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88 - 5/11

Agroecology

Discussion, rural development projects, GTZ, environmental impacts, data-processing systems, resources, proposals, ecology, land-use systems, matrix approach
PFUHL, A.

A matrix approach for the identification and documentation of environmental impacts, supported by data-processing systems, applied to rural development projects.

Quart. J. Int. Agri., 25, 1986, pp. 131-145

Increasing attention is currently being paid to the environmental impact of development projects. Both under traditional and modern land-use systems, the "carrying capacity" of many natural and economic regions has already been surpassed. Given the increase in population within the next decades, pressure on available resources will become even stronger if current procedures are maintained. For organizations involved in bilateral or multilateral cooperation, this is a challenge which must be faced.

Especially in agriculture and forestry, the "environmental element" must be seen as a goal in itself, or an environmental situation must be given as a condition in achieving other goals. Available information must be documented and prepared for planning purposes. Accessibility must be improved. These considerations led to the request of GTZ to develop a practice-oriented matrix approach for planning and evaluation. This computer-supported approach offers possibilities for documenting and updating experiences which can be easily recalled and compiled for specific projects. Matrices and information are electronically stored and are being used primarily as communication frameworks, checklists and working hypotheses for projects in different stages of planning and evaluation. The approach and the computer program still offer possibilities for expansion.

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88 - 5/12

Agroecology

Review, book, tropics, developing countries, ecology, role of agriculture, agricultural development
YOUDEOWEI, A. et al.

Introduction to tropical agriculture.

Longman Group Ltd., Burnt Mill, Harlow, Essex CM20 2JE, UK, 1986, 344 pp., ISBN 0582643902, DM 33.00

This book attempts to present, in one volume, all the aspects of agricultural science required to provide a general and balanced introduction to the subject. It begins with an introduction by drawing attention to the significance of agriculture in the lives and economies of tropical countries. The meaning of agriculture and various agricultural systems together with an identification

of the various branches and careers in agricultural science is then described.

Climate as an essential environmental factor is treated in Chapter 4. Soils, crops and animals are treated separately but the inter-relationships between them are fully stressed. Forestry, fisheries and wildlife management are treated in separate chapters in order to give a complete account of agricultural science. Sound agricultural practice must take full account of these resource and of how they can be managed to provide all human needs.

The economics of agriculture, farm management, extension education and rural sociology are also treated in this book. Horticulture appears as a separate chapter to emphasize its importance as a special branch of agriculture.

The coverage of the book is wide. In some cases, it was therefore not possible to go into much detail. Sixteen chapters written by twenty of Nigeria's top agriculturists give a comprehensive coverage of all aspects of agricultural science and management.

This book is designed to meet the needs of students in colleges, schools and the first year at universities. Students are encouraged to read this book as a basic textbook to introduce themselves to tropical agriculture.

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88 - 5/13

Agroecology

Review, world, directory, organizations, agriculture, horticulture, sustainability

SANZONE, S.J.

Healthy harvest II: a directory of sustainable agriculture and horticulture organizations 1987-88.

Potomac Valley Press, Suite 105, 1424 16th St. N.W., Washington, D.C. 20036, 1987, ISBN 0-938443-01-1, US\$ 10.95

This book is the most comprehensive, up-to-date resource of its kind available. It provides information on over 600 organizations, including agricultural and horticultural training institutions, research institutions, development programs, political organizations, appropriate technology institutes and sustainable agriculture design groups. Healthy Harvest is an important network of organizations in the United States and around the world. The book is a tool for anyone interested in the fields of sustainable agriculture and horticulture.

Organizations are listed in alphabetical order and grouped according to subject. An organization appears under more than one subject if its interests or activities are diverse. The subjects are listed in alphabetical order and organizations that are in any way involved in such activities are listed. All organizations listed have complete descriptions and are also listed alphabetically in the Organization Listing. The Geographical Index is a concise breakdown of organizations by state and country.

The last page of the book is a description form similar to the one used to collect information for the directory. The plan is to keep

expanding the directory by including more organizations and more descriptions. In two more years, a third directory is planned.

