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COLLEGE ON SOIL PHYSICS
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"Soil Conservation Techniques"

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SOIL CONSERVATION TECHNIQUES

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SUMMARY

In the light of recent findings in both physical and social aspects of soil conservation in developing countries, a rapidly-growing body of acknowledged authorities are collaborating to revise strategies and techniques to combat soil erosion.

This movement has been brought about by the growing satisfaction with past efforts to halt the decline in productivity, increasing despite applied efforts in so-called "integrated watershed management" in many well-funded projects.

Thus, by and large, it is being recognized by the core group of enlightened soil conservationists (as well as farmers who have suspected that all was not well) that the techniques have mostly failed.

The failures seem to be a combination of oversights on the part of the planners; not only have some important sociological aspects been overlooked, but the whole socio-technological strategy seems to have had a negative slant, "Horrible things will happen if you don't follow our advice", when the positive approach should have been, "We can show you how to increase your farm offtakes, lessen your risks and improve your living conditions". It is not even necessary to mention at this stage, that soil will also be conserved by following the new advice.

The most serious technical oversights centre around the recent realization that productivity is falling because plant nutrients are the most mobile fractions in the soil, and their loss, along with organic matter, constitutes a much more serious threat to farm productivity, than the more spectacular loss of arable soil by wind or water erosion.

There are relationships between the minute and massive losses, but the techniques used to retain nutrients and productivity in the farm field, are often very different from those designed to retain soil.

For many arid climates, the soil fractions and organic matter which contribute most to retention of water in the soil profile, are often the first to disappear. (It has been shown that eroded material contains 2.5 times more nutrients than the material left behind in the fields.)

The cost of replacing the major nutrients with artificial substitutes, can be horrendous when projected to a whole country scale; in fact, much of this replacement is immediately lost again. In Zimbabwe, it was concluded that three times the amount of fertilizer applied by farmers, is lost annually by erosion.

This is a time for questioning of established procedures, devising of new strategies and techniques and above all, for concerted discussion at all levels on new approaches to conserving soil.

(A slide presentation in two parts, is intended to show old methods of soil conservation in various countries, as well as initiatives taken from traditional soil conservation techniques and also new techniques which show promise as a "basis" on which to build soil conservation packages.)