In The Name Of God

I.R. Iran
Ministry of Energy

Transboundary Ground Water in Atrak & Qara-Qum Basins

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I.R. Iran
Ministry of Energy

United Nations Economic
Commission for Europe

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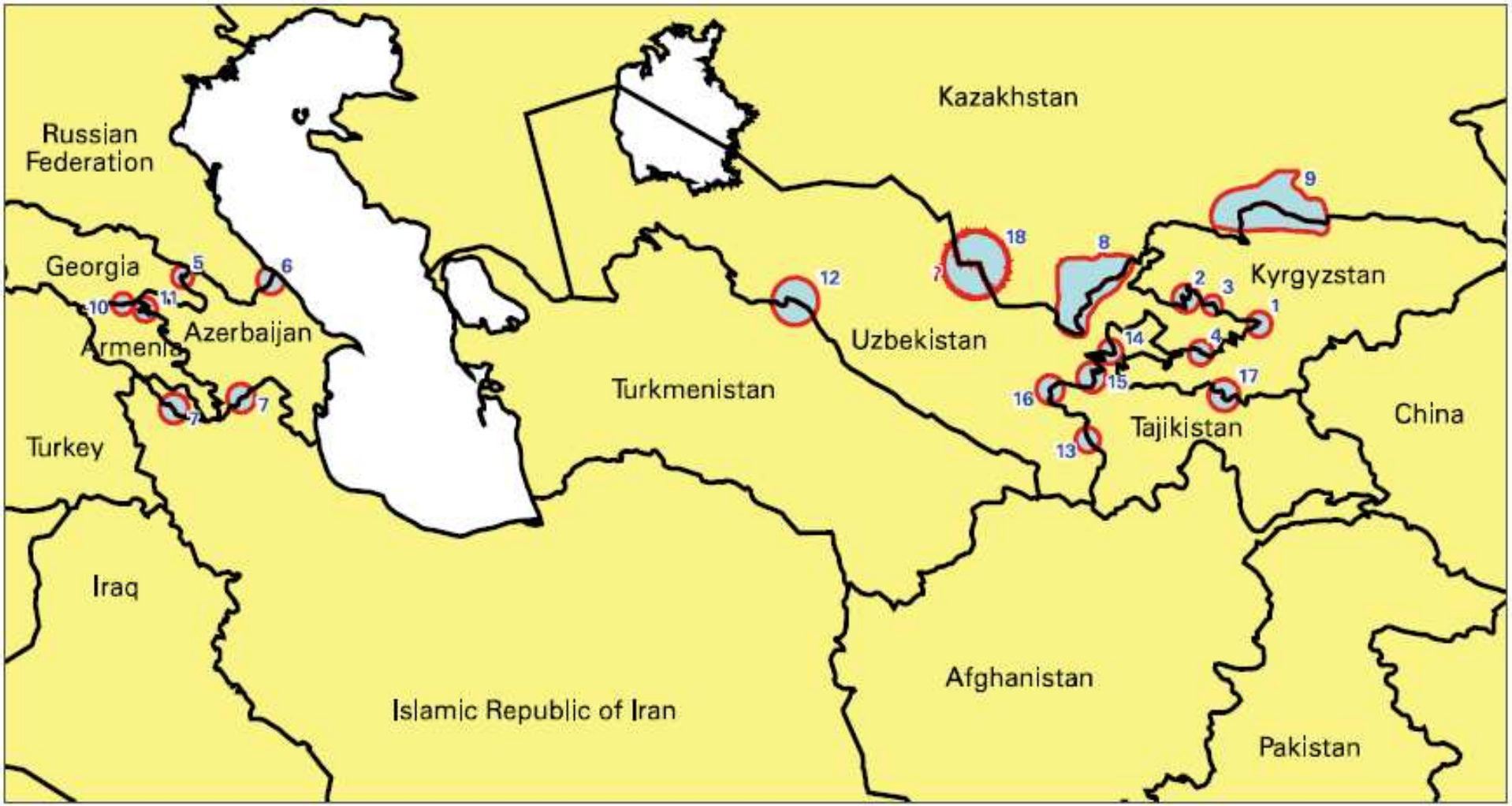
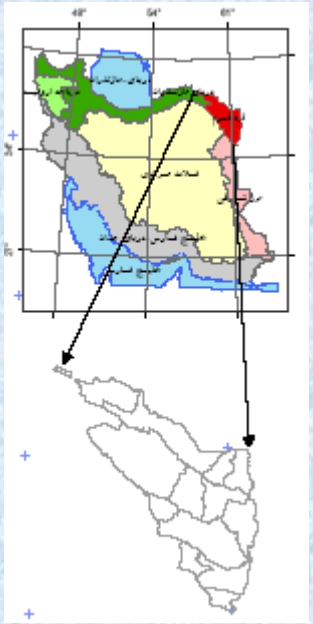
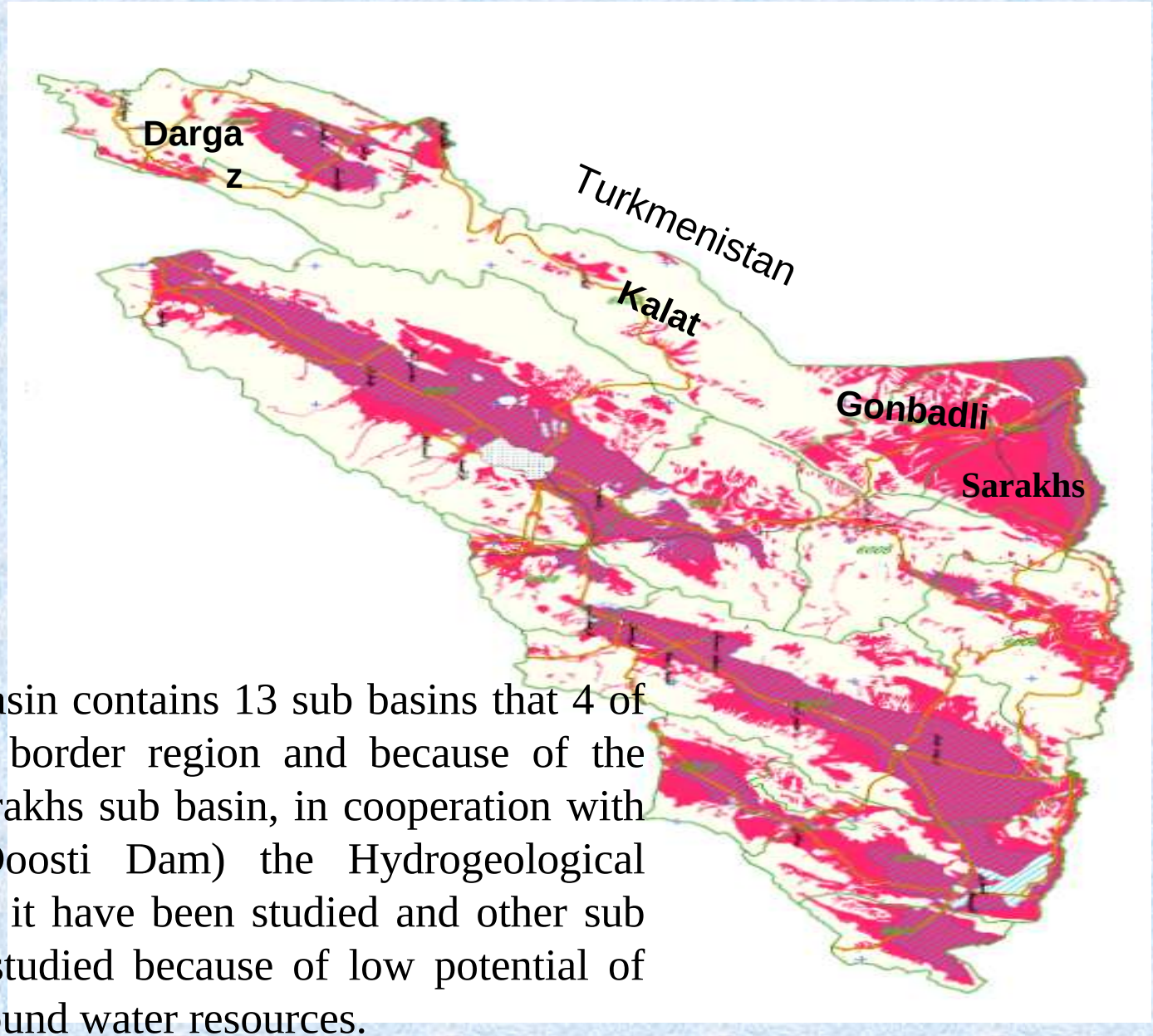
Distribution of transboundary groundwater in Caucasus and Central Asia According to First Assessment Report of UNECE



