and information are required, and to determine when a drilling can be considered as a success or as a failure.
The Fund size is suggested to be USD 35 million. This estimation is made with the view of being able to cover, at a maximum of 70%, an investment cost of USD 50 million related to the four priority projects of the pipeline.

In addition to the risk guarantee, an additional window for limited amount of direct grants or contingent grants might be considered for first exploration drilling under certain conditions.

At the investment stage, and in the case of private sector investment, the Transaction Advice Fund will provide neutral advice to the transaction process for geothermal investments from resources owners' responsibility to investors' responsibility.

### 2.4. Project Implementation Arrangements

The ARGeo project will be executed by the Governments of Djibouti, Eritrea, Ethiopia, Kenya, Tanzania and Uganda. Overall responsbility will be vested with the following National Executing Agencies (NEAs): Ministry of Energy and CERD (Djibouti), Department of Mines Ministry of Energy (Eritrea), Geological Survey of Ethiopia and the Ministry of Energy (Ethiopia), the Ministry of Energy and Kengen/GDC (Kenya), the Ministry of Energy and the Department of Geological Survey and Mines (Uganda), Ministry of Energy and Minerals (Tanzania). These agencies will implement the project in collaboration with other national government agencies, institutes and universities.

UNEP will be responsible for overseeing the successful achievement of the project objectives and will also be the international executing agency for the regional network and technical assistance components of the project. KfW will be the executing agency for the risk guarantee fund and the transaction advice components. UNEP will establish a Project Management Unit (PMU) in its headquarters in

Nairobi, to handle the overall management, administration and financial management of the project.

A Project Steering Committee will be maintained at the international level to provide guidance to the project and monitor progress and performance. A Regional Network Coordination Group will be established comprising representatives from the National Executing Agencies, to ensure coordination at the regional level.The group will be supported by a network coordinator in the PMU.

In order to achieve high quality and the most cost-effective pre-feasibility studies, an international scientific advisory and review panel will be established, comprising recognized regional and international experts.

Management and coordination of the project at the national level will be ensured through national project coordination units, and national project management and advisory groups.

## 3. PRIORITY PROSPECTS

A pipeline of priority geothermal prospects was prepared by each of the six countries for consideration by the project steering committee.

In Djibouti, the development of the Assal field is the first priority, with Gale Le Koma, Obok, Gaggade and Lac Abhe also listed as areas with high potential where further surface exploration is required[3]. The most explored geothermal resources of Djibouti are those of the Asal rift where geophysical surveys carried out after the end of the last phase of drilling in 1988 have isolated an area of resistivity anomaly which has the characteristics of a geothermal upflow zone encased within a volcanic collapse structure, offering a very good target for the discovery of a high temperature geothermal reservoir.

Kenya submitted Longonot to ARGeo as a priority proposal. The Longonot Geothermal Prospect is sixty kilometers NW of Nairobi[4]. The geothermal system is hosted by the Longonot volcano that covers an area of about 35 $km^2$. Longonot volcano is adjacent and to the East of Olkaria volcanic complex at which three geothermal power stations presently generating 127 MW have been developed. KenGen carried out detailed surface investigations at Longonot Prospect in 1998 that included integrated geological, geophysical and geo-chemical surveys. These investigations concluded that Longonot is a good prospect with a large centralized magma chamber heat source beneath the old caldera.

In Ethiopia, two geothermal prospects have to date been subjected to exploration drilling by 11 deep wells. Of the 16 geothermal potential areas, Aluto Langano and Tendaho are the two priorities for Ethiopia[5]. The 7.3MW pilot geothermal plant, built at Aluto in 1997, and shut down in June 2002, will be rehabilitated. The most explored geothermal field after Aluto is Tendaho, which is the priority prospect submitted to ARGeo. Tendaho is the prospect that can be most easily advanced to the development stage for inclusion in the schedule of power projects to be executed following the completion of the Tekeze hydro-electric plant currently under construction. Three shallow and three deep exploratory wells were drilled during 1993-98 and encountered a shallow resource at 220-240$^{O}$C temperature in the depth range of 200-600m. The exploration drilling also showed the existence of temperatures reaching up to 278$^{O}$C at depth. The Tendaho geothermal area is well understood in its geological make up. A wide range of geochemical investigation techniques have been applied during the detailed exploration and have shown it to be a large resource potential area of good quality and most probably consisting of more than one reservoir capable of being developed and economically exploited.

