

**APPENDIX C**

**APPENDIX C: RECORD OF CONSULTATION MEETINGS**

## MEETING WITH THE MINISTER OF AGRICULTURE, FISHERIES, LIVESTOCK, AND FISHERY RESOURCES

Date: 12 December 2015

Attendees: Mohamed Ahmed Awaleh, Minister  
Director of Wastewater  
Mohamed Chaari, Project Director, Electricité de Djibouti  
Mohammed Jalludin, CERD  
Kayad Moussa, Electricité de Djibouti  
Dan Hoyer, Geologica  
Susanne Heim, Panorama/Geologica  
Laurie Hietter, Panorama/Geologica

From: Laurie Hietter and Susanne Heim

Subject: **Fialé Geothermal Exploration Project**

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### Proposed Geothermal Exploration Project

Dan Hoyer introduced the geothermal exploration project. The project includes drilling and testing four production-sized geothermal wells to approximately 2,500 meters at the Caldera Fialé. The purpose of the project is to identify a commercial geothermal resource. The first part of the project will be the civil works to build or improve the access roads and construct the well pads. Construction will begin in March 2016 (potentially as early as February, based on a subsequent meeting with the Minister of Energy later in the morning). The drilling would begin in the second half of 2016 because of the long lead time (approximately 8 to 12 months) to procure the well casing and well heads.

### Environmental and Social Analysis

#### Background

Geothermal exploration started in 1978 with initial drilling and testing of geothermal wells. The environmental and social impact assessments for the currently proposed exploration drilling were initiated in 2012. The Environmental and Social Impact Assessment (ESIA) was approved by the African Development Bank, World Bank, and Republic of Djibouti. A summary ESMP was also prepared in 2012. The World Bank and African Development Bank directed Panorama to prepare a detailed ESMP.

#### Current Environmental and Social Management Efforts

The current environmental and social impact assessment and mitigation efforts include:

- Literature review to understand previous environmental efforts and outreach to the community included in the 2012 ESIA

## MEETING WITH MINISTER OF AGRICULTURE, FISHERIES, LIVESTOCK, AND FISHERY RESOURCES

12 December 2015

Page 2

- Update of impact assessment to reflect project refinements
- Preparation of the ESMP, including:
  - Refined and added mitigation measures to make the measures very explicit, understandable, and verifiable
  - Defined mitigation implementation plan to ensure the civil and drilling contractors understand their obligations (measures and plan to be included in the civil and drilling contracts)
- Currently obtaining comments on the mitigation measures
- The implementation plan and mitigation measures will be included in the drilling services and civil works contracts
- Implementation of the ESMP will include monitoring by EdD and Ministry of Environment during implementation
- Panorama will also be verifying the regular monitoring reports during project implementation

### Discussion with the Minister

#### Mitigation Measures to Protect Bay of Ghoubet

Panorama provided the Minister with the draft mitigation measures that apply to protecting water quality in the Bay of Ghoubet and protecting fish resources in the Bay.

#### How much fresh water is needed for the project?

Approximately 5 to 10 cubic meters of water are needed for cement mixing when the wells are being constructed. Additional water will be required for workers at the worker camp.

Approximately 50 to 100 workers will be on the site. We are planning to have a tanker truck to transport water to the camp

The Minister is currently purchasing two units that produce approximately 5 cubic meters of water/day from the air. The Minister is providing these units to the Carta community. Each unit costs approximately \$85,000. The Ministry will supply the solar panel to power the unit if we purchase the unit for the project. We will need to do an assessment of the costs to truck water to see if this option makes sense for the project.

#### Comments from Director of Wastewater

Water is very scarce in the region and Peaker 50 is already overloaded. We will need to calculate how much water we need to determine where we can obtain water.

#### How is wastewater typically handled for short-term construction projects?

There are no facilities for treatment of wastewater. The government will just check that wastewater is properly handled on the site, but the contractor is on their own.

**MEETING WITH MINISTER OF AGRICULTURE, FISHERIES, LIVESTOCK, AND FISHERY  
RESOURCES**

12 December 2015

Page 3

**Summary**

- The Minister is happy the project is coming on line and will make himself available to help the project.
- We will provide the ESMP to the Director of wastewater for review and comment
- We will calculate the water requirements for the project and cost for trucking water to the site

## MEETING WITH THE MINISTER OF ENERGY

Date: 12 December 2015

Attendees: Ali Yacoub Mahamoud, Minister  
Director  
Mohamed Chaari, Project Director  
Mohammed Jalludin, CERD  
Kayad Moussa, Electricité de Djibouti  
Dan Hoyer, Geologica  
Susanne Heim, Panorama/Geologica  
Laurie Hietter, Panorama/Geologica

From: Laurie Hietter and Susanne Heim

Subject: Fialé Geothermal Exploration Project

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### Proposed Geothermal Exploration Project

Dan Hoyer introduced the geothermal exploration project. The project includes drilling and testing four production-sized geothermal wells to approximately 2,500 meters at the Caldera Fialé to determine the presence of a commercial geothermal resource. The objective of the project is to prove reserves for a 50 MW power plant to define a bankable project. The first part of the project will be the civil works to build or improve the access roads and construct the well pads. Construction will begin in March 2016 (potentially as early as February for civil works, see notes below). The drilling would begin in the second half of 2016 because of the long lead time (approximately 8 to 12 months) to procure the well casing and well heads.

