#	Training Modules and Topics	Focus groups	Duration days (theory)	Duration days (practicl)	Partici-pants	Cour-ses	Imple-mented by	MRRD contact person	
1	**Hydrogeology I**								
1,1	Groundwater Investigation: Geological, hydrological and meteorological studies. Origin, occurrence of groundwater, collection of water sources data. Exploratory drilling, selection of drilling sites, deside which type of drilling rigs. Well field protection, zoning, EIA.	Graduates in hydrogeology and technicians	3	3	15	2	Dr. Najaf	Safi/Taib	γ
1,2	Geophysical survey (VES, IP, well logging)	Geophysists, technicians, water engineers	5	2	10	2	de Jong	Safi/Taib	γ
1,3	Well drilling methods and types, drilling supervision and analysing lithology, drilling penetration rate, rig action, lithological logging, well design, designing of gravel packing. Well problems and failure, well maintenance, camera inspection.	Hydrogeologists, technicians, drilling group	2	2	10	2	Eng. Asaad at AGS	Safi/Taib	γ
1,4	Water well design, completion and development. Based on drilling lithological log, time log, drilling action log and geophysical logar, analyse and select pipes and filter intervals, use of software for well design. Well assembly, lowering of assembly, gravelpacking. Development of well, compressor development and testing with air or overpumping.	Hydrogeologigsts technicians, drilling group	2	3	10	2	Dr. Alim and Essan	Safi/Taib	γ
1,5	Well Hydraulics:Testing water wells for drawdown and yields, Converging flow, Cone of depression, Equilibrium well formula, non Equilibrium formula, multiple step drawdown test, aquifer performance test.	Hydrogeologists, technicians, pumping group	2	5	10	2	de Jong	Safi/Taib	γ
2	**Hydrogeology II**	Σ	14	15	55	10			
2,1	Interpretation of hydrochemical and microbiological data. Understanding chemical, physical and microbiological quality of water.	Hydrogeologists and chemist	2	3	10	2	Hassan and Jawed	Taib	γ
2,2	Preparing of thematic maps, using software	Engineers, technicians, hydrogeologists	2	3	10	2	Hassan and Jawed	Taib	γ
3	**Training methods**	Σ	4	6	20	4			
3,1	Training of trainers methods	Traininers MRRD, NGOS, others	2	1	20	1	DACAAR/ WETC		γ
3,2	Best practice in preparing training material and manuals	Traininers MRRD, NGOS, others	2	1	20	1	DACAAR/ WETC		γ
4	**GIS-MIS for hydrogeological information**	Σ	4	2	40	2			
4,1	ArcGIS Software Introduction	Staff at RGIS unit, MRRD and Dacaar	3	0	10	1	Supplier of ArcGIS	Zarinkhail	
4,2	ArcGIS Databases	Staff at RGIS unit, MRRD and Dacaar	2	0	10	1	Supplier of ArcGIS	Zarinkhail	
4,3	ArcGIS Spatial analyses	Staff at RGIS unit, MRRD and Dacaar	2	0	10	1	Supplier of ArcGIS	Zarinkhail	
4,4	RGIS viewer, administration	Staff at RGIS unit, MRRD	3	0	5	1	RGS unit	Zarinkhail	
4,5	RGS Viewer, how to use	Staff at RGIS unit, MRRD, Dacaar, Unicef	1	0	10	1	RGS unit	Zarinkhail	
4,6	RGIS design and GIS in general. Overall introduction to its actual content and how it is planned	Managers and staff at RGIS unit, MRRD, Dacaar, Unicef who wish to be introduced to the RGIS and GIS concept	1	0	10	1	RGS unit	Zarinkhail	
4,7	Data Management. Comprehensive theoretical issues related to data management of spatial data. Topics related to standardi-sation and modelling specifically, and provide hands-on training	RGIS staff and selected staff at MRRD, Dacaar and Unicef	5	0	5	1	RGS unit	Zarinkhail	
4,8	Data Capturing. Comprehensive theoretical training on topics related to data capturing, geo-referencing, and data conversion. Examples from hydrology and hands-on training are preferable.	Committed Managers, RGIS staff also at district level, DACCAR and UNICEF personnel	1	0	10	1	RGS unit	Zarinkhail	
4,9	Cartography. Comprehensive theoretical training on topics related to cartography, included practical example and hands-on training.	Committed personnel working with GIS analysis and map output at RGIS, MRRD and DACCAR	2	0	10	1	RGS unit	Zarinkhail	
5	**Water and sanitation**	Σ	20	0	80	9			
5,1	Planning water supply and sanitation using water atlas	Hydrogeologists, watereng, gov, consult students	2	0	20	2	Norplan and MRRD	Naim	
5,2	Conceptual design of water and sanitation based on sustainabiity and affordability. Assessment of water technology to use in ground water areas with potential saline waters.	National, prov. engineers, hydrogeologists	3	0	20	2	Dr. Stoveland	Naim	γ
5,3	Planning and implementation of O&M for rural water supplies	Hydrogeologists, Watereng, Gov, consultants, students	1	0	30	2	DACAAR/ WETC	Naim	γ
5,4	Social aspects of Water and Sanitation, WASH policy, gender issues	Watereng, Gov, consultants, students	3	0	10	3	DACAAR/ WETC	Logarwal	γ
5,5	Water supply network design using software like WaterCad, WaterGEMS from Bentley or EPANET.	Water engineers, design, MRRD	4	0	5	1	Regional expert	Naim	
5,6	Training in use of totalstation for water/wastewater, network survey	Surveyors, engineers, MRRD	0	2	7	2	Local expert	Naim	
6	**Post graduate training**	Σ	13	2	92	12			
6,1	Canditates for degrees in hydrogeology	Scholarships Afghan cadidates	18 months		Applic.		Universities		
6,2	Candidates for higher degrees in hydrogeology	Scholarships Afghan cadidates	40 months		Applic.		Universities		
24	**Total summary of training parameters**		**55**	**25**	**287**	**37**			

γ: Syllabus proposal prepared