

ECONOMIC AND SOCIAL COMMISSION FOR ASIA AND THE PACIFIC

**GUIDELINES AND MANUAL
ON LAND-USE PLANNING AND PRACTICES
IN WATERSHED MANAGEMENT
AND DISASTER REDUCTION**



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Cover photograph: Woocheon Small Watershed Development Project, Haeng Sung County, Gongwon Province, Republic of Korea (courtesy of Farmland Rearrangement Division, Ministry of Agriculture and Forestry, Republic of Korea)

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PREFACE

Resolution 50/117 on the International Decade for Natural Disaster Reduction, adopted by the General Assembly on 20 December 1995, called upon Member States, relevant intergovernmental bodies and all other organizations involved in the Decade to participate actively in the financial and technical support of Decade activities, in order to facilitate the full integration of disaster reduction into the substantive efforts for sustainable development and environmental protection by the year 2000. The need to mitigate the effects of frequent natural disasters has become more and more acute in the ESCAP region, which in many parts has experienced, during the past two decades, rapid economic growth rates, together with rapidly growing populations. The need for integration of water-related disaster reduction measures into national water resources development and management programmes has therefore become more urgent.

Since the Earth Summit in 1992 that established Agenda 21, a great deal of progress has been made by many countries in the region in relation to water resources development and management and the integration of these activities into the national social and economic development process. In terms of development planning, the incorporation of land-use planning at the national, regional and local levels has added a new dimension to the planning process for the integrated development of water resources. Similarly, with respect to natural resources management, the adoption of river basins, instead of administrative divisions, as the units for water resources or watershed management, has introduced a new challenge in governance. In order to deal effectively with the new dimension in development planning and to meet successfully the new challenges in natural resources management, the promotion of improvement in land-use planning and practices for better watershed management and disaster reduction, on the one hand, and sharing of experiences among the countries in the region, on the other, is essential. The project on Land-use Planning and Practices in Watershed Management and Disaster Reduction was conceived and formulated in that context at the request of the Committee on Environment and Sustainable Development at its Second Session held in Bangkok in October 1994. With the financial support of the Government of the Netherlands, the project was implemented by ESCAP in 1996/1997 and this publication is one of the main outputs of the project.

In the implementation of the project, the great diversity of Asia and the Pacific has been reflected in new perspectives on land-use planning to a considerable extent. For this purpose, experiences in land-use planning and practices were drawn from the development processes in the region. The compilation of experiences in the region started with a detailed technical overview prepared by the ESCAP secretariat and the preparation of case studies based on experiences gained in the Republic of Korea by Mr Huh Yoo-Man, in Indonesia by Mr Mochammad Amron and in Malaysia by Mr Liew Chin Loong. Subsequently, a draft Guidelines and Manual on Land-use Planning and Practices was drawn up, based also on experiences in Australia, by Mr George Whitehouse, the international consultant, in association with Professor John Burton, for discussion at the workshop in Bangkok in March 1997 comprising experts nominated by the participating countries and collaborating international agencies. At the workshop, expert representatives presented the experiences of their respective countries, reviewed and finalized the draft Guidelines and Manual and recommended it for application in the participating countries.

It is hoped that the publication will contribute to strengthening the related mechanisms and networks to provide sustained support for the application of land-use planning and practices to the development process in the region. Such support is needed at the local, national and regional levels and it is expected that this project has played its part in linking the catalytic role of ESCAP to the existing mechanisms and networks at these three levels.

The contributions of all the expert representatives at the workshop to finalize the Guidelines and Manual, especially those included as the regional experiences, are deeply appreciated. Special acknowledgment is also made of the instrumental role played by Mr George Whitehouse as the project international consultant, and his associate Professor John Burton, for the timely completion of the Guidelines and Manual.

INTRODUCTION

Integrated watershed management has come to be recognized internationally as an important holistic approach to natural resources management, which seeks to promote the concept of sustainable development. Such an integrated approach has been recommended in Agenda 21 for all sectors dealing with the development and management of water resources. The present publication was initiated as part of the ongoing effort of the Water Resources Section of ESCAP towards the sustainable, integrated development of the water resource systems of the region. Such effort requires a systematic and strategic integration of water resources development and management activities into the social and economic development process. In that context, sustainable land use forms an overall planning framework, whilst sound land-use planning concepts, together with the adoption of appropriate land-use practices, provide key guidelines for land and water resources development and management, which should be undertaken with the integrated objectives of reducing natural disasters, boosting productivity and achieving sustainable development.

Sound land-use planning methods and practices can be developed from an end-use standpoint, such as social and economic development of national or regional planning, or from a sectoral point of view, i.e. in the context of development planning for various sectors such as agriculture, forestry, mining and water resources. There are strong linkages in planning between the two viewpoints; national and sectoral, between the two levels; national and regional, and among the various sectors. Integrated land-use planning aims to address these linkages. In this publication, an attempt is made to systematize important elements of these linkages, and especially the links between national and sectoral planning, to form a basis for better planning in the fields of land use and water resources development. The important elements of these linkages include the management system, financial resources, institutional and legal frameworks and community participation. The publication also identifies key areas which help to focus the land-use planning process towards the effective reduction of water-related natural disasters and also towards improved watershed management. Although it deals, to a certain degree, with land-use planning at the national development level, no attempt is made in the publication to consider regional development planning methodology as a guide for national socio-economic development. This step, however, is believed to be necessary to ensure that all land-use planning undertaken for watershed management and disaster reduction fully incorporates the main thrusts of national socio-economic development, as derived from regional development methodologies. The case studies of individual countries included in the publication are intended to provide useful examples of such a planning process.

The publication also attempts to make an overall, state-of-the-art review of appropriate land-use practices, in order to provide key information about watershed management and hazard assessment techniques as a basis for establishing future land-use options. In addition, the publication includes some details and references regarding advanced planning techniques.

The publication consists of six chapters, arranged in two parts. Part I contains the Guidelines, and Part II the Manual. The Guidelines comprise Chapter I, which discusses the relationships between land-use planning, disaster reduction and watershed management; Chapter II, which explains the categories of watershed degradation; Chapter III, which explains the categories of water-related natural disasters; and Chapter IV, which discusses the principles of integrated watershed management. The Manual comprises Chapter V, which is concerned with data collection and evaluation for watershed management and natural hazard assessment, and Chapter VI, which describes a variety of options for watershed management and hazard reduction.

This publication was prepared primarily to assist decision makers, planners and practising engineers to manage land and water resources in an integrated manner, in order to achieve better and sustainable watershed management, to coordinate land and water resources development activities with the development activities of other sectors, and to adopt an ecosystem-oriented foundation for the prioritization of water-related development activities. The publication is also intended to serve as a reference for planners and practising professionals working in other sectors when dealing with watershed-related development projects.