

**INTEGRATED SAFEGUARDS DATA SHEET
APPRAISAL STAGE**

Report No.: ISDSA2039

Date ISDS Prepared/Updated: 21-Feb-2013

Date ISDS Approved/Disclosed: 04-Dec-2012, 03-Nov-2013

I. BASIC INFORMATION

1. Basic Project Data

Country:	Djibouti	Project ID:	P127143
Project Name:	DJ Geothermal Power Generation Project (P127143)		
Task Team Leader:	Ilhem Salamon		
Estimated Appraisal Date:	05-Dec-2012	Estimated Board Date:	05-Jun-2013
Managing Unit:	MNSEE	Lending Instrument:	Specific Investment Loan
GEF Focal Area:	Climate change		
Sector(s):	Other Renewable Energy (100%)		
Theme(s):	Climate change (100%)		
Is this project processed under OP 8.50 (Emergency Recovery) or OP 8.00 (Rapid Response to Crises and Emergencies)?			No
Financing (In USD Million)			
Total Project Cost:	31.23	Total Bank Financing:	6.00
Financing Gap:	0.00		
Financing Source			Amount
BORROWER/RECIPIENT			0.50
International Development Association (IDA)			6.00
Global Environment Facility (GEF)			6.04
African Development Bank			2.34
African Development Fund			5.00
Energy Sector Management Assistance Program			1.10
FRANCE French Agency for Development			3.25
OPEC FUND			7.00
Total			31.23
Environmental Category:	B - Partial Assessment		

Is this a Repeater project?	No
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2. Project Development Objective(s) / Global Environmental Objective(s)

A. Project Development Objective(s)

The objective of the Project is to assist the Recipient in assessing the commercial viability of the geothermal resource in Fiale Caldera within the Lake Assal region.

B. Global Environmental Objective(s)

Same as PDO.

3. Project Description

Project Components

The proposed project supports an exploratory well drilling program financed by multiple donors. The drilling program will follow a pre-approved test protocol and yield certified results. Provided that the geothermal resource is proven to be commercially viable for large-scale power generation, a follow on project will be undertaken to competitively offer the geothermal resource to the international IPP market. In the event that the resource is confirmed for large scale power generation, the follow on project will finance the recruitment of a Transaction Advisor that will develop a prequalification process pursuant to Bank procurement rules that will be intended to result in a Public Private Partnership under which an IPP will develop, operate and maintain a power plant under a long term power purchase agreement. In the event that the resource is confirmed for commercial power generation but at a level below that which attracts international IPP attention, other means by which a viable power project can be developed will be considered.

The proposed project includes three components that are briefly summarized below. Co-financing arrangements are presented in table 1 and a detailed description of the full project, its components and its contracting structure, is provided in Annex 3:

- Component 1: Drilling Program – This component includes the provision of works, goods and consultants’ services for: (i) civil engineering preparatory works necessary for the execution of the drilling program (financed by AfDB); and (ii) execution of the drilling program as designed by the geothermal consulting company (jointly co-financed by GEF, IDA and OFID); (iii) steel material needed during the execution of the drilling program; (financed by AFD) and (iv) for the inspection and testing of reservoir flow rates (financed by ESMAP).
- Component 2: Technical Assistance for the Drilling Program – This component comprises the provision of goods and consultants’ services to: (i) design the drilling program and well test protocol; (ii) execute the well test protocol and ensure third party certification of the results of the drilling program; and (iii) preparation of a technical feasibility study for the geothermal power plant provided that the geothermal resource is suitable for power generation. The component will be financed by AfDB through one of the Trust Funds under its management.
- Component 3: Project Management – This component involves the provision of goods, consultants’ services, including audit and training, and operational costs for the purposes of project

management and implementation, including monitoring and evaluation. It will be jointly co-financed by GoDj and AfDB.

4. Project location and salient physical characteristics relevant to the safeguard analysis (if known)

The project will be located at the southern border of Tadjoura Region, some 80 km (50 miles) west of Djibouti city and some 45 km (28 miles) from Tadjoura City, near the Assal Lake.

The study area is situated in the Assal Rift, the northernmost extension of the East African Rift System. The Assal Rift is an active spreading zone, with an impressive accumulation of basaltic magma, and seismically active although large earthquakes are not common. The geology is characterized by flat lying lava flows which generally erupt through vents on an open fissure (Hawaiian eruption). The active volcanic area is traversed by the graben of the active spreading rift. The large faults of the rift run from the Gulf of Ghoubbet El Kharab in a north-westerly direction to Lake Assal.

