Desktop GIS Development Report: ***Feedback from map users***	V1 NORPLAN

Report Contents:

- Background *(Project Desktop GIS development)*
- Summary *(document summary)*
- Map Development *(different series of map design)*
- Faryab Maps *(Provincial maps of Faryab: images and comments)*
- Shirin Tagab Maps *(District maps of a selected district: images and comments)*
- Feedback on Maps *(both provincial and district)*
- Close up with Checklist *(document conclusion by combining summarized comments/feedback in a list to be considered for next series of maps)*

Desktop GIS Development Report: ***Feedback from map users***	V1 NORPLAN

Background:

The Project Desktop GIS is in progress and move to become complete by inputs from technical people in the field of hydrogeology, water quality, water engineering, design, and general map users. Target for the project is to design paper (pdf) maps for Faryab province and its districts and use these formats as a sample for other provinces, places and districts of Afghanistan. Initial work on this activity had been started at the beginning of 2012 at the start of the NORPLAN project in Afghanistan. At that stage, International GIS experts were assigned to make the general layout for such a system. Later in the same year (December 2012) a National GIS and MIS adviser hired to act as the core developer for developing Desktop GIS and also coordinate between NORPLAN and RuWatSIP MRRD on GIS related technical issues.

Data clarification and quality assurance was one of the important activities to support development of maps under this project. This crucial activity was started by evaluating existing data records for Faryab and collecting new data from the field. An International hydrogeologist, Mr. David Banks, took this responsibility and started data clearance. More than 3,500 records of ground waterpoints, construction details of more than 1,000 records, about 2,000 records of water quality tests (EC), some records on flow measurement rate and static water level was clarified. Similarly, some data records on surface water and soil samples had been cleaned and become ready to included to the GIS.

Summary:

A terminology document for map design prepared. In this document number and type of maps as well as different features and data to be presented by each map explained. In total a set of 8 maps for Faryab and 7 maps for each district proposed. Below table shows maps sets and their explanations.

Table 1: Province Level Maps		
Number	**Map Type (Name)**	**Description**
1	Location map	This map will include roads, villages, rivers and elevation above sea level in different colors for Afghanistan provinces (here Faryab province)
2	Location map with waterpoint types	Map showing elevation above sea level and rivers, but also showing: -Dug wells -Boreholes -Springs -Karezes In different symbols. Villages and roads not shown
3	Electrical conductivity (EC) map – Kriged polygons with symbols (coloured, graduated in size)	In this map, EC values will be shown with graduated symbols against a kriged background. We will use standard color table explanation. The analysis will be based on data from Faryab and its beyond areas. The kriged contours will be cut off at a distance of 5-10km from the nearest data point.
4	Static water level map (m below ground level) – Kriged polygons with symbols (coloured, graduated in size)	Static water levels meter below ground level (m bgl) will be shown with graduated symbols against a kriged background. In addition, rivers and faults will be shown in this map. The kriged contours will be cut off at a distance of 5-10km from the nearest data point.
5	Static water level map (m above sea level) – symbols (colored, graduated in size)	Static water levels meter above sea level (m asl) will be shown with graduated symbols against ground elevation background (DEM). In addition, rivers and faults will be shown in this map.
6	Geological map	Geological map of Faryab with a full palette of geological units explanation will be included in this map.

7	Hydrogeological map	Geological units, recoded and reshaded according to aquifer type. Mr. Banks to provide legend according to International standards.
8	Administration map	Administration boundaries, province center & district names, transportation including airports and roads will be shown in this map. Note: Ghormach district officially relates to Badghis province; according to our data records and project activities, this district is shown in Faryab map.

