Groundwater conditions in arid piedmont plains of Kulachi, Tank and D. I. Khan Districts, Southern Khyber-Paktunkhwa (NWFP)

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Water is the basic need of all living beings and green. Ground water is on the the sources for water extracted for various uses and consumption. People living some distance away from perennial water depend upon ground water for their own, live stock and crops. Away from Indus plain, in high land area of Baluchistan and Khyber Pakhtunkhwa, localized ground water has been crucial in supporting the Agriculture sector.

This Technical Paper contains a summary on the ground water status in Kulachi Tank and D. I. Khan Khyber Pakhtunkhwa, spread over an area of 7000 Km2, where Agricultural is the main source of income. The data for the computation of ground water potential has been gathered from the ground water investigation carried out during 1980-88 with the collaboration of Dutch Government, The Netherlands through TNO.

Climatologically the area falls in the domains of semi arid zone. The study area is an alluvial plain that slopes from the Sulaiman and Bhittanni Ranges in the northern and western parts of the District towards the Indus River.

Physiographically the area can be divided in two broad types: - the piedmont plain and the flood plain.

As far as Hydraulic characteristic are concerned the results of Geophysical and hydrogeological investigations indicate that the lithology of the alluvial fill along the mountain ranges termed as gravel fan belt, generally consists of coarse materials. The Transmissivity values in the area between Kot Azam and Kot Murtaza covered by gravel fan are in the range of 920 to 3850 m2 per day. The area was previously barren which is now been converted to a green belt by sinking of few irrigation based tubewells.

The ground water elevation map shows that groundwater body is recharged along the toes of mountainous areas bordering the plains of Indus River.

The carried out investigation indicates that the total fresh groundwater recharge to the groundwater system amounts to 100x106m3 per year out of which 74x106 m3 through the coarse materials, deposited at the foot hills and the rest of 26x106m3 from the Indus River. The same phenomenon is generally common with all the gravel fans belts deposited at the toes of the mountains bordering the plain of all districts of Khyber Pakhtunkhwa.

Based on the groundwater reports prepared for the barani areas of Khyber Pakhtunkhwa during the period 1980-88, groundwater has been exploited, played an important role in enhancing the Agricultural productivity raising the socio economic activity of the inhabitance. There is further need to utilize the groundwater but before that the groundwater potential requires reassessment and fresh groundwater budgeting.

The province feels that in some of the previously investigating area only 50% available potential has been exploited having further scope for groundwater development, while in few other areas the exploitation over and above fears that the exploitation may lead to groundwater mining already happened in Baluchistan province. However this can only be embarked upon when the present groundwater potential is conformed.

Creation of small surface reservoir at suitable location from where small Gravity Irrigation system can also be developed for brining the barani lands under irrigation, besides enhancing the groundwater p0otential which thereby increasing the agricultural productivity, raising the socio-economic activity of the inhabitant as well as add to the National Economy in general and to the Economy of the Province in particular.