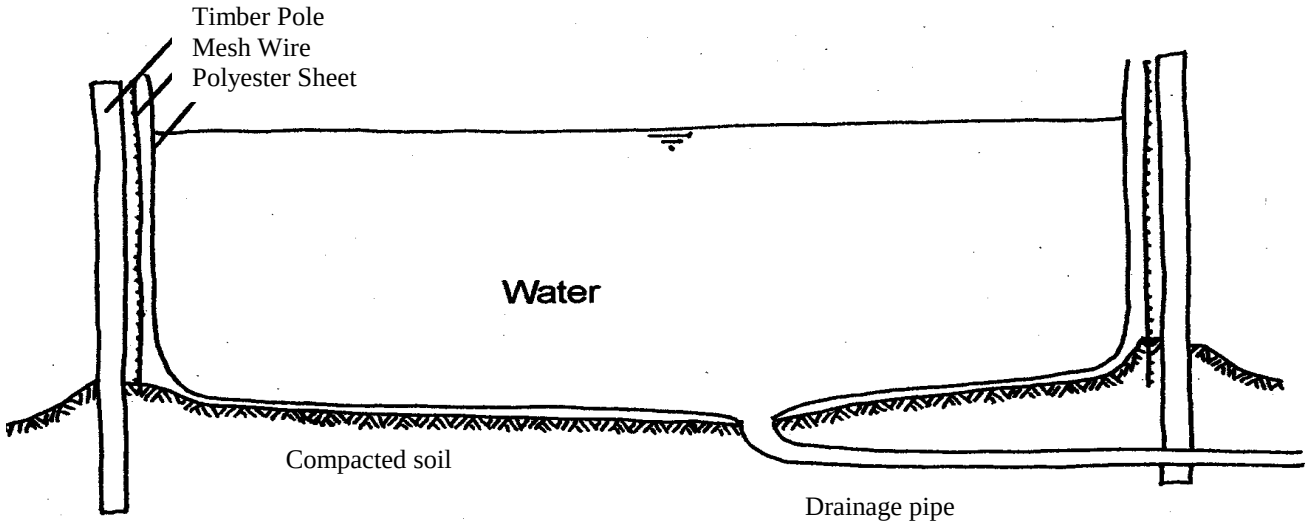
AGRICULTURAL RESEARCH COUNCIL
INSTITUTE FOR AGRICULTURAL ENGINEERING

AFFORDABLE ROUND DAM FOR FARMS

Stored water is a necessity on every farm - whether it is used for drinking water for human and livestock consumption, irrigation of commersial crops or vegetable gardens, fish farming, processing or any other purpose. The cost of a dam or dams for the collection of water usually constitutes a considerable part of the cost of the infrastructure on a farm.

The ARC-Institute for Agricultural Engineering therefor started examining alternative and cheaper ways of collecting water. A dam was erected on the premises of the Institute for this purpose and was evaluated for a period of three years. The dam was emptied, cleaned and refilled on a regular basis. It was entirely exposed to all weather conditions and it can be stated that the durability of the dam can be determined in the course of time.

The conventional type of dam of concrete and brick may be considered a more durable construction, but it costs considerably more and is more labour intensive to build. With careful maintenance and the prevention of mechanical damage, it is viable to consider this structure, as it is much cheaper than commercially available dams. The cost of erecting this dam is less than half of the cost of a round concrete dam and less than a quarter of the cost of a commercial, prefabricated dam after installation.



Sectional view of the dam for detail of the construction

The structure is a round dam of welded wire mesh, with a lining of polyester cloth, painted with a waterproofing substance. The whole structure is secured with a number of timber poles planted into the ground, with the wire mesh secured to it.

The construction of the dam is simple and can easily be constructed by the user with own labour in a very short time. The materials are also easy to use and no specialised knowledge or equipment is necessary.

The user decides on the size of the dam required according the purpose for which it will be used. The following aspects should however be kept in mind:

- How regularly water will be pumped into the dam;
- What will the total water consumption be during this period;
- How reliable is the water source;
- How much damage will be caused by water shortages

A complete manual on how to erect the dam and materials needed is compiled in a manual that is available at the ARC-Institute for Agricultural Engineering. Contact: Elmarie Stoltz Tel. 012 842 4017 or e-mail: stoltze@arc.agric.za