Table 2: District Level Maps

Number	Map Type (Name)	Description
1	Location map plus static water level symbols and springs	This map will include roads, villages, rivers and elevation above sea level in different colors for districts (here Faryab districts plus Ghormach district in Faryab western border). In addition, static groundwater level will be shown as colored graduated symbols. Locations of springs will also be shown.
3	Electrical conductivity (EC) map – Kriged polygons with symbols (coloured, graduated in size)	In this map, EC values will be shown with graduated symbols against a kriged background. We will use standard color table explanation. The analysis will be based on data from Faryab and its beyond areas. The kriged contours will be cut off at a distance of 5-10km from the nearest data point.
4	Static water level map (m below ground level) – Kriged polygons with symbols (coloured, graduated in size)	Static water levels (m bgl) will be shown with graduated symbols against a kriged background. In addition, rivers and faults will be shown in this map. The kriged contours will be cut off at a distance of 5-10km from the nearest data point.
5	Static water level map (m	Static water levels meter above sea level (m

	above sea level) – Kriged polygons with symbols (colored, graduated in size)	asl) will be shown with graduated symbols against ground elevation background (DEM). In addition, rivers and faults will be shown in this map.
6	Geological map plus EC symbols	Geological map of Faryab districts with a full palette of geological units explanation will be included in this map. In addition, electrical conductivity to be shown as colored graduated symbols will be there.
7	Hydrogeological map	Geological units, recoded and reshaded according to aquifer type. Mr. Banks to provide legend according to International standards.
8	Administration map	Administration boundaries, district center and transportation will be shown in this map. Note: Ghormach district officially relates to Badghis province; according to our data records and project activities, this district will also be covered.

Map Development:

At first, a draft of maps for Faryab and one of its districts were designed. These two sets of maps with their explanation were shared with a number of map users and their feedback was collected. The reviewers group was trained on map design concepts and explained color science and symbology standards to them in a 2 day Cartography course. Five copies of all 15 maps printed and let the map users' group do free hand writing on what they see and what they think about. The maps discussed for design development were from series 0 (map version start by 0). As a result of this evaluation map series 1 will be developed for further discussion.

Below, we show a view of each map and list of comments/feedback for every of them.

Note: All maps are designed for A3 size.

Desktop GIS Development Report: ***Feedback from map users***	V1 NORPLAN

Faryab Maps:

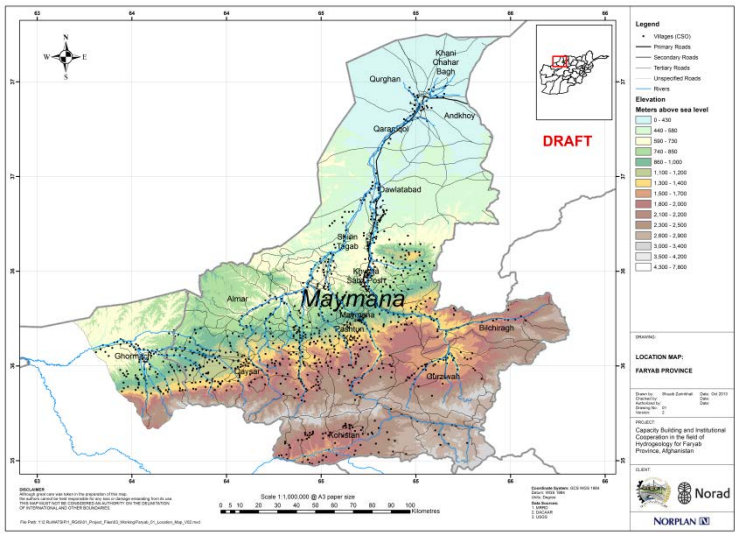
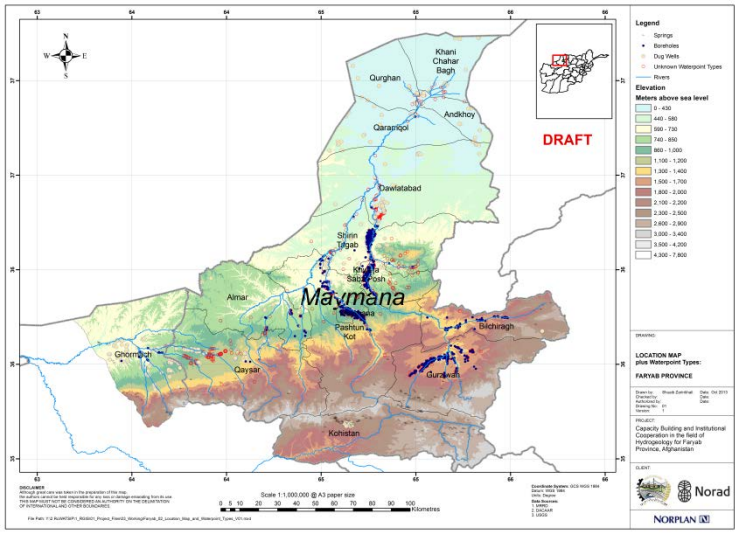
Figure 1: Faryab_01_Location_Map_V0.2	**Feedback/Comments**
	1. Background colors must be weak 2. The labels color should be in different to make visible