### Environmental and Social Analysis

#### Background

Geothermal exploration started in 1978 with initial drilling and testing of geothermal wells. The environmental and social impact assessments for the exploration drilling were initiated in 2012 and Reykjavik Energy Invest (REI) defined a plan for drilling and exploration. The Environmental and Social Impact Assessment (ESIA) was approved by the African Development Bank, World Bank, and Republic of Djibouti. A summary ESMP was also prepared in 2012. The drilling plan prepared by REI has been updated with new well pads and drill targets and the World Bank and AfDB have directed Panorama to prepare a detailed ESMP.

#### Current Environmental and Social Management Efforts

The current environmental and social impact assessment and mitigation effort include:

- Literature review to understand previous efforts in the approved ESIA

## MEETING WITH MINISTER OF ENERGY

12 December 2015

Page 2

- Preparation of the ESMP, including:
  - Refining and adding mitigation measures to make the measures very explicit, understandable, and verifiable
  - Defining a mitigation implementation plan to ensure the civil and drilling contractors understand their obligations (measures and plan to be included in the civil and drilling contracts)
- The team is now obtaining comments on the mitigation measures and conducting outreach with other ministries; EdD and Panorama will travel to Tadjoura to meet with the local community on Monday
- The mitigation measures and implantation plan in the ESMP will be included in the drilling services and civil works contracts

### Project Schedule

The civil work activities and well pads will all occur prior to drilling. The civil works are scheduled to start in March and then drilling will happen later due to the long procurement time for the well head and the casing (8 to 12 months).

The Minister asked: Could we expedite the process? The team is ready to publish a tender for the casing and well head materials. The team has contracts that can be signed in February and it takes approximately 8 months to deliver these materials. Expect to go out to tender this week or next week. The schedule includes:

- January: go to the site with the bidders
- February: sign a contract and mobilize to the site
- March: start civil work

The Minister suggested that if we can use a local company that already has materials in the area we may be able to save time during mobilization and start in February. There is a local company because there is currently construction work occurring for the road to Lake Assal near the project area. The Minister expressed that it is important to start work and break ground. If we have all the materials ready for the civil works contract it is best to accelerate that schedule.

Panorama has expedited the schedule for the ESMP and completed the Draft ESMP in November – the ESMP was scheduled to be complete in March 2016. The plan is to finalize the ESMP after these meetings. The Minister stated approval of the ESMP is an important step.

## MEETING WITH THE MINISTER OF HIGHER EDUCATION AND RESEARCH

Date: 12 December 2015

Attendees: Nabil Mohamed Ahmed, Minister  
Mohamed Chaari, Project Director, Electricité de Djibouti  
Mohammed Jalludin, CERD  
Kayad Moussa, Electricité de Djibouti  
Dan Hoyer, Geologica  
Susanne Heim, Panorama/Geologica  
Laurie Hietter, Panorama/Geologica

From: Laurie Hietter and Susanne Heim

Subject: **Fialé Geothermal Exploration Project**

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### Proposed Geothermal Exploration Project

Dan Hoyer introduced the geothermal exploration project. The project includes drilling and testing four production-sized geothermal wells to approximately 2,500 meters at the Caldera Fialé to test the geothermal resource. The objective is to prove reserves for a 50 MW power plant so that they can have a bankable project. The first part of the project will be the civil works to build or improve the access roads and construct the well pads. Construction will begin in March 2016 (potentially as early as February for civil works). The drilling would begin in the second half of 2016 because of the long lead time (approximately 8 to 12 months) to procure the well casing and well heads. Dan is are going out to tender for the casing and the information is with the Banks for no objection. Dan will be asking two bidders to provide bids. Local labor would be used to drill wells. Seven bidders are pre-approved for the well drilling. When all equipment is in Djibouti we will mobilize the drilling company and after testing we will prepare a feasibility study that is bankable.

### Environmental and Social Analysis

#### Background

The Environmental and Social Impact Assessment (ESIA) was prepared in 2012 and approved by the African Development Bank, World Bank, and Republic of Djibouti. A summary ESMP was also prepared in 2012. The World Bank and AfDB directed Panorama to prepare a detailed ESMP.

