

## IV. INTEGRATED WATERSHED MANAGEMENT

### A. Watershed management and natural disaster management

Most countries in the ESCAP region are rapidly coming to the recognition that land degradation is reaching serious proportions, causing damage to the national economy and lowering living standards. The consequences of inappropriate cultivation practices and other exploitative forms of land use are becoming manifest in the form of deep erosion gullies, bare and eroded grazing lands, over-clearing of vegetation, rising water tables, salinized soils and the movement and accumulation of sediment and erosion debris in streams and river channels.

The effects of land degradation are cumulative and far-reaching. Not only do they affect rural communities, but they also affect urban populations. Reduced agricultural productivity is often accompanied by an increase in the impact of water-related natural disasters which devastate rural and urban and communities alike.

Land degradation control is essential if future rural production is to be maintained and improved. Land restoration measures, involving soil erosion control, enhanced vegetative cover and water run-off management will help to preserve the remaining soil and vegetation resources and assist in mitigating the severity of natural disasters. However, much of the land degradation is already irreparable and no amount of effort can overcome the existing damage. Any productive soil which is already lost through erosion has already permanently left the system.

If land degradation is to be checked, there is a need for careful planning in the approach to the development and use of the land. In many countries, the need for planning is urgent because the effects of inappropriate practices of land utilization and its over-exploitation are already irreversible or rapidly approaching that state. Many practices used in the past have contributed to the present degraded state of the environment and should be discontinued if the land is to contribute to the continued prosperity of the individual countries. Any delay in implementing a comprehensive and coordinated system of land management will further exacerbate the situation.

Land management strategies should aim to achieve sustainability of natural resources – land, water, vegetation and fauna – by balancing development and the use of these resources with conservation. To be effective however, land-use management should not be restricted to isolated areas but should be applied to total watersheds. This approach is called “integrated watershed management” and is based on the concept that the components of natural resource systems, such as watersheds, are inter-connected so that changes to one part of the system will influence other parts.

Integrated watershed management should be based on a plan which sets the direction and provides a framework for the planning and development of individual catchments. These plans should ensure that there is a structural approach to the management and exploitation of natural resources, such as land, water and forests, and that these resources are managed in a sustainable fashion. They should address the issues and consider the activities which culminate in land degradation. Strategies which overcome land degradation and which mitigate the effects of natural disasters should also form an integral part of the management package.

Those strategies which are essential to the achievement of the objectives of integrated watershed management, as illustrated in figure 2, comprise:

- (a) Coordination of policies, programmes and activities as they relate to integrated watershed management;
- (b) Promotion of community participation in integrated watershed management,

**FIGURE 2. STRATEGIES TOWARDS INTEGRATED WATERSHED MANAGEMENT OBJECTIVES**



- (c) Identification and rehabilitation of natural resource degradation,
- (d) Promotion of the sustainable use of natural resources;
- (e) Provision of stable and productive soils, high quality water, and protective vegetative cover within individual watersheds.

These broad-based strategies recognize that problems with water, soil, vegetation and natural resources in urban and rural areas do not happen in isolation but are often inter-related. For example, many activities in a watershed may have only limited impact when carried out in isolation but their combined impact may be significant and require the adoption of strategies which

- prevent further land degradation
- restore degraded natural resources
- ensure that natural resources are used within their capability
- minimize the impacts arising from the use of natural resources