Figure 2: **Faryab_02_Location_Map_and_Waterpoint_Types_V0.1**	**Feedback/Comments**
	1. Waterpoint types (spring, borehole, …) should be the same size

Desktop GIS Development Report: ***Feedback from map users***	V1 NORPLAN

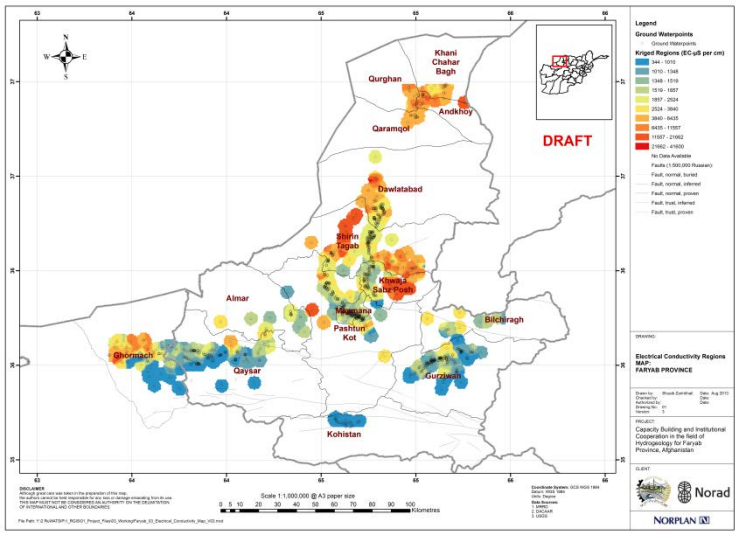
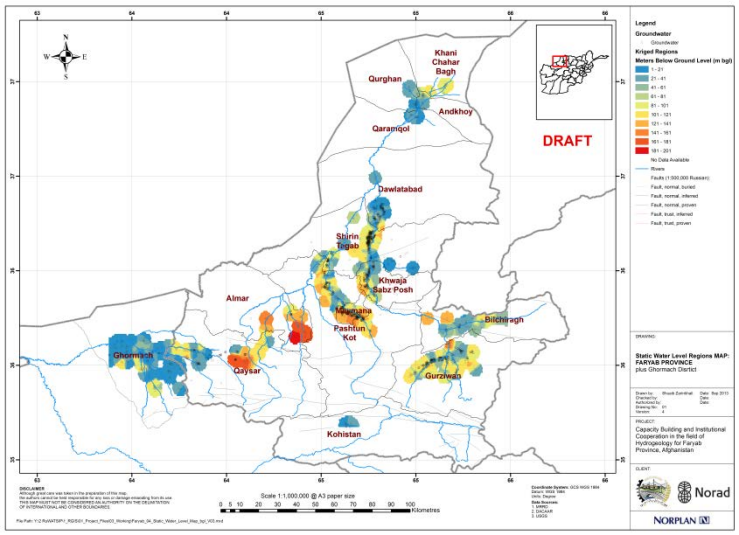
Figure 3: Faryab_03_Electrical_Conductivity_Map_V03	**Feedback/Comments**
	1. Difference between colors in Kriged legend is not recognizable

Figure 4: Faryab_04_Static_Water_Level_Map_bgl_V0.3	**Feedback/Comments**
	1. Kriged regions' colors are too strong 2. Instead of crowded waterpoint symbols use contours 3. The lines show faults are not in the map 4. Sort legend as first points, second lines and third polygons 5. The north arrow is too small instead of kriged regions if symbols are used with background that will be better 6. Background color should different from the message (map)

