



Chapter 9 - Institutions and programmes to combat degradation

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Whilst problems of the environment do not recognize international frontiers, efforts to combat land degradation must be based largely upon national institutions. This applies not only to work undertaken at the national lever, for example soil conservation programmes, but to regional and international efforts, which must be largely applied through national institutions.

A short review can consist only of brief indications of the major institutions, their mandate and work. In many cases where the functions are implicit, the name only is given. Institutions are divided broadly into research and implementation. Research institutions are those of which the primary function is the acquisition of knowledge, implementation institutions those charged with putting into practice measures to combat degradation.

Most national institutions are known in their respective countries by acronyms, but these are given here only for international organizations.

The constraint of time has meant that these summaries have not been reviewed by governments of the countries concerned. Whilst every effort has been made, they doubtless contain omissions. They should therefore be treated as indicative, not comprehensive.

National institutions

Afghanistan

For 14 years, Afghanistan has been torn by war and political instability. Besides destruction of resources, this has made the task of institutions extremely difficult. Whilst some efforts are being made in the present difficult circumstances, most land rehabilitation must await restoration of stable political conditions.

The present limited institutional structure includes:

Ministry of Planning

Ministry of Agriculture and Land Reform

International institutions which provide constrained but active support include ADB, ESCAP, FAO, IMF

and the World Bank. A report was made to the UNCED conference (Afghanistan, Ministry of Planning, 1992).

Bangladesh

Five ministries are concerned, directly or indirectly, with affairs of land, the Ministries of Agriculture, Environment and Forests, Rural Development and Cooperatives, Planning, and Food.

The Bangladesh Agricultural Research Council coordinates work of the Bangladesh Agricultural Institute, four crop-based institutes (for rice, jute, sugar cane and tee) and an institute for nuclear research.

The Soil Resource Development Institute is a separate institute concerned with inventory and evaluation of soil resources; it also transfers knowledge for extension purposes. With international cooperation, the Institute has acquired a considerable amount of detailed information, and is the main repository of knowledge on land resources of the country.

The Bangladesh Water Development Board manages flood protection, drainage and irrigation projects, and is concerned with land and water use. The Land Reclamation Directorate functions under this Board. The Bangladesh Institute of Development Studies conducts research in economics, demography and social sciences, including in relation to agriculture and land. The Hill Tract Development Board is concerned with most aspects of development specific to the hill areas. Other relevant research institutes include the Bangladesh Forest Research Institute, the Bangladesh Livestock Research Institute, and agricultural universities.

Extension and implementation are conducted by the Department of Agricultural Extension, the Forest Department, the Department of Environment, the Bangladesh Rural Development Board, the Bangladesh Water Development Board, the Land and Water Use Directorate, and the Department of Irrigation Water Development and Flood Control.

The Department of Environment was strengthened in 1985, and is responsible for environmental impact assessments.

During this short review, the impression was gained that there is some overlap of responsibilities within the area of land resources.

Bhutan

Because of its small population, the institutional structure of Bhutan is simple. The National Planning Agency formulates policy guidelines. The Department of Agriculture includes a Research and Extension Division, within which there is a Soil Fertility Unit.

India

Because of its population and size, federal structure, and for historical reasons, there are a large number of institutions active in the area of land resources in India, and the following account is selective.

At national level the relevant ministries are the Ministries of Agriculture, Rural Development, and Environment and Forests, and Water Resources, together with the Planning Commission, a body of cabinet level.

The Indian Council of Agricultural Research is the apex body for research and education in all aspects of the agricultural sciences. It has 43 institutes, 4 national bureaux, 21 national research centers, 9 project directorates, and currently operates over 70 All India Coordinated Research Projects. The Indian Council of Forestry Research and Education performs corresponding functions in the field of forestry.

Research institutes of particular relevance to land resources, conservation and degradation include, at the

national lever:

Indian Agricultural Research

Institute National Bureau of Soil Survey and Land Use Planning

Central Soil and Water Conservation Research and Training Institute

Central Soil Salinity Research Institute

Central Research Institute for Dryland Agriculture

Central Arid Zone Research Institute

ICAR Research Complex for the North-Eastern Hills Region

Indian Institute of Soil Science Indian Grassland and Fodder Research Institute

Directorate of Water Management

National Research Centre for Agroforestry

The National Bureau of Soil Survey and Land Use Planning is the primary institute for basic knowledge of land resources and their management at the national lever. Applied knowledge is found within the respective institutes listed above, for example, soil salinization within the Central Soil Salinity Research Institute.

At the state lever, some stases have Water and Land Management Institutes, Forest Research Institutes, Irrigation Research Institutes, and Agricultural Universities.

