Sustained effort can pay well

...the Government will strengthen and promote the use of rainwater harvesting technology, in both urban and rural areas (Prime Minister of Tanzania Hansard Records, July 2nd, 2001)

Why is the Prime Minister of Tanzania suddenly interested in rainwater harvesting?

The answer lies among the smallholders of the tropical drylands of Tanzania who have to cope with the realities of living in a dry place with unreliable rainfall. They face frequent food shortages and economic losses resulting from either too little rainfall or too much.

Over the past century droughts have caused more than 30 percent of all the declared disasters in Tanzania while floods caused around 40 percent, often in the same place and the same season. The problem is that only a small fraction of the rainwater reaches and remains in the soil long enough to be useful. Up to 70 percent runs off causing soil erosion and flooding downstream.

Policy makers recognised the detrimental effects of droughts but they did not appreciate the importance of runoff during times of flooding. Policies were dominated by two contradicting perceptions. Firstly, that the only solution for drought prone areas was to grow drought-resistant crops and secondly, soil erosion could be controlled by disposing of 'hazardous' runoff safely away from croplands. This led to soil and water conservation programmes that focused on diverting water away from areas where agriculture and livelihoods are affected more by shortage of water than anything else.

Like many big problems the solution was not simply a technical investigation to find ways of controlling and using runoff to provide critically needed soil-moisture for crops. It was essential to educate field agents concerned with change about the new techniques,

make farmers aware of them so that they could integrate them into their farming systems, and make policy makers aware of ways by which government policy could support all of this. Such a challenge requires a broad-based approach covering both the technical aspects of rainwater management and communication and training at a range of levels.

Sustained effort

Over the past 12 years the Soil-Water Management Research Group (SWMRG), based at the Sokoine University of Agriculture has conducted rainwater management research. Importantly the Group has also made sustained efforts to change the perceptions of government and aid donors about ways of increasing the productivity of rainwater and improving the livelihoods of farmers in dry areas.

This is an excellent example of what can be achieved when a programme of research combined with communication is pursued with determination and has sustained funding over 12 years. Few programmes are fortunate enough to have both

Harvesting rainwater is not new to Tanzania and so research began with an intensive and extensive participatory programme of learning from farmers who were already exploiting natural concentrations of runoff in local depressions and valleys. In the 1920s Indian migrant workers introduced the Majaluba system to improve the yields of rainfed rice. This is a macro-catchment system used to capture runoff from large areas often some distance from their farms. It is now gaining popularity among rice and also maize growers in spite of the complexities of managing sudden large flows and distributing it to large groups of farmers.

Next came the farm experiments and modeling to develop a sound scientific understanding of farmers' practices. A computer based simulation model – PARCHED THIRST – originally a research tool, is now being introduced to front-line extension staff to reduce the guesswork when they are helping farmers to set up new water harvesting systems. Although the model is a sophisticated tool, its complex workings are hidden from the user who requires only a simple means of testing out various design options and evaluating long-term impacts on productivity and sustainability.

While conducting the research, SWMRG also engaged in a long and sustained process of communicating with district and national level policy makers not only through the provision of written publications but also through regular contact at meetings, workshops and personalised visits. Technical findings were disseminated through a special issue of the Tanzania Journal of Agricultural Sciences devoted to rainwater harvesting and the production of a planning guide handbook on rainwater harvesting. Booklets and pamphlets were also produced in the national language (Swahili) for use by extension agents and farmers. Training programmes were organised for government extension staff and NGOs who work directly with farmers. All of these activities have played an important role in raising awareness among policy makers.

Pays well

Over the last two years, a supportive policy has emerged to the point were rainwater harvesting is a common feature in the development plans of several district councils and NGOs. In 1997 the Agricultural and Livestock Development Policy contained six policy statements on drought-resistant crops with no mention of soil and water management. By 2001 the Agricultural Sector Development Strategy fully recognised the importance of integrated soil-water management as a key to solving the problems of drought. Members of Parliament debating the budget speech made significant statements on rainwater harvesting:

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Rainwater Harvesting (RWH) as a Tool for Improving Livelihoods in the Semi-Arid Areas of Tanzania has been accepted by the Global Development Network as part of its Bridging Research and Policy Project. This project aims to highlight research programmes that have had significant impact on government policy.

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The first MP to speak stated: *We must do away with the notion that droughts that we face from time to time in many parts of the country are caused by shortage of rainfall. With a good programme of harvesting rainwater we can avoid droughts even in times or places considered to have low rainfall.* Another MP stated: *Rainwater harvesting should be the starting point in our agriculture strategy as without adequate supply of water, even if we provide credit, mechanization and extension, there will be no development in agriculture* (Hansard Records, 18 June, 2001).

In response, the Prime Minister of Tanzania stated: *Starting the 2001/2002 financial year, the government will strengthen and promote the use of rainwater harvesting technology, in both urban and rural areas* (Hansard Records, 2 July, 2001).

Then, the Minister responsible for water development elaborated on the strategy stating: *In order to ensure that rainwater harvesting technology is widely used in rural areas, my ministry will work with District Councils to ensure that rainwater harvesting is included in development plans of the councils.* (Hansard Records, 25 July, 2001).

This is now official policy and the Agricultural Development Strategy states: *The Government, in close collaboration and consultation with the private sector, will enhance the efficiency of water utilisation, especially rainwater, through the promotion of better management practices. This will be achieved by developing and implementing a comprehensive programme for integrating soil and water conservation, rainwater harvesting and storage, irrigation, and drainage. Furthermore, the water policy, approved in July 2002, sets a goal of making more water available to rural communities through rainwater harvesting technologies.*

This is an excellent example of what can be achieved when a programme of research combined with communication is pursued with determination and has sustained funding over a long period. Few programmes are fortunate enough to have both but this one strongly argues for the excellent returns such programmes can deliver for national development.

R7888 Promotion of rainwater harvesting systems in Tanzania

R7949 PARCHED THIRST model: Development of a client-friendly version 2.1

R8088 PARCHED THIRST Help office and upgrading of model from v2.1 to v2.2

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