

RECORD OF DISCUSSION ON
THE PROJECT FOR FORMULATING MASTER PLAN ON
DEVELOPMENT OF GEOTHERMAL ENERGY

IN

ETHIOPIA

AGREED UPON BETWEEN

GEOLOGICAL SURVEY OF ETHIOPIA


AND

JAPAN INTERNATIONAL COOPERATION AGENCY

Addis Ababa, 11 June 2013



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Japan




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Witnessed by


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In response to the official request of the Government of the republic of Ethiopia (hereinafter referred to as "GOE") to the Government of Japan, the Japan International Cooperation Agency (hereinafter referred to as "JICA") held a series of discussions with Geological Survey of Ethiopia (hereinafter referred to as "GSE") and relevant organizations to develop a detailed plan of the Project for Formulating Master Plan on Geothermal Energy in Ethiopia (hereinafter referred to as "the Project").

Both parties agreed the details of the Project and the main points discussed as described in the Appendix 1 and the Appendix 2 respectively, and to request their respective governments to proceed with the necessary procedures for implementation of the Project.

Both parties also agreed that GSE, the counterpart to JICA, will be responsible for the implementation of the Project in cooperation with JICA, coordinate with other relevant organizations and ensure that the self-reliant operation of the Project is sustained during and after the implementation period in order to contribute toward social and economic development of Ethiopia.

The Project will be implemented within the framework of the Agreement on Technical Cooperation signed on December 1, 2011 (hereinafter referred to as "the Agreement") and the Note Verbales to be exchanged between the Government of Japan (hereinafter referred to as "GOJ") and the Government of Ethiopia.

Appendix 1: Project Description

Appendix 2: Minutes of Meetings on the Detailed Planning Survey on the Project for Formulating Master Plan on Development of Geothermal Energy in Ethiopia

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PROJECT DESCRIPTION

Both parties confirmed that there is no change in the Project Description agreed on in the minutes of meetings on the concerning Detailed Planning Survey on the Project signed on 18th April, 2013 (Appendix 2).

I. BACKGROUND

Ethiopia has relatively large scale geothermal prospects among the rift valley countries in Africa. Thus far, 16 prospects for geothermal power development have been identified and it is expected the total potential generating capacity would be nearly 5,000MW. The Government of Ethiopia (hereinafter referred to as "GOE") intends to rigorously promote geothermal development in order to achieve more stable energy mix and sustainable power supply.

Considering such government policy, JICA has already conducted "Data Collection Survey on Geothermal Development in Africa" in Ethiopia in 2010. However, the current situation is that the most of geothermal prospects were not yet explored and even surveys already conducted were incoherent as they were conducted by various donor organizations in a different method and for different purposes. Therefore, these un-unified data sets are making difficult for GSE to evaluate geothermal resources and prioritize them in a scientifically coherent protocol. Consequently, GSE have been unable to formulate a geothermal development plan, and they managed to commence only one project in Aluto-Langano.

Therefore, GSE officially requested JICA to provide technical cooperation in formulating geothermal development master plan including geothermal reservoir evaluation and development prioritization as well as in developing GSE's capacity in geothermal development.

II. OUTLINE OF THE PROJECT

1. Title of the Project

The Project for Formulating Master Plan on Development of Geothermal Energy in Ethiopia

2. Expected Goals which will be attained after the Project Completion

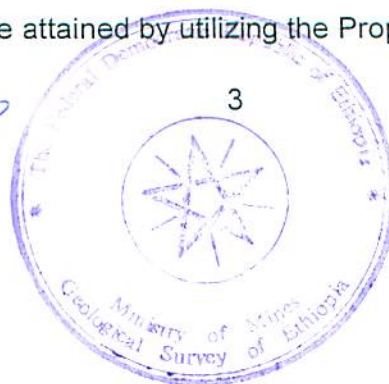
(1) Goal of the Proposed Plan

The capacity of GSE will be developed and ready to commence geothermal development projects.

(2) Goal which will be attained by utilizing the Proposed Plan

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Geothermal power development in Ethiopia will be promoted.