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88 - 5/14

Agroecology

Review, manual, humid, tropics, land use, soil conservation, water conservation, soil fertility, shifting cultivation, agroforestry, climate

WIJEWARDENE, R. and WAIDYANATHA, P.

Conservation farming for small farmers in the humid tropics. GTZ, Postfach 5180, 6236 Eschborn 1, FRG, 1984, 39 pp.

Conservation farming is described as a low-input, productive and self-sustaining system for use in tropical farming at subsistence levels, designed to conserve soil natural resources (surface, sub-soil fertility, water from rainfall) and promote the natural recycling of forest vegetation. The book contains 10 chapters: Foreword; The background - traditional farming (shifting cultivation); Constraints to tropical (upland) farming; 'Zero' and 'minimum' tillage - descriptions of the systems, and of the techniques and tools for no-till farming; Fertility regeneration systems - the use of mulches (especially live legume covers), and the agroforestry technique of avenue (alley) cropping; Pest and disease management under conservation farming; Fuelwood trees - avenue cropping and high density forestry (HDF); Fodder trees; Future directions; and References.

The conservation farming manual was published jointly by the Commonwealth Consultative Group on Agriculture for the Asia-Pacific Region, with financial assistance from the German Agency for Technical Cooperation (GTZ) and the Commonwealth Fund for Technical Cooperation (CFTC).

This well-illustrated manual is recommended for both farmers and technicians.

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88 - 5/15

Agroecology

Latin America, Amazon basin, floodplains, ecology, use, potentials, wetland ecosystems, utilization

JUNK, W.J.

Amazonian floodplains: their ecology, present and potential use. Rev. Hydrobiol. trop., 15, 1982, pp. 285-301

Wetland ecosystems of the Amazon Basin belong mostly to the floodplain-type. An analysis of the ecological parameters acting in floodplains shows that they differ in many ways from other wetland types. The large annual water level fluctuations cause a periodic shift between aquatic and terrestrial phases, which influence the abiotic and biotic events in a decisive manner. Many morphological, physiological and ethological adaptations to these special conditions are exhibited by the local organisms.

The nutrient cycle is strongly influenced by the river. However, internal cycles and a large transfer of nutrients between the aquatic and terrestrial phases, due principally to aquatic and terrestrial herbaceous plants, require special attention. Floodplains may therefore be designated as intermediate systems between rivers (open systems) and lakes (closed systems). Land and water phases have to be considered as a single unit in describing the nutrient cycles. The overwhelming effect of the water level fluctuation prevents maturation of the ecosystem, maintaining it permanently at an immature stage. Depending on the concentrations of mineral nutrients of the connected rivers, the floodplains show high natural production and decomposition rates, and great energy and nutrient exchange with the river. In Amazonia, the nutrient-rich floodplains of white-water rivers (varzea), have a particularly great potential for agriculture and animal husbandry, if methods adapted to the occurrence of flooding are used. Any large-scale flood protection efforts will modify the system, reducing its high natural productivity. Increasing utilization of the varzea by agriculture is expected to have an effect on the fish-stocks. In view of the great importance of inland fisheries as a protein source, intensive cooperation is needed between agronomists and fishery biologists in the planning and realization of floodplain projects, in addition to detailed studies of the effects of agriculture and animal husbandry on the fish-stocks, to avoid deleterious side-effects on the fisheries. Fisheries presently yield about 150 000 t of fish/year in the Brazilian part of the Amazon Basin. This amount may be doubled if the highly selective fisheries are changed to better utilize underexploited small species. In the light of the rapid growth of the human population, aquaculture must be developed to guarantee a long-term supply of fish. Because of a lack of methods adapted to the high water level fluctuations, fish farming seems to be difficult in the floodplains. Swampy areas beside small creeks offer better conditions, and permit protein production in areas which can be used neither for agriculture nor for animal husbandry.

Author's summary

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88 - 5/16

Agroecology

Land use, ecology, sustainability, environmental protection, alley cropping, farmers' participation, labour requirement, productivity, technical cooperation, marketing policy, economic feasibility

ADELHELM, R. and KOTSCHI, J.