#### Current Environmental and Social Management Efforts

The current environmental and social impact assessment and mitigation effort include:

- Literature review to understand previous efforts in the approved ESIA
- Preparation of the ESMP, including:

## MEETING WITH MINISTER OF HIGHER EDUCATION AND RESEARCH

12 December 2015

Page 2

- Description of the project
  - Updating the environmental impact analysis
  - Refining and adding mitigation measures to make the measures very explicit, understandable, and verifiable
  - Defining a mitigation implementation plan to ensure the civil and drilling contractors understand their obligations (measures and plan to be included in the civil and drilling contracts)
  - Preparing a form for daily compliance monitoring reports to verify implementation of the measures; the reports will be uploaded to a website so that we can view regular progress
  - Identifying CERD's specific role in conducting analysis for water quality and chemistry
  - The Minister of the Environment will also help to implement monitoring
- The current outreach is to obtain comments on the mitigation measures and conduct outreach with other ministries; Panorama and EdD staff will be traveling to Tadjoura and Arta to meet with the local community on Monday and Tuesday
  - The mitigation measures and implementation plan in the ESMP will be included in the drilling services and civil works contracts so there is a contractual mechanism for accountability

### Project Schedule

It will take 8 months to 1 year for the well equipment to be available in Djibouti. It takes several months for the casing run and the well head takes a similar amount of time. We are hoping to possibly get a better delivery schedule because the oil and gas industry is currently down. We should see a first response to the procurement in January. The schedule will be clear.

Drilling will take approximately 60 days/well and will last about 6 months.

### CERD Involvement

The CERD microseismic work was used to define the drilling targets and update the well pad locations. There is a provision for capacity building for CERD in the ESMP, such as training associated with sampling.

### Other Projects in the Area

EdD is working on a 60 MW wind project at Lac Assal; not sure if the agreement is in place yet. If the wind project occurs prior to the geothermal, the geothermal could use the transmission line for the wind project to connect to the grid. EdD will need to review the transmission line design to make sure there is adequate capacity for the geothermal project. The geothermal project could also supply energy to Tadjoura. Tadjoura is building a new port that will be connected by road and rail. Getting energy to Tadjoura is a key factor in developing the port.

## MEETING WITH THE MINISTER OF THE INTERIOR

Date: 13 December 2015

Attendees: Hassan Omar Mohamed Bourhan, Minister  
Mohamed Chaari, Project Director, Electricité de Djibouti  
Mohammed Jalludin, CERD  
Kayad Moussa, Electricité de Djibouti  
Dan Hoyer, Geologica  
Susanne Heim, Panorama/Geologica  
Laurie Hietter, Panorama/Geologica

From: Laurie Hietter and Susanne Heim

Subject: **Fialé Geothermal Exploration Project**

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### Proposed Geothermal Exploration Project

Dan Hoyer introduced the geothermal exploration project. The project includes drilling and testing four production-sized geothermal wells to approximately 2,500 meters at the Caldera Fialé to test the geothermal resource. The objective is to prove reserves for a 50 MW power plant so that they can have a bankable project. Construction will begin in March 2016 (potentially as early as February for civil works). The drilling would begin in the second half of 2016 because of the long lead time (approximately 8 to 12 months) to procure the well casing and well heads.

### Environmental and Social Analysis

#### Background

The Environmental and Social Impact Assessment (ESIA) was prepared in 2012 and approved by the African Development Bank, World Bank, and Republic of Djibouti. A summary ESMP was also prepared in 2012. The World Bank and AfDB have directed us to prepare a detailed ESMP.

#### Current Environmental and Social Management Efforts

The current environmental and social impact assessment and mitigation effort include:

- Literature review to understand previous efforts in the approved ESIA
- Preparation of the ESMP, including:
  - Refined and added mitigation measures to make the measures very explicit, understandable, and verifiable
  - Defined a mitigation implementation plan to ensure the civil and drilling contractors understand their obligations (measures and plan to be included in the civil and drilling contracts)

## MEETING WITH MINISTER OF INTERIOR

13 December 2015

Page 2

- We are now obtaining comments on the mitigation measures and conducting outreach with other ministries; we will be traveling to Tadjoura to meet with the local community on Monday
- The mitigation measures in the ESMP will be included in the drilling services and civil works contracts

### Comments from Minister of Interior

The Minister is very pleased we came to meet with him and discuss the geothermal project. He was involved in preparation of the ESIA in 2012. Geothermal has not been developed in decades and he is committed to support for construction of the project. He's from Tadjoura region and he is interested in building up the region. He thinks the geothermal project is a great step forward for the region. Energy is important for Tadjoura, particularly in light of the port development and the connection of the port to railway and a new road. Geothermal energy is needed to support industrial development in Djibouti. He hopes this project is successful and he supports it fully.

