Preface

This report on Land Transformation in Agriculture is the result of a long effort launched by SCOPE in 1978. At that time, a group of specialists, including Rorke B. Bryan (Canada), F. Fournier (France), S. Hénin (France), V. A. Kovda (USSR), B. Novak (Czechoslovakia), J. Rusek (Czechoslovakia) and M. G. Wolman (USA), defined a basis for a project on land transformation. During a first phase of activity, case studies on the problem prepared by SCOPE National Committees or other groups of scientists were collected. We wish here to acknowledge and to thank all the specialists who prepared the papers and documents presented below by country.

Australia
Effect of wheat cultivation and husbandry practice on soils of the north-west wheat belt
Effect of rice cultivation on grey and brown gilgai of the Murrumbidgee irrigation area

Bulgaria
Influence of reforestation on the ecology of landscape

Czechoslovakia
Effects of changes in soil (land) use as agricultural enterprises pass from 500 to 5000 hectares with intensification of raising of domestic animals
Changes resulting from transformation of small villages to agro-industrial cities
Influence of protected zones (parks and others) of flora and fauna on the environment
Rehabilitation of lands deteriorated by open mining in the lignite basin, North Bohemia

Egypt
Land transformation in the western Mediterranean coastal region
Land transformation in the agro-ecosystems of the Nile Valley and delta after construction of the High Dam
England
Extensive bibliography of land use studies

Federal Republic of Germany
Landscape modelling: Ingolstadt

France
Hedges and rural management: effects of hedge removal in Brittany
Effects of spreading pig manure in Brittany
Range and uncultivated areas in mid-altitude mountains: evaluation of land values and changing processes
Effects on evolution of soils of the introduction of conifers
Effects of turnover of straw mulch and grass on loamy soil under long term experimentation
Nitrogen and phosphorus balance in granitic terrain
Drainage of fertilizers from sandy soils and their contribution to pollution
Changes in adventitious vegetation with and without irrigation in different rotations
Effects of cultural techniques in long-established agricultural systems: effect of tillage on soil characteristics under different rotations
Information required on tillage effects to evaluate impacts of rotation
Effects on agricultural lands of electric transmission lines
Effects of underground pipelines on agricultural lands
Impacts of hydroelectric projects on fluvial dynamics, and relation to land management
Impact of tourism and skiing on mountain slopes
Data on the effects of transformation of forest and of prairies in the tropics
Effects of irrigation in Alsace
Effects of pumping underground water on land stability
Effects of pumping in watertables connected to rivers

Ghana
Effective measures for the use and control of land in residential areas

Hungary
The effect of irrigation on the soils of the Hungarian plain
Principles for the development of an environmental monitoring system in the Lake Balaton region
Nutrient adsorption of fertilized soils under field conditions
Mine reclamation with cultivated crops on open pit mines
Preface

India
The environment and Cenchrus grazing lands in western India

Indonesia
Seraya Valley Project, Central Java Indonesia (1973–80)
Social and economic aspects of tidal swamp land development in Indonesia
Fifty years of spontaneous and government sponsored immigration in the swamp lands of Kalimantan: past results and future prospects

Israel
Land transformation in the mediterranean north of Israel
A model of land transformation in the Negev during historical times

Côte d’Ivoire
Criteria on the effect of land use in agriculture on landscape

Japan
Nationwide comparative study on large-scale land transformation and related environmental problems in Japan

Netherlands
Effects of intensification of agriculture on nature and landscape
Side-effects of enclosure dams in coastal and delta waters
Urban and traffic effects of development in polder areas
Biological effects of infiltrating river water in coastal sand dune areas for drinking water reserves

New Zealand
Land alone endures: land use and the role of research

Spain
Assessment of land damage and environmental degradation in areas surrounding Madrid
Land evolution (degradation of vegetation) as consequence of soil uses in mountain areas of Andalusia
Influence of persistent and melting snow on high mountain rivers and their effects on erosion

South Africa
Land transformation in South African savanna
Land transformation of the Karoo biome

United States of America
of the Workshop on Soil Transformation and Productivity, 16-17 October, and associated papers, Washington


Hawaii: soil erosion by water in the tropics

Changing soil characteristics and productivity of some Kansas wheat growing areas

Sequential changes of land use, soils, and productivity in the southeastern USA

Seepage and salinization associated with changing cropping patterns in the northern Great Plains region, Montana

Evidence of changes in yield and soils from continuous experiments on Morrill plots in Illinois

During the Vth General Assembly of SCOPE, in Ottawa (1982), it was recommended, as a second phase of the project, to concentrate attention on the question of Land Transformation in Agriculture mainly at a global level. A new Scientific Advisory Committee was nominated, composed of the following:

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This report is the final result of the second phase of activity. In its preparation the case studies collected were fully taken into consideration, and some of them are presented here. They form an integral part of the Report strengthening by example observations set forth in the Main Report. Some authors call attention to the fact that the long gestation period of the manuscript may have made obsolete occasional specific observations. The thrust of transformation, however, is clearly evident.