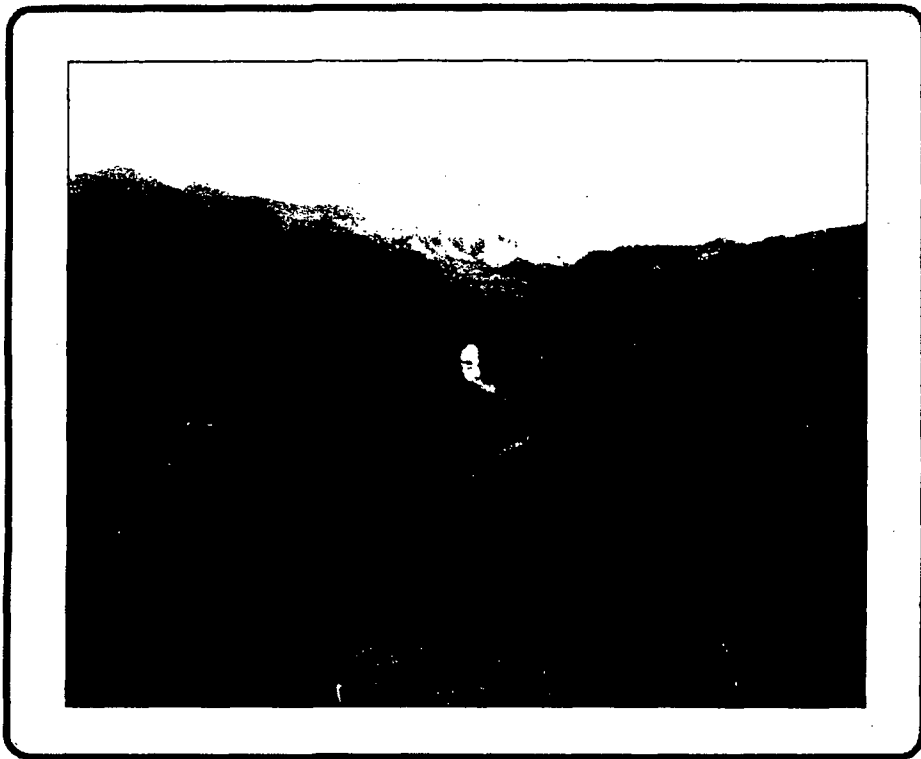


**Terms of Reference
Economic, Financial and Technical Assessment**

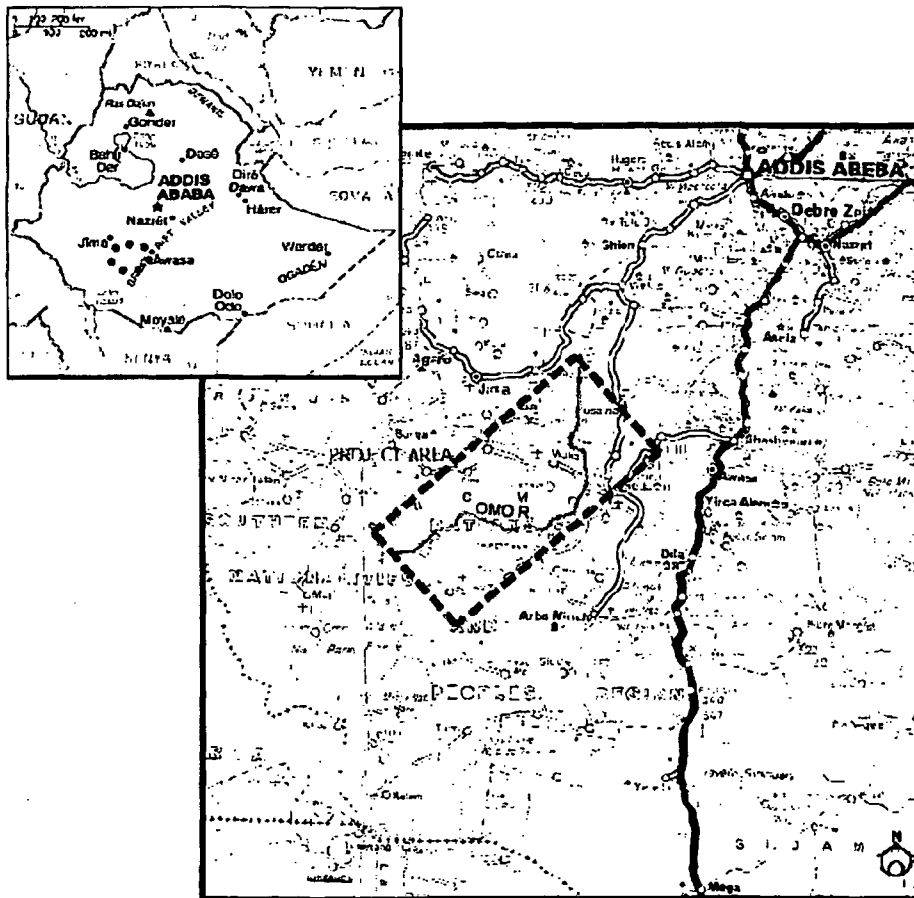
**Ethiopia
Gibe III Hydro Power Project**



1. Introduction

1.1. **Proposed Project.** The Gibe III HPP is proposed to be an 1870 MW hydropower project in the Omo-Gibe river basin in Ethiopia (the Project). The project site is located about 155 kms downstream from Gilgel-Gibe II Power House. Situated 470 kms south of Addis Ababa (via Shashemene), in Welayta-Dawro Zones, Gibe III will be the largest hydropower project in Ethiopia. This power plant will be the third project on the Omo-Gibe river basin, which has an operational 184 MW Gilgel Gibe I plant and a 420 MW Gilgel Gibe II plant, currently under construction.

