

TWO WEEK TRAINING COURSE
GEOSIM: TOOL FOR RURAL ELECTRIFICATION
CHAMBER OF COMMERCE
ADDIS ABABA
14 – 25 MAY 2007



A two week training course on “GIS and GeoSim the Rural Electrification Planning Tool” was held at the Chamber of Commerce, Addis Ababa between the 14th and 25th May 2007 as part of the project “Capacity Building for Off-Grid Rural Electrification Planning at the Regional Level in Ethiopia” financed by the European Union Energy Initiative’s Partnership Dialogue Facility (EUEI PDF) programme with PMU at GTZ.

GeoSim, the rural electrification planning tool based on the GIS software “Manifold”, calculates the least-cost technical electrification option for rural settlements that should be targeted in priority for electrification. The tool was developed by IED during the off-grid rural electrification Master Plan¹ carried out between 2005 and 2006 for REES, who is responsible for the Rural Electrification Fund.

As each of the eight region’s in Ethiopia is ultimately responsible for its own development and planning it is extremely important that each of the regions becomes fully proficient in the application of GeoSim so as to draw local and regional electrification plans and thus propose bankable projects on the one hand to potential private investors for their uptake and on the other to REF for financing. It should also be noted that the role of the regional energy bureau’s is to define what should be grid connected and what should be off-grid.

The overall objective of the training course was therefore to ensure that all eight regions:

1. Master the use of GeoSim
2. Can apply GeoSim to draw rural electrification plans
3. Can update data & exchange results

¹ Project financed by the World Bank.

The agenda (see Annex 2) for the training therefore reflected these main objectives. The first three days focused on an introduction on GIS and Manifold wherein exercises on how to manipulate data were carried out (adding new points, polygons, lines; providing attribute data; creating new drawings; creating maps; importing data from different softwares, creating layouts and map images, etc.). An introduction to GeoSim and its structure including the parameters was presented during the thursday and friday of the first week and then applied to a concrete example of a local rural electrification plan conducted in four wereda's of Amhara between monday and wednesday of the following week wherein a concrete step by step approach was followed, so as to assist in replicating the same procedure:

- Step 1: Define your study area**
- Step 2: Identify rural settlements (poles) & rank them**
- Step 3: Update & add data in your study area**
- Step 4: Define your demand & import tables**
- Step 5: Define your technical parameters + catalogues**
- Step 6: Define your scenario parameters**
- Step 7: Run Geosim**
- Step 8: Understanding results**



Exercises and technical support were provided throughout the two weeks of the training including Saturday 19th May wherein participants were provided focused exercises applied to GeoSim. The training also provided a valuable practical opportunity to participants on how to use a Geographical Positioning System (GPS), download data and import onto Manifold.

Participants were then provided an opportunity to apply what they learned by developing a plan for a specific area of their choice.

The training focused on a real learning by doing approach. The presentations are provided in Annex 3.

A final presentation by REES was made to inform participants on the procedures for applying for a rural electrification loan. The role and responsibilities between the Cooperative bureau's, BOFED's and Energy Bureaus has to be clearly understood by each main stakeholder.



A total of 43 experts participated in the training from regional Energy Bureau's, Cooperatives and BOFED from Afar, Amhara, Benshangul Gumuz, Gambela, Oromiya, Somali, SNNP and Tigray. Representatives from the federal government EREDPC, REES, EEA, the Ministry of Energy and Mines and EEPKO also actively participated in the training. All showed enormous interest and dedication to understand and master the tool and thus a lot of ground was covered over the two weeks. A certificate award ceremony was carried

out at the end of the two weeks awarded by Ato Asress from EREDPC and REES and the IED Consultant's. The list of participants is provided in Annex 1.

A total of 20 Manifold and GeoSim licenses were installed, and a new computer was provided to each region (with the software), one to REES and the Ministry of Energy and Mines. Participants were clearly satisfied with the training, compliments focused particularly on getting the right mix between theory and practice. One main concern expressed by representatives of Cooperative bureaus understandably expressed a desire to also have a copy of the Manifold and GeoSim programmes.

