Cleaning tropical rainforest
WWF. S. Zalveski

and more rapid runoff and more erosion. Ploughing along the contour obstructs the flow of water, which can then infiltrate more easily. Overgrazing removes vegetation, leaving the soil bare leading to increased erosion and runoff. Proper range-land management is needed to restrict stock numbers to the carrying capacity of the soil.

When runoff does form, it can be retarded by small ponds or farm dams. These are low earth banks bulldozed across gullies to catch the surface runoff. The water so trapped can be used on the farm for stock watering or for minor irrigation and the presence of the dam slows the runoff, reducing flood peaks, inhibiting erosion and enhancing infiltration.

Note that in all of these the soil and the water are considered together and both benefit from these measures. The promotion of a good deep soil profile, with a healthy cover of vegetation, whether trees, crops or grass, can only reduce flooding and increase flows in dry periods, thus making the water more readily available for human use.

Flood forecasting

Hydrological models, described in chapter 2, can be used to forecast future river flows, giving the population time to take precautions against floods. During a flood the information provided by the forecasts is used for planning the flood-fighting. The forecasts will indicate when and where dyke systems are likely to be overwhelmed, enabling resources to be concentrated in critical areas. The use of forecasts to plan the operation of flood control reservoirs was discussed in chapter 4.