Figure 1: Location of the Project



1.2. The proposed power plant is expected to generate on average 6,500 GWh/annum of energy¹. For the construction of Gibe III, Ethiopian Electric Power Corporation ("EEPCo"), the State owned electricity utility, has entered into an Engineering, Procurement and Construction

¹ About 5,300 GWh/annum is expected to be generated on a firm basis.

turnkey contract with Salini Costruttori S.p.A. (Italy) on a sole source basis with the understanding that the Electro-mechanical and Hydro-mechanical works will be undertaken by international competitive bidding. The EPC contract² is estimated to Euro 1.47 Billion. Salini Costruttori S.p.A. also constructed Gilgel Gibe I and is currently building Gilgel Gibe II. Another hydropower project Salini is currently involved in Ethiopia is the Beles hydroelectric power project (expected to be completed in 2009).

1.3. **Primary Developmental Objectives of the Project.** Ethiopia has one of the lowest electricity access rates in the world with about 25% of Ethiopians connected to electricity. The condition in rural areas is even more abysmal, with only 2% access rate. About 90% of the population depends on biogas energy because of lack of any alternative solutions for energy. Hydropower potential in Ethiopia is estimated to be one of the highest in Africa and over 300 sites have been identified for possible development.

1.4. To meet its increasing demand, Ethiopia has embarked on an accelerated electrification program to increase the low rate of population access to electricity from current 25% to 50% by 2010. In addition, the Government of Ethiopia ("GOE") would like to monetize their vast hydropower resources by exporting the power to the subregion, especially to Kenya. EEPCo is preparing itself to export 50 MW to Djibouti, up to 200 MW to Sudan, and up to 1000 MW to Kenya in the medium term. The proposed Project supports these objectives of GOE by providing large amounts of primarily and secondary energy to the grid to meet both the objectives – increasing power supply to the domestic grid for increasing access; and exporting excess electricity to the subregion to meet the demands for electricity in neighboring countries in an environmentally and socially sustainable manner.

1.5. **Project Structure and Financing.** Gibe III is expected to cost Euro 1.47 billion excluding contingencies, interest during construction and implementation of the Environment and Social Management Plan. Gibe III is a public sector project. Construction related contingencies are included in the EPC Contract, except for those arising from cost of fuel and cement. As no commercial take or pay PPA is associated with the project, delay related direct contingencies are not expected to be material for EEPCo, except those arising for continued project implementation costs.

1.6. In addition to internal cash generation by EEPCo, the Ethiopian government has applied for loans from the European Investment Bank, the African Development Bank and the Government of Italy. EEPCo is also considering potential financial support in the form of Guarantees as proposed by the International Development Association (IDA), part of the World Bank Group (WBG). In addition, but also depending on the final project structure, it is likely that the Project may be supported by the provision of guarantees from the WBG's political risk insurance arm, the Multilateral Investment Guarantee Agency (MIGA).

1.7. **Key Existing Studies and Information:** EEPCo and its EPC contractor have undertaken technical, financial, environmental, and social due diligence of the Project and the Project is at an advanced stage. The emphasis of the Assessment to be carried out by the Consultant will be to review work already completed by others, supplemented by any additional input, with objective of presenting a clear and comprehensive assessment of the economic, financial, and technical

² The EPC contract used is the General Conditions of Contract for EPC/Turnkey Projects as published by the International Federation of Consulting Engineers (FIDIC).



review and recommendations to the financiers of the Project. Annex I to this Terms of Reference provides a list of documents, which will be made available to the Consultants.

2. Purpose of the Gibe III Project Assessment

2.1. The Consultant Report, produced under this Terms of Reference would support the World Bank Group's, EIB's, and AfDB's (together, the "Banks") assessment of the Project. It is expected that the Consultants will conduct an independent review of the significant (i) economic/financial, and (ii) technical aspects of the Project; the environmental and social due diligence of the Project would be carried out directly by the Banks.

2.2. This study will be carried out by a consortium of consultants with international experience in large infrastructure projects and with the adequate skills that match the key review parameters. The expected report will present costs and benefits of the project, identify any areas of improvement, recommend potential mitigation measures for identified issues, and as a whole represent an independent view of the overall costs and benefits of the Project to the key stakeholders.

2.3. The overall objective of this Project assessment will be the following:

- a) The objective of the Economic and Financial Assessment will be to review the economic and financial feasibility and viability of the project, and analyze whether the benefits from the project are worth the investment. Thereby, the study will also evaluate whether the project, as proposed by the owner, EEPCo, is one of the least-cost options among a number of generation alternatives and that costs and design have been optimized.
- b) The objective of the Technical Assessment will be to review: (i) project sustainability; and (ii) whether the goods and works to be procured for the project ensure satisfactory quality and are compatible with the balance of the Project. The assessment shall review the project's procurement and procedures used to fulfill the EEPCo's obligations to cause the project to be carried out diligently and efficiently, and that the goods and works to be procured:
 - are of satisfactory quality and are compatible with the balance of the project;
 - will be delivered or completed in timely fashion; and
 - are priced so as not to affect adversely the economic and financial viability of the project and are consistent with international benchmarks for comparable projects.