Desktop GIS Development Report: ***Feedback from map users***	V1 NORPLAN

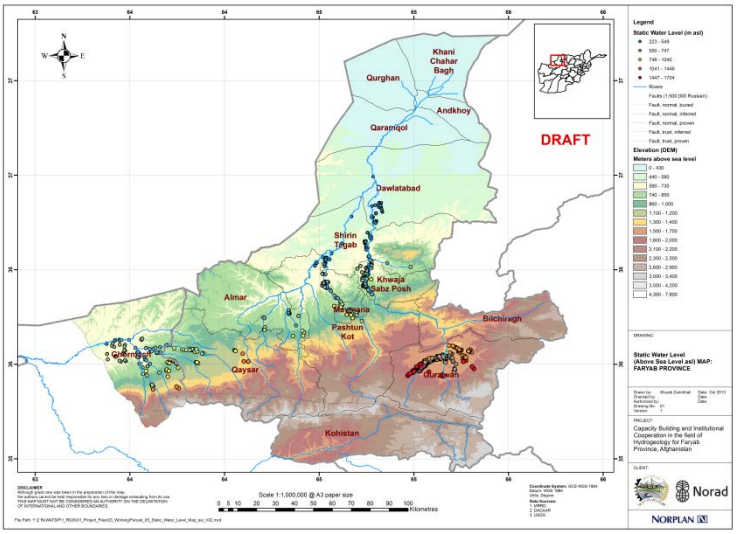
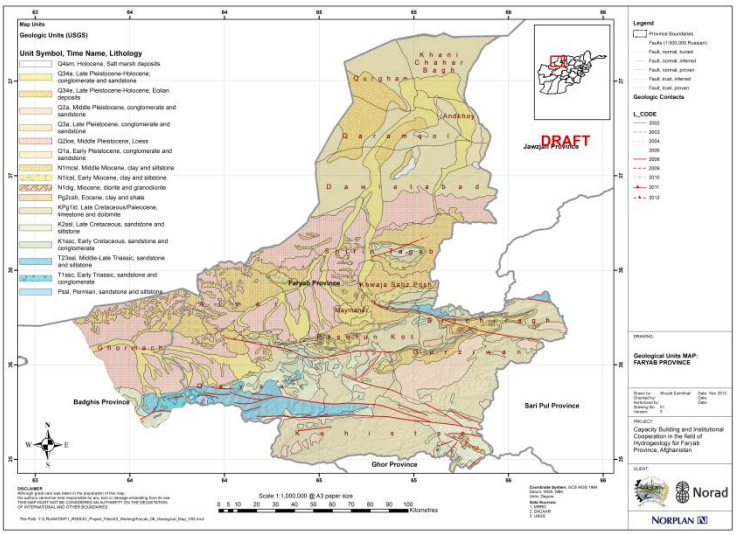
Figure 5: Faryab_05_Static_Water_Level_Map_asl_V0.2	**Feedback/Comments**
	1. Add inset maps to maximize places where waterpoints are overlapped 2. Waterpoints symbol in Gurziwan district should be scaled (for such areas, we can better use contours) 3. Thickness of rivers, in Faryab and outside from Faryab does not match 4. The DRAFT word at the top right is in light color 5. The waterpoints should be small and clear to see

Figure 6: Faryab_06_Geological_Map_V0.5	**Feedback/Comments**
	1. North arrow should go to top right 2. Contacts shown in the legend are not in the map 3. Color shades for KPg1ld, K2ssl, K1ssc are not clear 4. There is free space at the bottom of legend, right side 5. District borders look like faults 6. Spacing problem 7. North arrow should move to top left

