

Groundwater Technical Expertise , Data Management and Quality Control of Data



CONTENTS

- TRAINING PROGRAM
- KNOWLEDGE AND EXPERTISE
- EXPERTISE AT DIFFERENT ORGANIZATION AND GAPS
- DATA MANAGEMENT
- PROBLEM AND CHALLENGES
- PROBLEMS/CHALLENGE AND RECOMMENDATION

منبع

حیات

آب

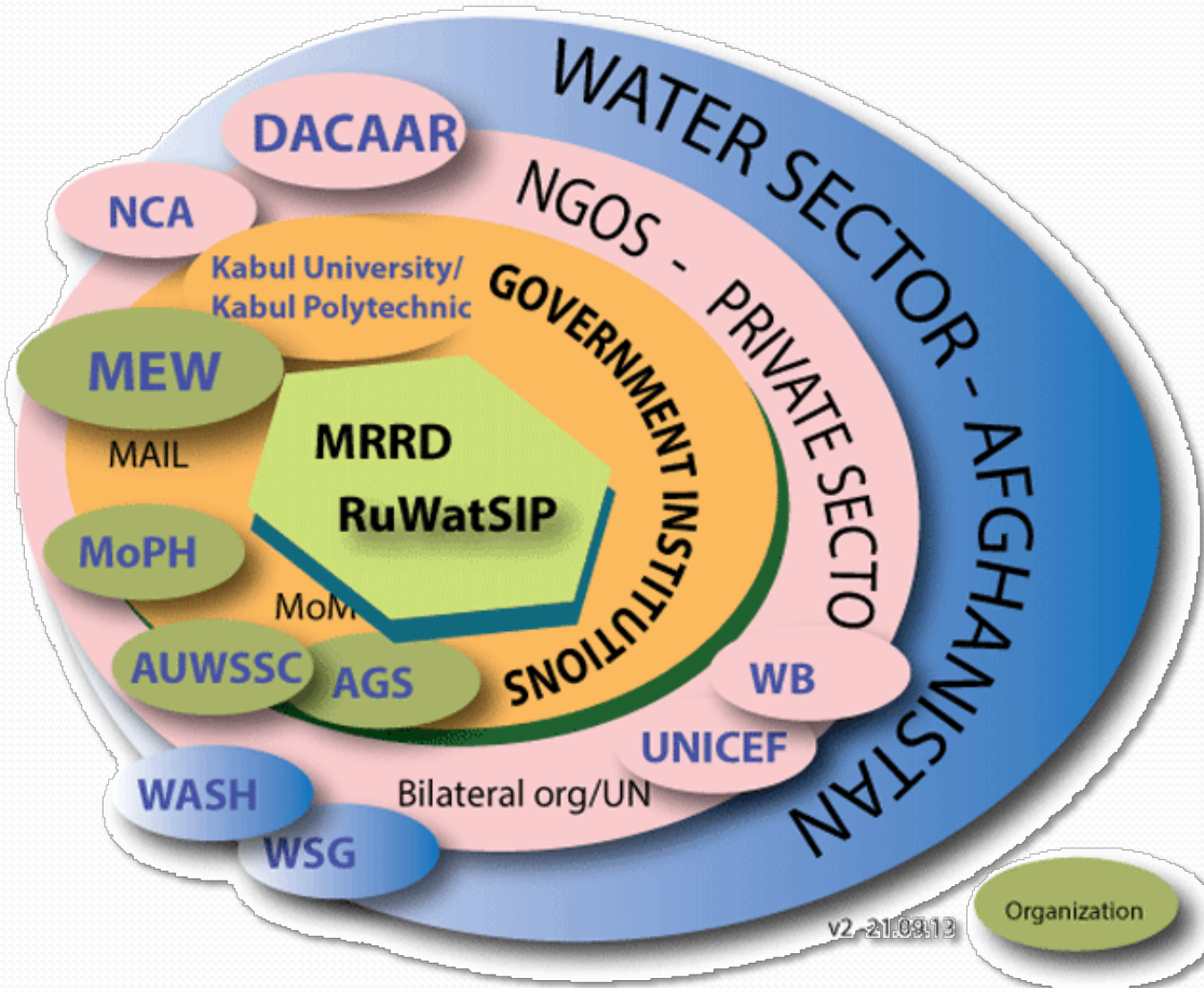


Food Grows Where Water Flows

Water is life

... and water is death

Key project stakeholders



Training calendar for 2012-2015/MRRD

Training Calendar 2013

Month	January				February				March				April				May				June				July				August				September				October				November				December																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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Training Calendar 2014