2.4. Information necessary to the assessment will come from a number of existing studies (see Annex I) and ongoing work carried out by EEPCo and its consultants, the EPC Contractor and studies carried out by their consultants.

3. Detailed Scope of Work

For the purposes of presentation and to bring the scope of works necessary for the different assessments in line with their different objectives, the following will outline the scope of work as per the assessment type. This however does not prevent any candidate for this assignment to make proposals for any potential rearrangement of tasks under or across the different headings.



It should be noted that the Consultant to be elected will bear the responsibility for the adequate fulfillment of all the different tasks outlined under the three scopes of work.

3.1. Scope of Work – Economic and Financial Assessment

(a) Electricity Demand Forecast

1. To review the overall economics of the project, the consultants will conduct an examination of available documents to assess the electricity demand forecast analysis for Ethiopia and surrounding countries (Kenya, Djibouti, Sudan, Uganda and Tanzania) including an assessment of the distribution network (transmission lines, substations, interconnection points, etc.), where electricity could potentially be exported from the Ethiopian system in the medium to long-term.

2. The demand forecast will have a separate component for the export market. This task is to determine the sizes and qualities of power supply Kenya, Uganda, Tanzania, Djibouti, and Sudan are likely to purchase from Ethiopia. This study should include an assessment of market and payment risk that will be borne by EEPCo and its lenders, including an assessment of the incremental costs of exporting firm capacity/energy and non-firm energy from Ethiopia to the importing countries, and consideration of a reasonable upper limit on the extent of firm capacity export that would be mutually acceptable to the respective governments. This analysis of export potential should take into account the reports available on the East Africa Power Master Plan, as well as the existing market research prepared for the feasibility study of the international transmission lines projects.

(b) Project Alternatives

3. The consultants will carry out a high-level economic least-cost analysis (technical, economic, environmental, and social) of the reasonable project alternatives that meet the development objectives of the Project (see Section 1.3 above). The following is an outline of the main alternatives. This list should not be considered exhaustive; the consultant is encouraged to add reasonable project alternatives to this list, in order to explore ways to meet the developmental objectives.

Alternative 1: Other sources of energy within Ethiopia

4. The consultants will explore the potential of a mix of other sources of power generation in Ethiopia, such as geothermal, wind, biofuels.

- **Geothermal:** Various studies identify that Geothermal has about 1000 MW of development capacity in Ethiopia. The consultants will need to explore this option further with a view of potential exports to the sub-region.
- **Wind:** There is an 80-120 MW potential of wind energy in Ethiopia. Given the demand, both wind and geo-thermal can be part of generation mix. The consultant will evaluate this option as well.
- **Thermal:** Ethiopia does not dispose of large genuine gas, coal, or oil resources and therefore would have to import any of those fuels for the generation of an equivalent amount of energy output to match the Gibe III capacity.



5. This section will consider the economics and timing of the subject project in relation to alternative generation options and the necessary incentives to support the required investment in new generating capacity.

Alternative 2: No Gibe III project

6. The consultants will also analyze the Generation scenario with no Gibe III, but possibility of development of other hydropower potential in Ethiopia. This assessment of alternative hydropower projects has to confirm whether the same amount of energy can be produced within the timeframe of the Gibe III project and the cost, environmental and social implications of such alternatives when compared to the Gibe III.

Alternative 3: Energy Import from other Neighboring Countries

7. Neighboring countries such as Sudan (Thermal), Somalia and Djibouti have very limited generation capacity. The Consultant will review if there is a potential of meeting the sub-regions power demands from any other countries in the sub-region; and assessing the timing and cost implications of such alternatives when compared to the Gibe III.

(c) Estimated Project Costs

8. The Consultant will review the final estimates of the Project Costs, including estimated capital, financing and safeguard costs, and assess the reasonableness and level of precision of such estimates. The Consultant will also recommend whether the procurement process undertaken by EEPCo has resulted in a least-cost option for the proposed project (see section 3.2 for complete terms for this assessment).

(d) Direct Social and Environmental Costs and Benefits

9. An assessment of these benefits have been carried out by EEPCo and such documents and reports will be made available. The Consultant will review the expected net social and environmental costs and benefits from the Project and Project alternatives and will provide the relevant costs stream as well as the benefits stream over the Project life. The Consultant will review the quantification of these benefits and costs. Social benefits might include employment opportunities, knowledge and skills transfer, and other general benefits such as stimulating economic growth. Environmental benefits might include reduction in CO₂ emissions and reduction in pollution emissions (from switching from conventional fuel oil to hydropower resources, especially in the importing countries). In addition, the assessment should consider the net benefits that a secure and reliable source of energy may provide over the long term in attracting inward investment to the Region. Examples of the benefits offered by similar projects should be included.

10. In light of the uncertainties that usually characterize such estimates, this study will produce a reasonable range of costs and benefits for each one of the identified factors, and the results of these calculations will be appropriately attributed to the relevant power projects and internalized in the least-cost and ERR analyses.

