

IDENTIFICATION AND DEVELOPMENT OF A LOW COST MANUALLY OPERATED  
WATER LIFTING DEVICE FOR SMALL SCALE CASH CROP GROWERS

By

CHANDANA LAL RAJAPAKSE

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SRI LANKA

Approved:

Supervisor



( Dr. B.F.A. Basnayake )

Examiner



( Dr. K.G.A. Goonasekara )

Examiner



( Dr. K.H. Steinmann )

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## Abstract

An appropriate water lifting device had been a long felt need in the dry zone for small scale cash crop growers who do not come under irrigation schemes. Due to escalating prices of fuel and motorized pumps, attention was focused on a machine which could operate with renewable sources of power.

Two surveys, one on small scale dry zone farmers and the other on available water lifting devices were carried out to ascertain an appropriate device required for use under the prevailing dry zone farming conditions.

A simple and low cost manually operated water lifting device was decided upon after studying the capabilities of the existing manually operated water lifting devices in use.

During the tests carried out at the Farm Mechanization Research Center, Maha-Illuppallama and several other locations this machine showed good promise. This implement could be fabricated in any ordinary village level workshop at a price within the means of dry zone farmers. Two operators using this pump could achieve a delivery of about  $10 \text{ m}^3/\text{h}$  over a head of 6 m while only about  $1.2 \text{ m}^3/\text{h}$  could be achieved by using the same man power with rope and bucket. On the basis of the above output, the pump has a potential of irrigating 0.2 ha to 0.4 ha of land depending on the crop and field conditions. The cost benefit analysis showed that this pump is more economical than an engine powered one for use within the above land limitations. This implement together with a suitable irrigation system would, therefore, be a solution to the irrigation problems of the dry zone farmer. A further step forward would be an animal drawn version of this unit.