Based on field test data, the stakeholders have concluded that the Fiale (or “Lava Lake”) caldera is the location most likely to provide the best geothermal drilling results. The Fiale is surrounded by a steep, 20 to 30 meter high, 1 1/2 km diameter rim. It is connected to two adjacent, smaller calderas all of which are believed to be fed by the same magmatic heat source at depth. All three calderas are cut by a dense network of east/west to north/west striking open fissures and small normal faults. Based on water flow characteristics of the region, it is anticipated that the Fiale will provide geothermal fluids that will be less saline than those encountered in past drillings targeted west of the Fiale.

The proposed operation will include building of access roads and drill pads, water supply arrangements and drilling of four deep geothermal exploration wells. The drilling pads will be located in an area between Lake Assal and the sea (Ghoubet gulf).

The project area is a rough terrain, covered by basaltic lavas, and sporadic lake sediments. No actual soil cover is found, and vegetation is limited to thorn bushes, few and far between. The area is bound in the south-east by the Ghoubbet El Khalab, Lake Assal in the north-west, and by high fault escarpments in south-west and north-east. The area is very dry and hot, temperature reaching 50°C during the hottest period. Rain is negligible and surface run-off therefore limited to short periods, measured in hours. There is no fresh surface water in the area. The ground water of the Fiale area is believed to be seawater that flows from the bay of Ghoubbet El Kharab to Lake Assal. The vegetation at the proposed drilling sites in the Fiale area is rather drear as the region is dry and in many areas covered with lava. Vegetation is made up primarily of scattered steppe herbs, acacia shrubs and occasional palm trees often in connection with geothermal manifestations.

5. Environmental and Social Safeguards Specialists

Fatou Fall (MNSSU)

Andrew Michael Losos (MNSEE)

6. Safeguard Policies	Triggered?	Explanation (Optional)
Environmental Assessment OP/ BP 4.01	Yes	The proposed project is likely to have potential site-specific and reversible adverse environmental risks and impacts in its area of influence.

		<p>Therefore, OP/BP 4.01 is triggered. An environmental and social impact assessment framework (ESIAP), examining the type, location and scale of the proposed project as well as the nature and magnitude of its potential impacts has been completed and disclosed prior to appraisal.</p> <p>The ESIAP contains foundational research and constrained sets of options for risk management approaches that will help shape the future environmental and social management of the project, which will be codified in a future document, the environmental and social impact assessment (ESIA). The preparation of the ESIA, which will contain a detailed environmental and social management plan (ESMP), will be the responsibility of the drilling services company (DSC) selected to execute the drilling program designed by the geothermal consulting company (GCC). As such, all bidders for the drilling contract will be required to submit an ESIA as part of their bid package, and the quality of ESIA submissions will be graded as part of the bid evaluation process. In addition, the services of the GCC will be retained to help in monitoring the drilling company's adherence to the final ESIA</p>
Natural Habitats OP/BP 4.04	Yes	The project is located within several kilometres of two sensitive areas: Lake Assal, a protected area under Djiboutian law, and Ghoubet Gulf, which has been proposed for protected status. No significant habitat or endemic species are known to exist in the immediate vicinity of the proposed drilling sites. Provided the prescribed mitigating measures are put in place, the proposed operation is not expected to lead to significant conversion or degradation of natural habitat.
Forests OP/BP 4.36	No	
Pest Management OP 4.09	No	
Physical Cultural Resources OP/ BP 4.11	No	
Indigenous Peoples OP/BP 4.10	No	

Involuntary Resettlement OP/BP 4.12	No	
Safety of Dams OP/BP 4.37	No	
Projects on International Waterways OP/BP 7.50	No	
Projects in Disputed Areas OP/BP 7.60	No	

II. Key Safeguard Policy Issues and Their Management

A. Summary of Key Safeguard Issues

1. Describe any safeguard issues and impacts associated with the proposed project. Identify and describe any potential large scale, significant and/or irreversible impacts:

The proposed operation includes construction of access roads and operation of a quarry, installation of drill pads and drilling rigs, erection of temporary accommodations, seawater supply, drilling fluids use and associated cuttings, testing phase (including geothermal fluid discharge), management of solid waste potentially containing heavy metals, and power generation.

The potential environmental impacts during construction identified as being of critical or major significance consist of the following: noise from site preparation, drilling and construction; contamination from waste pond overflows or chemical and fuel spills; contamination of aquifers; and soil contamination from drilling muds and cuttings. Geothermal fluids typically contain a number of dissolved metals and gases. Wastewater effluents and gases will be re-injected into the reservoir or its periphery to minimize the potential for groundwater contamination. There is one potential impact of operation identified as critical to the operation: improperly handled drilling and well testing might lead to contamination of the ground water and potential impact on Lake Assal. Since the drilling muds and the geothermal fluid are expected to have a high concentration in heavy metals, an uncontrolled discharge would have long term effects on the environment if mitigation measures are not properly implemented. The risk associated with all of these potential impacts can be mitigated to low levels through measures proposed in the project safeguard documents.