There is not any TB aquifer between Turkmenistan and Iran in the First Assessment Report of UNECE.

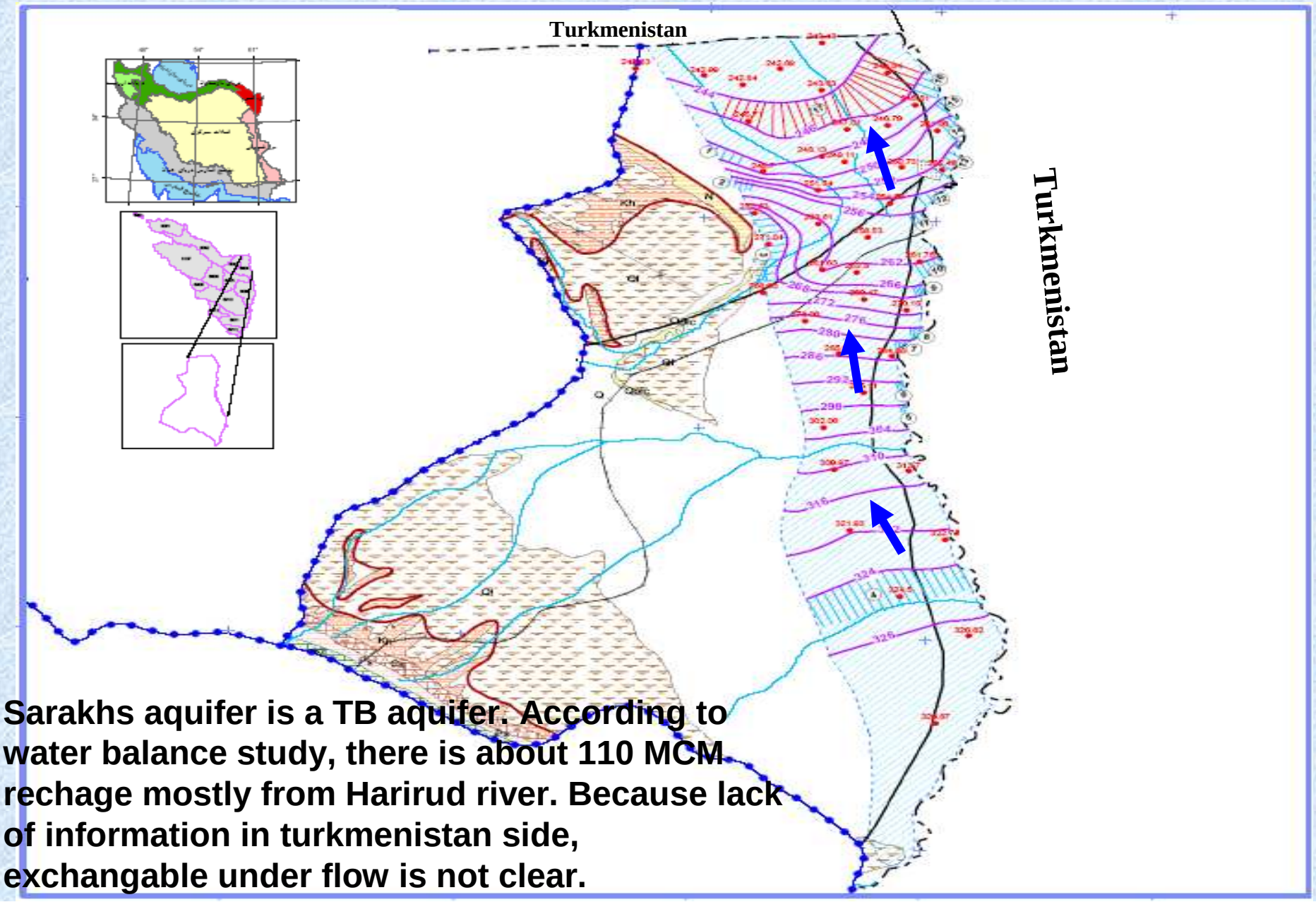
The Map Of Qara-Qum Basin





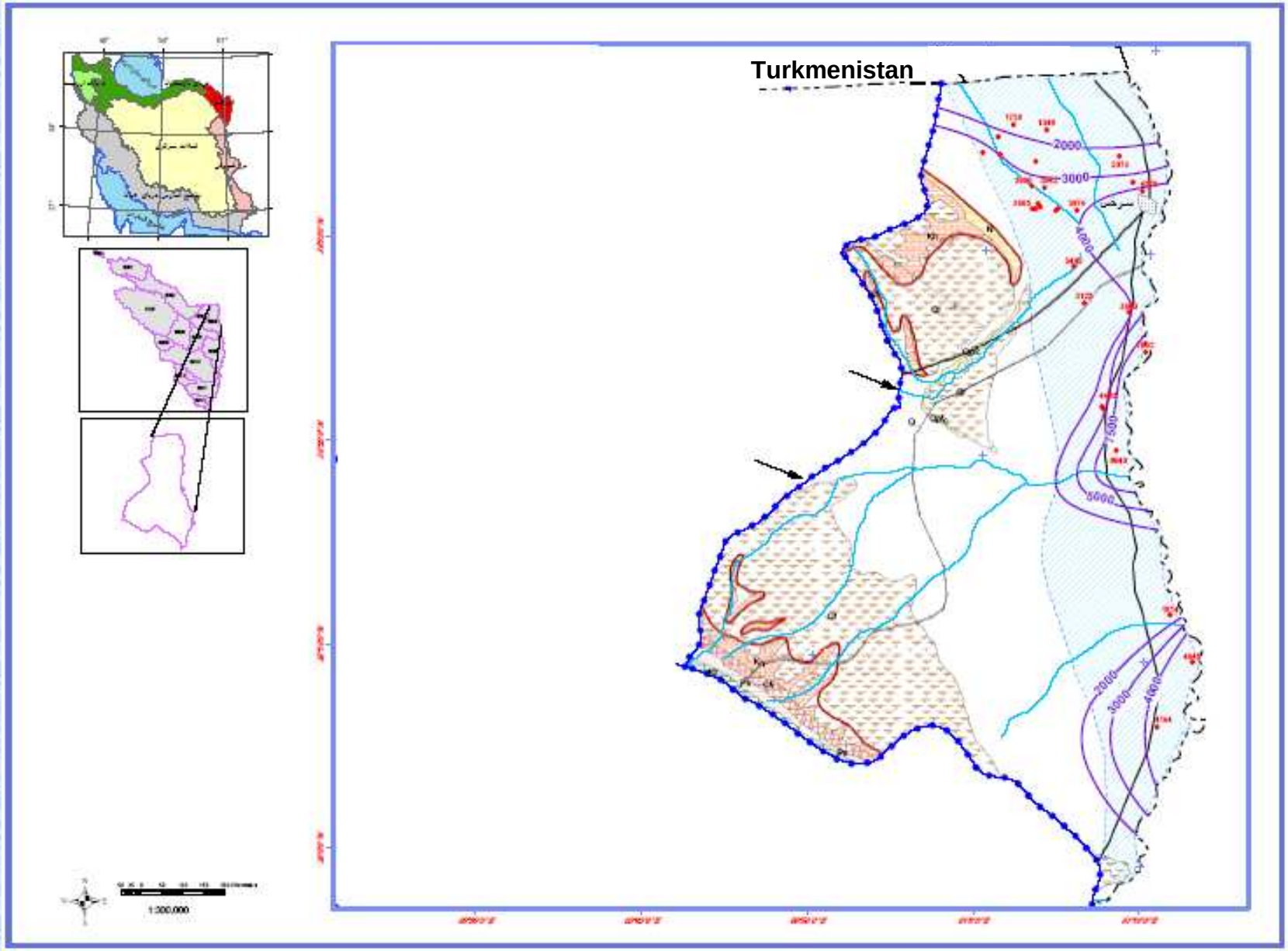
The Qara-Qum basin contains 13 sub basins that 4 of them are on the border region and because of the importance of Sarakhs sub basin, in cooperation with Turkmenistan (Doosti Dam) the Hydrogeological Characteristics of it have been studied and other sub basins have not studied because of low potential of transboundary ground water resources.