The people in the Tadjoura region have been waiting for this project for a long time. He has a connection to the people in the local area and they will participate in our meeting tomorrow.

As an example of the importance of energy, the Minister mentioned that Toyota had planned to bring a factory to Djibouti that would employ 2,500 workers. What blocked the project was the cost of energy. Lower cost energy is needed to bring economic development to the country.

## MEETING WITH THE MINISTER FOR THE PROMOTION OF WOMEN & FAMILY PLANNING

Date: 12 December 2015

Attendees: Hasna Barkat Daoud, Minister  
Assistant  
Mohamed Chaari, Project Director, Electricité de Djibouti  
Kayad Moussa, Electricité de Djibouti  
Dan Hoyer, Geologica  
Susanne Heim, Panorama/Geologica  
Laurie Hietter, Panorama/Geologica

From: Laurie Hietter and Susanne Heim

Subject: Fialé Geothermal Exploration Project

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### Proposed Geothermal Exploration Project

Dan Hoyer introduced the geothermal exploration project. The project includes drilling and testing four production-sized geothermal wells at the Caldera Fialé. The first part of the project will be the civil works to build or improve the access roads and construct the well pads. Construction will begin in March 2016 (potentially as early as February, based on a subsequent meeting with the Minister of Energy later in the morning). The drilling would begin in the second half of 2016 because of the long lead time (approximately 8 to 12 months) to procure the well casing and well heads.

### Environmental and Social Analysis

#### Background

The environmental and social impact assessments for the exploration drilling were initiated in 2012. The Environmental and Social Impact Assessment (ESIA) was approved by the African Development Bank, World Bank, and Republic of Djibouti. A summary ESMP was also prepared in 2012. The World Bank and African Development Bank directed Panorama to prepare a detailed ESMP.

Recent efforts include:

- Literature review to understand previous environmental efforts and outreach to the community
- Site reconnaissance visit to Caldera Fialé and Lac Assal, including conversations with community members

## MEETING WITH THE MINISTER FOR THE PROMOTION OF WOMEN AND FAMILY PLANNING

12 December 2015

Page 2

- Consultations with World Bank and African Development Bank environmental specialists to identify their requirements for the ESMP and identify stakeholders
- Meetings with the Minister of Environment and his staff to understand their concerns and identify stakeholders
- Update of impact assessment to reflect project refinements
- Preparation of the ESMP, including:
  - Refined and added mitigation measures to make the measures very explicit, understandable, and verifiable
  - Defined a mitigation implementation plan to ensure the civil and drilling contractors understand their obligations (measures and plan to be included in the civil and drilling contracts)

### Questions from the Minister

#### **How long has the team been working on the environmental and social analysis?**

The team began working on the project in September 2015 and has made an intensive effort to complete the required documentation. The environmental and community outreach efforts were also conducted in 2012.

#### **What social outreach has been conducted?**

In 2012, there were meetings held in the community, including Tadjoura. A meeting was held with the local population on 8 January 2012 in the village of Daba Gahar, the nearest inhabited area to the proposed geothermal drilling site. Fifteen to twenty people attended the meeting including representatives of different social groups in the area, including project representatives. The discussion focused on the potential impacts of the project on the local population and socio-economic development priorities for the region.

Representatives of the local population were also interviewed individually during three additional visits of the area in January and February 2012.

A public consultation workshop organized by the PMU was held on 12 May 2012 to present the ESIAF to interested stakeholders. Approximately 50 stakeholder representatives were in attendance. Comments and recommendations were obtained from workshop participants.

#### **Where are the closest people living?**

There are people living at Lac Assal. The closest villages are Daba Gahar and Laita.

#### **Was the 2012 work conducted properly?**

The ESIA was approved by the World Bank and African Development Bank.

#### **Will the project camp be for families?**

The project camp will be for workers only.

## Mitigation Measures

Susanne described the social mitigation measures and the Minister provided comments.