(e) Direct Project Economic and Financial benefits

11. The consultants will review: (a) the project's overall net economic and financial costs; (b) the economic benefits and the financial benefits expected to be generated by the project in Ethiopia and each export country. Both benefits and costs are defined here as incremental compared to the situation without the project and include environmental benefits, for example flood control, etc. This should include an analysis of the benefits hydropower over other fuels in terms of cost and other benefits. The consultants will assess the impact on the host countries' revenues and balances of payments. The analysis should estimate the economic rate of return (ERR) of the project. Sensitivity and scenario analyses on key variables should also be undertaken.

(f) Project Economic Rate of Return (ERR)

12. This part of the Project Assessment will calculate the ERR for the Gibe III project, and variances to the ERR caused by variances in the values of uncertain variables that contribute importantly to the ERR. In the ERR calculation, the benefit stream will be derived from the annual consumer willingness to pay and/or cost of alternative generation in importing countries for incremental power consumption from Gibe III plus any incremental environmental and social benefits that are uniquely identified with the project. The costs include all the incremental economic generation, transmission, distribution, and environmental/social costs and losses associated with electricity production from the Gibe III project.

13. This means that the analysis must tie-in the incremental network costs associated with expanding the grid in a manner that is consistent with the grid expansion and the interconnection program underlying the use of Gibe III power forecasts used in the benefit calculations. Detailed methodology for the ERR calculation will be agreed between the Consultant and the Banks.

(g) Macro-economic Analysis

14. Power sector investments and the resulting stream of domestic and international financial obligations could have macro-economic impacts on GDP growth, the Government's fiscal position, the country's balance of payments and the exchange rate. The consultant will adopt a macro-economic model for Ethiopia suitable for measuring these impacts and demonstrate the macro-economic implications of development of the Gibe III project.

15. Specifically, the consultant will analyze the net fiscal impact (export earnings minus debt repayment obligations) with appropriate sensitivity and scenario analysis to assess the net foreign exchange earning capacity of the project.

(h) Financial Analysis

16. The financial assessment would include the following sets of analyses:

(i) The Consultant will be required to update EEPCo's financial model for Gibe III and assess the overall financial viability of the project. The Consultant may choose to develop a new financial model to accurately forecast the net cash flow to EEPCo from the project. The model will be used to calculate revenue requirements and a pro-forma cost of generation. The cost of power from Gibe III, so calculated should be based on industry standards for project financing and need to be at a level sufficient to recover current and incremental

commercial supply costs, repayment of debt and sufficient dividends to EEPCo. The financial model should also include (but not limited to) potential cost overruns, contingencies, maintenance costs, plant availability, accounting principles (IFRS), tax charges, foreseen penalties. The model should be finalized in an integral way where key provisions from certain project agreements and financing documents are adequately represented in the model. The model should also be reliable and suitable for sensitivity analysis with respect to key operating and financial parameters.

(ii) The tariffs so calculated will be compared with the electricity prices underlying the demand forecast, to review whether the demand forecast is likely to be "affordable" and therefore sustainable. The tariffs referred in the preceding two paragraphs are economic tariffs (i.e. with no subsidies or cross subsidies). In case that the tariffs are viewed as still including a component of cross-subsidy, the financial analysis should be based on the tariff structure as it exists and is expected to evolve. The consultant should discuss the expected evolution of tariffs with the relevant government institutions to review if and how these subsidies and cross-subsidies would be phased-out over time. In conducting the above analysis, the Consultant will take into account the conclusions of the tariff study currently being undertaken by EEPCo.

(iii) Building from existing financial analysis of EEPCo (undertaken by the EEPCo and official partners), the Consultant will update and provide a prospective financial analysis of EEPCo. These analyses would be based on the financial projection model developed by EEPCo, including costs associated with its investment program. The Consultant may choose to develop a new financial model to accurately forecast EEPCo's overall financial statements. The primary aim of this analysis is to assess the financial sustainability of EEPCo, and in particular its ability to repay its long-term financial obligations.

(i) **Assessment of the Project risks**

17. The main purpose of this analysis is to identify the key areas of risk that could affect whether the project meets its developmental objectives. The consultants will assess the sources, magnitude, and effects of project risks on the expected benefits and costs and in terms of project implementation.

18. Such risks would include those related to the uncertainty in key variables such as project costs, geology, hydrology, design, construction, supply of equipment, maintenance, transmission lines etc. The options and associated costs for mitigation of all or part of such risks through credit enhancement guarantees and other insurance arrangements should be considered. Risks associated with political unrest and acts of terrorism should be considered. An appraisal should be made of the proposed role of the World Bank Group in risk mitigation of project risks.

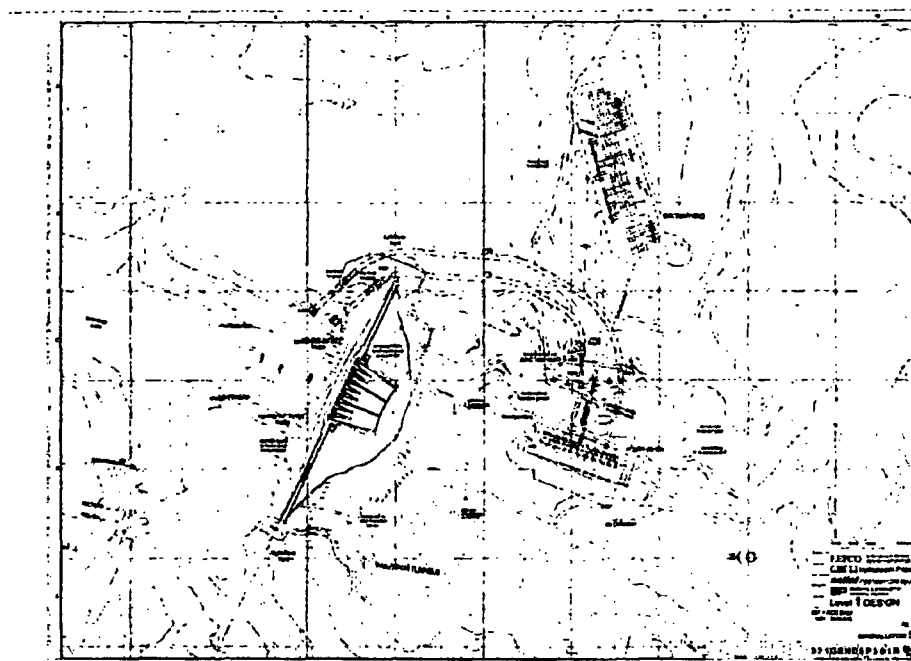
3.2. Scope of Work – Technical Assessment