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Date of first day of week	4	11	18	25	1	8	15	22	1	8	15	22	29	5	12	19	26	3	10	17	24	31	7	14	21	28	4	11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25	2	9	16	23	30	6	13	20	27
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Training Calendar 2015

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Key code:

Public holidays

Hydrogeology I (Norplan)

Groundwater investigation

Geophysical survey, 7 daysx2

Well drilling methods, 4 daysx2

Water well design and completion, 5 daysx2

Well hydraulics, 7 daysx2

Planning and implementation of provincial hydrogeologic survey

Geophysical borehole logging, planning and implementation, 6 days x 2

Geophysical borehole logging interpretation of data

well construction and pumping test (KAI) DCAAR

Practical pumping test interpretation

Practical interpretation of Geophysical data

Hydrogeology II (DACAAR)

Interpretation of data, 5 daysx2

Preparing thematic maps, 5 daysx2

Water quality testing and GPS use in the field DCAAR

Practical Geophys. Investig. and Siting-in the province DCAAR

Well construction and pumping test (Province) DCAAR

Pumping test and data collection of exploratory well (Faryab) DCAAR

Hydrochemistry

Hydrogeology II (DACAAR)

Training of trainers (DACAAR)

Training methods, 2 daysx2

Best practice/5 days

Training methods, 2 daysx2

Best practice/5 days

Training methods, 2 daysx2

Best practice/5 days

Training methods, 2 daysx2

Best practice/5 days

Training methods, 2 daysx2

Best practice/5 days

Training methods, 2 daysx2

Best practice/5 days

Training methods, 2 daysx2

Best practice/5 days

Training methods, 2 daysx2

Best practice/5 days

Training methods, 2 daysx2

Best practice/5 days

Training methods, 2 daysx2

Best practice/5 days

Training methods, 2 daysx2

GIS

ArcGIS Software Introduction

ArcGIS Databases

ArcGIS Spatial analyses

Introduction to Online GIS maps

Practical use of Online GIS maps

Advanced Online GIS maps

Data management, 5 days (Norplan)

Data capturing, 1 day (Norplan)

Cartography, 2 days (Norplan)

GIS for hydrogeologist

Remote sensing

Data Management 2 (Excel & ACCESS)

Cartography-: x2

ArcGIS Spatial analyses advance

Using water Dem software with GIS, 5 days/Mr.Iqbal

ArcGIS software intermediate 4 days

ArcGIS software intermediate 4 days

ArcGIS software intermediate 4 days

ArcGIS software intermediate 4 days

ArcGIS software intermediate 4 days

ArcGIS software intermediate 4 days

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ArcGIS software intermediate 4 days

Water and sanitation

Planning using water atlas, 2 daysx2 (Norplan)

Conceptual design 3 daysx2 (Norplan)

