

# Original training plan: (incepting/ bridging workshops, agreed course lists). Training course design and methodology

NORAD supported project in MRRD covering  
Capacity Building and Institutional Cooperation in the field of Hydrogeology  
for Faryab Province  
Afghanistan

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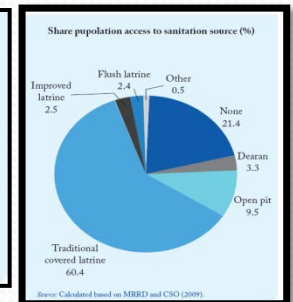
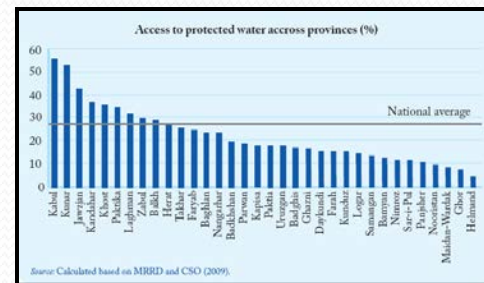
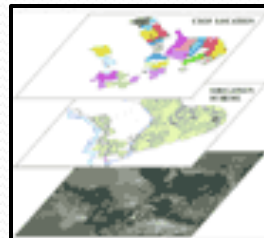
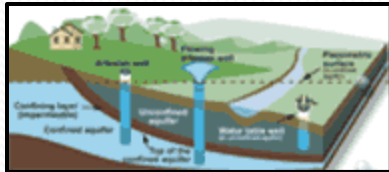
# TRAINING ORGANIZATION



# Hydrogeology Methodology and Surveys

# GIS- MIS Data Processing & Production of Water Use Maps

## Water Supply and Sanitation



**NORPLAN**



## Progress of Training from 2012-2014

### TRAINING COUSES OVERVIEW AND PLAN(S)

For information of how the training plan has been modified or adjusted with additional and complementary courses see details below. Completed courses highlighted with yellow background

Training  
Matrices

[Click to see  
details \(pdf\)](#)

This is a screenshot of a complex spreadsheet titled 'Course plan April 2012, Inception'. It contains multiple columns for course details, dates, and status. The rows are organized into sections, with some cells highlighted in yellow to indicate completed courses.

Course plan April 2012,  
Inception

This is a screenshot of a spreadsheet titled 'Course plan May 2013, After first course and engagement of addn. expert de Jong'. It shows an updated version of the training plan with new entries and modifications. Yellow highlighting is used to mark completed courses.


Course plan May 2013, After  
first course and engagement  
of addn. expert de Jong.






This is a screenshot of a spreadsheet titled 'Training plan as of February 2014'. It represents the most recent version of the training plan, showing a comprehensive overview of courses, dates, and completion status. Yellow highlighting continues to be used for completed courses.

Training plan as of  
February 2014

**We revised and modify the training from reception period  
till implementation periods and any valuable advise most welcome**

## Hydrogeology and geophysical investigations

course no	Course Description	Summary sheet	Presenter Course Plan	Course Information Brief	
	<b>Hydrogeology I</b>				
1.1	Groundwater investigations	<a href="#">View</a>			
1.2	Geophysical survey (VES, IP, well logging)	<a href="#">View</a>	<a href="#">Agenda</a>	handouts at workshp	
1.3	Well drilling methods	<a href="#">View</a>	<a href="#">Agenda</a>		
1.4	Water well design	<a href="#">View</a>	<a href="#">Agenda</a>		
1.5	Well hydraulics	<a href="#">View</a>	<a href="#">Agenda</a>		
1.6	Hydrochemistry, interpretation of data				
1.7	Planning and implementtion of Provincial hydrogeological surveys	<a href="#">View</a>	<a href="#">Agenda</a>	<a href="#">Tutorial 1</a> <a href="#">Tutorial 2</a> <a href="#">Tutorial 3</a> <a href="#">Tutorial 4</a>	Added
1.8	Geophysical borehole logging, planning and operating equipment				Added
1.9	Geophysical borehole logging interpretation of data				Added
1.10	Geophysical borehole logging interpretation of data, test pumping	<a href="#">View</a>	<a href="#">Agenda</a> <a href="#">Symmary</a> <a href="#">Syllabus</a>	Handout	Added 