1. **Socio-Economic-1: Display and Informational Panels:** *The contractor shall erect an informational kiosk at the northeast corner of the project and adjacent to the access road. The kiosk shall provide information about the geothermal drilling and testing, including the project schedule and any road closures or other public safety precautions that are in place on the site. The kiosk will include information on how to make a grievance and the mitigation implementation plan specifies a grievance redress process*
  - a. The minister suggested that one or two women be appointed as mediators to address grievances. Use a woman leader in the community. The women speak the truth and will protect the interests of women and children in the community.
  - b. It is important to make sure all of the community is informed about the project, not just Tadjoura.
2. **Socio-Economic-2: Support for Women.** *Up to three five-day training sessions on income-generating activities shall be organized for women in the project region. The trainings shall be organized through local non-governmental organizations such as National Union of Djibouti Women (UNFD), Atuyofan or Djibouti Association for Social Development (ADDS). The training shall be funded by the project.*
  - a. Strengthening the capacity of NGOs is desirable but it is most important to benefit the community. UNFD is a national NGO. Sub NGOs are in Tadjoura. Final aim is to bring assistance to the community—the villages around Assal. The NGO used should be located in Tadjoura and should work with the local communities. There needs to be a direct link between the money given to the NGOs and the benefits to the local community. The Tadjoura Préfet can suggest the NGOs that work with the local population and suggest what training the NGOs need to benefit the people of the Assal area.
3. **Socio-Economic-3: Sexually Transmitted Diseases.** *Workers shall receive awareness training on sexually-transmitted disease prevention and treatment. The training shall be provided at the beginning of the project construction and follow-up trainings shall be provided monthly to any new workers on the project. Two training sessions on sexually transmitted disease prevention and treatment shall be extended to the local populations.*
  - a. Training on diseases is one idea but the main issue is water. The minister is working with a community that is about 1 hour from Assal—the Araptisan [sp?] who have no water and no school for about 1,500 people. The children in this community need help.
  - b. The project should provide help for the families of workers. If there are 20-30 workers there are 20-30 families that will be affected by the project and may need help while the workers are away from their families. Could provide medical and education outreach to the families.
  - c. The schools in the area need supplies, which would be a big impact. Support for the Muslim holidays and Ramadan, would be helpful.

### Water

The group discussed providing water to the communities near the project. The exploration project is temporary, lasting only about 1 year. When the resource is confirmed, more permanent measures can be implemented, such as a water supply. The Minister suggested that even temporary water to the community 1 hour from Assal would be a benefit.

### Coordination/Outreach with the Community

The Minister suggested that outreach to the community needs to be directed through the Préfet. The President of the regional council and parliamentarian are elected from those communities and represent the needs of the communities. Individuals may only be looking out for themselves and not the needs of the community. Our outreach needs to go through the official channels. Minister Daoud will call the Tadjoura Préfet.

### Social Consultants

EdD is hiring a social expert. The Minister requested a social consultant who is familiar with the local region. The Minister can advise EdD on individuals who are qualified to work on the social issues for this project. The Minister will send CVs of people to consider. They may be available to accompany Kayad and Panorama to the field on Monday or Tuesday.

The Minister is working with the EU on a socio-economic impact assessment of women in rural areas. The study will be available in 2 months.

### Summary of Comments and Suggestions from the Minister

- Outreach must include consultations with at least three or four communities, even if they are not close.
- Use women as mediators and to address grievances during project implementation
- Go through the Préfet and parliamentarians, rather than individuals. Individuals will have self-interests. The Préfet will provide information that will have benefit to the greater community.
- The Minister will contact the Tadjoura Préfet regarding our project and to help facilitate their meeting with our team
- We will send the Minister notes from the meeting
- We will send the Minister the Draft ESMP so that she can provide comments

## MEETING WITH THE MINISTER OF TRANSPORT

Date: 13 December 2015

Attendees: Moussa Ahmed Hassan, Minister  
Mohamed Chaari, Project Director, Electricité de Djibouti  
Kayad Moussa, Electricité de Djibouti  
Susanne Heim, Panorama/Geologica  
Laurie Hietter, Panorama/Geologica

From: Laurie Hietter and Susanne Heim

Subject: **Fialé Geothermal Exploration Project**

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### Proposed Geothermal Exploration Project

Dan Hoyer introduced the geothermal exploration project. The project includes drilling and testing four production-sized geothermal wells to approximately 2,500 meters at the Caldera Fialé to test the geothermal resource. The objective is to prove reserves for a 50 MW power plant so that they can have a bankable project. Construction will begin in March 2016 (potentially as early as February for civil works). The drilling would begin in the second half of 2016 because of the long lead time (approximately 8 to 12 months) to procure the well casing and well heads.

### Environmental and Social Analysis

#### Background

The Environmental and Social Impact Assessment (ESIA) was prepared in 2012 and approved by the African Development Bank, World Bank, and Republic of Djibouti. A summary ESMP was also prepared in 2012. The World Bank and AfDB have directed us to prepare a detailed ESMP.