O&M 1 dayx2 DCAAR

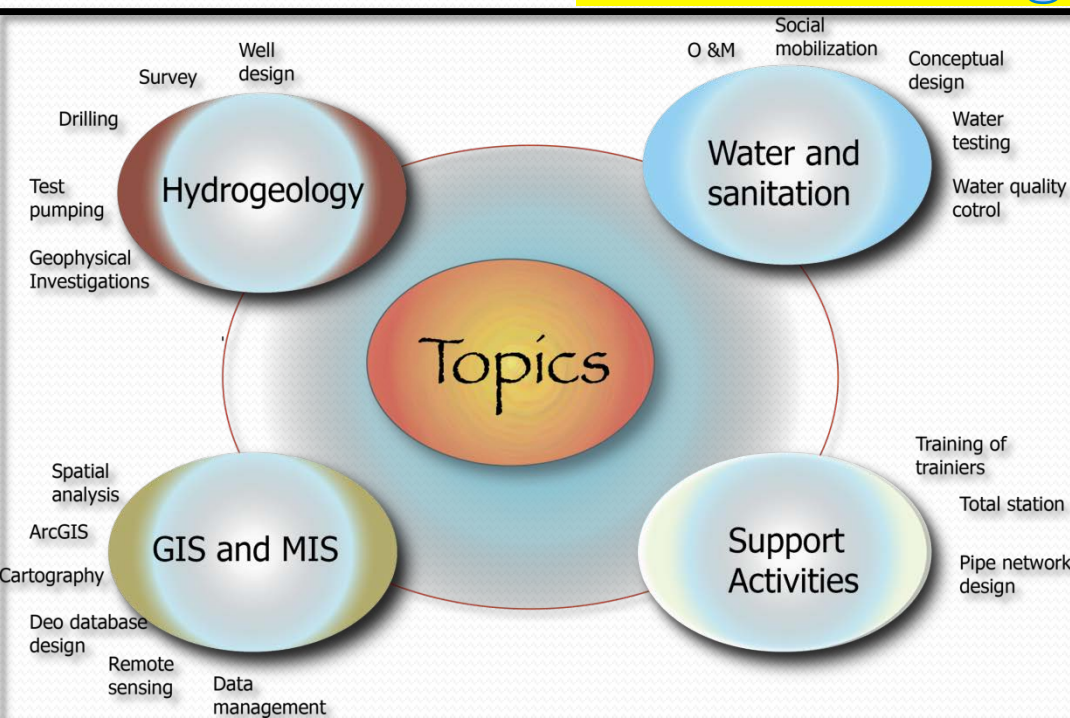
Social aspects, WASH policy, 4 days: DCAAR

Water network design 4 days (regional expert)

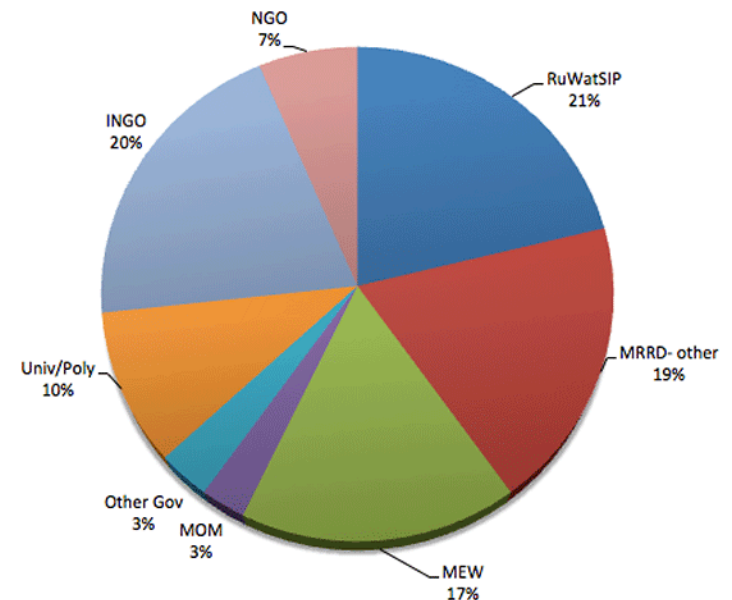
Total station

Training program and number of hydrogeologists and other ground water experts.

**Around 800 participants,
42 training course**



Background of 409 course participants attending 20 courses so far completed



KNOWLEDGE AND HANDS ON EXPERTISE, AVAILABLE LOCAL TOOLS AND GAP



**Applied Geophysics in Groundwater Exploration: from Class
down to Field Works, Data Collection, Data Processing and
Interpretation**



How to communicate to all?