The project is located in favorable site conditions with an excellent dam site (in a narrow gorge with favorable geological conditions, especially in the bottom basalt layers in otherwise mixed volcanic rocks further up). Volcanic ash expected suitable for use in the RCC mix exists in the project area. With an advance payment of Euro 58 million, Salini has started construction of the power plant in July 2006. Presently about 21% of the civil works have been completed. Based on the procurement procedures of the African Development Bank and the European Investment Bank, a competitive process for the electro-mechanical and hydro-mechanical works,



respectively, is being undertaken. Ongoing works include diversion tunnels (blasting and concrete lining), excavation of main dam abutment, excavation of gravel (alluvium material) from riverbed and stockpiling, construction and rehabilitation of access roads and erection of camps and offices. Current staff comprises about 107 expatriates, 2357 local Salini staff, 500 local subcontractor staff, and 250 casual labor. A map is provided below proposed site installations.

Figure 2: Map of Site Installations



EEPCo, as per best industry practice, hired a joint venture of ELC-Electroconsult and Coyne et Bellier as Employer's Representative (ER). The ER has helped EEPCo in reviewing the project feasibility, EPC negotiations, project designs, as well as continues to supervise the construction activities (such reports will be made available to the Consultant). A site visit and preliminary review has indicated that Salini is undertaking the project as per industry standards. The technical quality of the works at the diversion tunnels is good (even blast contour, good quality concrete lining, high standard construction camp, high standard houses and offices). Relevant site safety and environmental measures have been implemented).

In addition, EEPCo continues to supervise and manage the project construction activities through an experienced Project Management team. The dam type has been changed from rock-fill to Roller Compacted Concrete ("RCC") mainly due to insurance and dam safety aspects. Dam height is expected to be 240 meters. RCC works are expected to begin in July 2009. An addendum to the EPC contract was signed in April 2008 to include the change in dam type.

The consultants will undertake a detailed technical review of the project to ensure project sustainability and adherence of the project to international standards. This Technical Assessment will include the following:

(a) Plant Design

1. Review the fundamental plant layout and design, construction of the plant, interfaces and assess and comment whether the plant and its components are designed with appropriate levels of redundancy to allow the plant to comfortably meet the required availability, reliability, and overall performance quality requirements throughout the Project's life.
2. Review and comment on critical component categories, including the dam, spillway, middle outlets, power waterways (i.e. two power tunnels, two surge tanks, two vertical underground penstocks), powerhouse and switchyard.
3. Review design specifications and assess whether the technical parameters of the plant will be consistent with industry standards and good engineering practices employed by power producers, and the requirements under the relevant Project Agreements.
4. Create and review a checklist of the critical points of design, including interconnection with the grids.
5. Review the design in accordance with prudent industry standards for plants utilizing similar technology, including:
 - i. the logic of the proposed site location and layout, including the integration of mechanical and electrical aspects with the balance of the plant, plant factor, dam safety aspects etc.;
 - ii. the role of Gibe III in a cascade of hydropower projects on the Omo river including possible downstream projects;
 - iii. the design of major systems, including system operations and reliability;
 - iv. the logistics and materials flow on- and offsite during the construction period;
 - v. significant design calculations to confirm the logic and accuracy of preliminary design data;
 - vi. seismic criteria for design;
 - vii. the level of spares to be required during operations; and
 - viii. the consistency with each equipment to be utilized.

(b) Site Visit

1. Review the site characteristics and assess the overall suitability of the site to accommodate the Project. The Consultants will also comment on the technical and non-technical issues, including but not limited to:
 - i. geotechnical review;
 - ii. topography;
 - iii. road access;
 - iv. the transportation systems for heavy equipment and access to the site;
 - v. the availability of the construction equipment during the construction period;
 - vi. interconnection to power and plant wastes;
 - vii. accessibility to the project site
 - viii. the availability of adequate work force, skills, and housing, particularly during the construction period;



- ix. transmission lines;
 - x. climate; and
 - xi. earthquake, flood and natural disaster risk.
2. Review the available documents and assessment reports on the environmental quality of the site.
 3. Review the construction work already undertaken at the site.

(c) Technology

1. Review EEPCo's requirements and any other functional requirements stated in the EPC Contract. Provide technical advice and issue an opinion on the operation of this dam type and equipment to the prospective lenders regarding machinery breakdown and associated insurances.
2. Review any other issue that could impact the operations of the Project and an evaluation of expected performance under the forecast service regime.