#### Current Environmental and Social Management Efforts

The current environmental and social impact assessment and mitigation effort include:

- Literature review to understand previous efforts in the approved ESIA
- Preparation of the ESMP, including:
  - Refined and added mitigation measures to make the measures very explicit, understandable, and verifiable
  - Defined a mitigation implementation plan to ensure the civil and drilling contractors understand their obligations (measures and plan to be included in the civil and drilling contracts)

## MEETING WITH MINISTER OF TRANSPORT

13 December 2015

Page 2

- We are now obtaining comments on the mitigation measures and conducting outreach with other ministries; we will be traveling to Tadjoura to meet with the local community on Monday
- The mitigation measures in the ESMP will be included in the drilling services and civil works contracts

### Comments from Minister of Transport

There are several other projects that are planned in the same region as the geothermal project including:

- RN9 will be renovated adjacent to the project. The renovation is under study now and will take time to negotiate and develop the project. It could start in 2016.
- The railway line is being build from Tadjoura to the border.
- The port at Ghoubet is under construction and will be complete in February 2016. The port will allow for export of the Assal salt. The salt will be produced into other materials at the port.
- The project region is developing in the future and will become an industrial zone.
- Wind energy is being developed in the area.
- There are needs for a desalination plant in the area

Could we receive contact information for the local company that is building the roadway to Lake Assal. They may be able to easily mobilize to the project since they are already working in the region. We also need technical specifications for the roadway.

The Minister is concerned about heat exposure to workers, particularly in the summer months. We described the heat exposure measure in the ESMP.

The contractor will need to respect the rules of the country. We should meet with the elders in the area and provide clear information about the project. We need to meet with the local population in the project area and explain the project. He will call the Prefect. We need to meet with and respect the local people.

He is very happy that this project will be happening.

## MEETING WITH THE PRÉFET OF TADJOURA AND LOCAL CHIEFS

Date: 14 December 2015

Attendees: Abdulmalik Banoita, Préfet  
Omar Housein, EdD  
Mohamed Ahmed Oudum, S. Préfet Lac Assal  
Adullah Hamadon, Okal Lac Assal  
Mohamed Guelleh, Chef de Village Lac Assal  
Idriss Amhalla, Conseil Regional  
Houmed Marow, Teacher  
Hassan Chehen, Responsable Sultan  
Mohamid Abdul, Chief of Port of Tadjoura  
Two additional chiefs  
Chief of Assal  
Mohamed Chaari, Project Director, Electricité de Djibouti  
Kayad Moussa, Geothermal Coordinator, Electricité de Djibouti  
Susanne Heim, Panorama/Geologica  
Laurie Hietter, Panorama/Geologica

From: Laurie Hietter and Susanne Heim

Subject: **Fialé Geothermal Exploration Project**

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### Proposed Geothermal Exploration Project

Kayad Moussa introduced the geothermal exploration project. The project is sponsored by the Electricité de Djibouti (EdD), Project Management Unit (PMU). The project includes drilling and testing four production-sized geothermal wells to approximately 2,500 meters at the Caldera Fialé to test the geothermal resource. The objective is to prove reserves for a 50 MW power plant so that they can have a bankable project.

Kayad explained that the first hiring will be environmental and social scientists at the PMU to have capacity to oversee the project. Construction will begin in March 2016 (potentially as early as February for civil works, including construction of access roads and the well drilling pads). The drilling would begin in the second half of 2016 because of the long lead time (approximately 8 to 12 months) to procure the well casing and well heads.

### Environmental and Social Analysis

#### Background

The Environmental and Social Impact Assessment (ESIA) was prepared in 2012 and approved by the African Development Bank, World Bank, and Republic of Djibouti. A summary

## MEETING WITH MINISTER OF TRANSPORT

13 December 2015

Page 2

Environmental and Social Management Plan (ESMP) was also prepared in 2012. The World Bank and AfDB directed Panorama to prepare a detailed ESMP.

The geothermal team is here to share the progress on the project and to hear the concerns of the community. The information provided today will be incorporated in to the ESMP.

### Current Environmental and Social Management Efforts

The current environmental and social impact assessment and mitigation efforts include:

- Literature review to understand previous efforts in the approved ESIA
- Preparation of the ESMP, including:
  - Refined and added mitigation measures to make the measures very explicit, understandable, and verifiable
  - Defined a mitigation implementation plan to ensure the civil and drilling contractors understand their obligations (measures and plan to be included in the civil and drilling contracts)
- Panorama is now obtaining comments on the mitigation measures and conducting outreach with other ministries; Panorama and EdD will be traveling to Tadjoura to meet with the Préfet and the local community on Monday
- The mitigation measures in the ESMP will be included in the drilling services and civil works contracts

### Comments from the Community

#### Chief

The Chiefs thanks people for coming to the meeting. The project is very important to the community. Geothermal development is a dream for them. They participated in the earlier exploration. There was a problem of salinity that must be considered. The community will be very helpful to the project.

Since the Préfet and Okals have been contacted they will dispatch information to the public. They will follow the progress of the project over the next couple months and inform the population. As the Chief of the Village, he will help and provide any help needed.

The objective is to have a successful geothermal project. If the project is successful then the local community will benefit.