	<b>Hydrogeology II</b>				
2.1	Interpretation of Hydrochemical water quality data	<a href="#">View</a>			
2.2	Preparing of thematic maps, using software	<a href="#">View</a>			
2.3	GPS reading and Water Quality Testing, -in the province	<a href="#">View</a>	<a href="#">2 day GPS training</a> <a href="#">2 day water quality training</a>		
2.4	Geophysical Investigation and Siting-practical-in the province		<b>20 days</b>		
2.5	Drilling methods and Well Construction -in the province		<a href="#">Agenda- Eng</a> <a href="#">Agenda Dari</a>		
2.6	Test Pumping and Data Collection -in the province		<a href="#">Agenda Eng</a> <a href="#">Agenda Dari</a>		



## GIS- MIS for hydrogeological information

course no	Course Description	Summary sheet	Presenter Course Plan	Course Information Brief	Handouts
4.1	ArcGIS Software Introduction	<a href="#">View</a>	<a href="#">Agenda</a>	<a href="#">Info to participants</a>	<a href="#">FAQ day1</a>
4.2	ArcGIS Databases	<a href="#">View</a>	<a href="#">Agenda</a>	<a href="#">Info to participants</a>	
4.3	ArcGis Spatial analyses	<a href="#">View</a>	<a href="#">Agenda</a>	<a href="#">Info to participants</a>	
4.4	RGIS viewer, administration				
4.5	RGS Viewer, how to use				
4.6	RGIS design and GIS in general				
4.7	Data Management 2				
4.8	Data Capturing				
4.9	Cartography	<a href="#">View</a>	<a href="#">Agenda</a>	<a href="#">Invitation text</a>	
4.10	Introduction to GIS for Hydrogeologists	<a href="#">View</a>	<a href="#">View</a>	<a href="#">View</a>	
4.11	GIS- Remote Sensing	<a href="#">View</a>	Agenda (see Summary )	<a href="#">Invitation letter</a>	Added
4.12	Data Management 2 (Excel & ACCESS)				Added

## Water Supply and Sanitation

course no	Course Description	Summary sheet	Presenter Course Plan	Course Information Brief	
5.1	Planning water supply using water atlas				
5.2	Conceptual design of sustainable water systems and water technology to use I saline waters.				
5.3	Planning and implementation of O&M for rural water supplies	<a href="#">View</a>		<a href="#">Course outline</a>	
5.4	Social aspects of Water and Sanitation, WASH policy, gender issues	<a href="#">View</a>	Agenda	<a href="#">Course outline</a>	
5.5	Water supply network design using software like WaterCad and WaterGEMS from Bentley,				
5.6	Training in use of totalstation for water/wastewater, network survey				
5.7	Laboratory Quality Control	<a href="#">View</a>	<a href="#">View incl Agenda</a>	<a href="#">View</a>	Added

Possible external training

course no	Course Description
6.1	Candidates for degrees in hydrogeology
6.2	Candidates for higher degrees in hydrogeology

### National seminars

course no	Course Description	Summary sheet
x.1	NATIONAL TECHNICAL CONFERENCE Hydrogeology in Afghanistan - use-conservation-regulation	Suggestion
x.2	NATIONAL TECHNICAL CONFERENCE GIS- Hydrogeological maps and Web- water use atlas - usage in planning in different organizations	Suggestion



