



ETHIOPIA

Dr. Istvan Keri

Special Report



USAID
FROM THE AMERICAN PEOPLE



Volunteer Name:
Country:
Country project:
Host:
Venue:
Audience:
Number of people :
Date:

Istvan Keri
Ethiopia
ET -78
Ethiopian Catholic
Church
Adama, Dhera, Sira
Farmers, Engineers
34
Mar.18-Apr.7, 2016





1. Assignment Objectives



Rural Houses in Ethiopia



USAID
FROM THE AMERICAN PEOPLE



The annual rainfall distribution of most parts of Ethiopia, including the highlands, is not only lacking in uniformity but also highly unpredictable in terms of inter-annual variations. Therefore, overcoming the limitations of these arid and semi-arid areas and making good use of the vast agricultural potential under the Ethiopian context is a necessity rather than a choice, which requires appropriate intervention to address the prevailing constraints. In addition the land degradation as a result of poor soil fertility management needs to be addressed.

Therefore, the objective of this volunteer assignment is to build the technical knowledge/skills of 4 host staffs, 8 community development workers and 8 DAs and 60 smallholder farmers on improved rain water harvesting and soil conservation technologies and practices. Technical assistance in the form of hands on training and relevant technologies will promote conservation friendly and on-farm knowledge transfer.

Specific tasks for this volunteer assignment are:

- To train on new innovation and usage of improved rain water harvesting technologies/practices
- Ecosystem and agriculture
- Demonstrate on farms soil moisture harvesting technologies

2. Achievement of the assignment

1. TRAINED 34 PEOPLE FOR WATER HARVESTING AND DRIP IRRIGATION SYSTEM APPLICATION
2. BUILT RAIN WATER HARVESTING SYSTEM WITH 4000 LITERS CISTERN
3. INSTALLED A SMALL DRIP IRRIGATION SYSTEM FOR DEMONSTRATION PURPOSES



1.

3. Recommendations to the host with regards to the assignment



**WOMEN AND
LITTLE GIRLS
ARE WALKING
15-20 KM/ DAY
TO COLLECT
DRINKING
WATER**

**A WATER TRUCK IMPROVE
THE PEOPLE'S WELL BEING
IMMEDIATELY .**

**IN THE LONG RUN NEED TO
EXTEND THE DRINKING
WATER PIPELINE**



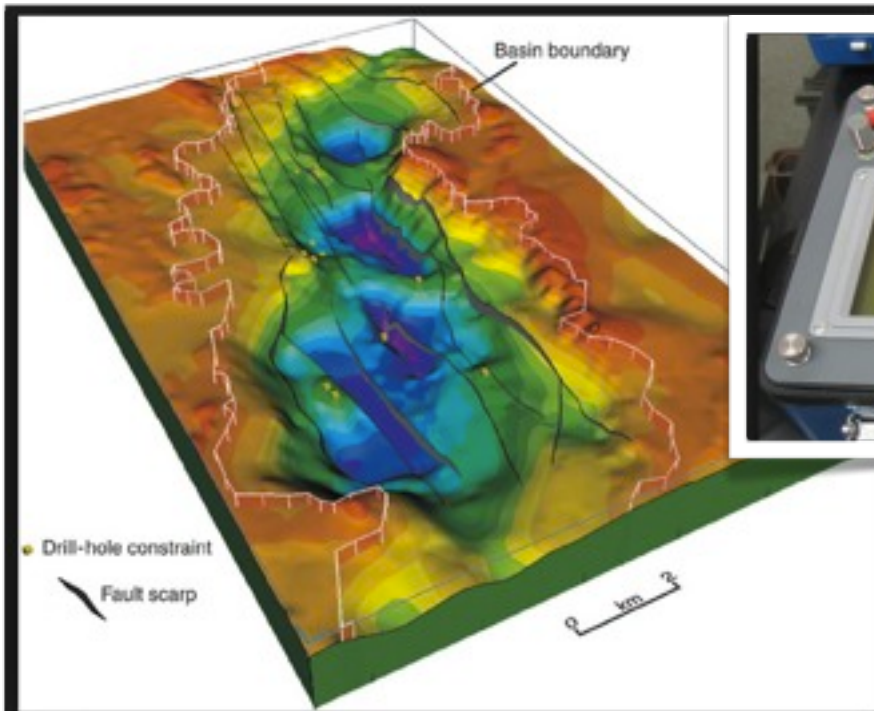
2. USAID / CRS FOUNDED NURSERY NEED A 5 HP HONDA CENTRIFUGAL PUMP TO IMPROVE IRRIGATION AND LABOR EFFICIENCY