In Eritrea, Alid has been the most studied geothermal prospect, although no drilling has taken place yet. Alid is identified as a potential high enthalpy geothermal resource due to evidence of geologically young rhyolitic volcanism within the context of spreading-related basaltic volcanism [6]. At least 11 geothermal areas have been identified on Alid. Fumaroles and thermal pools are found on the northern half of Alid suggesting that a hydrothermal system underlies most of the volcanic center. An area of 10 $km^2$ has been identified as having a high heat flow. Gas geothermometry has indicated most temperatures are between 190° C and 350° C with a median temperature of approximately 270° C. Results USGS/MEM studies suggested the presence of a hot upper crustal magmatic or plutonic body beneath the Alid Mountain. The geologic structure and tectonic environment of Alid were considered highly favorable for producing and maintaining substantial fracture permeability beneath the mountain that may extend north and south from the mountainous base. USGS determined that the overall temperature and permeability conditions of the area were favourable for the existence of an electrical grade geothermal resource and recommended additional analyses that, if favorable, would lead to exploration drilling to depths of 1.5 to 2 km.

Tanzania submitted three priority prospects ranked as follows: Mbeya, Rufiji and the Natron-Manyara area[7]. Very limited exploration data exist for Tanzania and therefore the first step would be to carry out further surface assessments. In Mbeya, past volcanological studies indicate the existence of a magma body that is still at high temperature, the last instance of volcanic activity having taken place about 200 years ago. The limited exploration data, supported by other geological information, has enabled the determination of two zones that warrant the execution of detailed investigations leading up to an early identification and development of one or possibly more geothermal reservoir. In the Lower Rufiji Basin, petroleum exploration well log data are reported to show a temperature gradient of twice to four times the global average temperature gradient. These show that the zone is one of abnormal heat-flow. The existence of strong aeromagnetic anomalies delineated during petroleum exploration is thought to indicate a buried magmatic regime, which, if confirmed would further enhance the exploration attraction of the area. Lake Natron is located within the area of young volcanism. No information exists beyond chemical analyses data, spring temperature measurements and discharge estimation. Because of the close proximity of the springs on the southern lakeshore to the active volcano Oldonyo Lengai,

[3] Ministere de I'Energie et des Ressources Naturelles, Djibouti (2004)

[4] Kenya Electricity Generating Company Limited (2004)

[5] Geological Survey of Ethiopia (2004)

[6] Ministry of Energy, Erirea (2004)

[7] Ministry of Energy, Tanzania (2004)

the southern part of Lake Natron area has been considered as having a development potential. The area leading from the lakeshore toward the volcano has thus been subjected to reconnaissance geophysical surveys during July 2004, as part of the inventory of energy resources for rural electrification.

At the time of writing this paper, Uganda had only just endorsed the ARGeo project, and had not yet submitted a pipeline of projects.

## 4. CONCLUSION

The first 8 months of the development phase of ARGeo has enabled the participating countries and the project agencies to come to a common and better understanding of the different components encompassed by ARGeo and has produced a pipeline of projects in the target countries, and quite detailed proposals for the network, technical assistance, and risk guarantee fund components. Meetings and conferences have built partnerships that will lay the foundation for the implementation phase of ARGeo.

In the remaining months before the submission of the full project proposal to the GEF, some of the proposed activities will be further detailed and delineated on the basis of additional information from the countries and partners, and efforts to identify additional partners, financial institutions, and investors will increase. The required size and budget of the Risk Guarantee and Transaction Advice Fund, and the technical assistance wil be determined on the basis of the priority prospects identified by the countries. The Terms of Reference for the project steering committee, scientific advisory panel, national management and advisory groups will be developed for consideration by the project steering committee.

The project agencies will also endeavour at this stage to link up and build on existing initiatives internationally, in the region and in the countries to ensure ARGeo's integration in on-going and planned programmes, and to build a true platform for geothermal development in Eastern Africa.

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