This project proposes activities and works that will have some effect on the natural environment, and therefore is subject to OP/BP 4.01, Environmental Assessment, which is the authority governing the preparation and application of the ESIAF and its successor documents as described below. OP/BP 4.04 on Natural Habitats is also triggered due to the proximity of the proposed project site to the sensitive ecological zones of Lac Assal to the northwest, and the Ghoubet Gulf to the southeast. Possible negative impacts on these bodies of water will be addressed through the application of an Environmental and Social Management Plan prepared by the Drilling Services Company once the design of the drilling program is finalized. No other safeguard policies are expected to apply to this project.

Social Safeguards: Traditionally, the Assal Zone is not known as a permanent living habitat, because of the extreme climate conditions, of the lack of water and the scarcity of green areas. The preparation of the ESIAF by the counterpart included consultations with relevant stakeholders. The ESIAF indicates that the project area, in particular, the proposed drilling sites and its

surroundings are on state owned land, which attribution is decided by administrative authorities. For purposes of implementing project activities, there will not be involuntary acquisition of land, leading to involuntary displacement of communities and/or loss of income sources, habitat and other resources

The ESIAF indicates also that the project area, in particular the drilling site, is an unpopulated area with very limited local use. The closest identified communities are between 5 and 7 km away. There will not be any displacement of people for the purpose of implementing project activities.

In terms of potential economic impacts, a transhumance route crosses part of the selected project area as well as a tourist pathway. Though both are not used on a continuous basis, initial mitigation measures have been proposed in the Environmental and Social Impact Assessment Framework so as to maintain both the route and the pathway functional to the extent possible during project implementation.

The future and more detailed ESIA will seek to document the magnitude of usage of the transhumance corridor (i.e. estimated number of animals/heads crossing the route, frequency of passage) in order to assess the potential impact on users' livelihoods, should the corridor be partially closed.

2. Describe any potential indirect and/or long term impacts due to anticipated future activities in the project area:

None anticipated.

3. Describe any project alternatives (if relevant) considered to help avoid or minimize adverse impacts.

Overall site selection is determined by the presence of an exploitable geothermal resource, and well locations are selected based on information on the characteristics of the resource. The availability of multi-directional drilling technology is being used to minimize the drilling pad's footprint. An alternative site called "North Ghoubet" has been considered as an alternative drilling site. The Environmental and Social Impact Assessment Framework confirmed that, from an environmental and social point of view, potential impacts are minimized in the Fiale area.

4. Describe measures taken by the borrower to address safeguard policy issues. Provide an assessment of borrower capacity to plan and implement the measures described.

At the time of appraisal, the precise technologies to be employed and the precise locations of the drilling sites are unknown and cannot be known until the detailed drilling program design is complete. As a result, the exact nature of any impacts cannot be determined and exact mitigating measures cannot be designed until that time. Due to this residual uncertainty, the PMU has completed an environmental and social impact assessment framework (ESIAF) detailing the process to be followed to manage the risks associated with the project. The ESIAF was disclosed in Djibouti and in the World Bank Infoshop prior to project appraisal.

The ESIAF contains foundational research and constrained sets of options for risk management approaches that will help shape the future environmental and social management of the project, which will be codified in a future document, the environmental and social impact assessment (ESIA). The preparation of the ESIA, which will contain a detailed environmental and social management plan (ESMP), will be the responsibility of the drilling services company (DSC) selected to execute the drilling program designed by the geothermal consulting company (GCC). As such, all bidders for the drilling contract will be required to submit an ESIA as part of their bid

package, and the quality of ESIA submissions will be graded as part of the bid evaluation process. In addition, the services of the GCC will be retained to help in monitoring the drilling company's adherence to the final ESIA.

The objective of the ESIAF is to: (i) describe the relevant legal and regulatory context of the project; (ii) the current state of the environment in the project area and surroundings; (iii) identify the potential environmental and social impacts, both positive and negative as appropriate, of the exploratory drilling activity, as far as they may be determined at this early stage with certain important information still outstanding; (iv) alternative options considered; and (v) establish the procedure and parameters for the preparation of the detailed ESIA and its associated ESMP.

The ESIAF provides indications on which data should be recorded, the consultation process to be carried out, and the instructions for the ESMP will include the definition of potential mitigation, monitoring, and institutional measures to be applied during the implementation of the project in order to offset or reduce adverse environmental and social impacts. It details the institutional arrangements as well as the capacity-strengthening measures needed to ensure proper follow-up of the ESIAF. If needed, the ESIAF can be updated from time to time, in agreement with the World Bank.