Some of the All India Coordinated Research Projects having particular relevance to land degradation are:

Management of salt affected soils and use of saline water in agriculture

Micro and secondary nutrients and pollutants in soils and plants

Microbial decomposition and recycling of organic wastes

Soil physical conditions to increase agricultural production in problem areas

Soil test crop response correlation Agroforestry Forage crops Agricultural drainage

In development, the National Wastelands Development Board has the aim of bringing wastelands (in large part, degraded lands) into productive use, through afforestation and other measures. A National Land Use and Conservation Board formulates policy papers for the apex body, the National Land Use and Wasteland Development Council.

The Soil and Water Conservation Division in the Ministry of Agriculture plays a key role in the implementation of integrated watershed management programmes. These are planned to cover 86 M/ha, of which 26 M ha of highly critical areas have been taken up on a priority basis. These priority watersheds were identified by the All India Soil and Land Use Survey.

The first fine in agricultural extension is implementation through 109 Krishi Vigyan Kendras ('Agricultural Knowledge Centres'), supported by National Demonstration Projects and Operational Research Projects. The Central Water Commission, under the Ministry of Water Resources, is concerned with the development and utilization of water resources. Implementation is further carried out through State Departments of Agriculture, Soil Conservation, Forestry, and Animal Husbandry.

Among numerous non-governmental organizations, of particular relevance to land degradation is the Society for Promotion of Wastelands Development.

Whilst this may appear to be a complex institutional structure, it must be remembered that it serves over one fifth of the world's agricultural population. In many cases, responsibilities are relatively well defined, although cases of overlap will be apparent.

Iran

The principal institution concerned with land degradation is the Bureau of Sand Dune Fixation and Combating Desertification, a unit of the Forestry and Range Organization within the Ministry of

Jihad-e-Sazandegi. Other relevant bodies include the Department of the Environment, the Research Institute of Forest and Rangeland, and a Working Group on Agricultural Meteorology within the Meteorological Organization.

Nepal

At the lever of strategic planning, an Environment Protection Council has been established to coordinate efforts. Relevant ministries are the Ministry of Forest and Soil Conservation, the Ministry of Agriculture, and the Ministry of Water Supply.

Research is coordinated by the Nepal Agricultural Research Council. Relevant bodies and activities include the Central Soil Science Division, the Integrated Soil Survey Project, the National Pasture and Fodder Research Division, and the Soil and Plant Nutrition Improvement Project.

In development, the nodal institution is the Department of Soil Conservation and Watershed Management, under the Ministry of Forests and Soil Conservation. Other relevant bodies include the Department of Agriculture, Department of Irrigation, Department of Forests, and the Soil Fertility Advisory Unit.

Pakistan

Strategic planning is undertaken by the National Conservation Strategy Unit of the Environment and Urban Affairs Division (an independent Ministry, currently with one division). This unit works in collaboration with the World Conservation Union.

Research is coordinated by the Pakistan Agriculture Research Council. Key institutes involved in land degradation and conservation research include:

Land Resources Section of the National Agricultural Research Centre Soil Survey of Pakistan
Soil and Water Conservation Research Institution, Punjab National Fertilizer Development Centre
Arid Zone Research Institute
International Waterlogging and Salinity Research Institute, part of the Water and Power Development Authority
Soil Salinity Research Institute, Punjab
Drainage and Reclamation Institute of Pakistan Pakistan Forest Institute
Irrigation Research Institute
Range Research Stations (provincial)

Within the irrigated lands, planning and development are controlled by the Water and Power Development Authority. Of major importance are the Salinity Control and Reclamation Projects. Other implementation is carried out at provincial lever, by provincial Directorates and Departments of Soil Conservation, Forestry, and Irrigation. Forestry is coordinated at the national lever by the Inspector General of Forests.

Sri Lanka

Ministerial responsibility is divided between the Ministry of Environment and Parliamentary Affairs, which has a coordinating role; the Ministry of Lands, Irrigation and Mahaweli Development; and the Ministry of Agricultural Development and Research. The Government obtains information and cooperation on environmental planning from the Geography Department, University of Peredeniya.

The key research institution is the Land and Water Management Centre of the Central Agricultural Research Institute. Other research is conducted by commodity institutes, for example the Tea Research Institute is active in soil conservation and agroforestry research.

Development institutes include the Land Use Policy and Planning Division and the Upper Mahaweli Environment and Forest Conservation Division of the Mahaweli Authority. Environmental impact assessments are the responsibility of the Central Environmental Authority. Agricultural extension has

recently been decentralized.

This is by no means a full list. It is recognized within Sri Lanka that the institutional structure within the area of land resources is complex, and with some overlapping responsibilities. The position has been contrasted with that in coastal conservation where one body, the Coast Conservation Department, has responsibility, legal powers, and is able to take effective action.