Special Report

3. AQUIFER EXPLORATION IN THE GREAT RIFT VALLEY NECESSARY TO FIND RELIABLE IRRIGATION WATER SOURCE

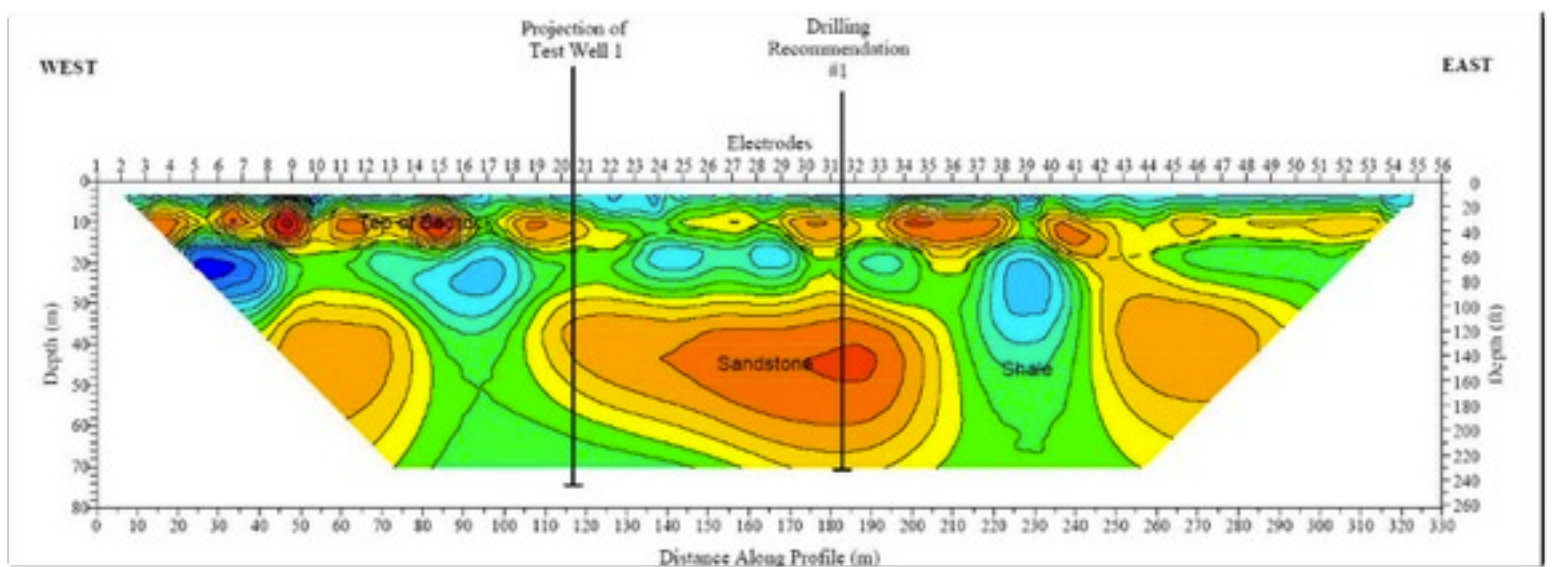
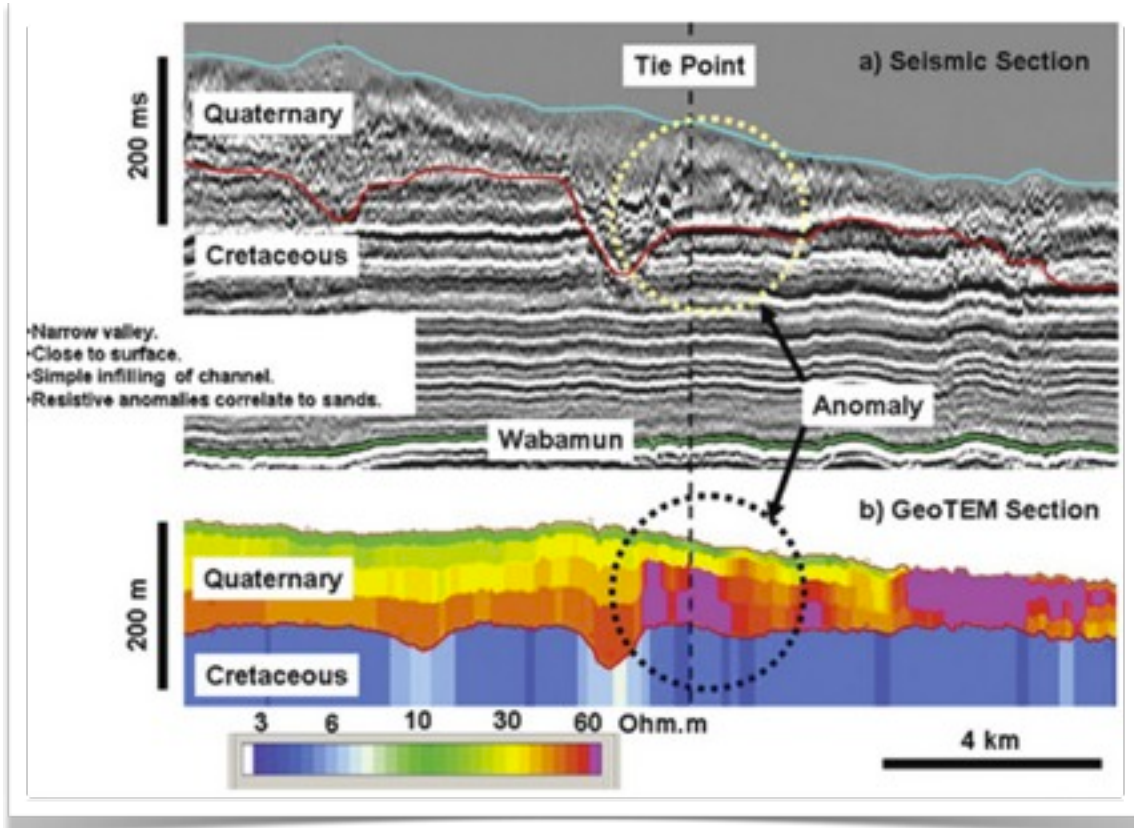
DIGGING WELL BY HAND IS NOT A WAY TO FIND WATER