# Training Calendar 2013

Revised 10 December 13

Month	January				February				March					April				May				June				July				August				September				October				November				December					
Week no	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	#	45	46	47	48	49	50	51	52
Date of first day of week	5	12	19	26	2	9	16	23	2	9	16	23	30	6	13	27	4	11	18	25	1	8	15	22	29	6	13	20	27	3	10	17	24	31	7	14	21	28	5	12	19	26	2	9	16	23	30	7	14	21	28
Saturday																		1.1							1.2		2.3	4.1			4.2	Eid				1.7				1.5	Eid	2.5	3.1						2.6		
Sunday																	1.1				4.10			1.2	1.2		2.3	4.1			4.2	Eid				1.7			1.3	1.5		2.5	3.1					2.5	2.6		
Monday																	1.1				4.10			1.2	5.7		2.3	4.1			4.3		Ind		5.4		1.7	5.3	1.3	1.5	1.5		2.5	3.1					2.5	2.6	
Tuesday																	1.1				4.10			1.2	5.7		2.3	Ram						5.4		1.7	5.3	1.3	1.5	Eid		2.5	3.1				4.9	2.5			
Wednesday																	1.1						1.2	5.7		2.3					Eid			5.4		1.7	5.3	1.3	1.5	Eid		2.5	3.1			Arh		4.9	2.5		
Thursday																																							5.3		Eid							2.5			
Friday																																																	2.5		

## Training Calendar 2014

Month	January				February				March				April				May				June				July				August				September				October				November				December							
Week no	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	#	46	47	48	49	50	51	52
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	5	12	19	26	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	29	6	13	20	27
Saturday				4.11	1.10		Lib					4.12	1.8		4.5		4.4				1.2	1.7		1.9	6.2		5.3					4.7			5.1	1.4			2.5	4.8				1.3			2.5	3.1				
Sunday				1.10			5.7	4.13		2.3	4.12		1.8		4.5	Wic	4.4		5.2	1.2	1.7		1.9	Ram		5.5	5.3		5.4			4.7			5.1	1.4	5.4		Adh	2.5	4.8			5.4	1.3		2.5	3.1				
Monday				Pre	1.10		5.7	4.13		2.3			1.8		4.6		4.4		5.2	1.2	1.7		1.9			5.5		Eid	5.4			4.7				1.4	5.4		Adh	2.5		5.7	Arh	5.4	1.3		2.3	2.5	3.2			
Tuesday				4.11	1.10		5.7			2.3			1.8		4.6				5.2	1.2	1.7		1.9			5.5		Eid	5.4			4.7			6.1	1.4	5.4		Adh	2.5		5.7		5.4	1.3		2.3	2.5	3.2			

## Training Calendar 2015

Month	January				February				March				April				May				June				July				August				September				October				November				December									
Week no	52	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	#	25	#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	#	19	20	21	22	23	24	25	#
Date of first day of week	27	3	10	17	24	31	7	14	21	28	7	14	21	28	3	10	17	24	30	4	11	18	25	1	8	15	22	#	3	10	17	24	31	7	14	21	28	7	14	21	28	3	9	16	23	#	4	11	18	25	1	8	15	#
Saturday				1.1			1.1						1.1		1.1							1.1			1.1			4.1					1.1				1.1				1.1													
Sunday				1.1			1.1			1.1			1.1		1.1					1.1	1.1			1.1			4.1						1.1				1.1				1.1													
Monday				1.1			1.1			1.1	1.1		1.1		1.1					1.1	1.1			1.1									1.1				1.1				1.1													
Tuesday				1.1			1.1			1.1			1.1		1.1					1.1			1.1			1.1							1.1				1.1				1.1													
Wednesday				1.1			1.1			1.1			1.1		1.1					1.1			1.1			1.1							1.1				1.1				1.1													
Thursday																																																						
Friday																																																						

### Key code:

#### Public holidays

#### Hydrogeology I (Norplan)

- 1.1 Groundwater investigation
- 1.2 Geophysical survey, 7 daysx2
- 1.3 Well drilling methods, 4 daysx2
- 1.4 Water well design and completion, 5 daysx2
- 1.5 Well hydraulics, 7 daysx2
- 1.6 Hydrochemistry, interpretation of data
- 1.7 Planning and implementation of provincial hydrogeologic survey
- 1.8 Geophysical borehole logging, planning and op., 6 days x 2
- 1.9 Geophysical borehole logging interpretation of data
- 1.10 well construction and pumping test

#### Hydrogeology II (DACAAR)

- 2.1 Interpretation of data, 5 daysx2
- 2.2 Preparing thematic maps, 5 daysx2
- 2.3 Water quality testing and GPS use in the Field
- 2.4 Practical Geophys. Investig. and Siting-in the province
- 2.5 Well construction and pumping test (Province)
- 2.6 Pumping test and data collection of exploratory well (Faryab)

