

NEW LINE ON SOIL EROSION

After the 'devastating' African drought of the early 1970s, thousands of food-for-work recipients were forced to build terraces and earth bunds. The reasoning was that if similar techniques had helped conserve water and soil in Saudi Arabia and Israel, they would also work in Africa.

They did not. Many of these structures were promptly destroyed, victims of the weather and poor maintenance. Now the centuries-old techniques of peasants are being tapped to find ways of stopping the devastating erosion of Africa's coarse soils.

A Mossi peasant farmer in Burkina Faso, Africa, lays out the stone rows, preparing his plot for cultivation. These rings help crops to grow as soil is built up since particles, seeds and dead leaves are washed down and collect behind the stones, raising the level by 15-20 centimetres a year.



Ring in the new: Burkina peasant farmer builds protective terrace

by tropical downpours. The UK charity Oxfam has developed a technique which not only conserves the soil and boosts crop yields but can also restore barren lands to production.

In Burkina Faso, Mossi peasants have a traditional technique to reduce soil erosion. They place rows of heavy stones across the slopes, which slow down the water runoff from the land during the rainy season, and reduce topsoil erosion.

Oxfam's project director Peter Wright discovered that if the rows are exactly level with the contour of the slope they act as miniature dams. Rainwater is held back for 5 - 10m uphill and has time to sink into the soil instead of flooding away uselessly.

It has now been found that soil conservation may be one of the cheapest ways of increasing food production in Africa, and of cushioning the farmer against dry spells, because of the key role of its climate. The biggest cause of erosion in Africa is rain. Tropical storms wash away topsoil and its nutrients. Because soil conservation works by slowing down the rate at which raindrops hit the soil and run off the surface, the amount of soil washed away is reduced and the water takes longer to filter into the ground. More rainfall is then made available for crop roots, or stored in the soil against the dry periods.

In the drier areas, windbreaks also save water by protecting crops against hot, dry winds.

Mulching - spreading crop remains like stalks or weeding trash on the soil - can reduce erosion by up to 97 percent, and increases yields by 25-60 percent.

A new technique with a big future in Africa is minimum tillage, or no-plough farming. Research at the International Institute for Tropical Agriculture in Nigeria has shown that ploughing can speed up erosion in most of the wetter parts of Africa.

With minimum tillage, the weeds and stubble of previous crops are killed with a herbicide spray. This creates a thick mat of vegetation and roots which holds the soil in place and conserves moisture. The seeds of the next crop are then planted directly into holes in the mat.

Minimum tillage reduces erosion by 99 percent. Crop yields are 100-200 per cent higher than on ploughed plots.