Groundwater Table Map of Sarakhs Aquifer

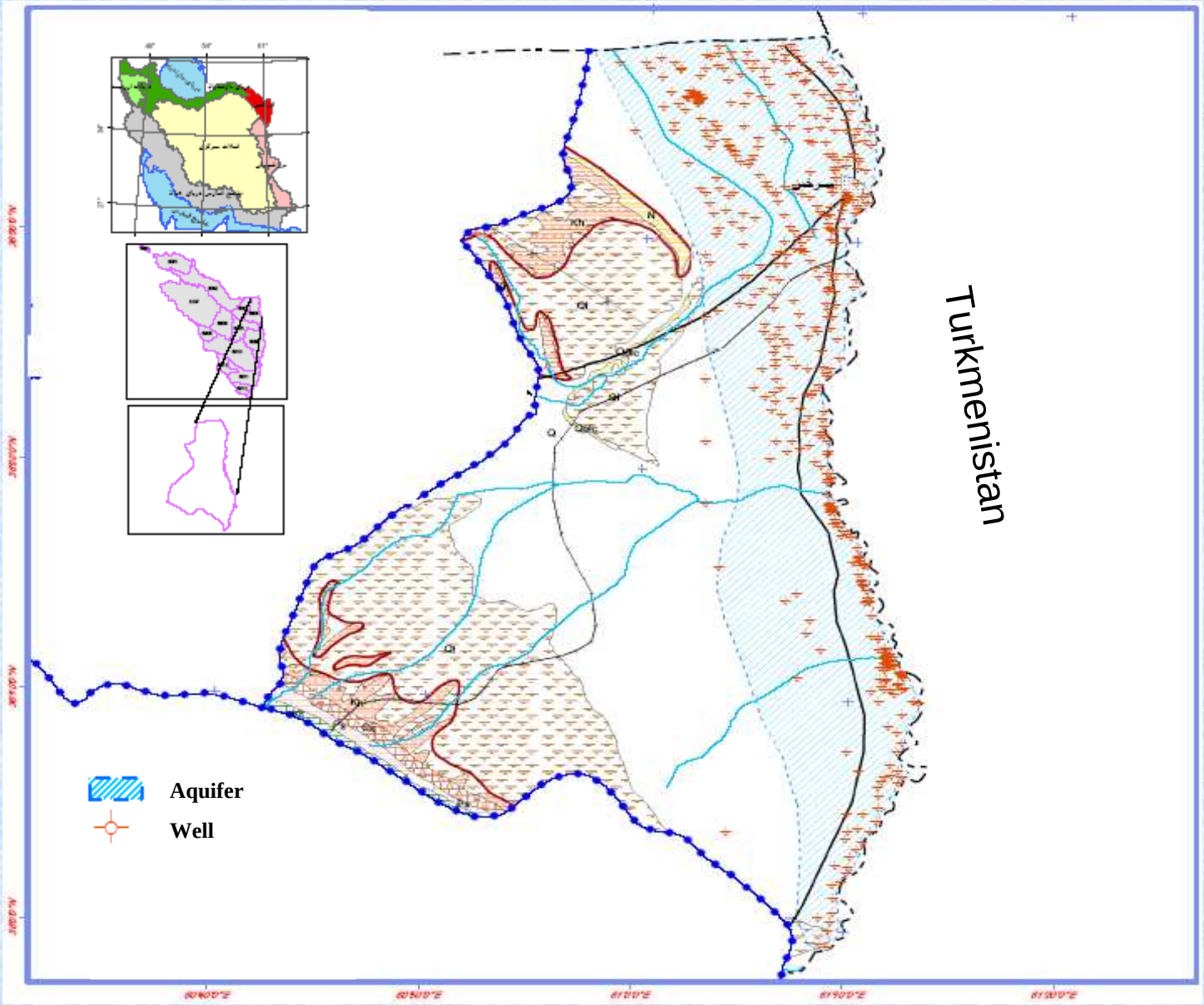


Sarakhs aquifer is a TB aquifer. According to water balance study, there is about 110 MCM rechage mostly from Harirud river. Because lack of information in turkmenistan side, exchangable under flow is not clear.