#### Training of trainers (DACAAR)

- 3.1 Training methods, 2 daysx2
- 3.2 Best practice, 2 daysx2

#### Key points

- 6.1 National hydrogeological conference
- 6.2 national conference in GIS and web tool

### GIS

- 4.1 ArcGIS Software Introduction
- 4.2 ArcGIS Databases
- 4.3 ArcGIS Spatial analyses
- 4.4 RGIS viewer administration, 3 days (Norplan)
- 4.5 RGIS viewer how to use, 1 day (Norplan)
- 4.6 RGS design, 1 day (Norplan)
- 4.7 Data management, 5 days (Norplan)
- 4.8 Data capturing, 1 day (Norplan)
- 4.9 Cartography, 2 days (Norplan)
- 4.10 GIS for hydrogeologist
- 4.11 Remote sensing
- 4.12 Cartography-2

#### Data Management 2 (Excel & ACCESS)

### Water and sanitation

- 5.1 Planning using water atlas, 2 daysx2 (Norplan)
- 5.2 Conceptual design 3 daysx2 (Norplan)
- 5.3 O&M 1 dayx2 (DACAAR)
- 5.4 Social aspects, WASH policy, 4 daysx3 (DACAAR)
- 5.5 Water network design 4 days (regional expert)
- 5.6 Totalstation, use of, 2 daysx2 (local expert Naseri)
- 5.7 Laboratory Quality Control-1

# Our participants from:

- DACAAR will be our local partner for capacity, building and nominees
- MRRD personnel in RuWatSIP will be our client, counterparts and Participants
- PRRD participants
- Regional training participants(Maz,Far,Jaw,Sar)
- Ministry of Water and Power (MoWP)
- Ministry of Mine and Petroleum(MoMP)
- NCA
- University of Kabul
- University of Polytechniques
- Private companies



# Progress and our presenters 2013

- The first training course started on 27 April-2013 and last one completed on 15-december-2013.
- We completed **20** training course and trained successfully **409** persons, out of the mentioned number ,we trained **226** people only in the field of Hydrogeology .
- **9** training courses conducted by international experts(out of 9 (**6 in hydrogeology**) .
- **11** training courses conducted by local experts





# - International Training Method Development

-Training of trainers by international experts of Hydrogeology, Geophysics, water and sanitation strategy and GIS/MIS

- Sustainable and continuous follow up by local well trained experts

## -Equipment

-Field kit, well logger, soft ware

-Practical Geophysical survey in Faryab province ,Well construction, Compressor development and Pumping test