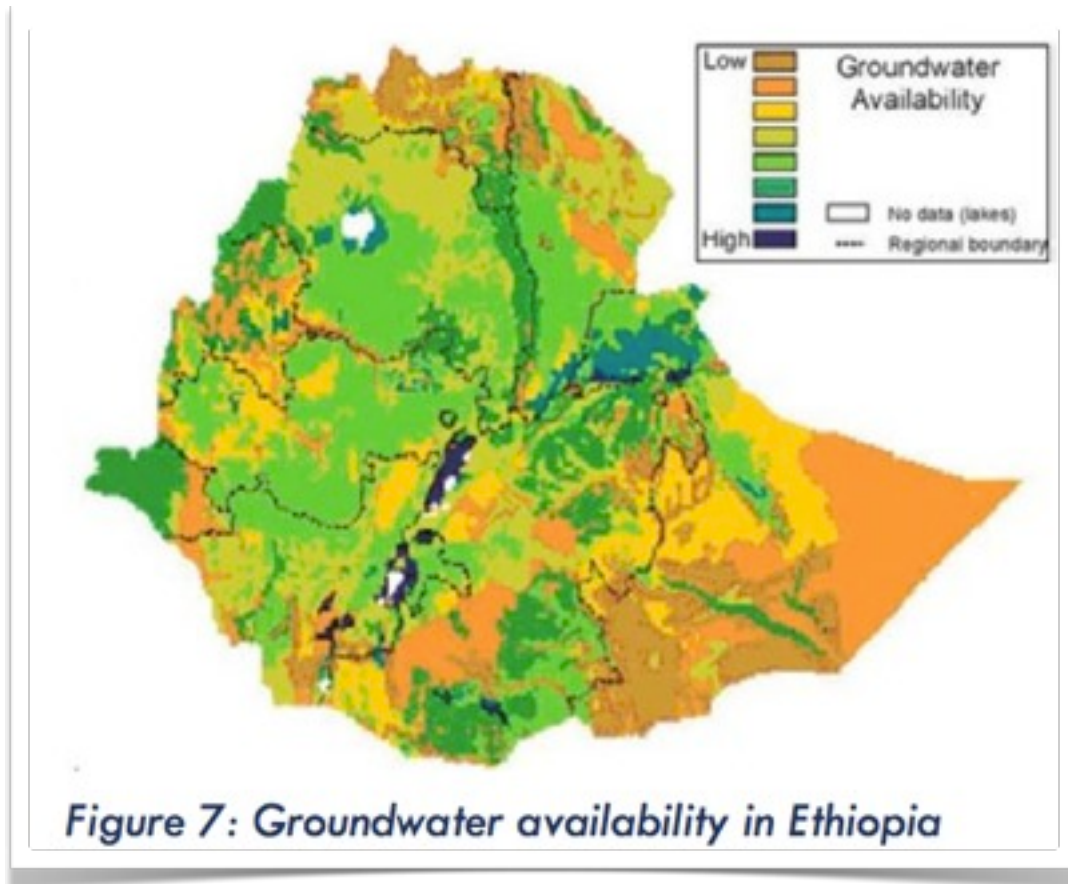


WATER DETECTOR

**VALLEY AQUIFER WITH
TECTONIC FAULT**

EXPLORATION FOR TECTONIC FAULT ANOMALY

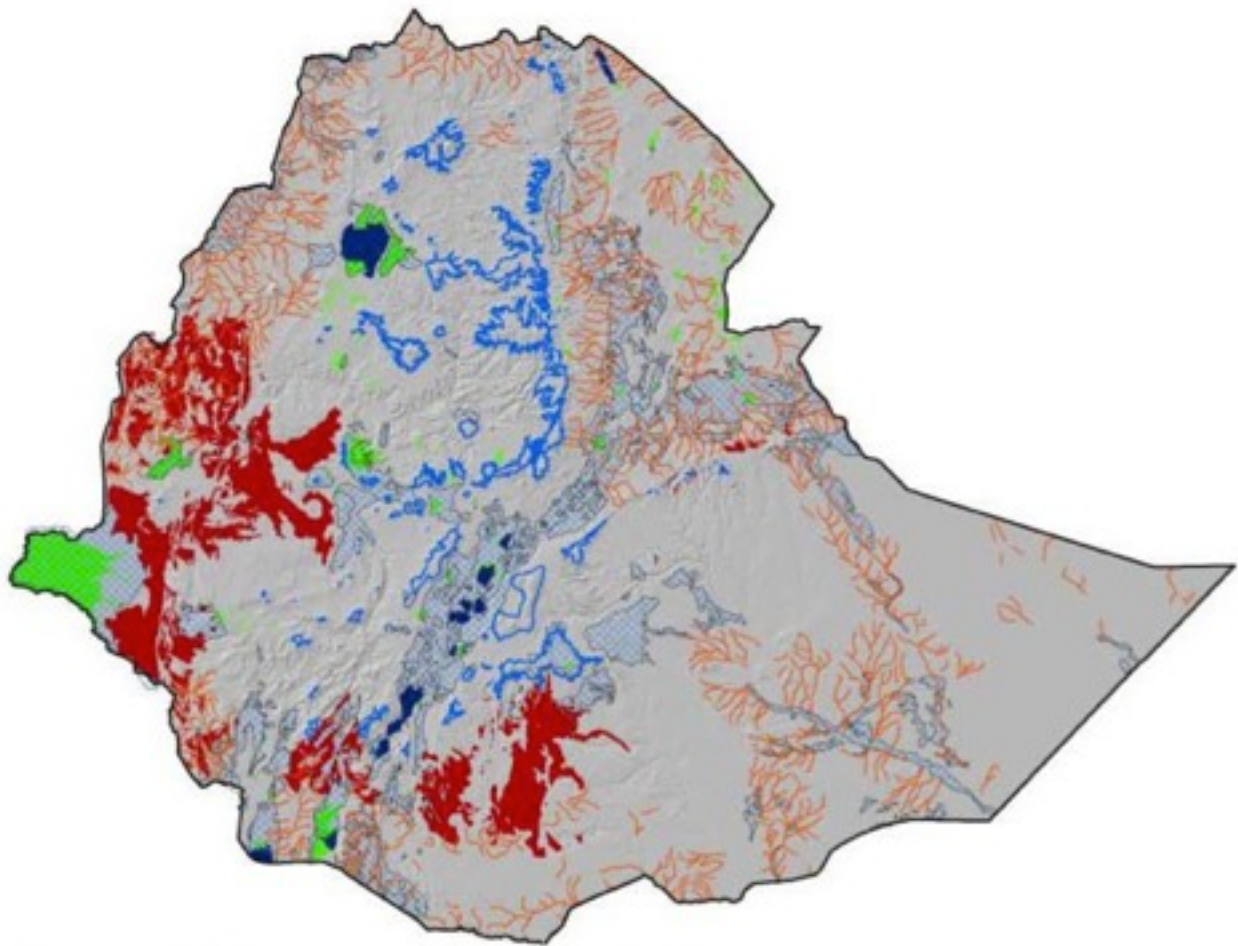




Potential for Shallow GW use in Ethiopia

There are encouraging figures considering shallow ground water at the national scale. A total of 38 million hectares is the estimated potential area for Ethiopia. This figure can be divided in different potential areas:

- 15 million hectares of extensive regoliths ideal for mechanically drilled wells and hand dug wells;
- 17 million hectares of alluvial and lacustrine deposits appropriate for manual drilling and hand dug well development;
- 3 million hectares of riverine and lacustrine deposits suitable for shallow tube wells and hand dug wells
- 3 million hectares comprising the periphery of seasonal wadis, best



Mapping shallow groundwater for MUS

- Zones of frequent discharge cold springs
- Seasonal Wadis and their catchment; total length > 30000 km; gw storage 3 billion m³
- Extensive shallow regoliths (laterites and saprocks), covers > 150000 km²
- Extensive alluvial and lacustrine deposits, cover > 170000 km²
- Extensive riverine and lake fringe flood plains; covers at least 30000 km²; NB : small ubiquitous depressions not included
- Lakes

Figure 17: Map for potential shallow groundwater sources (produced by professor Seifu Kebede)

**4. CLIMATE CHANGE ADAPTATION IS REQUIRED TO APPROACH CLIMATE SMART AGRICULTURE
INSTALL WEATHER STATION, RAIN GAUGE AND MAX-MIN THERMOMETER**



DAVIS WEATHER STATION
\$288.99

**WITHOUT MEASUREMENT
AND DATA COLLECTION IS NO
CS AGRICULTURE**

Features:

- Displays indoor and outdoor temperature and humidity
- Displays wind speed, wind direction, highest wind gust and wind chill
- Displays heat index and dew point
- Displays rainfall and rain rate
- Displays time, sunrise and sunset and moon phase
- Updates every 2.5 seconds (up to 10x faster than the competition)
- Records wind speed as low as 2 mph (3 km/h) and as high as 150 mph (241 km/h)
- Records indoor temperature from 32 to 140 degrees F
- Solar-powered with stored energy backup
- Sealed electronics in the integrated sensor suite provide protection against the elements
- Glow-in-the-dark keypad for night viewing and domed buttons for better feel
- Easy-to-read and use, backlit LCD screen at 3 x 4.38"
- Frequency-hopping spread spectrum radio for reliable data transmission
- 50 on-screen graphs for comparing current and past weather
- 22 alarms to warn of dangers such as high winds, possible flooding and more
- Optional WeatherLink software for extensive weather analysis and data storage.
- 1 Year Factory Warranty
- US version. Proudly Made In The USA - Designed for use in the USA



RAIN GAUGE \$ 2.99



MAX. - MIN. THERMOMETER

\$ 5.99



4. COLLECT RAIN WATER AND USE DRIP IRRIGATION FOR VEGETABLE GARDEN



**THE 5
GALLON
BUCKET
IRRIGATION
SYSTEM FOR
HOUSEHOLD
GARDEN**





4. Anticipated Impact

THE HOST WILL USE NEW RAIN WATER HARVESTING TECHNOLOGIES IN SMALL AND LARGE SCALE TO IMPROVE CROP PRODUCTION AND PROTECT THE ENVIRONMENT

BUILD MORE IRRIGATION SCHEME AND FIND NEW WATER SOURCE, AQUIFER DEVELOPMENT



5. Recommended future volunteer Assistance

NEED MORE ACTION ORIENTED ASSIGNMENT AND FOLLOW UP THE RESULTS.



Action plan for host recommendations

Recommendation	Specific Action	Responsible person	By when
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INSTALL RAIN GAUGE IN THE RURAL AREA			ASAP
BUILD RAIN WATER HARVESTING SYSTEM AND COMBINED WITH DRIP IRRIGATION SYSTEM			ASAP
COLLECT RAIN FROM THE ROOF			ASAP
USE PUMP IN THE NURSERY TO IRRIGATE THE PLANTS			ASAP
PURCHASE WATER TRUCK FOR DRINKING WATER DISTRIBUTION			ASAP



Thank You!





FAILED RAIN HARVESTED PROJECT





AWASH RIVER IRRIGATION SCHEME



SOIL CONSERVATION PROJECT





GULLY STABILISATION PROJECT