(d) Hydrology

1. Review the historic hydrological record for the Omo river at the Project site and analysis undertaken by the Owner's Engineer ("OE") to assess its adequacy and reliability when compared to the capacity of the reservoir and the operational requirements of the Project.
2. Review the impact of Gibe III to assure optimal operation of the hydropower projects (in a cascade or otherwise) already developed and to be developed on the Omo-Gibe river basin.
3. Review the historic hydrological record for the Omo River to assess its propensity for flooding.
4. Review, if any, riparian release obligations proposed in the ESIA/ESMP which are deemed necessary to appropriately mitigate downstream impacts, both during reservoir impoundment and operation.
5. Review the quality of the water with regard to the potential effects it can have on the structure and equipment of the Project and as input to the EIA.
6. Review simulations based on historic hydrologic records with a weekly model (taking into account seasonal effects) of the reservoir, water inflow and outflow, and plant operations.
7. Review the potential impact that climate change in the region could have on the project based on latest available scientific information from the Intergovernmental Panel on Climate Change (IPCC) and others. To this extent, the Consultant will review the work undertaken by the World Bank regarding climate change assessment of the subject river basin in Ethiopia.

(e) Geology

1. Review and comment on the geological data made available to assess its adequacy and reliability when compared to the water tightness of the reservoir and the construction and operational requirements of the project.
2. Review and comment on the appropriateness of the geological risk allocation between EEPCo and the EPC Contractor and his sub-contractors.

(f) Review of major Project Agreements with regard to technical aspects

1. The consultants will review and comment on the technical and commercial contract documents and other documents to ascertain their sufficiency for the EFTA.
2. The consultants will also identify and review the licenses and permits required for the construction, testing and operation of the plant, including and without limitation, safety, emissions, noise, reporting requirements.
3. The consultants will also review the major Project Agreements (not limited to issues listed below) with respect to overall plant availability during the operations period.

EPC and Principal Sub-Contracts

4. The review of the EPC contract and Principal Sub-contracts will offer an assessment of potential major issues, which might include, but not be limited to, the following:
 - whether the plant and equipment procurement plan will enable the Project to be in compliance with the procurement laws of Ethiopia, the Guidelines for procurement for the EIB/AfDB and WB (those applicable to World Bank guaranteeing third-party loans) and international standards;
 - scope, terms and conditions of the contracts and the completeness of the procurement packages as designed, and recommendations on any modification or clarification required, with comment on their suitability, their conformity to recognized industry standards and their compliance with provisions and technical specifications included in the relevant Project Agreements and regulatory considerations;
 - areas of potential cost overrun or recommended pieces of equipment that are not covered by the contract, including change order procedures;
 - Contract Price breakdown, especially unit costs of cement with a view to domestic cement production capacity versus imports and materials and consumables with high price increase;
 - whether rock and soil testing is adequate and weather-related design parameters are appropriate and assess the adequacy of the warranties for civil work;
 - verification of the potential underground risk which may or may not be covered under the EPC;
 - experience, reputation and selection criteria of the Principal Sub-Contractors;
 - adequacy of the proposed construction milestone schedule with respect to design, procurement, fabrication, shipment, on-site installation, start-up and testing procedures, the likelihood of achieving the required milestones in the relevant Project Agreements, taking into account seasonality considerations and the impact of any potential delays that would not be covered otherwise and appropriate remedial actions;



- adequacy of provisions for commercial and final acceptance;
- EPC Contractor's liabilities including performance guarantees, post completion warranty and force majeure; the adequacy of the liquidated damages for performance shortfalls or delays for the EPC and Principal Sub-Contractors
- principal sub-contractors performance guarantees and warranties, liabilities (if any)
- sufficiency of guarantees and warranties provided by the EPC Contractor, and as appropriate subcontractors and manufacturers of major plant parts;
- adequacy of the project completion tests from the Financing Parties' perspective including but not limited to testing procedures, performance tests, reliability runs and final acceptance tests;
- review and assessment of which aspects of the civil foundation and geotechnical problems are clearly the responsibility of the EPC and the sub-contractors and which are clearly the responsibility of the GOE;
- proposed payment schedule under the EPC and its conformity in light of similar projects and of the construction schedule;
- interfaces between the EPC and the Principal Sub-Contracts; and
- development and/or review of the Project's critical path.

Potential Cost Overruns:

5. Prepare a reasonable estimate of possible cost overruns that would not be covered by the liquidated damages provisions of the EPC warranty and/or machinery breakdown and insurance policies. The estimate of potential cost overruns will include but not be limited to:
- financial carrying costs and additional contractor claims that could result from force majeure events or other events that would not be covered by insurance;
 - technical modifications that could be required at the expense of EPC Contractor for items not included in the EPC; and
 - provisions for unforeseen events.

Operation and Maintenance:

6. Review, discuss and comment on the proposed arrangements for operation and maintenance of the plant and any associated facilities by EEPCo: Assess whether EEPCo has the technical and financial capacity to undertake operations and maintenance of the proposed plant to industry standards;
7. Based on past experiences with private operations, assess whether EEPCo's plans for O&M will meet the requirements generally set by international commercial lenders including spare parts requirements, maintenance reserve requirements to meet scheduled and forced outage requirements, and metering arrangements;
8. Review the current emergency preparedness and communication plans (especially to the project affected people) followed by EEPCo and recommend improvements to include the operations of the Gibe III plant during impoundment of the dam and operations; and
9. Recommend capacity building measures that EEPCo may consider for improving its capacity for such operations and maintenance including staffing needs and proposed training programs and the adequacy of the proposed budget for operations and maintenance.

