URBAN GROUNDWATER SUPPLY IN NORTHERN CHINA

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For cities in northern China, groundwater accounts for 1/2 of total water supply, while groundwater utilization accounts for 3/4 of residential water supply. Three most important hydrogeological types of well fields are identified in this paper.

(1) Well fields in piedmont alluvial-proluvial fans or plains. Different recharge components for groundwater in piedmont deposits within various climatic zone may be illustrated as follows: (a) Manasi river al-pl fan in arid zone of NW China: Inflow from river (channel),coming from mountain area—81%, Snow smelting—11%, Groundwater runoff—8%. (b) Yongding river al-pl fan near Beijing: Rainfall infiltration—49%, Inflow from bedrock—19%, Recharge by river water—16%, Recharge by irrigation water—16%.

(2)Well fields in valleys. Two subtypes can also be divided, namely: (a) in narrow valley with coarse-sized alluvial deposits. (b) in wide valley with relatively medium or fine-sized alluvial deposits. Closer hydraulic connection between groundwater and river water for subtype (a) provides better recharge condition for well fields. Two examples (Xining and Xian) for each subtypes are attached.

(3) Karst water well fields in Cambrian-Ordovician carbonate rocks in North China Platform. Big karst springs and buried artesian karst water are the two subtypes of well fields(examples attached).

Accumulated experiences provides bases for prognosticate possible big-sized well fields for the future.