-Production of data

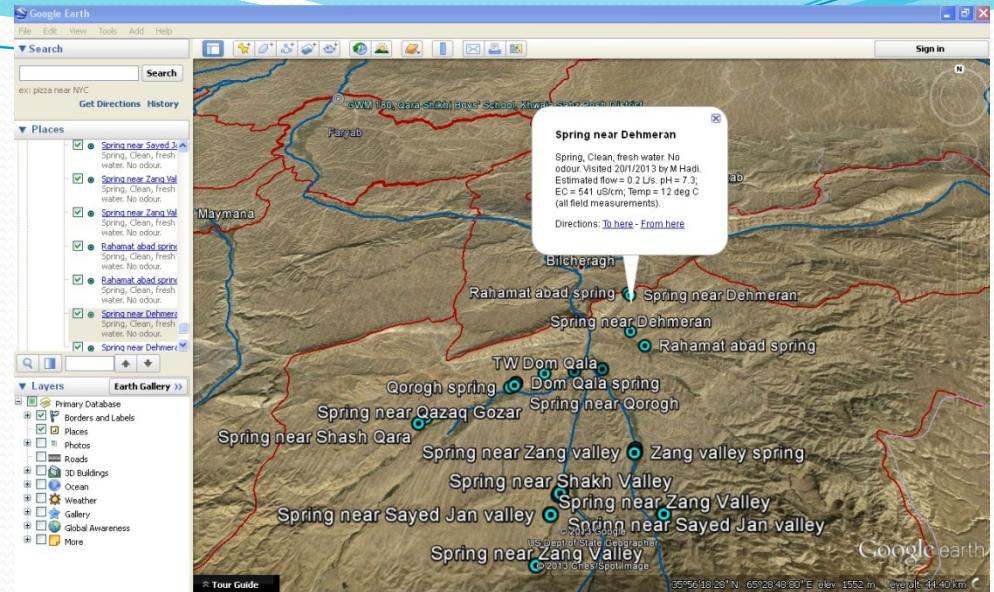
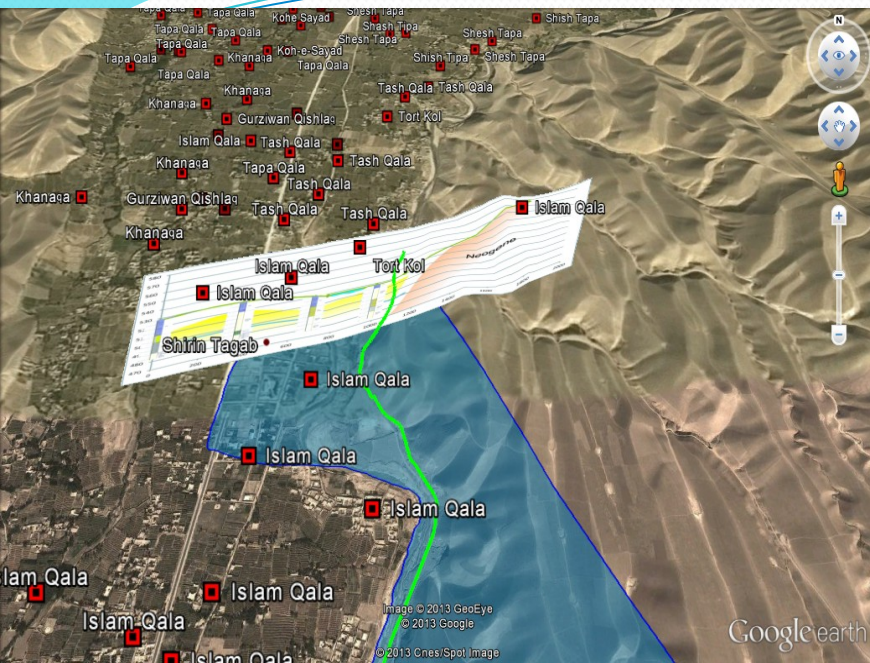
-process of data

-User of data

And finally development of new technology ,methodology, manuals, Training video and developed design course to rerun on behave of the international expertise



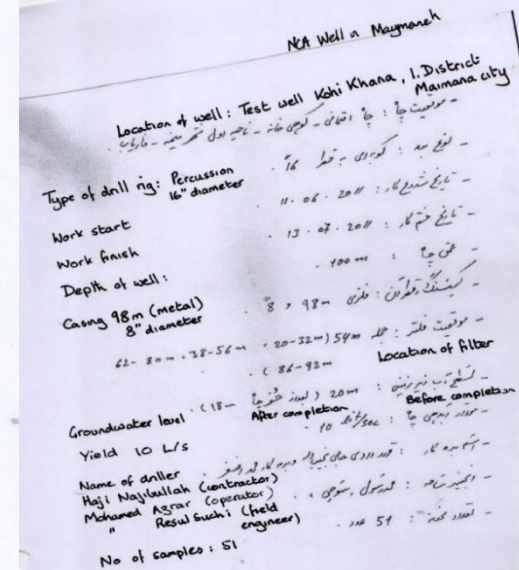
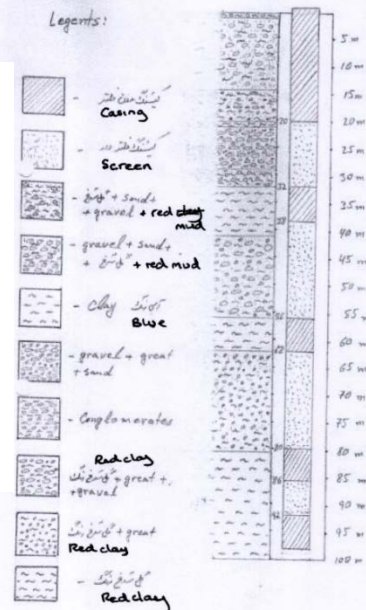
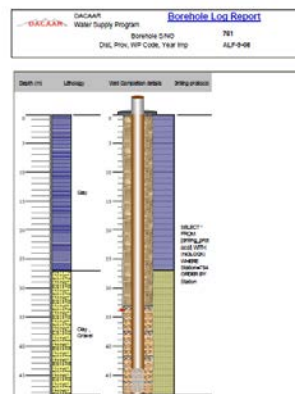