The project management unit will include two dedicated safeguards staff: an Environmental and a Social Safeguards Specialist. These Safeguards Specialists will be responsible for ensuring that all environment and social impact mitigation measures including occupational health and safety guidelines are mainstreamed into the project design; monitored and supervised in accordance with the provisions of the ESIA, and for making bi-annual reports on safeguards compliance to the World Bank. The Social Safeguards Specialist will also be responsible for logging and tracking grievances (each grievance will be given an identification number and followed through by recording details and timing for their resolution and closing out).

The drilling company will have direct responsibility for implementation of the ESMP, including all Environment, Health and Safety measures during the drilling phase. Adequate budget, staff and material support will be provided to the drilling company's environmental and social safeguards coordinator to assist him/her to implement this mandate. The drilling company's Safeguards Coordinator will have experience coordinating and implementing HSE policies during drilling operations and will, inter alia, prepare a monthly Health, Safety and Environment report.

Given the limited experience of the client, it has been agreed that the project management unit social safeguard specialist will be assisted by an independent Environmental Health and Safety (EHS) Audit Consultant. The EHS Audit Consultant will provide an independent monitoring of the implementation of the environmental and social management plan. The ESIA will describe the complete institutional arrangement and will include the terms of reference of the EHS Audit Consultant. The ESIA will be attached to the bidding documents and contracts financed by the proposed operation.

OP 4.12 is not triggered however mitigation measures are proposed in order to attenuate the potential impacts of the project on an existing transhumance route and a touristic pathway.

5. Identify the key stakeholders and describe the mechanisms for consultation and disclosure on safeguard policies, with an emphasis on potentially affected people.

The Assal area has not been the site of large population settlements or extensive economic

activity. It is very hostile for human or animal activities, due to extreme weather conditions, lack of water and vegetation. The main population centers are close to the Tadjourah-Lake Assal road junction and by the old road construction camp site at the Tadjourah road.

While preparing the ESIAF required for compliance with OP 4.01, the project management unit and its consultant held initial consultations in January 2012 in the affected area and reported the results in the inception reports. Additional, more extensive consultations were held in May 2012 to obtain stakeholder input on the final scope of the ESIAF studies.

The ESIAF includes a public disclosure and consultation plan that provides for ongoing liaison with affected communities during construction and operation of the geothermal facilities, and a grievance procedure to ensure that issues of concern to the public are properly addressed.

B. Disclosure Requirements

Environmental Assessment/Audit/Management Plan/Other	
Date of receipt by the Bank	30-Nov-2012
Date of submission to InfoShop	01-Dec-2012
For category A projects, date of distributing the Executive Summary of the EA to the Executive Directors	
"In country" Disclosure	
Djibouti	01-Dec-2012
<i>Comments:</i> http://www.edd.dj/eddweb/upload/DJ%20Geothermal%20ESIAF.pdf	
If the project triggers the Pest Management and/or Physical Cultural Resources policies, the respective issues are to be addressed and disclosed as part of the Environmental Assessment/Audit/or EMP.	
If in-country disclosure of any of the above documents is not expected, please explain why:	

C. Compliance Monitoring Indicators at the Corporate Level

OP/BP/GP 4.01 - Environment Assessment	
Does the project require a stand-alone EA (including EMP) report?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]
If yes, then did the Regional Environment Unit or Sector Manager (SM) review and approve the EA report?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]
Are the cost and the accountabilities for the EMP incorporated in the credit/loan?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]
OP/BP 4.04 - Natural Habitats	
Would the project result in any significant conversion or degradation of critical natural habitats?	Yes [<input type="checkbox"/>] No [<input checked="" type="checkbox"/>] NA [<input type="checkbox"/>]
If the project would result in significant conversion or degradation of other (non-critical) natural habitats, does the project include mitigation measures acceptable to the Bank?	Yes [<input type="checkbox"/>] No [<input type="checkbox"/>] NA [<input checked="" type="checkbox"/>]
The World Bank Policy on Disclosure of Information	
Have relevant safeguard policies documents been sent to the World Bank's Infoshop?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]

Have relevant documents been disclosed in-country in a public place in a form and language that are understandable and accessible to project-affected groups and local NGOs?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]
All Safeguard Policies	
Have satisfactory calendar, budget and clear institutional responsibilities been prepared for the implementation of measures related to safeguard policies?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]
Have costs related to safeguard policy measures been included in the project cost?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]
Does the Monitoring and Evaluation system of the project include the monitoring of safeguard impacts and measures related to safeguard policies?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]
Have satisfactory implementation arrangements been agreed with the borrower and the same been adequately reflected in the project legal documents?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]

III. APPROVALS

Task Team Leader:	Name: Ilhem Salamon	
<i>Approved By</i>		
Regional Safeguards Advisor:	Name:	Date:
Sector Manager:	Name: Charles Joseph Cormier (SM)	Date: 03-Nov-2013