

Around the middle of the 1980s something rather exciting began to happen to soil and water conservation in developing countries. After decades of trying to save the soil "from the people", a few small projects discovered a more promising approach: to help the land users to save the soil and the water for themselves – for improved plant production. Some important lessons were learned and a new way of thinking began to emerge.



New approaches to soil and water conservation

Will Critchley

The "new approach" to soil and water conservation has come about more by necessity than by design. The conventional type of SWC project – with its emphasis on building structures and reducing soil erosion – has failed so often that there has been no option but to change strategy. With the new thinking, kilometres of expensive terracing and rigid targets are out – and people's participation, flexible workplans and conservation for production take centre stage.

Change in attitude

An increasing number of documents have appeared over the last few years articulating the change in attitude. One of the first contributions to the the debate criticized aid agencies and soil conservation departments for persistent failures in SWC projects, and simultaneously stressed the importance of basing technology on farmers' traditional systems (Reij et al. 1986). Several more recent publications have brought the new approach into the mainstream of thinking, and have highlighted, particularly, the potential of biological methods and the need to move away from a purely engineering approach to SWC (e.g. Shaxson et al 1989; Moldenhauer and Hudson 1988; Young 1989). A

recently developed video has distilled the lessons into a training module for local development workers in dryland Africa (Critchley 1991). Perhaps most significantly the language and content of project proposals has subtly begun to change as well. The first step from thinking to doing is underway.

The new attitude acknowledges that it is useless to coerce people into accepting systems of conservation that they don't appreciate. This seems self-evident, but it's not so simple. Conventionally, technicians design the structures, and the implementors ensure the "cooperation" of local farmers with incentives such as food-for-work or even payment. The farmers often don't understand the purpose of the terraces and bunds, and because they expect incentives to continue for maintenance, the structures are commonly left to deteriorate in the post-project phase. The result can be breached bunds and increased environmental damage.

Participation essential for lasting impact

Participation has become the "buzzword" of the moment, but it is not just a passing development fashion, it is essential for lasting impact – for sustainability. Participation means the involvement of the land users in all phases of project planning and implementation. It is now realized that the target group has a wealth of knowledge and experience, and is receptive to training – women as

well as men. Developing skills in land use planning and surveying, for example, demystifies technology and instills a sense of achievement. Training helps to mobilize the wealth of popular enthusiasm that exists untapped in so many areas.

It is important to recognize that participation is a two way process – and that the conservation specialist and other programme staff are not redundant. The conservationist has a vital role in helping to generate appropriate technology in cooperation with local land users, taking into account their traditions and experience. It should not be forgotten that the land users don't always appreciate the full implications of improved SWC systems immediately. Techniques which lead to rapid increases in crop yields by making moisture more available in dry areas, for example, will certainly be attractive to farmers – but unless the question of soil fertility is simultaneously addressed, the effect may diminish in the future due to nutrient "mining". Technical guidance is not outdated – but needs to be more farmer-sensitive, and less rigid and pedagogical.

Group work on terracing as soil conservation. It is important to recognize that participation is a two way process. The conservationist has a vital role in helping to generate appropriate technology in cooperation with local land users, taking into account their traditions and experience. Photo: Will Critchley.

The key to new technology

If participation is the key to the management aspect of the new approach, then it is the key which opens the door to new technology also. The two most interesting developments are the emphasis on biological methods of conservation in the more humid regions, and water harvesting in the drier areas. It is significant that both of these are linked to improved, and more reliable crop yields.

"Conservation Farming" and "Land Husbandry" are terms which some specialists now use in preference to "Soil and Water Conservation" (Moldenhauer and Hudson 1988; Shaxson et al 1989). The essence of these terms is an emphasis on biological methods of conservation. Better farming practices and maintenance of soil fertility lead in turn to improved conservation. No longer are engineering structures seen as the essential backbone of conservation programmes, but merely as "support practices". Where structures are required, for example on higher slopes, semipermeable vegetative barriers are given priority over solid earth bunds. These barriers filter out sediment while allowing excess runoff to pass through at non-erosive velocities. Establishing vegetative barriers almost always involves less labour than constructing earth bunds—though they often take two seasons or more to become really effective.

Soil conservation increases productivity

To farmers this approach makes sense. Soil conservation is linked to productivity. Increased yields are the tangible benefit, and soil is simultaneously conserved. Farmers are encouraged to im-

Good ground cover is the key to "conservation farming" – cotton in Southern Mali. Photo: Will Critchley.



prove their husbandry practices by, for example, cultivating along the contour, intercropping cereals with legumes, and by making more use of farm yard manure and compost. The result is twofold: a healthier crop which protects the soil from the erosive effect of rainsplash through its increased vegetative cover, and a more fertile, better structured soil which is less erodible.

Water harvesting

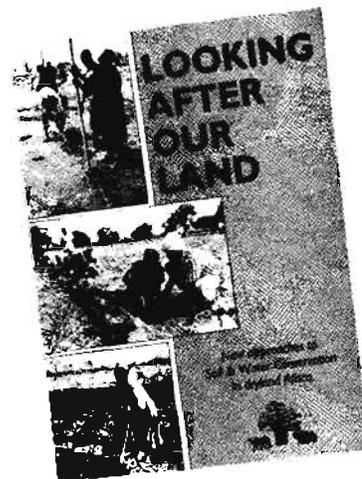
Water harvesting is a specialized form of soil and water conservation which has its place in the semi-arid zones. In the past these regions were largely overlooked by governments and development agencies, who viewed them as being unsuitable for cropping. But the inescapable fact is that millions of land users have little other choice than to cultivate such dry areas, and any system which can improve the reliability of cropping is welcome. WH is simply the collection of rainfall runoff from a "catchment area" and its concentration on a "cultivated area". Small rainfall events can be effectively magnified by trapping runoff and making it available to plants (Pacey and Cullis 1986; Reij et al 1989).

A rich diversity of WH systems can be found in semi-arid regions. Some are traditional – however there is little knowledge about these – the experts have usually turned a blind eye to what the local land users do themselves. Other systems have been implemented through projects. One basic difference between WH and soil and water conservation in more humid areas is that structures generally are required in WH systems because runoff has to be captured. Nevertheless, semipermeable stone bunds offer advantages over earth bunds because they do not require spillways and are less vulnerable to breaching.

From the project documents to the fields

The new approach to soil and water conservation implies changes in both techniques and managerial aspects of SWC projects. Greater sensitivity is required of project designers and soil conservation specialists alike. There are signs that projects are now being designed in a more enlightened way – project documents often stress "participation" and the need for a degree of flexibility in workplans. Soil conservation is less often quoted as an objective in itself. Conservation through productivity has become the target. It is now, rightly, an unwritten rule that gender aspects are given attention.

But the truth is that project documents do not always determine precisely what happens in the field. There is still a considerable gap between rhetoric and reality. The challenge now is for the new approach to soil and water conservation to be increasingly translated from the pages of the project documents to the fields of the farmers. ■



References and further reading

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