Iso-Transmissivity Map of Sarakhs Aquifer

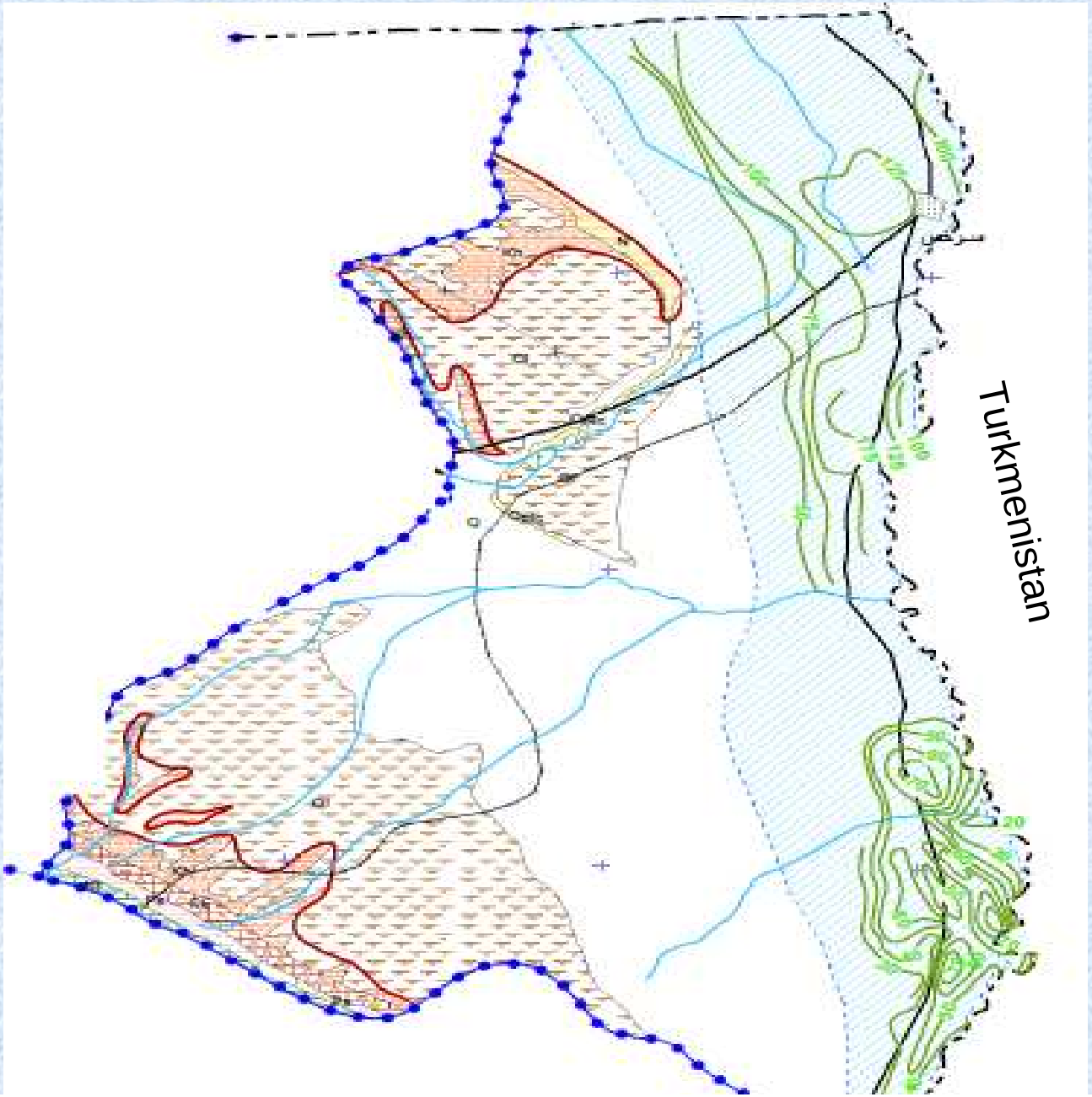


Water Resources In Sarakhs Aquifer

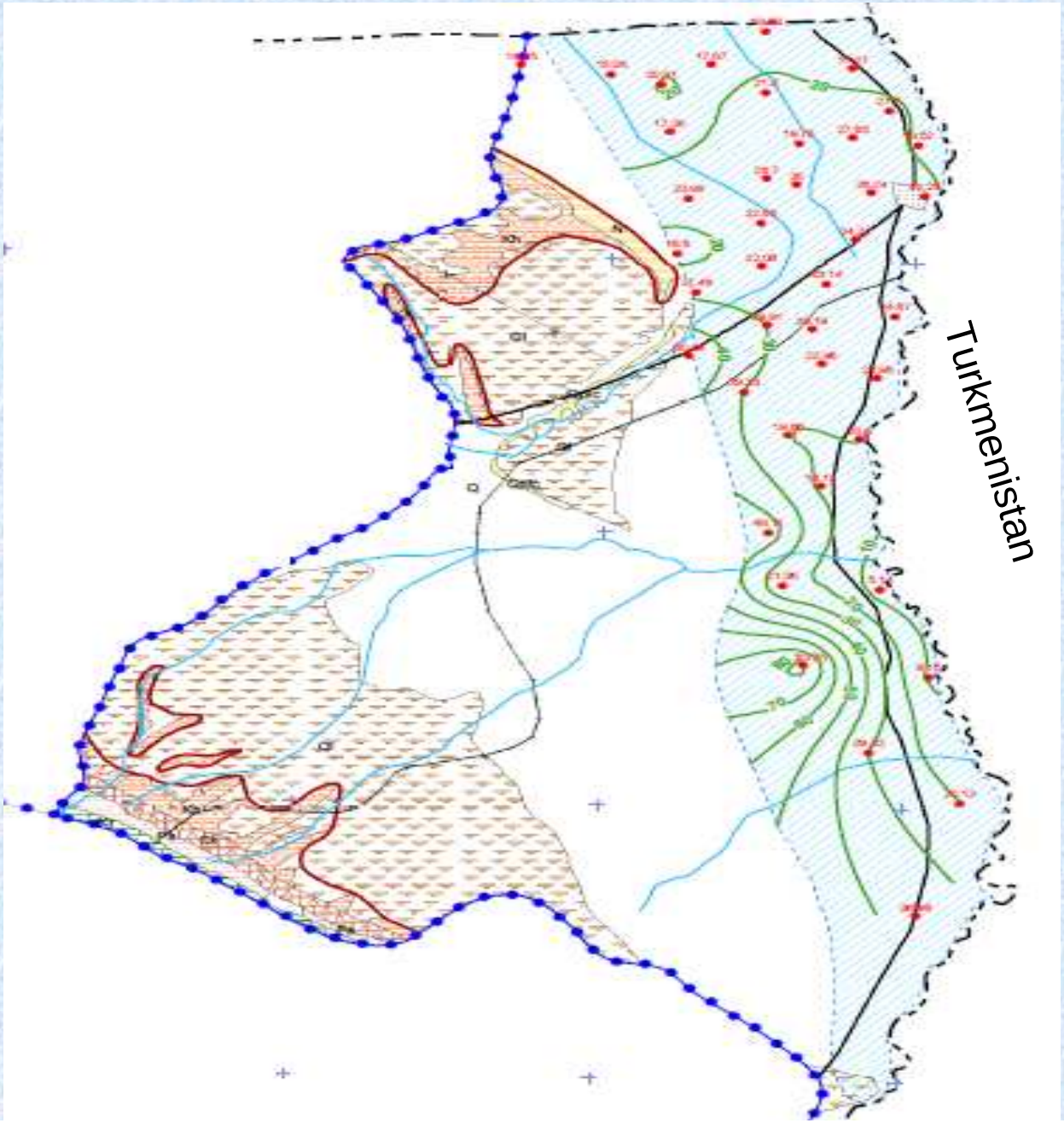