#### Préfet

##### *Communication*

Communication with the local people is very important to keep them informed. It is a good idea to have a meeting before the project starts. He suggest a local committee be organized under the Préfet to fix any kind of problems, which may include who will work. The community does not want to see people come in from abroad and do work that the locals can do. Tell the committee what kind of workers are needed and they will provide. Workers may include driver, cleaner,

## MEETING WITH MINISTER OF TRANSPORT

13 December 2015

Page 3

cook, accounting. \*Send a list of jobs to the Préfet and he will then send proposals. This is an important point to avoid problems. There are a lot of engineers from the region with Master's and Ph.D. degrees. A lot of these individuals speak English, too.

Kayad described the hiring process through EdD; how the PMU will solicit employees/workers and how they will review CVs that are submitted. The Préfet would like a requirement that there is priority hiring for local workers. This prioritization should be included in the DSC contract.

\*Keep the Préfet informed so he can keep the community informed.

### *Social*

Do you have social measures planned for the project? Yes, the initial measures include:

1. Kiosk with signage to keep people informed
2. Promotion of women – training, preferential hiring
3. Health and safety training

The geothermal team is asking for comments on the measures.

The community asks that the locals be given a chance for the jobs.

Water is big problem. The people need water to drink. The local people know where the water is. Ask the local people. The community would like us to investigate ways to bring water to the community.

The community feels it is important to bring together the contractors, PMU and locals to create a relationship and avoid conflicts. \*The community would like to have a big meeting where the project people and the local community eat together.

We asked the chiefs if they had any preference on how to name the project. Assal, Fiale, Fiale Assal, etc.

\*The chiefs would like to go to the site with the project team and see on the ground where the well pads will be.

How often does the Prefet and community want to receive information on the project, and how? The Prefet would like to receive information as soon as possible and will pass this information along to the community. The project team discussed providing informational books on geothermal development to school children. With the port and road construction, English is a big priority in education and the community would appreciate books in English.

## MEETING WITH DJIBOUTI MINISTER OF HABITAT, URBAN PLANNING, ENVIRONMENT & TOWN PLANNING

Date: 25 October 2015

Attendees: Mohamed Moussa Ibrahim Balala, Minister of Habitat, Urban Planning, Environment, & Town Planning  
Houssein Rirache Roble, Director Ministry of Habitat, Urban Planning, Environment, & Town Planning  
Dini Abdallah Omar, General Secretary Ministry of Habitat, Urban Planning, Environment, & Town Planning  
Kayad Moussa, EdD  
Modeste Kinane, AfDB  
Susanne Heim, Panorama Environmental (Geologica Geothermal Group)  
Laurie Hietter, Panorama Environmental (Geologica Geothermal Group)

Subject: **Fiale Geothermal Exploration Project Update**

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Kayad provided an update on the Assal project. Kayad is the director of the geothermal project south of Assal at the rift at Fiale. The project is near Adoukoba and near tourist roads in caldera Fiale. Wells will be drilled to have the maximum potential to test the aquifer and maximize the potential to have geothermal production in the future. EdD has hired Geologica Geothermal Group to prepare the testing plan and Laurie and Susanne are under the contract with Geologica.

Laurie has 30 years of experience in conducting environmental analysis for geothermal projects. Our mission on this project is to evaluate the preliminary ESIA and prepare a comprehensive ESMP. The protection measures will be more specific and with clear conditions to fulfill. We will be defining non-compliance and corrective actions and will be in contact with the drilling services contractor (DSC) during construction. The DSC will have an environmental and social specialist on their team.

The objectives of the meeting are:

- 1) Understand if the Ministry has defined the lateral limits of Lake Assal
- 2) Find out if there is any update on the protection of Ghoubet
- 3) Hear any concerns the Minister has about the project
- 4) Understand the Ministry permitting requirements and timeframes

Djibouti has a National Law for the Environment that will apply to this project. The French studied this area a long time ago. There was no electricity production at that time and the Minister thinks it is a better area for wind power. He would rather see wind energy in that area.

## MEETING NOTES

25 October 2015

Page 2

There have been a lot of studies in the area and Prof. Marinelli (Geologist) says that Ethiopia is a better place for geothermal. Marinelli was the President of a scientific committee for Djibouti

The Minister would like to schedule another meeting for us to have a more technical discussion with his staff. Djibouti approved the ESIA in 2013.

