

**GROUNDWATER DEVELOPMENT IN NUWARA ELIYA AREA:
HYDROGEOLOGICAL DRAWBACKS AND REMEDIAL
MEASURES**

A PROJECT REPORT PRESENTED BY

R.M.S.M. RAJAPAKSE

to the Board of Study in Earth Sciences of the
POSTGRADUATE INSTITUTE OF SCIENCE

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

**MASTER OF SCIENCE IN ENGINEERING GEOLOGY AND
HYDROGEOLOGY**

of the

**UNIVERSITY OF PERADENIYA
SRI LANKA
2004**

GROUNDWATER DEVELOPMENT IN NUWARA ELIYA AREA HYDROGEOLOGICAL DRAWBACKS AND REMEDIAL MEASURES

R.M.S.M. Rajapakse

National Water Supply and Drainage Board

Getembe, Peradeniya

Sri Lanka

Nuwara Eliya was facing severe water shortage due to the high water demand and absence of sufficient water resources in the area. The most serious problem encountered by the urban water supply scheme is the limited surface water reserves during the dry season.

A number of deep tube wells constructed in order to compensate the shortage and to supplement the supply has caused an environmental damage associated with building cracking and land subsiding. Those effects took place with the continuous withdrawal of groundwater from wells in Hawa Eliya, during simultaneous test pumping.

The present study was concentrated to identify hydrogeological drawbacks of these tube wells and to propose some remedial measures.

The main aquifer of the area is the weathered formation, which is overlain by a peat layer of 2 to 10 m thick. Transmissivity values of this aquifer are relatively low.

The aquifer has confined / semi confined sections and therefore contraction of the aquifer takes place with the lowering of the piezometric level over a large area of influence. This situation has resulted in land subsidence and associated cracks and other damages to the houses.

The acceleration of the development of cracks appears to be directly proportional to the rate of pumping. By lowering of pumping rates, it was revealed that influenced area become smaller. Therefore it is recommended that the pumping rates should be reduced to 45 % to 50% of the initial design rates.