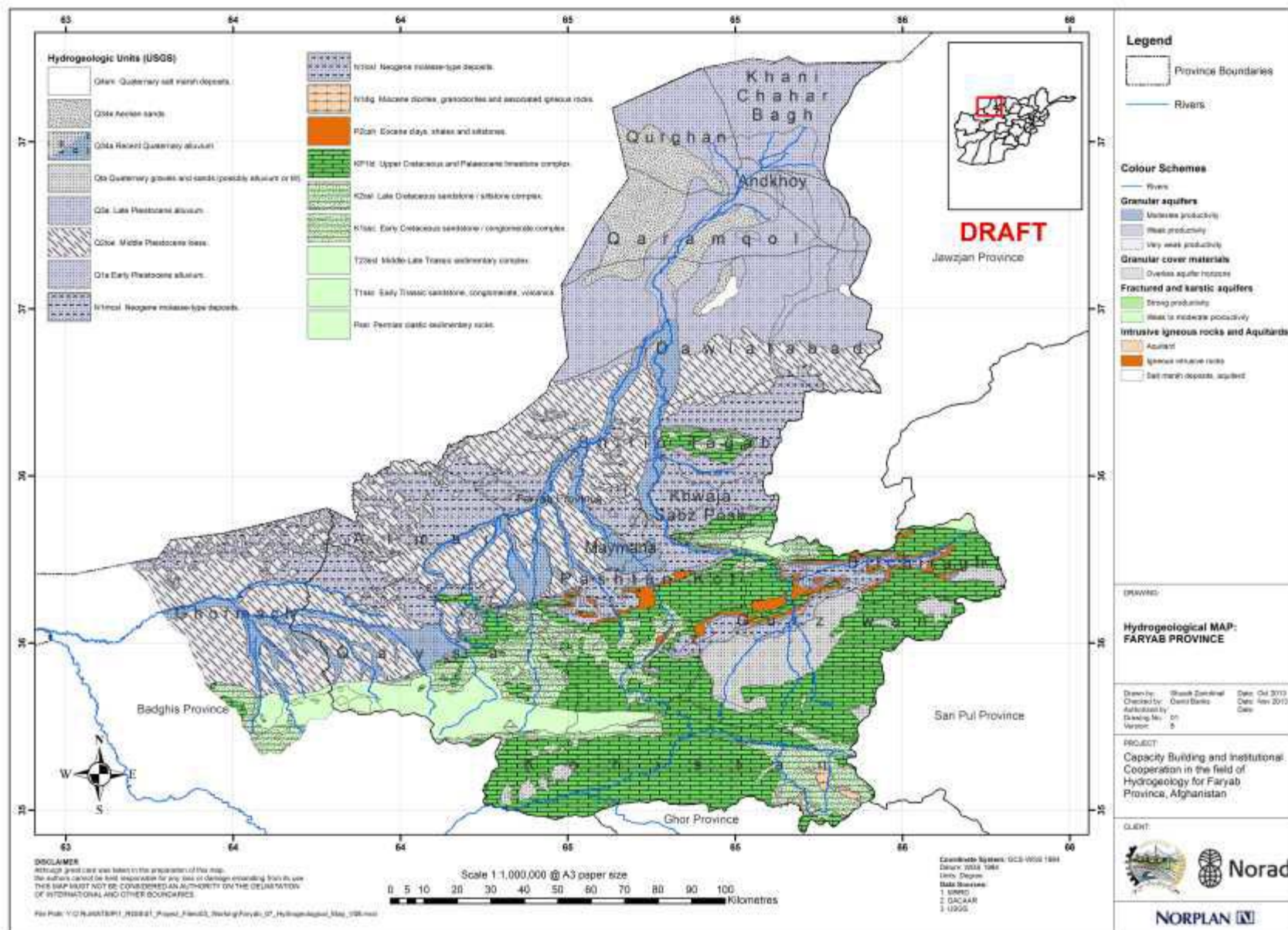
## Paper data

## Digital data

Well Name	District	Village	Latitude	Longitude	Plan	Elevation	Pumping Test	Pumping Test Period	Pumping Test Flow	Pumping Test Head	Pumping Test Efficiency	Pumping Test Notes
1. Fardis	Shash	Shash	35.8217	65.1112	Shash	1000	1000	1000	1000	1000	1000	1000
2. Fardis	Shash	Shash	35.8217	65.1112	Shash	1000	1000	1000	1000	1000	1000	1000
3. Fardis	Shash	Shash	35.8217	65.1112	Shash	1000	1000	1000	1000	1000	1000	1000
4. Fardis	Shash	Shash	35.8217	65.1112	Shash	1000	1000	1000	1000	1000	1000	1000
5. Fardis	Shash	Shash	35.8217	65.1112	Shash	1000	1000	1000	1000	1000	1000	1000
6. Fardis	Shash	Shash	35.8217	65.1112	Shash	1000	1000	1000	1000	1000	1000	1000
7. Fardis	Shash	Shash	35.8217	65.1112	Shash	1000	1000	1000	1000	1000	1000	1000
8. Fardis	Shash	Shash	35.8217	65.1112	Shash	1000	1000	1000	1000	1000	1000	1000
9. Fardis	Shash	Shash	35.8217	65.1112	Shash	1000	1000	1000	1000	1000	1000	1000
10. Fardis	Shash	Shash	35.8217	65.1112	Shash	1000	1000	1000	1000	1000	1000	1000
11. Fardis	Shash	Shash	35.8217	65.1112	Shash	1000	1000	1000	1000	1000	1000	1000
12. Fardis	Shash	Shash	35.8217	65.1112	Shash	1000	1000	1000	1000	1000	1000	1000
13. Fardis	Shash	Shash	35.8217	65.1112	Shash	1000	1000	1000	1000	1000	1000	1000
14. Fardis	Shash	Shash	35.8217	65.1112	Shash	1000	1000	1000	1000	1000	1000	1000









# Over all experience on implementing course so for

- -More than 90% of training topics according training calendar for 2013 was implemented successfully.
- -Participation of trainees were from different realistic water bodies of Afghanistan (MEW, MRRD, MoM, NCA, DACAAR, PRRD , Kabul University and Kabul polytechnics University.
- **-Training has facilitated much better technical coordination among professionals in Kabul.**
- -With the support of DACAAR, training courses has been implemented as provincial level and thus increased our outreach.
- -Many sector agencies has participated in the training and provided well experienced personnel with the good potential of continuing the training courses after the end of the project. Particularly resource personnel from University and Polytechnics, DACAAR, MEW ,MRRD has worked closely with in support of delivery of the training courses.

# Weak points

- -Some of top level hydrogeologists could not participated in core training courses and they should play a role for leading of team in a future.
- -Relating water line ministries and private sectors introduce 10-15% non-qualified participants according the level of training course.
- -The practical part of training course was still weak and covered around 50% of participant's expectation.
- - All participants should have "hands-on" practical training" where at all possible:  
( like when people are to learn about field testing of water samples, a demonstration in front of the class is not enough, each should have a chance to try for themselves.

## To be continued:

- The training need assessment has had to be continuously modified to cover unforeseen knowledge gaps.
- -The background, educational level and experience of participants were not in same level during the training courses.
- -Several training courses or parallel courses during a month reduce the numbers of qualified participants and quality accreditation of training course.
- - The size of the courses need to be kept low say between 15-20 if we are to provide best possible interaction with participants



# Thank you



Groundwater Resources

Surface water Resources