Environmental protection and sustainable land use: implications for technical cooperation in the rural tropics. Quart. J. of Int. Agric. 25, 1986, pp. 100-111

Within this global process of environmental degradation, Third World countries are more seriously affected than others because: - tropical and subtropical sites have little ecological flexibility and react sensitively to human influence;

- the general impoverishment of the Third World creates pressure towards increased overexploitation of natural resources (vegetation, fertile land, water).

Development projects have had only a limited impact on the overall environmental situation. They may have influenced but they did not determine the process of environmental degradation as such. This must be considered in formulating project objectives as well as in project planning and implementation. It is not sufficient that projects are environmentally compatible; they must also demonstrate what should and can be done to improve the environmental situation. They must initiate a process of spreading and replicating relevant activities in order to contribute towards rehabilitation and maintenance of the land resources on a large scale.

To date, most thoughts and efforts have been concentrated on assessment and analysis of environmental damage. Little attention has been given to halting or reversing the degradation process. Assessments of the alarming situation have become increasingly sophisticated, resulting in large volumes of statistics; but this trend appears to avoid and inhibit a forward-looking strategy of finding and implementing solutions in order to protect the environment and develop sustainable forms of land use. What went wrong is relatively well known, but what can be done to improve the situation is a wide-open question and highest priority should be given to answering it.

This article does not discuss the state of natural resource degradation, nor does it evaluate the methods of environmental impact assessment. Its purpose is, rather to consider measures for protecting the environment and reducing the drain on non-renewable resources, with the ultimate objective of ensuring their availability for future generations. These measures cannot be limited to the technical methods which appear appropriate. The question as to how these methods can be incorporated into existing land use systems is at least equally important, and deals with economic and socio-cultural aspects on farm and village level as well as organizational aspects of potential supporting institutions. Consequently, an approach is required which involves all groups concerned in the decision-making processes; the rural family and the village community living from a limited area of a land which needs to be sustained, and governmental organizations as well as external donor institutions supporting sustainable forms of land use.

Technical cooperation projects should therefore not only be environmentally compatible but should also demonstrate which measures may be taken to improve the environmental situation. To achieve sustainable land use, the following guidelines should be followed: the design of land-use systems should be site-specific, self-sufficiency of farmers and crop diversity should be ensured, the understanding of reality in terms of systems and processes should be holistic, and land use should be ecologically sound. To give an example of sustainable land use, alley cropping in Anuradhapura District in the Sri Lankan lowlands is described. Availability of labour (total requirements and requirements in peak periods) is regarded as an important aspect of decision

making by the rural population. The contradiction between promising results of research and lack of acceptance of the alley cropping system from the farmers' side are explained by farmers' unwillingness to change toward a system of sustainable land use and by the ignorance of researchers who did not properly assess the labour productivity in the proposed system.

The following changes in technical cooperation projects are proposed: more participation of target groups in analysis and design, implementing a plan of action towards autonomous development, decentralization of decision making and responsibilities, planning on local levels with people's participation, involvement of extension staff in participatory research, adequate agricultural marketing policy, provision of non-repayable funds for resource-protecting projects, and changing the attitude of donor institutions with regard to economic feasibility of resource-protecting projects.

The aspects discussed in this paper need to be understood as components of an overall approach to developing and implementing measures for sustainable land use. The approach will remain an empty framework unless the majority of families in the rural areas are prepared to work towards environmental protection with the appropriate advice of extension services which may, in turn, be assisted by projects of Technical Cooperation.

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88 - 5/17

Agroecology

Review, book, agroecology, sustainable development, food, world, ecosystems, agricultural systems
DOVER, M.J. and TALBOT, L.M.