Desktop GIS Development Report: ***Feedback from map users***	V1 NORPLAN

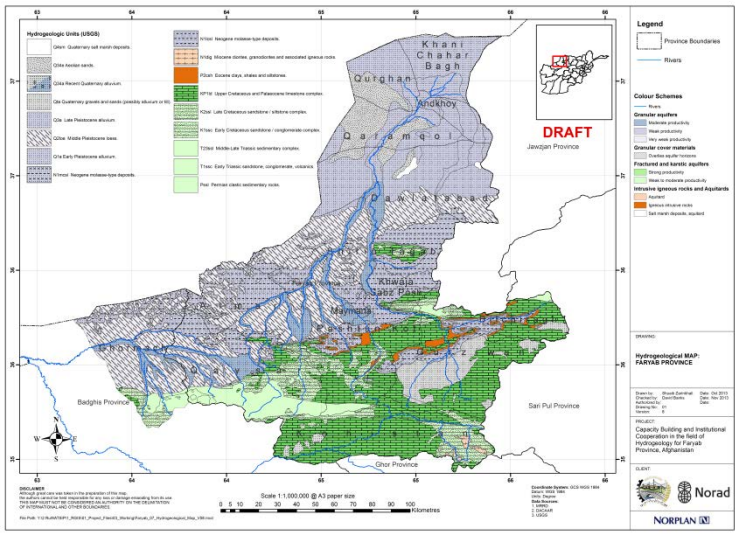
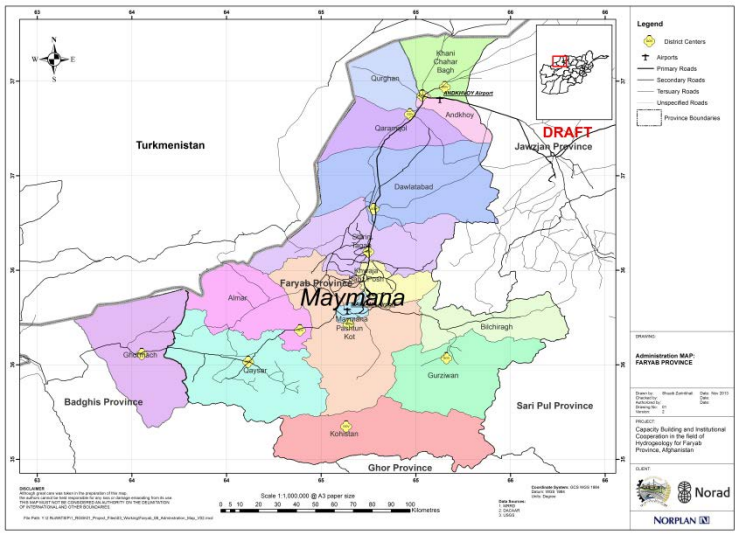
Figure 7: Faryab_07_Hydrogeological_Map_V0.8	**Feedback/Comments**
	1. Tables are unreadable 2. Shade line colors 3. Grid lines effect inside legend box in top left (legend background should be solid) 4. Too strong colors are used (for P2csh and KP1ld) 5. Poor contrast and weak colors (for Q3a and Q1a)

Figure 8: Faryab_08_Adminstration_Map_V0.2	**Feedback/Comments**
	1. Labels overlapping 2. Text size of labels different 3. Roads should be in red color 4. Road widths in the legend are the same 5. Title should above to the middle of map 6. Legend location should be right down 7. Provincial boundaries are different 8. Move north arrow to the bottom of legend (right side of map)

Shirin Tagab Mpas:

Shirin Tagab district is selected as a sample and below maps are designed and shared.

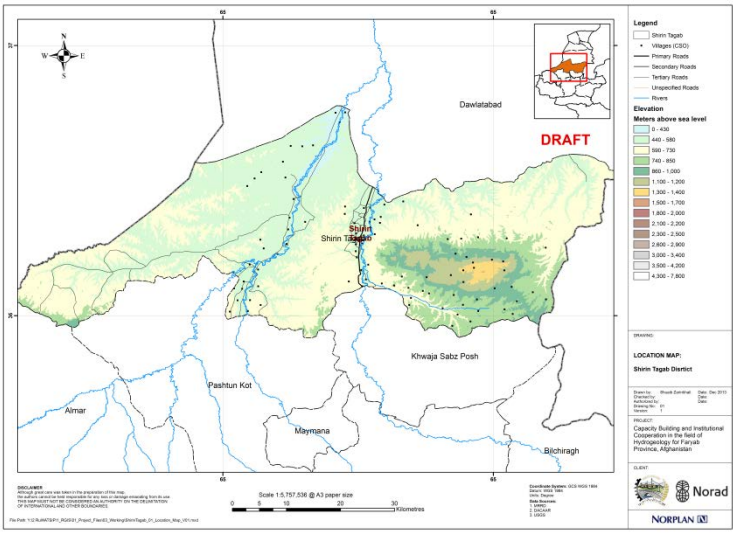
Figure 9: ShirinTagab_01_Location_Map_V0.1	**Feedback/Comments**
	1. District boundary is not shown in the legend

