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Seminar on shifting cultivation and soil conservation

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Types of shifting cultivation:

There are only small areas of tropical rain forest in Kenya but in the coastal strip, the shifting cultivation of food crops is carried out among tree crops such as mango, cashew or coconut. The most important areas of shifting cultivation are however where grass or bush provide the fallow vegetation. The migration system is usually cyclic, with each family cultivating successive areas within the larger area of its 'claim'. Some random migration may be practised by landless people. Clearing is achieved in grass areas by the burn, hoe and plant method or in heavier bush by cut, burn and plant.

Areas of shifting cultivation:

Because of land adjudication, largely completed in the area of Kenya with sufficient rainfall for reliable crop production, traditional shifting cultivation is limited to areas of lower agricultural potential. 72% of the country receives less than 20 in (500 mm) of rain in four out of five years and is suitable only for extensive grazing. The shifting cultivation is therefore limited to a band, not more than 50 km wide, surrounding the high potential areas. In the northeastern part of the country, localised areas of higher rainfall are used for occasional crop production by people whose way of life is primarily pastoral.

Soils in the areas of shifting cultivation are formed either from metamorphic rocks of the basement complex which give rise to red sandy clay loam latosols or from more recent volcanic material giving more fertile red friable clays. These soils tend to be rich in potassium but low in available phosphorus. Interspersed among them are areas of grumosols (black cotton soils).

The areas under consideration can expect to receive a minimum of between 20 and 30 in (500 - 750 mm) of rain in four years out of five. This is however extremely erratic and falls in two distinct seasons of April/May and October/November. Typical mean maximum temperatures range between 27 and 29°C with minimum temperatures between 16 and 19°C. The dry period after the April/May rains tends to be cooler than after the November rains.

Crops:

Maize is the staple food crop and is usually given preference by the cultivator, even though the risk of failure due to drought is great. Sorghum is also grown but the millets are nowadays seldom seen. Pigeon peas are grown and the maize is often interplanted with Phaseolus beans at the higher altitudes or cowpeas at the lower. Cassava is grown as an insurance against drought. Although some castor is grown, there are no widely accepted cash crops. Surplus food crops appear on the local markets but in drought years famine relief is a recurrent necessity.

Soil erosion:

Because of the seasonal rainfall, land is normally bare at the onset of the rains and this constitutes a hazard on sloping land, even though the soils are naturally stable particularly those formed on volcanic material. Fortunately, however, much of the area is reasonably flat.

Economic conditions:

Owing to the generally non-woody nature of the fallow, clearing costs are not high and the task is usually undertaken by family labour. Surplus maize can be sold for about Sh 35/- (\$5) per 90 kg bag. Inputs are usually negligible, though improved seed of an early-maturing maize cultivar, well-suited for these areas can be purchased for about Sh 40/-

to a fertilizer but a dressing of NP to maintain fertility would cost about Sh 150/- (21\$) per hectare.

Research:

Research effort in Kenyan agriculture tends to be concentrated on the high potential areas and the rangelands. The improvement of the early-maturing maize Composites for the marginal areas continues and preliminary efforts to find a cash crop (most probably an oilseed) are being made.

An extensive survey of soil conservation needs was undertaken in the 1930's. As a result many mechanical works were carried out in the higher potential areas shortly before Independence. There is a considerable need for the development and practice of relatively inexpensive conservation measures for lower potential areas but as far as is known, no research is in progress.

Improvement:

The policy in Kenya since 1946 has been to supplant shifting cultivation with the ley-farming of individually owned holdings. While the success of this policy in the high potential areas is remarkable, it has perhaps served to attract attention from the climatically less favoured areas. One side effect of the land adjudication is to create a landless class. There is some evidence that a proportion of these are taking land outside the adjudicated areas and practicing a form of shifting cultivation.

Since rainfall is generally the limiting factor, the most promising possibility for improvement of productivity in the marginal areas is the adoption of sound water conservation and dry farming methods and the wider use of the available early-maturing maize cultivars. This means more effective extension in areas which have hitherto been relatively neglected.

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