(g) Review of the Procurement Process for the EPC Contractor, Principal Sub-Contracts and Outcomes:

1. As indicated before, EEPCo selected Salini Costruttori, S.p.A on a sole source basis as the EPC Contractor for the Project in 2006. The electro-mechanical and hydro-mechanical equipment supply is part of the EPC Contract. The EPC Contractor, in order to accommodate EEPCo's financing requirements, is implementing AfDB and EIB procurement procedures (on a competitive bidding basis) for these works.
2. This review of the procurement outcomes is to determine whether they meet the objectives laid down in Section 2.3 (b).
3. The Consultant will review the procurement of the EPC Contract, and most importantly the procurement outcomes, and opine on:
 - i. the extent to which contract awards adhere to the principles of economy and efficiency;
 - ii. whether the procurement process are consistent with the applicable provisions of the World Bank's Procurement Guidelines (see attached Guidelines, Section 3.16 and 1.5) for the civil engineering, hydro-mechanical and electro-mechanical components; and
 - iii. with respect to electro-mechanical and hydro-mechanical contracts, the consultant shall undertake a high-level review of the documentation (including Bid Evaluation Report prepared by the EPC Contractor in accordance with the AfDB and EIB procurement guidelines) and relevant GOE review report covering the entire procurement process for electro-mechanical and hydromechanical works.
4. The Consultant shall also carry out a review of the EPC Contract Price received by EEPCO to determine whether the proposed rates and prices are reasonable and appropriate (as estimated in 2006) taking into account the particular conditions associated with the project such as: location of the project site; local and international business environment; requirement to secure (in some contracts) associated financing; and proposed risk sharing arrangements.
5. This review should include a comparison between comparable rates and prices for other hydropower projects that have been bid within the last five years in Africa and other similar developing country environments. To increase the number of available comparators, escalation adjustments and relationship curves should also be brought to bear (for example, for turbines these would be curves relating cost per kW to MW, head and number of units).
6. With respect to Consultant's review of the EPC Contract, the review should separately focus on two components: design and construction supervision; and risk premium. The review of the design and construction supervision component should include an assessment of the number of man-months of services, the sourcing of engineering services and rates appropriate to the source. The review of the risk premium component should include a high-level risk analysis taking into account the types of risks, the likelihood of their occurrence, probability distribution of financial consequences, and risk allocation between the various parties. In carrying out this review, the Consultant should also take into account any additional data provided in similar reviews carried out by the Employer's Representative and the EPC Contractor.

(h) Dam Safety - Panel of Experts

1. The Consultant will review the existing monitoring arrangements undertaken by EEPCo for the project, and indicate whether a separate independent Dam Safety related Panel of Experts



is recommended or existing arrangements are can be used to conduct any additional monitoring, if and as required.

2. Based on the review of the Terms of Reference and monitoring report of the ER, the consultants shall recommend matters for which EEPCo may need specific input from additional experts, especially w.r.t dam safety and emergency preparedness plans of the EPC Contractor and EEPCo.

3. If a terms of reference for such a Panel, required expertise and profiles for the experts is available, these shall be reviewed and commented upon by the Consultant and provided to the Banks.

4. Staffing and Standards of the Consultants

4.1. The consultants will be selected based on the key personnel identified. The consultants will uphold the highest standards of integrity and provide an unbiased, independent viewpoint; provide expert advice that is objective and is based on documented information, discussions, and field observations; maintain records of their work and their findings; report on their work in a professional and timely manner; and maintain the confidentiality of any information or documents pertaining to the commercial or proprietary aspects of the project that the consultants may receive from the Bank or Government of Ethiopia.

4.2. It is expected that the Consultancy would require a Joint Venture or Consortium of Economic/Financial Advisors and Engineering Advisors.

4.3. The Consultant shall propose a project core team of 4-6 specialists. It is envisaged that highly experienced energy economist or hydropower engineer would serve as the team leader and/or deputy team leader. The Consultant should propose and justify the range of disciplines to be included in the core team and the complementary skills of other short-term specialists. The inputs of all specialists should be clearly indicated as it is anticipated the majority of the work program would be carried out by individuals highly experienced in their professional fields and aligned with the tasks assigned. The Consultant should provide a competency statement of similar studies undertaken.

4.4. The team leader should have a minimum 15 years professional experience working in power projects, familiarity with appraising large power projects, demonstrated ability to work with government officials, and a proven track record on managing and coordinating a group of professionals. The entire team may include the specialists listed below, but should not be necessarily confined to the listed specialists:

- a) team leader;
- b) financial expert;
- c) economic expert;
- d) hydropower engineers leading various disciplines; and
- e) procurement/costing specialists.

4.5. The Consultant should enlist individuals to participate in specified roles within the team and provide full curricula vitae and any other information considered relevant by the Consultant. The Consultant should provide an assurance that all members of the proposed team will be made available as specified in the proposal, if the Consultant is identified to

undertake the task. If the consulting firm lacks any of the required expertise to complete the scope of work, reputable outside consultants, acceptable to the Bank, may be sub-contracted.