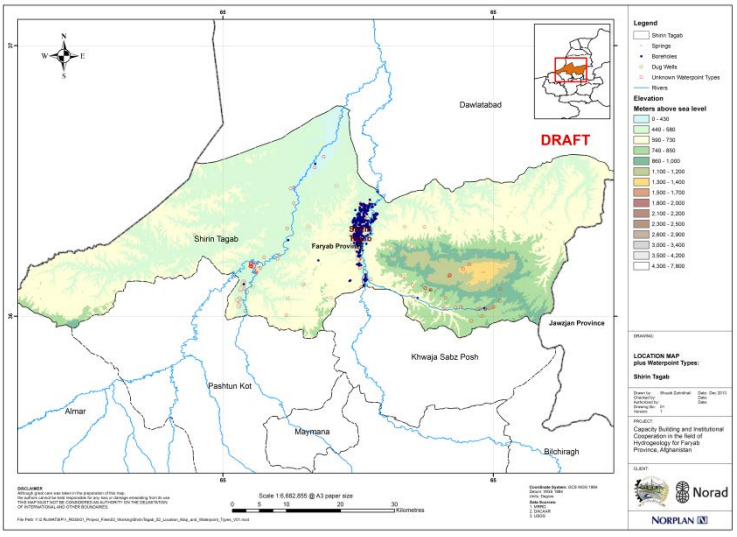
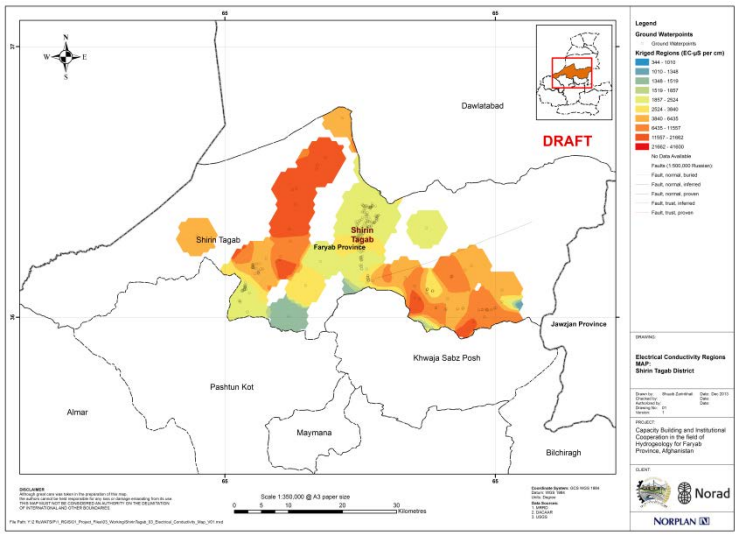
Figure 10: ShirinTagab_02_Location_Map_and_Waterpoint_Types_V0.1	**Feedback/Comments**
	1. Waterpoints are crowded (they should be shown in a larger scale (possibly in an inset map)

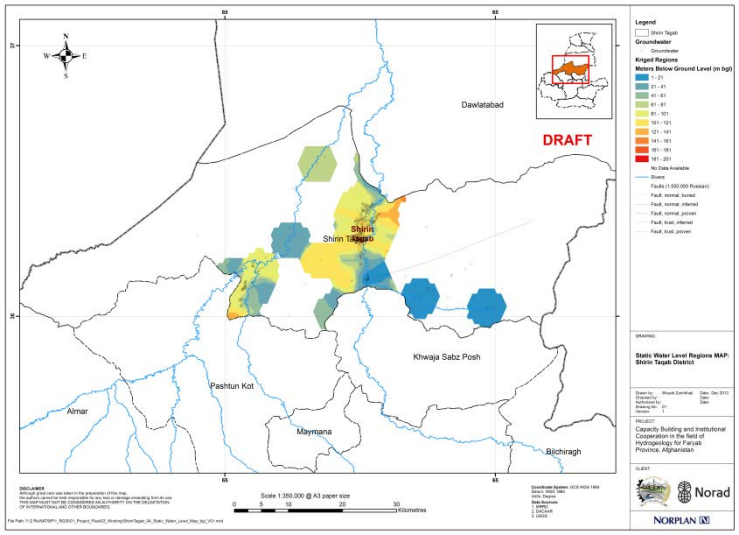
Figure 11: ShirinTagab_03_Electrical_Conductivity_Map_V0.1	**Feedback/Comments**