National institutions: discussion

The institutional structures of the various countries have developed differently with time, for a variety of reasons. It is difficult to comment on them as a whole, but some generalizations may be made.

There is a tendency towards unduly complex structures, with overlapping responsibilities. Problems arise in linking activities of the 'fine divisions', Departments of Agriculture, Forestry, and Livestock Production, with the various bodies concerned with environment, conservation, and land use planning.

Research and, especially, planning are often more advanced and active than actual implementation in the field. It is so much easier to make a watershed management plan, for example, than to implement it. There would be benefits if those engaged in research in land degradation and conservation were on occasion to take some active part in implementation; and conversely, for feedback from field extension staff to be more fully incorporated into planning.

The area of environmental considerations is now so wide that at the lever of central environmental authorities, it would be useful to recognize divisions, or areas of responsibility, within it. Land resources is one such major area. Other divisions might cover, for example, environmental pollution, the marine environment, and the urban environment. Land resources covers the sustainable use of the resources of climate, water, soils, landform and vegetation, combining productive use in agriculture, including livestock production, and forestry, with conservation.

Countries should seek to clarify institutional responsibilities in the area of land resources.

Environmental legislation

It is recognized that environmental legislation has an important role to play in combatting land degradation. It has not been possible in this study to cover the state of legislation in different countries. A review is given in ESCAP (1990a, pp.185-200). This includes a summary table, "Statue of land use and resource conservation legislation" in which the countries of the present study are classified as follows:

Extensive coverage: None

Moderate coverage: Bangladesh, India, Sri Lanka

Minimal coverage: Nepal, Pakistan

Not included in the assessment: Afghanistan, Bhutan, Iran.

Two features are widely found in environmental legislation. First, the provisions of environmental laws (e.g. of soil conservation, forestry) often require revision to take account of changing circumstances. Secondly, difficulties are invariably experienced in enforcement of the legal requirements.

International institutions in the region

Most of the major international institutions are active within the region, notably FAO, ESCAP, UNEP, UNDP, the World Bank, the International Monetary Fund, and the Asian Development Bank.

Many of the research institutions with headquarters in other parts of the world have stations, networks or cooperative programmes there. Note may be taken of those major international institutions which have headquarters in the region and which therefore, although their primary responsibilities are international, make particular contributions regionally, including through country collaborative programmes. These are:

International Centre for Research in the Semi-Arid Tropics (Hyderabad, India) International Irrigation Management Institute (Kandy, Sri Lanka) International Centre for Integrated Mountain Development (Kathmandu, Nepal)

The World Conservation Union collaborates in the planning of environmental conservation in several countries of the region.

Regional collaborative programmes

Two regional collaborative programmes, both ongoing, have made considerable contributions to the coordination of knowledge on land resources, degradation and conservation, and to providing policy guidelines of action.

Asian Network on Problem Soils This is organized by FAO through its Regional Office for Asia and the Pacific (RAPA), located in Bangkok. Formed in 1989, this covers the FAO Asia and Pacific region, which includes six of the eight countries of the South Asian region covered in this report (excluding Afghanistan and Iran).

The network holds meetings every two years. Reports have been produced on the 1989 meeting, Problem soils of Asia and the Pacific (FAO/RAPA, 1990), and the 1991 meeting, Environmental issues in land and water development (FAO/RAPA, 1992). A third meeting will take place in 1993 on Collection and analysis of land degradation data, as recommended by the 21st FAO Regional Conference for Asia and the Pacific.

Desertification Control in Asia and the Pacific (DESCONAP) This is organized by the Economic and Social Council for Asia and the Pacific (ESCAP). It includes all countries of the present South Asia region. Outputs from its meetings include Problems and prospects of desertification control in the ESCAP region (ESCAP, 1983) and Desertification through wind erosion and its control in Asia and the Pacific (ESCAP, 1991b).

ESCAP issues a newsletter, ESCAP Environment News.

Fertilizer and Development Network for Asia and the Pacific (FADINAP) This network is concerned with fertilizer production, trace and use. Of special relevance to land degradation is its 1992 meeting, Fertilization and the Environment (Pradhan, 1992; Tandon, 1992).

Forestry Research Support Programme for Asia and the Pacific (FORSPA) This is organized by FAO through its RAPA office. Its work is summarized in Forestry Research in the Asia-Pacific (FAO/FORSPA, 1992). Aspects of its work of particular relevance to land degradation are tropical deforestation, forestry's role in sustaining agricultural productivity, management of fragile tropical soils, fuelwood, and forestry and

the environment. A newsletter is issued, Info FOPSPA.

Asian Bio and Organic Fertilizer Network Organized by FAO through RAPA, this led to the production of Organic recycling in Asia and the Pacific (FAO/RAPA, 1991).

These networks continue to play an important role in exchange of scientific knowledge and formulation of policy and programmes.