499 wells with 255 MCM/year Discharge

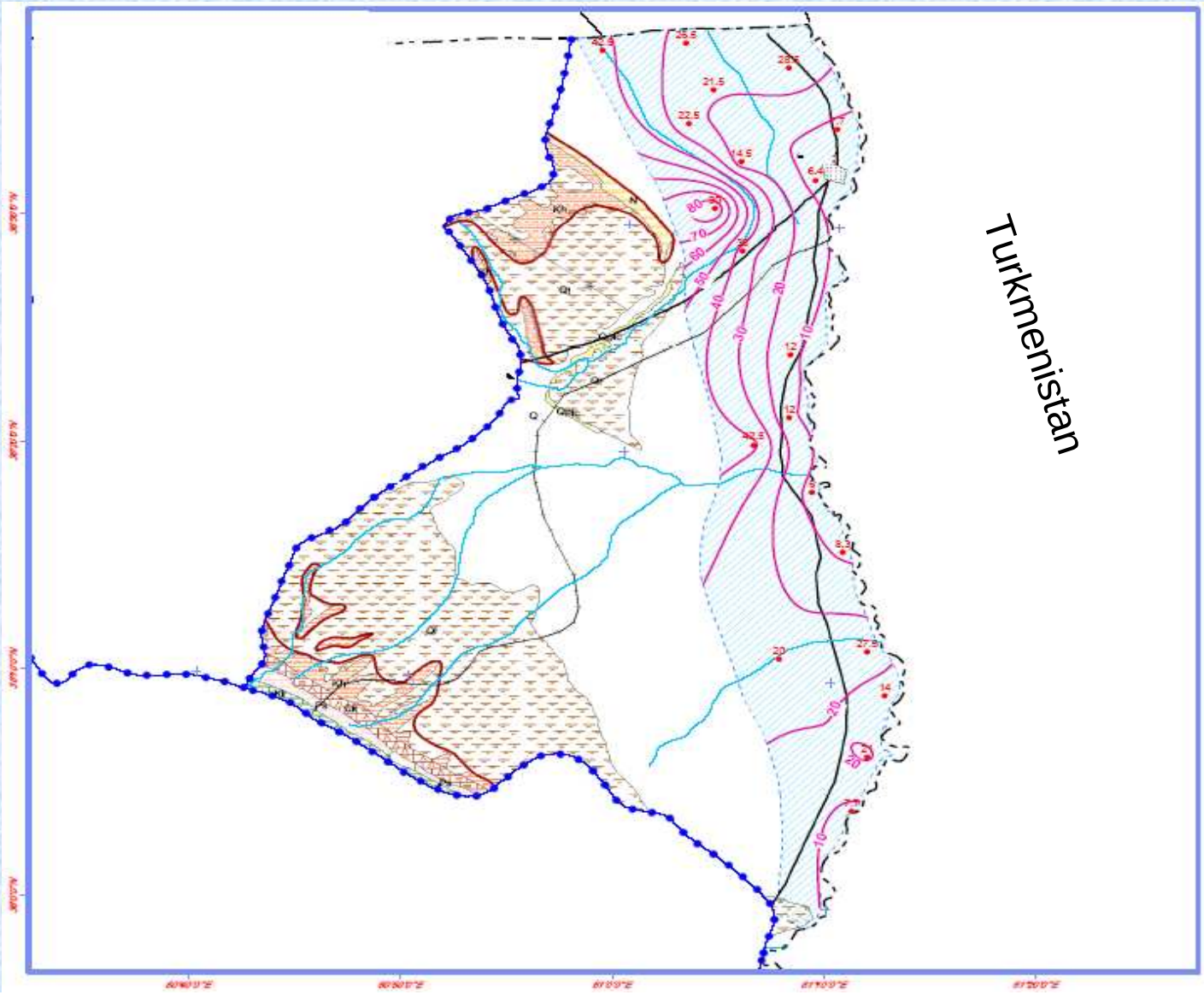
Alluvial Iso Thickness Map of Sarakhs Aquifer



