ASSESSMENT OF NITRATE POLLUTION OF WELL WATER IN RELATION TO DISTANCE OF TOILET PIT IN VAVUNIYA

A PROJECT REPORT PRESENTED BY

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to the Board of Study in Environmental Science of the
POSTGRADUATE INSTITUTE OF SCIENCE

in partial fulfillment of the requirement
for the award of the degree of

MASTER OF SCIENCE IN ENVIRONMENTAL SCIENCE

of the

UNIVERSITY OF PERADENIYA
SRI LANKA
2010

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Well water is an important source which provides drinking water supply especially to dry zone of Sri Lanka. Therefore considering in the quality of groundwater is essential to ensure the health of human and other organisms. However, the quality of groundwater varies place to place, mainly depending on its geological origin even though, its become deteriorated by various anthropogenic activities. Nowadays in Sri Lanka this is especially due to population increases and subsequent poor sanitary facilities by means of poorly design toilet pits. In this content, this study was concerned on the influence of toilet pits on the groundwater quality in Vavuniya town area. Study was focused on five gramma niladari division of Vavuniya district on 100 numbers of wells. From the 100 wells 25 numbers of wells were selected for the water quality analysis.

In which the well water samples were tested for the Nitrate (NO_3^-), Nitrate nitrogen (NO_3-N), Electrical conductivity (EC), pH and fecal coliform count and the distance between well and toilet pit was measured. The relationship between the quality of groundwater and distance to toilet pit was analyzed on SPSS statistical kit and MINITAB 14.0. It has been found that the increased numbers of poorly designed toilet pits are one of the factors causing NO_3^- and fecal coliform contamination in its adjacent wells.

In which the nitrate and nitrate-N vary in all the wells and values were ranged from 3.4 mg/L to 48 mg/L and 0.7 mg/L to 10.8 mg/L respectively. The highest value of nitrate-N was observed as 10.8 mg/L at Pandarikulam GN division. Out of twenty five wells 8 % of the wells were not recommended for drinking purpose and 92 % of the wells were below the permissible limit. Almost all the wells were contaminated with nitrate and fecal coliform in my study area. This may be due to improper maintains of toilet pits and wells.