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**POTENTIAL FOR ARTIFICIAL GROUNDWATER RECHARGE IN A
WELLFIELD: A CASE STUDY
IN THE NORTH WESTERN PROVINCE**

A PROJECT REPORT PRESENTED BY

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POTENTIAL FOR ARTIFICIAL GROUNDWATER RECHARGE IN A WELLFIELD: A CASE STUDY IN THE NORTH WESTERN PROVINCE

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Artificial recharge is a process by which, excess surface water is directed into the ground for enhancing productivity of the aquifers to cater to growing demands. Present study was carried out at Nattandiya Water Supply Scheme in the North Western province. The scheme is extracting water from four shallow bore holes located in a marshy land of about 250000 m² in extent. Average annual rainfall of the area is about 1900 mm and total run-off in the area is estimated to be 46.64×10^3 m³/year. The top most layer of soil in the well field is brown clay, followed by sand and then a hard clay formation below sand. The thickness of sand layer which is the main aquifer varies from place to place with an average thickness of 8 m. The average transmissivity and storage coefficients are 20.34 m²/day and 2.177×10^{-4} respectively.

Capability of recharging the aquifer was confirmed by pumping tests and determining the aquifer parameters. Pump tests revealed that there is a possible rapid drawn down of water column even causing water level depletion of the surrounding area with a large radius of influence. Delayed yield was not noted indicating that the natural recharging is slow.

Draw downs as high as 10m were noted in the dry season whereas in other periods it was about 2m. The required amount of recharging water is 6500 m³/day in the dry period and in the wet period 1088 m³ /day. Excess rain fall can be used in recharging of the well field using recharge shafts while quality can be improved by a slow-sand filtration mechanism.