Desktop GIS Development Report: ***Feedback from map users***	V1 NORPLAN



1. Add a standard legend at the top of current legent to include standard data for all maps
2. Farah Province label should be removed from the map

Figure 12: ShirinTagab_04_Static_Water_Level_Map_bgl_V0.1	**Feedback/Comments**



1. Background color/shade for targeted area should be added
2. Shirin Tagab label is twice
3. Grids are very big (can be more grids to show within 1 degree)

Desktop GIS Development Report: ***Feedback from map users***	V1 NORPLAN

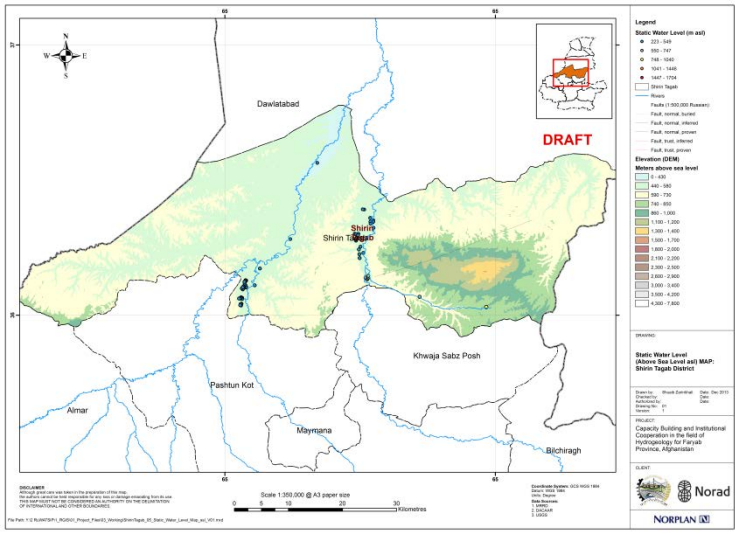
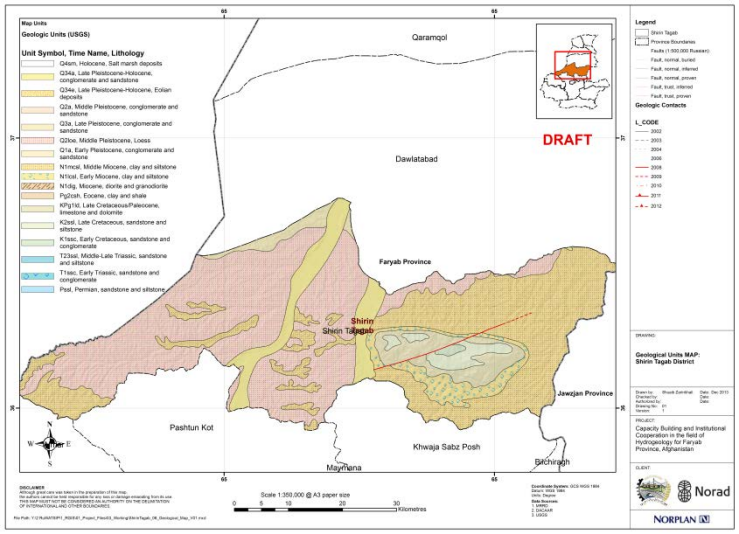
Figure 13: ShirinTagab_05_Static_Water_Level_Map_asl_V0.1	**Feedback/Comments**
	1. DEM values start from 0 (is it right?)