3. Outputs

- (1) A database for geothermal prospects will be developed.
- (2) A master plan for geothermal energy development will be formulated.

4. Activities

- (1) Data Collection and Desk Review
- (2) Nation-wide survey
- (3) Training in Japan
- (4) Database and master plan development

5. Input

- (1) Input by JICA
 - (a) Dispatch of Mission
 1. Geothermal development planning
 2. Geochemistry
 3. Geology
 4. Geophysics
 5. Geothermal reservoir evaluation
 6. Power development planning
 7. Environmental and social consideration
 8. Financial analysis

Input other than indicated above will be determined through mutual consultations between JICA and GSE.

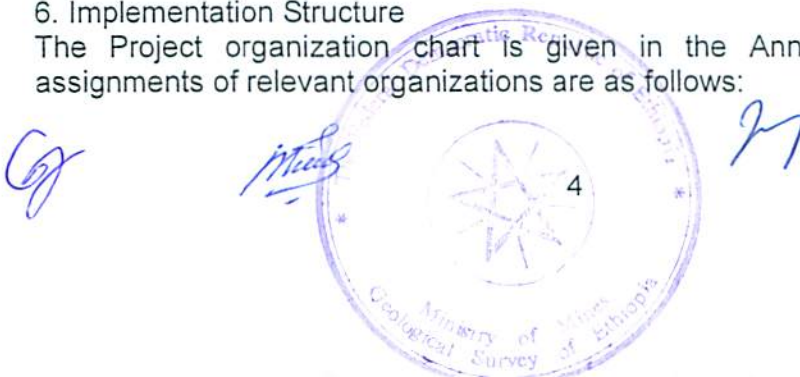
(2) Input by GSE

GSE will take necessary measures to provide at its own expense:

- (a) Services of GSE's counterpart personnel and administrative personnel as referred to in II-6;
- (b) Suitable office space;
- (c) Information as well as assistance in obtaining medical service;
- (d) Credentials or identification cards;
- (e) Available data (including maps and photographs) and information related to the Project;
- (f) Running expenses necessary for the implementation of the Project, for example, office running cost, and per diem and accommodation for GSE staff at the time of field surveys;
- (g) Necessary facilitation according to the regulation to members of the JICA missions for the remittance as well as utilization of the funds introduced into Ethiopia from Japan in connection with the implementation of the Project

6. Implementation Structure

The Project organization chart is given in the Annex I. The roles and assignments of relevant organizations are as follows:



(1) GSE

(a) Director General of GSE will be responsible for overall administration and implementation of the Project as Project Director.

(b) Director of Geothermal Resource Directorate of GSE will be responsible for project implementation and coordination with JICA experts as Project Manager.

(2) JICA Experts

The JICA experts will give necessary technical guidance, advice and recommendations to GSE on any matters pertaining to the implementation of the Project.

(3) Joint Coordinating Committee

Joint Coordinating Committee (hereinafter referred to as "JCC") will be established in order to facilitate inter-organizational coordination. JCC will be held whenever deems it necessary. A list of proposed members of JCC is shown in the Annex II.

7. Project Site(s) and Beneficiaries

Project Sites: Addis Ababa, and 16 geothermal prospects namely, Finkilo (Aluto 2), Bobesa (Aluto 3), Allalo Beda (Tendaho 3), Abaya, Tulu Moye, Dofan, Gedemsa, Nazreth, Meteka, Teo, Danab, Damali, Boina, Dallol, Kone, and Arabi.

Beneficiaries: GSE

8. Duration

Tentative schedule is shown in the Annex III.

The duration of the Project would be 18 months, and the commencement date is to be recognized from the first arrival of JICA Experts in Ethiopia.

9. Reports

JICA will prepare and submit the following reports (hard copy) to the GSE in English with soft copy.

