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EXECUTIVE SUMMARY

OF

EVALUATION REPORT

NICARAGUAN EXPERIENCES WITH ROPE PUMP

Measuring the efficiency, the technological, socio-economic and institutional sustainability, the affordability, the acceptance and replicability of a specific groundwater lifting technology

Evaluation for Royal Netherlands Embassy in San José (Costa Rica), the SNV programme PASOC in Nueva Guinea, Nicaragua, and the IRC International Water and Sanitation Centre

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EXECUTIVE SUMMARY

There is a continuing need to develop and introduce appropriate technologies for water supply in developing countries. One such technology, which is reportedly very successful, is the rope pump which has been further developed and applied on a wide scale in Nicaragua. Matching this need and reported success resulted in an evaluation mission to assess the potential of the rope pump technology. The mission was fielded in the period 8-14 March 1995. The evaluation was jointly financed by the Royal Netherlands Embassy in Costa Rica, the SNV-supported PASOC Program in Nueva Guinea (Nicaragua), and the IRC.

The Evaluation Team consisted of five experts comprising two IRC staff, one Dutch consultant and two Nicaraguan consultants. Their expertise covered mechanical engineering; institutional issues; community participation and social issues; water supply technology; and economic and financial issues.

The overall objective of the evaluation was to assess the short- and long-term performance of the rope pump in Nicaragua in view of its potential for wider application and active promotion outside Nicaragua. The specific objectives related to the technical functioning and performance; the materials used and manufacturing quality; comparison with other handpumps; success factors for introduction in Nicaragua; technical and financial sustainability; affordability; cost-effectiveness; acceptance; private sector involvement; and replication of private sector involvement in other countries.

The evaluation was preceded by a literature review financed by IRC on world-wide experiences with rope pump technologies. The review document was used by the Evaluation Team as a briefing paper.

The Evaluation Team held a half-day briefing workshop on evaluation issues, and ESAs' and sector agencies' experiences with the rope pump in Nicaragua. The Team had discussions with local organizations, communities and users, and with personnel of mechanical workshops. Major rope pump workshops were visited to evaluate the production process. Technical aspects of the pump were assessed in the field. At the end of the short mission, an half-day participatory workshop was held to present and discuss the Evaluation Team's preliminary findings, conclusions and recommendations.

The major conclusion is that the rope pump can potentially form a valuable addition to the range of appropriate groundwater lifting technologies in other countries.

For many countries the rope pump has the potential to be locally manufactured, marketed and installed by the private sector, including smaller local mechanical workshops. Operation and maintenance requirements are relatively low and simple, and therefore with some minimal support from the local private sector (e.g. through some repairs, spare parts support), O&M can be done by the users themselves. This is particularly attributable to the absence of piston, foot and piston valves, pump rods etc. However, there is a need for constant attention to simple but regular maintenance requirements. The rope pump is, for many conditions, a sustainable technology.

The relatively low level of investment (approximately US\$ 80) makes the technology accessible for individual households and farmers, although for the poorer sections of society the rope pump will not be affordable on a private basis. In that case, either

the communal rope pump or the self-made rope pump (approximately US\$ 25) could be considered as an option. For both, the O&M and costs will be feasible.

Although the rope pump has been under continuous technical development in Nicaragua since 1983, the pump still needs technical improvements. In particular, as no standardized designs and manufacturing processes are prescribed, the individual workshops differ in their designs and product quality. ESAs demand such design criteria and standards, as well as quality control of the product.

The success of the rope pump in Nicaragua is the result of (i) the initial interest of the individual families to install the pump for farm activities (cattle watering; small-scale irrigation) and also for domestic water uses, and (ii) the interest of national technical institutions and the private companies (small workshops) to experiment with design and to improve the parts of the pump. The role of the ESAs has also been substantial, particularly in the development of the communal rope pump. One company has been very active in the promotion and commercialization of the manufacturing and installation of the pump, which has substantially contributed to its popularity and high coverage in Nicaragua.

The recommendations include activities to promote the proven appropriate technology internationally. These activities include development of promotional materials (publications, video); organization of a workshop in Central America; publication of articles for sector journals; dissemination of the technology in conferences etc.; and development of pump selection criteria, standardized designs, manufacturing processes and quality control procedures for the rope pump. Furthermore, a series of recommendations are made on how to introduce the rope pump in specific countries.

For Nicaragua, a number of specific recommendations are made with regard to technical, manufacturing, community organizational, and training aspects. Thereby, a division is made between the 'industrial' pump, the 'self-made' pump and other types. Special attention is paid to the problem of the affordability of the pump for the poorer sections of the country.

In an initial follow-up of the evaluation, the potential funders for the most important recommended activities will be approached to discuss and agree on actions and budgets. This was not possible in the time-frame of the evaluation.