Materials provided were:

- A computer to each region + 1 for REES and 1 for MoEM
- Licenses were installed on 20 computers:
- GeoSim User Guide (electronic and hard copy)
- Geosim Methodology (electronic and hard copy)
- Copy of all Exercises (electronic and hard copy)
- Copy of all presentations (electronic and hard copy)
- Copy of all photos taken during the two week training course
- A list of participants



The follow-up activities stemming from this two week training course will entail the Energy Bureau's putting into practice what they have learned through the selection of a study area in their Region and applying GeoSim to come up with a local plan, this will have to be carried out by the beginning of August 2007 when the team of Consultant and/or EREDPC will travel to each Region to respond to any burdening issues, refresh the training and finalize the procedures for data exchange between the Regions and REES. The Consultant will travel initially to Amhara, SNNP, Oromiya and Tigray.



Partnership Dialogue Facility (EUEI PDF)

ANNEX 1 : LIST OF PARTICIPANTS

No.	Name of participant	Region	Institution
1	Ato Abebe Mengesha	SNNPR	BOFED
2	Ato Abdu Ahmed	Afar	R.T.D.P.C.
3	Ato Abera Tekle	SNNPR	Mine & Energy Agency
4	Ato Abraha Adugna	Tigray	TWMERB
5	Ato Alemu Gebru	Amhara	Cooperative Promotion Agency
6	Ato Alemu Muleta	Oromia	REF
7	Ato Amare Hadgu	Federal	REF
8	Ato Amensisa Tsegaye	Oromia	Mine & Energy Agency
9	Ato Mesfin Abebe	Benshangul&Gumze	Cooperative promotion Bureau
10	Ato Tesfaye Zenda	Afar	Mines & Energy dev't Office
11	Ato Belay Hagos	Federal	FCA
12	Ato Beide Melake	Federal	EREDPC/PR
13	Ato Bizuayehu Tesfaye	Federal	EPCO
14	Mr. Cyril Perret	France	IED
15	Ato Ephrem Hassen	Federal	EREDPC
16	Ato Eyasu Chiroka	Federal	EREDPC
17	Eskender Akalewold	A.A	A.A City administration
18	Ato Habte Berhanu	Federal	EEA
19	Ato Habtom Gebremedin	Tigray	BOFED
20	Ato Kibret Abebe	Federal	MoWR
21	Lara Bertarelli	France	IED
22	Ato Melis Teka	Federal	MME
23	Ato Melkamu Takele	Benshangul&Gumze	WMERDB
24	Ato Misfin Bartiso	SNNPR	BOFED
25	Ato Mitiku Degefa	Oromia	OCPC
26	Ato Molla Melesse	Amhara	REMRD
27	Ato Mulugeta Assefa	Federal	EREDPC
28	Ato Mulugeta Adamu	A.A	IED/Mage
29	Ato Samson Mamo	Federal	REF
30	Ato Shiferaw Tsegaye	Tigray	Coopertaive
31	Ato Shawel Moreda	Federal	REF
32	Ato Taye Getachew	SNNPR	Cooperative promotion Bureau
33	Ato Teka Bireda	Federal	EREDPC
34	Ato Tewodros Kebede	Oromia	BOFED
35	Ato Yared Mulu	Tigray	TWMERB
36	Ato Yohannes Shiferaw	Federal	EREDPC
37	Ato Yesuf Ibrahim	Gambella	Cooperative
38	Ato Zelalem Mulu	Oromia	M.O.M.E
39	Ato Zerihun Desalegn	Gambella	GEPEDA
40	Ato Yiheyis Eshetu	Federal	Ministry of Mines Energy
41	Ato Mesafint Ayalew	Amhara	REMRSDPA
42	Ato Omer Nuru	Afar	Cooperative promotion Bureau
43	Abdireshid mohamed	Somali	WMERDB
44	Dereje Kebede	Federal	Austrian Development Cooperation

ANNEX 2 : AGENDA

TRAINING PROGRAMME : GEOSIM – RURAL ELECTRIFICATION TOOL



Partnership Dialogue Facility (EUEI PDF)