Coordination with Stakeholders

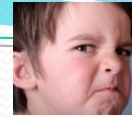


Connection
Communication
Learning
Coordination

An illustration of a group of people of various ethnicities holding hands in a large circle, symbolizing unity and collaboration. The text "Connection, Communication, Learning, Coordination" is written in the center of the circle in a bold, red, serif font.

Ministries

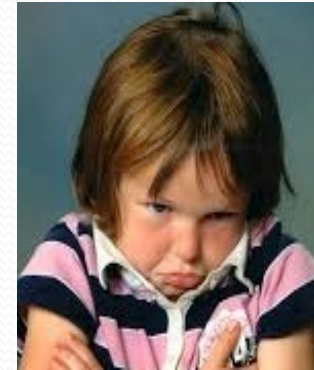
- Institutional reform and capacity development



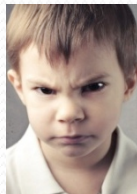
- **Good Equipments**



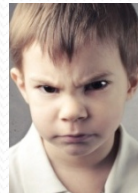
- ❖ Competition on the source of the water as well as for funding resources
- ❖ Lack of coordination
- ❖ Duration of project/long duration



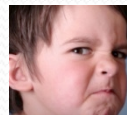
- ✓ Gap of good data base and sharing data



- ✓ Gap of practical expertise with modern technology



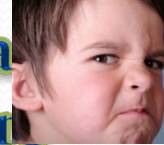
- ✓ **LACK OF SUSTAINABILITY AND CONTINUITY OF PROJECT**



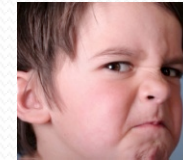
Expertise at different organization?

Afghan Academia

-Lack of financial support and time for a research projects, governmental/donor



-Gap of practical expertise with mod technology



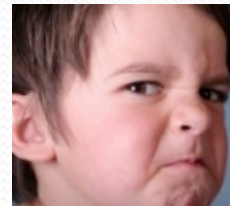
-Good in theory



-Library ,Equipment and tools



-LACK OF ANY DATA BASE AND INFORMATION EXCHANGE



-No coordination between academia

Expertise at different organization?

INGOs

LACK OF COORDINATION



PROFESSIONAL STAFFS

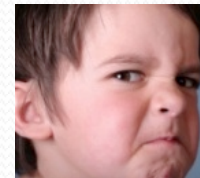


GOOD IN PRACTICE



ACCESS ON GOOD LAB.

CONTINUITY AND SUSTAINABILITY
OF PROJECT



DURATION OF PROJECTS



Expertise at different organization?

Private sectors

Expertise at different organization?

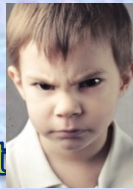
-LACK OF ANY DATA BASE AND POOR INFORMATION
FLOW AND INFORMATION EXCHANGE



-DURATION OF PROJECT



-Quality of project



- Lack of Skills
- Limited knowledge about new technologies
- Limited manpower/experts shortage



-No coordination between private sectors

- Data management Who can handle,



Paper based data



Digital data

Groundwater's Status and question

➤ Millions of m³ pumped every year:

Monitored? Who? How?

➤ 100's of thousands of users:

Registered? Controle

➤ 10's of thousands of wells/boreholes:

Registered? Maintained?

Info. about location,
abstraction levels, water
levels, water quality,
formation, etc -

➤ 1000's of sources of pollution:

Location, nature &
quantity of pollutants?
aquifer vulnerability?

➤ Many governing departments/institutions:

Joint management ?
Coordination / cooperation?

Wrong data and correct data.

- Ministry of Rural Rehabilitation and Development
- Ministry of Public Health
- Ministry of Water and Energy
- Ministry of Mines, Afghanistan Geological Survey
- NGO laboratories: DACAAR, other ?
- Private laboratories: VICC, other...?

- No standard procedures for sampling.
- No standard method for reporting.
- Not possible to see from reports if analysis are made with field equipment or standard water testing
- Many cannot verify where the samples come from.
- Not always possible to use fresh chemicals.
- No regular calibration to check which that the analyses are correct.