## MEETING WITH DIRECTOR AND GENERAL SECRETARY OF MINISTRY OF ENVIRONMENT

Date: October 25, 2015

Attendees: Houssein Rirache Roble, Director Ministry of Habitat, Urban Planning, Environment, & Town Planning  
Dini Abdallah Omar, General Secretary Ministry of Habitat, Urban Planning, Environment, & Town Planning  
Modeste Kinane, AfDB  
Susanne Heim, Panorama Environmental (Geologica)  
Laurie Hietter, Panorama Environmental (Geologica)

Subject: Fiale Geothermal Exploration Project – Permitting Requirements

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### Background

The Ministry of the Environment already approved the ESIA in 2013. In 2011, the President issued a Decree which defined the National requirements for ESIA's. The previous ESIA was a summary ESIA and is not the detailed ESIA. The Ministry normally would require the Terms of Reference are submitted with the ESIA and the Ministry will have 1 month to review the TOR. The ministry then will have a group of experts review the ESIA and conduct a site visit (2 months). Then the Ministry would need 20 days to validate the EIA and it would be validated in a final validation workshop. Public participation is required throughout this process and there are fees to pay. 200,000 DJF when you submit the TOR. If an EIA is not required, there would be interaction with the Ministry and the consultant regarding the type of EA needed, 2 weeks to validate the EA, groups would comment, and there would be a validation workshop.

### Ministry Fees and ESMP

Separate from the technical review, the Ministry requires a fee of 5% of the costs to implement the ESMP. The fees would cover monitoring by the Ministry, water sample analyses, and other costs for oversight. The ESMP should be included in the Terms of Reference to ensure the environmental requirements are factored into the tender. The Ministry requested we submit the ESMP for them to review. The ESMP will need to be in French. This is required by Djibouti Decree.

### Ministry Concerns

The Ministry is concerned about water and the discharge into Ghoubet. They would like to see all water reinjected. Ghoubet is a protected area. The Ministry is concerned about the release of heavy metals to Ghoubet.

## Meeting at Ministry of the Environment

October 25, 2015

Page 2

The ESMP should specify how we will manage wastewater and geothermal water. There are no water quality standards in Djibouti, so international standards would apply.

### Capacity Building/Training in Geothermal

The Ministry and other ministries would like a geothermal training session for capacity building. The ESMP should address capacity building and institutional costs. There are thirteen areas in the county where geothermal is possible and the Ministry would like some training to deal with this project and other projects.

### ESMP Requirement for National Consultant

The 2011 Decree requires international consultants to hire a national consultant to ensure capacity building in Djibouti. The Ministry will send us a few CVs. We specified that the main requirements are that the person have a Masters in an environmental or related field and have some experience with construction and monitoring for environmental standards. This is a new Decree about national consulting in Djibouti.

### Schedule for ESMP

The ESMP will be submitted at the end of November; we requested comments be provided in two weeks or less. We will work collaboratively with Ministry staff. We will send an outline of the ESMP first.

### Social Outreach

Social outreach must be conducted with the people who are in the area. There was a meeting in Tadjoura for the last geothermal drilling. 250 people attended. The dialog with the community continues after the ESMP is submitted.

### Waste Management

Non-hazardous waste is handled by the Ministry of the Interior. The municipality for each city also handles waste collection. There is no facility in Djibouti for hazardous waste (e.g., grease and oil). They export hazardous wastes. We could ask Tadjoura Regional Authority about export of hazardous waste and collection of oil and grease.

### Status of Ghoubet Marine Protected Area Regulation

Ghoubet marine life is very important and a Decree has been drafted to add Ghoubet as a Marine Protected Area. The Decree is still in the process and has not been finalized. Four marine protected areas now have been identified. Assal is protected with about 60-square kilometers. The Ministry of Energy wrote a letter stating that the project will not impact protected areas.

### Ministry Review of ESMP

Both Houssein and Dini are going to a training in France November 20 to December 11. They need the ESMP as soon as possible. To allow the Ministry a chance to review, we will send

## Meeting at Ministry of the Environment

October 25, 2015

Page 3

Houssein and Dini the table of the mitigation measures and timing and frequency of monitoring on November 13 so that they can provide comments. We will incorporate those comments in the draft of the ESMP.

### Environmental Permit

The Ministry can hold a meeting/workshop in January for consideration of the environmental permit. Stakeholders can attend the meeting. We indicated we may be able to return to Djibouti at that time and provide a training on geothermal– set aside 2 hours per day.

### Action Items

- Submit ESMP in French in November, with as much of the ESMP as possible before November 20
- The Ministry will arrange a meeting with CERD, ODEC, EDD to share all comments
- Panorama will try to come back for validation of the ESMP and the environmental permit
- Panorama and EDD should share the ESMP with Tadjoura Regional Authority
- Panorama and EDD should have a workshop with the community
  - REI had a big workshop in 2009 with stakeholders and the NGOs
  - Need to organize the workshop in advance
- Coordinate with the Minister of National Solidarity on social aspects
  - The Minister worked out a framework and can provide more information on transmigration
- We will put Houssein and Dini in touch with Caty at USEAGP who can potentially provide further training on geothermal