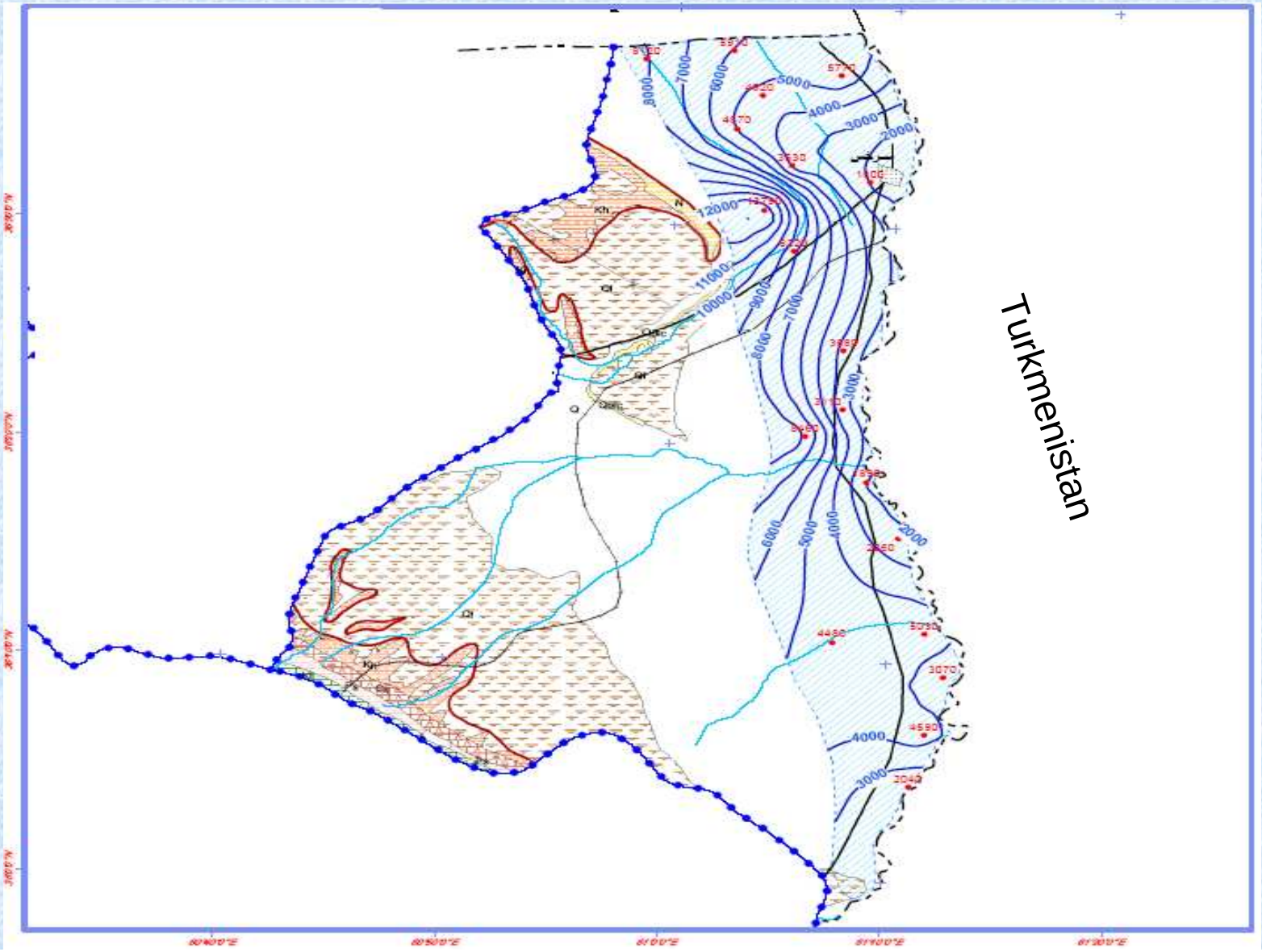
Iso G.W Depth Map of Sarakhs Aquifer



Iso-Cl Map of Sarakhs Aquifer



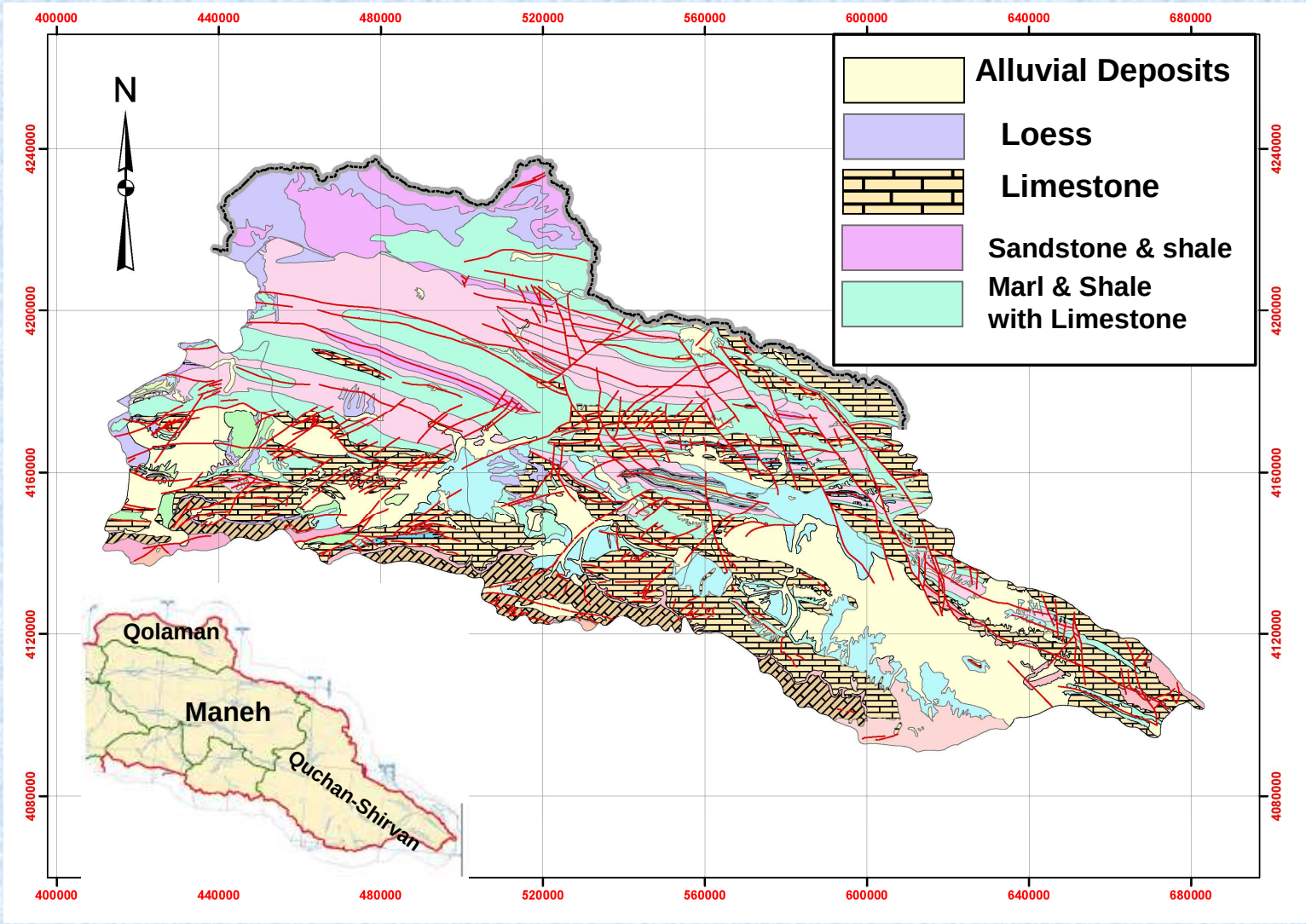
Iso- EC Map of Sarakhs Aquifer (µmhos/cm)



Map Of Atrak Basin

This basin contains 8 sub basins which 5 of them are on the border region . Because of geological condition of this basin and existence of impermeable formations, It seems transboundary ground water resources are not considerable. But the potential of karstified formations can be studied.

Up Stream Geological Map of Atrak Basin



Conclusion and Suggestions

1- In Sarakhs sub basin (North East of Iran), There is an important Transboundary alluvial aquifer with approximately 110 MCM recharge mostly from Harirud river.

2- The Sarakhs Aquifer is important Transboundary aquifer between Iran and Turkmenistan, and it is suggested to insert in second assessment report of UNECE

3- In Gonbadli, Kalat, Dargze sub basins and Atrak basin, because of low transboundary ground water volume and also poor information, it is suggested to conduct some Geological and Hydrogeological Studies because of potential of karstic Transboundary aquifers.

4- It is suggested to conduct some integrated studies for investigation of Transboundary aquifers in Harirud Basin by cooperation of Afghanistan and Turkmenistan and also international organizations.

5- Legal and institutional consideration in above studying should be considered for avoiding future disputes.

6-For any programming in transboundary aquifers, Bilateral agreements are required.

7- For acceleration of studying, international organizations (UNECE, UNEP, UNDP, …) could help technically and financially for aquifers in hard rocks and karstificated regions.


Thanks for
your attention