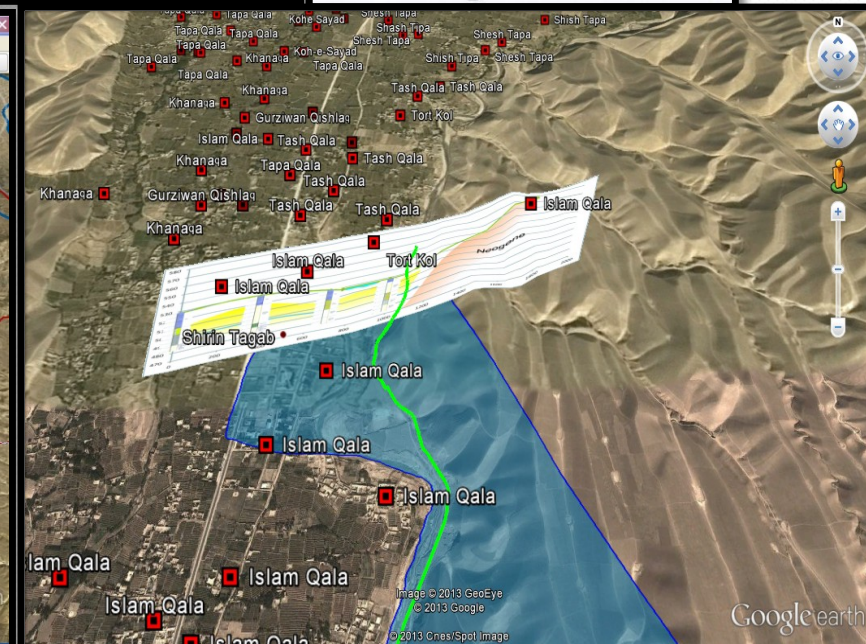
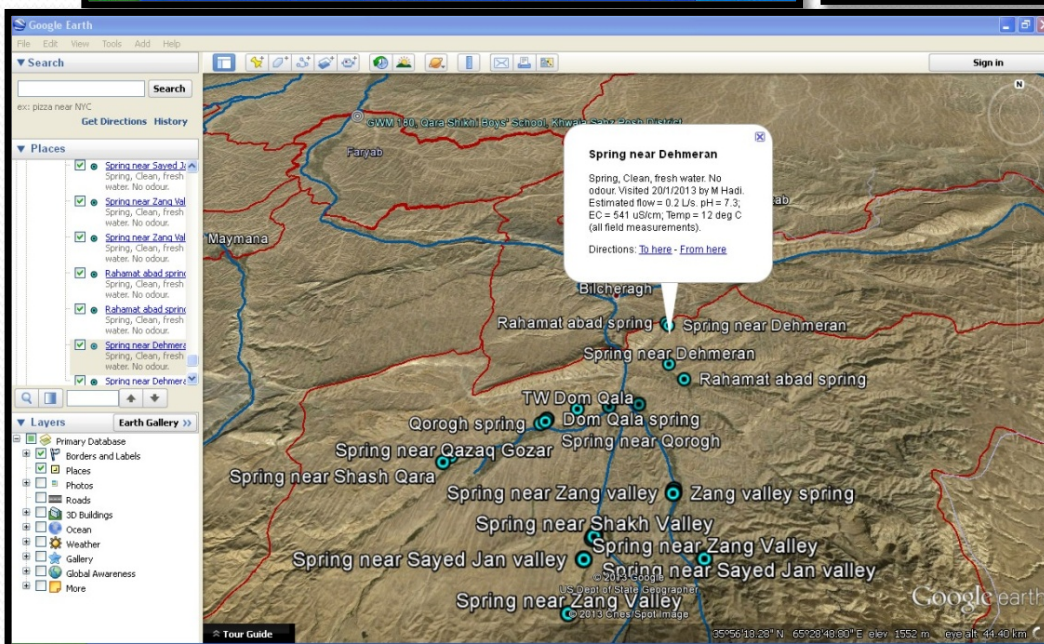
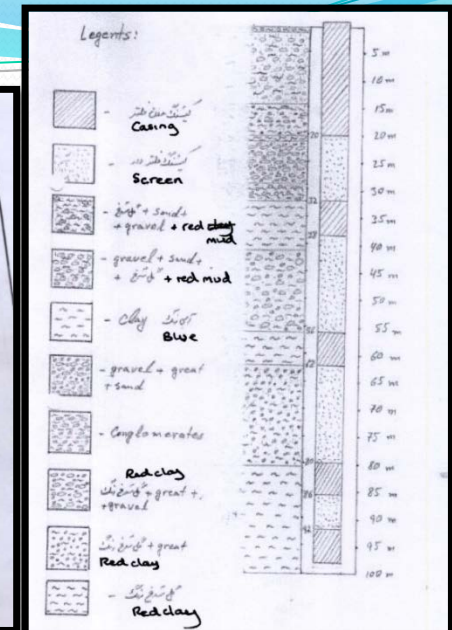
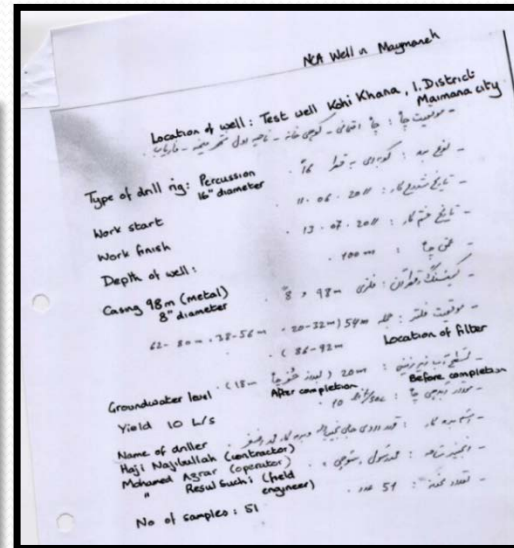
Data management. 2000 records per province!