**ETHIOPIAN RURAL ENERGY
DEVELOPMENT & PROMOTION
CENTRE (EREDPC)**

AGENDA: WEEK 1

WEEK 1	Mon 14/05/07	Tue 15/05/07	Wed 16/05/07	Thu 17/05/07	Fri 18/05/07
9h00 – 10h30	<ul style="list-style-type: none"> • Opening Speech Ato Asress, EREDPC • Objectives of training & presentation of the agenda & the team Lara Bertarelli, IED 	<ul style="list-style-type: none"> • Manifold Cyril Perret, IED 	<ul style="list-style-type: none"> • SIG + Manifold Cyril Perret, IED 	<ul style="list-style-type: none"> • GeoSim – introduction Cyril Perret, IED 	<ul style="list-style-type: none"> • Geosim: Diesel Module Cyril Perret, IED • Geosim: Hydro Module Lara Bertarelli, IED
10h30	<i>Coffee</i>				
11h00 – 12h00	<ul style="list-style-type: none"> • Round-table Introduction of participants • SIG Presentation Cyril Perret, IED 	<ul style="list-style-type: none"> • Manifold Cyril Perret, IED 	<ul style="list-style-type: none"> • SIG + Manifold Cyril Perret, IED 	<ul style="list-style-type: none"> • Geosim – Structure Cyril Perret, IED 	<ul style="list-style-type: none"> • Geosim: Results Cyril Perret, IED
12h00 – 14h00	<i>Lunch</i>				
14h00 – 15h30	<ul style="list-style-type: none"> • SIG + Manifold Cyril Perret, IED 	<ul style="list-style-type: none"> • Manifold Cyril Perret, IED 	<ul style="list-style-type: none"> • SIG + Manifold Cyril Perret, IED 	<ul style="list-style-type: none"> • Geosim – Demand module Lara Bertarelli, IED 	<ul style="list-style-type: none"> • Week debriefing
15h30	<i>Coffee</i>				
16h00 – 17h30	<ul style="list-style-type: none"> • SIG + Manifold Cyril Perret, IED 	<ul style="list-style-type: none"> • Manifold Cyril Perret, IED 	<ul style="list-style-type: none"> • SIG + Manifold Cyril Perret, IED 	<ul style="list-style-type: none"> • Geosim – Demand module Lara Bertarelli, IED 	<ul style="list-style-type: none"> • Week debriefing

TRAINING PROGRAMME : GEOSIM – RURAL ELECTRIFICATION TOOL



Partnership Dialogue Facility (EUEI PDF)



**ETHIOPIAN RURAL ENERGY
DEVELOPMENT & PROMOTION
CENTRE**

AGENDA: WEEK 2

WEEK 2	Mon 21/05/07	Tue 22/05/07	Wed 23/05/07	Thu 24/05/07	Fri 25/05/07
9h00 – 10h30	<ul style="list-style-type: none"> Local RE Plan – Step by Step Defining a study area + exercises Lara Bertarelli, IED	<ul style="list-style-type: none"> Using the GPS and downloading data Lara Bertarelli, IED	<ul style="list-style-type: none"> Local Plan Launching Geosim & understanding results Lara Bertarelli, IED	<ul style="list-style-type: none"> Local Plan exercise Lara Bertarelli	<ul style="list-style-type: none"> Next steps with regions + next exercises Lara Bertarelli
10h30	<i>Coffee</i>				
11h00 – 12h00	<ul style="list-style-type: none"> Local RE Plan – Defining Development Poles & Ranking + exercises Lara Bertarelli, IED	<ul style="list-style-type: none"> Using the GPS and downloading data Lara Bertarelli, IED	<ul style="list-style-type: none"> Sensitivities Lara Bertarelli, IED	<ul style="list-style-type: none"> Local Plan exercise Lara Bertarelli	<ul style="list-style-type: none"> Procedures for fund applications REES
12h00 – 14h00	<i>Lunch</i>				
14h00 – 15h30	<ul style="list-style-type: none"> Local RE Plan – Updating data Lara Bertarelli, IED	<ul style="list-style-type: none"> Local RE Plan – Parameters Lara Bertarelli, IED	<ul style="list-style-type: none"> Sensitivities Lara Bertarelli, IED	<ul style="list-style-type: none"> Local Plan exercise Lara Bertarelli	<ul style="list-style-type: none"> Questions & Answers Meeting close
15h30	<i>Coffee</i>				
16h00 – 17h30	<ul style="list-style-type: none"> Local RE Plan – Updating data Lara Bertarelli, IED	<ul style="list-style-type: none"> Local RE Plan – Parameters Lara Bertarelli, IED	<ul style="list-style-type: none"> Sensitivities Lara Bertarelli, IED	<ul style="list-style-type: none"> Diploma Ceremony Closing Speeches Group photo 	
				18h00 Dinner	