- (1) 5 copies of Inception Report at the commencement of the first work period in Ethiopia
- (2) 5 copies of Interim Report at the time about 6 months after the commencement of the first work period in Ethiopia
- (3) 5 copies of Progress Report at the time of 12 months after the commencement of the first work period in Ethiopia
- (4) 5 copies of Draft Final Report at the end of the last work period in Ethiopia
- (5) 5 copies of Final Report within one (1) month after the receipt of the comments on the Draft Final Report

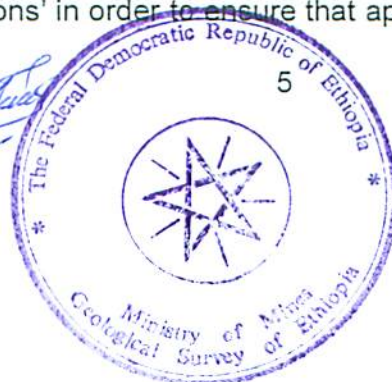
Note: GSE will provide JICA with the comments on the Draft Final Report within one month of receipt.

10. Environmental and Social Considerations

- (1) GSE agreed to abide by 'JICA Guidelines for Environmental and Social Considerations' in order to ensure that appropriate considerations will be

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made for the environmental and social impacts of the Project.

III. UNDERTAKINGS OF GOE

1. GOE will take necessary measures, based on the Agreement signed on December 1, 2011, to:
 - (1) ensure that the technologies and knowledge acquired by the Ethiopian nationals as a result of Japanese technical cooperation contributes to the economic and social development of Ethiopia, and that the knowledge and experience acquired by the personnel of Ethiopia from technical training as well as the equipment provided by JICA will be utilized effectively in the implementation of the Project; and
 - (2) grant privileges, exemptions and benefits to members of the JICA missions referred to in II-5 (1) above and their families, which are no less favorable than those granted to experts and members of the missions and their families of third countries or international organizations performing similar missions in Ethiopia.
2. Other privileges, exemptions and benefits will be provided in accordance with the Agreement signed on December 1, 2011 between the Government of Japan and the government of Ethiopia.

IV. EVALUATION

JICA will conduct the following evaluations and surveys to mainly verify sustainability and impact of the Project and draw lessons. The GSE is required to provide necessary support for them.

1. Ex-post evaluation three (3) years after the project completion, in principle
2. Follow-up surveys on necessity basis

V. PROMOTION OF PUBLIC SUPPORT

For the purpose of promoting support for the Project, GSE will take appropriate measures to make the Project widely known to the people of Ethiopia.

VI. MUTUAL CONSULTATION

JICA and GSE will consult each other whenever any major issues arise in the course of Project implementation.

VII. AMENDMENTS

The record of discussions may be amended by the minutes of meetings between JICA and GSE.

The minutes of meetings will be signed by authorized persons of each side who may be different from the signers of the record of discussions.



- Annex I Project Organization Chart
- Annex II A List of Proposed Members of Joint Coordinating Committee
- Annex III Tentative Schedule of the Project
- Annex IV TOR for Environmental and Social Consideration Study

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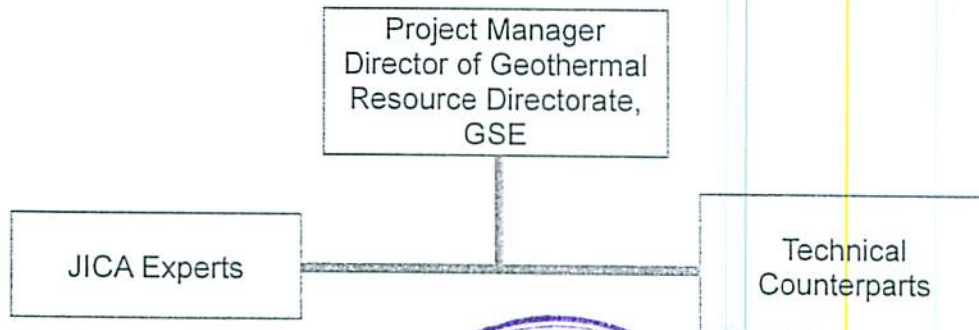
Project Organization Chart

Management Side



Project Side

Decision  Report 



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A List of Proposed Members of Joint Coordinating Committee