National activities in Kabul
with Faryab as a pilot province

Paper data

No	Province	District	Station	Village Name	Latitude Dec.	Longitude Dec.	Pipe Scheme Name	pumping test date	Pumping Test Period	Pump Discharge (m ³ /hr)	Static Water Level (m)	Dynamic Water Level (m)	Drownout (m)	Total depth (m)	Type of Pipe & Slop	Diameter of Pipe and Slop (inch)	
1	Farafiki	Makema	Bilo area		35.9081	64.7616	Motimbe	30/06/2008		8	6	66	71	6	204	PVC 10	
2	Farafiki	Qansar	Acquile		35.5845	64.7822	Motimbe	30/03/2008		8	4	91.4	110	13.4	145	GI 6	
3	Farafiki	Qansar	Bar akoub		35.6888	64.2910	Motimbe	04/03/2008		4	5	27.5	42.7	16.2	150	GI 6	
4	Farafiki	Qansar	Nguzulu		35.5815	64.5534	Motimbe	09/03/2008		5	3	101	122	19	150	GI 6	
5	Farafiki	Ambar	Blah Gara and Nguzulu Plain		35.6794	64.5983	Motimbe	20/05/2010		16	35	83.7	99	13.5	122	GI 6	
6	Farafiki	Ambar	Safu k		35.6010	64.1177	Tube well	01/06/2010	13 min	2.77	137	134.2	DRY	-	160	GI 6	
7	Farafiki	Ambar	Casa Tano		35.889	64.5566	Tube well	01/06/2010	15 min	2.9	87.1	81	DRY	-	150	GI 6	
8	Farafiki	Ambar	Shimo Shitani		35.8265	64.5754	Tube well	03/06/2010		5	1.85	195	130	26	150	GI 6	
9	Farafiki	Makema	Makema University		35.5877	64.7877	Tube well	30/11/2011		6	0.7	41	42.5	181	115	200	PVC 6
10	Farafiki	Shimiro	Kilomali Kijambini Salda		35.9583	65.4953	Tube well	19/03/2012		6	35	26.8	81.1	34.3	92	240	PVC 6
11	Farafiki	Shimiro	Tapa kishira valley (Shimiro village)		35.9583	65.4953	Tube well	08/03/2009		6	1	50	51	120	200	PVC 6	
12	Farafiki	Shimiro	Tapa kishira valley (Old Gudub village)		35.9583	65.4958	Tube well	01/03/2012		7	1.5	9	130	121	220	200	PVC 6
13	Farafiki	Shimiro	Tapa kishira valley (Chombe village)		36.7616	64.5534	Tube well	24/12/2009		8.6	6	15	34.1	111	200	PVC 6	
14	Farafiki	Shimiro	Tapa kishira valley (Chombe village)		36.2497	64.7451	Tube well	07/02/2010		6	0.78	16.7	148.8	120	200	PVC 6	



