Training Modules and Topics	Focus groups	Duration days (theory)	Duration days (practicl)	Partici-pants	Cour-ses	Imple-mented by
Hydrogeology I						
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
Geophysical survey (VES, IP, well logging)	Geophysists, technicians, water engineers	5	2	10	2	International expert
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	1	3	10	2	Eng. Asaad at AGS
Water well design: Based on drilling lithological log, time log, drilling action log and geophysical logar for the hydrogeologist to analyse and select pips and filter interval, using of software for well design	Hydrogeologigsts technicians	1	3	10	2	Dr. Alim
Well completion and developing: Well assembly, lowering of assembly, gravelpacking.Importance of development of well, Compressor development and test with air or overpumping	Hydrogeologists, technicians, drilling group	1	3	10	2	Prof. Eqrar
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	International expert
Hydrogeology II		13	19	65	12	
Interpretation of Hydeochemical and microbiological data	Hydrogeologists and chemist	2	3	10	2	DACCAR
Preparing of thematic maps, using software	Engineers, technicians, hydrogeologists	2	3	10	2	DACAAR
Training methods		4	6	20	4	
Training of trainers methods	Traininers MRRD, NGOS, others	2	1	20	1	DACAAR/ WETC
Best practice in preparing training material and manuals	Traininers MRRD, NGOS, others	2	1	20	1	DACAAR/ WETC
GIS-MIS for hydrogeological information		4	2	40	2	
ArcGIS Software Introduction	Staff at RGIS unit, MRRD and Dacaar	3	0	10	1	Supplier of ArcGIS
ArcGIS Databases	Staff at RGIS unit, MRRD and Dacaar	2	0	10	1	Supplier of ArcGIS
ArcGis Spatial analyses	Staff at RGIS unit, MRRD and Dacaar	2	0	10	1	Supplier of ArcGIS
RGIS viewer, administration	Staff at RGIS unit, MRRD	3	0	5	1	Norplan
RGS Viewer, how to use	Staff at RGIS unit, MRRD, Dacaar, Unicef	1	0	10	1	RGS unit
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	Norplan
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	Norplan
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
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	Norplan
Water and sanitation		20	0	80	9	
Planning water supply and sanitation using water atlas	Hydrogeologists, watereng, gov, consult students	2	0	20	2	Norplan and MRRD
Conceptual design of water and sanitation based on sustainabiity and affordability	National, prov. engineers, hydrogeologists	3	0	20	2	Dr. Stoveland
Planning and implementation of O&M for rural water supplies	Hydrogeologists, Watereng, Gov, consultants, students	1	0	30	2	DACAAR/ WETC
Assessment of water technology to use in ground water areas with potential saline waters.	National/provincial engineers, technicians	1	0	15	2	National expert
Social aspects of Water and Sanitation, WASH policy, gender issues	Watereng, Gov, consultants, students	3	0	10	3	DACAAR/ WETC
Water supply network design using software like WaterCad and WaterGEMS from Bentley, and EPANET.	Water engineers, design, MRRD	4	0	5	1	If possible by supplier
Water source protection; zoning and EIA	Hydrogeologists and chemists, water engineer	1	0	20	2	MRRD
Training in use of totalstation for water/wastewater, network survey	Surveyors, engineers, planners, MRRD	2	0	7	2	If possible by supplier
Project management. Use of planning tools like Gantt Chart and programs like MS Project and Excel	Project managers, engineers, planners, MRRD	1	0	10	2	Norplan DACAAR
Post graduate training		18	0	137	18	
Canditates for MSc in hydrogeology	Scholarships Afghan cadidates	18 months		Applic.		Universities
Candidates for PhD in hydrogeology	Scholarships Afghan cadidates	40 months		Applic.		Universities
Total summary of training parameters		**59**	**27**	**342**	**45**	

γ: Syllabus proposal prepared