1. Ethiopia Side
Director General of GSE / Chief Geologist of GSE
Director of Geothermal Resource Directorate, GSE
Representative from Ministry of Mines
Representative from Ministry of Water and Energy
Representative from Ethiopian Electric Power Corporation
Representative from Ministry of Finance and Economic Development
2. Japanese Side
Resident Representative of JICA Ethiopia Office
JICA Experts of the Project
Other personnel concerned to be proposed by JICA
3. Observer
Representative from Embassy of Japan

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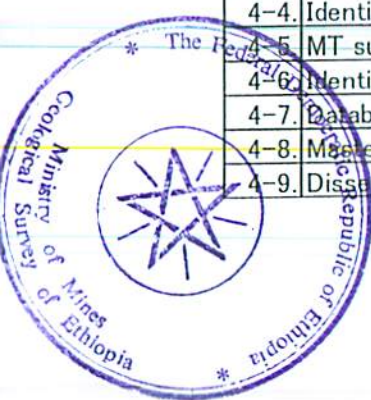
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Tentative Schedule of the Project

Timeline of the Project	Project month																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Data Collection and Desk Review:																		
1-1. Reviewing existing surface survey data	[Gantt bar]																	
1-2. Reviewing environmental issues	[Gantt bar]																	
1-3. Reviewing existing power system	[Gantt bar]																	
1-4. Remote sensing survey	[Gantt bar]																	
1-5. Identifying necessary surveys and prioritize them	[Gantt bar]																	
2. Nation-wide survey:																		
2-1. Geochemical survey	[Gantt bar]																	
2-2. Geological survey	[Gantt bar]																	
2-3. Environmental and social impact survey	[Gantt bar]																	
3. Training in Japan:																		
3-1. Training in reservoir evaluation	[Gantt bar]																	
4. Database and master plan development :																		
4-1. Data analysis	[Gantt bar]																	
4-2. Pre-resource evaluation	[Gantt bar]																	
4-3. Database development	[Gantt bar]																	
4-4. Identifying MT survey targets	[Gantt bar]																	
4-5. MT survey	[Gantt bar]																	
4-6. Identifying drilling targets	[Gantt bar]																	
4-7. Database completion	[Gantt bar]																	
4-8. Master plan formulation	[Gantt bar]																	
4-9. Dissemination workshop	[Gantt bar]																	



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Terms of Reference
Environmental and Social Consideration Study

- (1) Conducting the following baseline surveys on environmental and social consideration
 - Federal and regional laws and regulations on environmental and social consideration, such as environmental impact assessment, pollution control, resettlement, public participation, provision of information to public. Gap analysis between these legal frameworks and JICA Environmental and Social Consideration Guideline (April, 2010) will be conducted.
 - Federal and regional institutions which are in charge of environmental and social consideration.
 - Designated national parks, other protected areas, habitats of wildlife and plants, cultural heritages by federal or regional government in and near the geothermal sites and the associated transmission line routes
 - Social environment such as land use, rural communities, poor, ethnic minorities and indigenous peoples, economic and industrial activities in and near the geothermal sites and the associated transmission line routes
- (2) Analysis on alternatives including zero-option scenario, based on the concept of Strategic Environmental Assessment
- (3) Scoping on possible environmental and social impacts, focusing on Air Quality, Water Quality, Wastes, Noise and Vibration, Subsidence, Odor, Protected Areas, Ecosystem, Resettlement, Living and Livelihood, Heritage, Landscape, Ethnic Minorities and Indigenous Peoples, Working Conditions, Impacts during Construction and Accident Prevention Measures.
- (4) Initial environmental and social examinations in 16 geothermal sites
- (5) Evaluation of the impact of the project and the alternatives to the project
- (6) Identifying mitigation measures to minimize the negative impacts of the project
- (7) Making monitoring plans for the project
- (8) Making recommendations on environmental and social consideration for sustainable geothermal development
- (9) The draft scoping report and the draft environmental and social consideration report to be consulted with local stakeholders, when necessary. Comments submitted to the reports shall be taken into account in the final reports.