Problem and challenges

Competition for resources on water/fund

Possibly there is competition on the source of the water as well as for funding resources for similar activities. Need to resolve rules and responsibilities so that organizations are comfortable to work together.

Lack of coordination

No coordination among water line ministries ,private sectors and even between international organization

Lack effective water source management tools:

Lack effective regulation, national priority plan/ strategic plan , effective ground water protection plan tools to implement government regulation

Solutions / Recommendations

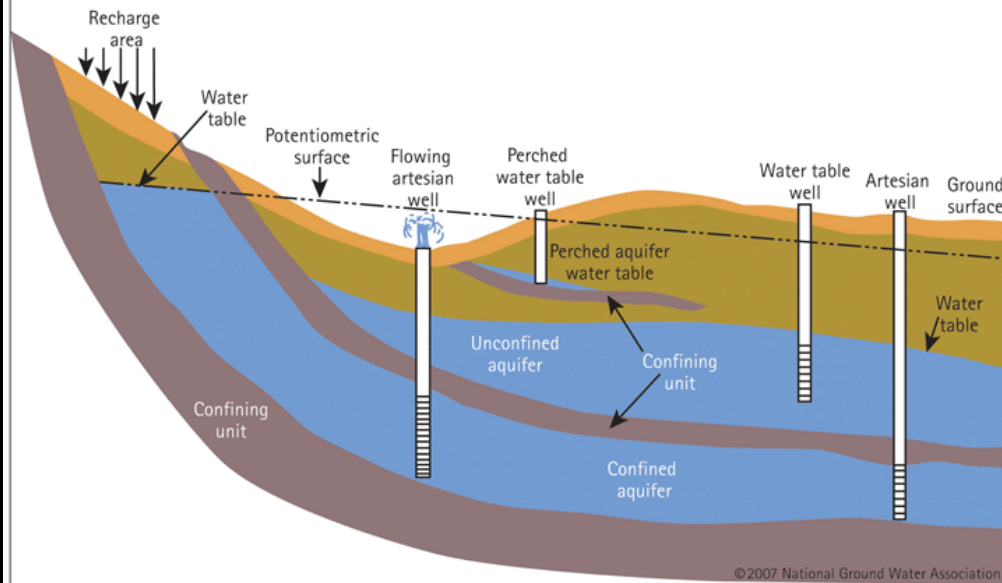
- **Need to establish a coordination forum .**
- **We need to map the national ground water resources so that management of the resources would be possible.**
- **We need to agree to support a national database setup for all to serve technical data which also will serve all in a transparent manner with information.**
- **WE NEED TO AGREE ON ROLES AND RESPONSIBILITY SO AS TO MAKE DIFFERENT STAKEHOLDERS WILLING TO WORK TOGETHER WITHOUT FEAR OF LOOSING THEIR JOB/ ASSIGNMENT.**
- **We need to provide a collaborative forum where technical information can be shared about groundwater activities, data, development and water resource use. This need to be transparent the information should be managed well.**
- **Organizations with expertise, capacities and skills should be positively included in joint effort of groundwater management.**

Future Water Crisis



Water Well Small480.mov

Confined/Unconfined Aquifers





Thank you for your attention