- 4.6. The assignment will include travel to Ethiopia. Experienced experts shall render the required high quality input and shall make themselves available to participate in presentations or key meetings with Ministry of Energy, Economic Planning/Finance and EEPCo in Ethiopia.
- 4.7. It is estimated that the assignment would require about 25 man-months of labor.

5. Supervision and Reports

- 5.1. The work of the consultants will be jointly supervised by the Banks. The World Bank will be the focal point for coordination for this assessment. The Reports (see below) would be drafted for the benefit of the Banks and EEPCo, and will be provided to the Banks for review. The Bank's will share the Reports with EEPCo at appropriate junctures.
- 5.2. **Inception Report:** The inception report should be submitted to the World Bank (according to the time schedule set out below). The Inception Report should consist of the full table of contents to be used for the report, complete with chapter titles, annex titles, numbering format, main author responsible for each section, main issues to be addressed in each section, issues that require the Banks or EEPCo for clarification, together with a description of the methodology to be used by the Consultant and a time table for the main tasks.
- 5.3. **Workshop with the Banks and EEPCo:** The Consultant will facilitate the presentation and discussion of key issues at a workshop. The Consultant will prepare audio-visual presentations to lead the discussions, and briefing papers for attendees to consider prior to the workshop. Notes of the proceedings will be made available to the Banks and EEPCo immediately after the workshop.
- 5.4. **Public presentation in Ethiopia to civil society:** If required by the Banks, this presentation may be open to various stakeholders from the public and national/international civil society. The Consultant may be required to assist in the preparations of such a public dissemination. Extracts of the presentations, excluding commercially sensitive material, should be prepared in advance and made available immediately following the presentation.
- 5.5. **Final Report:** The Consultant shall prepare its written reports containing a detailed review and assessment of its findings, conclusions and recommendations. In addition, the overall project cost and benefit analysis, the Report will clearly opine on whether the procurement outcomes for Gibe III are consistent with the Banks' Procurement Guidelines. In the event of identified shortcomings, options and recommendations shall be made in relation to commercially feasible remedial measures, if any that might be pursued.

6. Timetable

- 6.1. This assignment will commence with a kick-off meeting between the Consultant, EEPCo and the Banks. The purpose of the meeting will be to agree on a very clear road map for the assignment, to avoid ambiguity or cause for delay. The agenda of the meeting will include:



- establish a shared understanding of the objectives of the assignment;
 - discuss the Consultant's proposed approach and methodology and agree upon any amendments following the discussion;
 - establish a process of communication for managing the project, keeping the Banks and EEPCo apprised of progress, and for resolving any issues that may arise.
- 6.2. The assessment needs to be completed in a 6-month period. The overall timetable from study initiation to delivery of the final report is described in the following table.

MILESTONES	WEEKS TO COMPLETION
a) Contract signature	0
b) Inception Report	4
c) Draft Final Report	20
d) Workshop with the Banks	21
e) Comments from the Banks	22
f) Presentation to civil society in Ethiopia (if required)	23
g) Final Report	26

7. Confidentiality

- 7.1. The Consultant agrees to keep confidential all information that it receives, directly or indirectly, from the World Bank, and EEPCo, and the EPC Contractor, as well as all copies or analyses that it makes, or have been made by third parties, on the basis of such information (collectively, the Material). The Consultant shall use the Material exclusively for the purpose of this assignment. The confidentiality obligations shall not apply to information in the public domain. The Consultant shall only permit access to the Material to persons within its organization and affiliated firms on a need-to-know basis. The Consultant shall explicitly inform such persons of the confidential nature of the Material and, prior to providing them the Material, subject them to the confidential obligations contained in this declaration. The Consultant, its sub-consultants, and the personnel of either of them will be required, either during the term or for a period of two years after the expiration of this assignment, not to disclose any proprietary or confidential information relating to the proposed project without the prior written consent of the World Bank and EEPCo.

Annex I
List of Due Diligence Documents to be made available to Consultants

Documents	Author	Date
Reports relating to the East African Power Pool	Various	2004-2007
EPC Contract Agreement, and Addendum	EEPCO	July 2006/April 2008
EEPCO Presentation on short to mid-term power expansion needs, including Gibe II, III Transmission activities.	EEPCO	
Economic Analysis	SP Studio consulting	May 2006
Environmental and Social Management Plan (ESMP)	CESI and Mid Day International	January 2007
Resettlement Action Plan	Mid Day International	April 2008
Environmental and Social Impact Assessment (including Downstream Analyses)	CESI, Agri Consulting and Mid Day International	April 2008
World Bank Project Appraisal Document, for Electricity Access Rural Electrification Plan	The World Bank	June 2007
Final Assessment Report, Technical – Employer’s Representative	ELC Electroconsult & Coyne Et Bellier	July 2006
Final Financial Analysis of Gibe III	EEPCo	June 2007
Presentation on Kenya Ethiopia Interconnection Project- Donor’s meeting	Fichtner	March 2008
Draft Feasibility Report Ethiopia-Kenya Interconnection Project	Fichtner	June 2009
Gibe III Presentation	EEPCO	2008
Inter connector PMU presentation	PMU	
Technical Information and Maps	EEPCO	2008
Sedimentation Study Report	Salini Costruttori S.p.A	April 2007
Public Consultation and Disclosure (PCD) Report	Mid Day International	April 2008
Final Feasibility Report regarding the Ethiopia-Kenya Transmission System	Fichtner	Fall 2008