Figure 14: ShirinTagab_06_Geological_Map_V0.1	**Feedback/Comments**
	*1. Comments covered in other maps*

Desktop GIS Development Report: ***Feedback from map users***	V1	NORPLAN

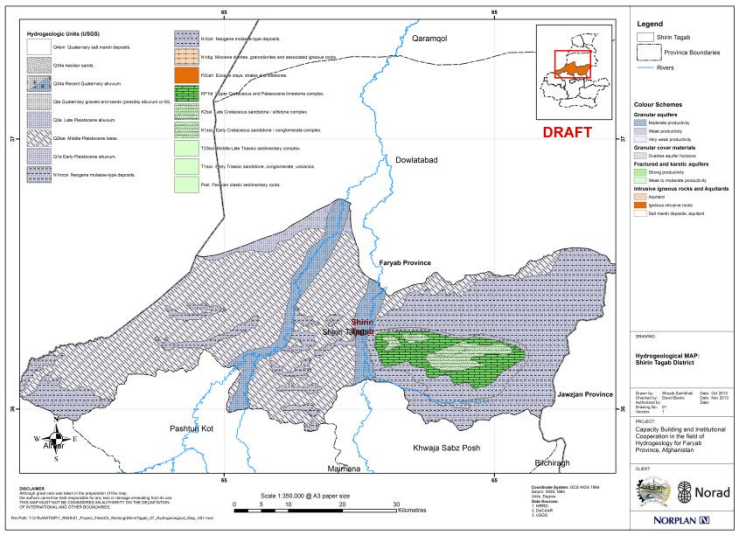
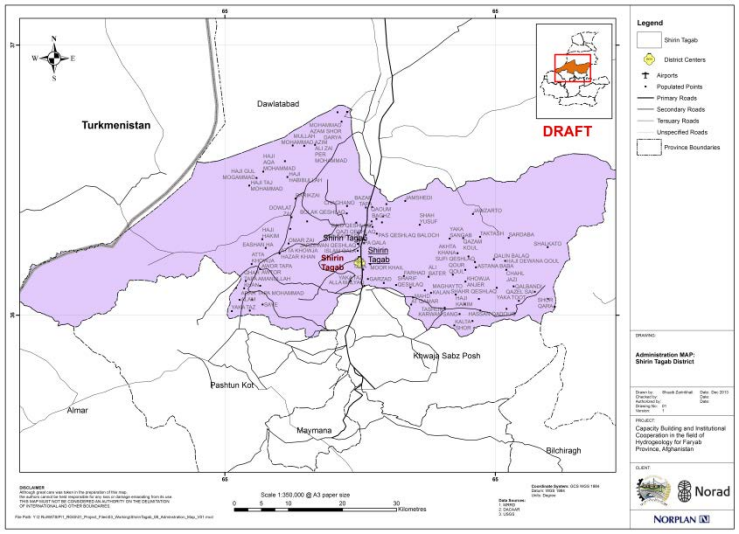
Figure 15: ShirinTagab_07_Hydrogeological_Map_V0.1	**Feedback/Comments**
	1. The KP1Ld green color is too strong 2. Q34a, Q3a, Q1a and N1mcsl will not be clear in the map 3. District sides (left and right) are out of borders

Figure 16: ShirinTagab_08_Adminstration_Map_V0.1	**Feedback/Comments**
	1. Central part of the map is very crowded 2. Labels text in central part not readable 3. Airport is in the legend but not in the map 4. Line weight is very less for tersuary and unspecified roads 5. Bottom of legend is empty (right side) 6. Labels' font is not matching with background 7. Roads should be in red color

Feedback on Maps (Provincial and District):

The above maps were designed according to the previous version of map design terminology where we had set of 8 maps for province as well as the same 8 maps for district level. Later, map 1 & 2 for district level combined together and planned features will be shown in one map. Therefore as explained above in this document, next versions of maps will have 8 maps for Faryab and 7 for districts.

Feedback and comments on all maps combined together in below table. In reference to International standards and according to our requirement in the project, some of the comments are rejected and details on this also included to the table 3 shown below.

The exact freehand writings on maps will be scanned and shared in a separate document.