To feed the earth: agroecology for sustainable development.
World Resources Institute, Washington, D.C. 1987, US\$ 10.00 + 2.00 for postage; available from: WRI Publications, P.O.B. 620, Holmes, PA 19043-0620, USA

How sustainable are the agricultural production systems in the Third World? Dover and Talbot address this question in the context of the recent shortages of food, the rapid degradation of soil, an unpredictable energy market, and other environmental concerns. For the past 50 years, virtually the entire focus of agriculture in industrialized countries has been on an approach that is increasingly energy-intensive, high input, labor efficient and high yielding. This approach has produced dramatic increases in agricultural productivity in the West, along with the dogma, doctrine, and experience of virtually all of today's agricultural specialists. Many environmental problems in the Third World stem from the misapplication of these temperate-zone technologies to the tropics, where the ecological conditions faced by agriculture differ markedly from those in temperate areas.

If productivity in these areas is to become sustainable, farming methods unique to the tropics will be needed to meet the unique constraints of temperature, rainfall and soil conditions found there. To promote sustainable agriculture, advocates of an ecolog-

ical approach must be prepared to analyze the appropriateness of any technology to specific sites and environmental conditions, without trying to prescribe ready-made answers. When competing forms of agriculture, such as organic vs. conventional, make conflicting claims about productivity and sustainability, ecological assessments will be needed, following the same set of criteria, to determine the strengths and weakness of both systems. Agroecologists must become arbiters in the debate on agriculture, not champions of one side. This book describes clearly, succinctly and thoughtfully how ecological principles can be applied to achieving sustainable development.

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88 - 5/18

Agroecology

Review, proceedings, IFOAM, global perspectives, agroecology, sustainable agriculture, farming systems, technology, practical management, communication

ALLEN, P. and VAN DUSEN, D.

Global perspectives on agroecology and sustainable agricultural systems - Vol. I, II

Proc. 6th Int. Sc. Conf. of IFOAM, 1986; published by: Agroecology Program, Santa Cruz, California, USA, 1988, Libr. Congr. Cat. Card No. 88-50092; US\$ 42.00

These proceedings represent a collection of the papers presented at the Sixth International Conference of the International Federation of Organic Agricultural Movements "Global Perspectives on Agroecology and Sustainable Agricultural Systems", held 18-20 August 1986 at the University of California, Santa Cruz. More than 400 persons from 35 countries participated.

All the manuscripts submitted for publication were included. The result is a proceedings that includes topics such as analyses of ancient farming systems, philosophical frameworks for thinking about sustainable agriculture, research on ecological soil and pest management, and ideas or introducing new crops into agricultural systems.

The proceedings have been grouped by topic area into 13 parts. Part 1, "Overview: setting the context for a discussion of sustainable agriculture", provides a conceptual foundation for the discussions of sustainable agriculture contained in the remainder of the book. Part 2, "Socioeconomic analyses of sustainable agriculture," includes theoretical interpretations of the meaning of agricultural sustainability and different ways of evaluating it. An overview of sustainable agriculture research in the US as well as ideas of research priorities and discussions of research parameters are given in Part 3, "Research approaches to sustainable agriculture". Perspectives on global environmental conditions pertaining to agriculture are emphasized in Part 4, "Environmental quality: problems and solutions". The quality of food and factors affecting how organic foods are distributed are the focus of Part 5, "Food safety and marketing systems for organic foods."

Descriptions and analyses of development projects in both advanced and underdeveloped countries are included in Part 6, "Agricultural development: case studies and perspectives". Concrete examples of farming alternatives are given in Part 7, "Analysis and design of sustainable farming systems". Technologies used in ancient farming systems are explored in Part 8, "Traditional farming systems in Latin America."

Parts 9 and 10, "Nonchemical pest management: weeds" and "Nonchemical pest management: insects, diseases and nematodes" present research and perspectives on pest management without reliance upon synthetically compounded chemicals. Part 11, "Soil management and plant nutrition: the relationship to pest control", reports recent studies of these aspects. The effect of soil fertility on crop yields and what native plant populations reveal about soil quality are the focus of Part 12, "Soil fertility amendments". Part 13, "New applications for plants in the agricultural system", reports on new and underutilized crops in agricultural production systems. The proceedings contain information on sustainable agricultural systems from many experiences, disciplines and international perspectives. This book in two volumes is highly recommended.

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88 - 5/19

Agroecology

Review, book, economics, environment, ecology, natural resources, pollution, policy, benefits, costs, future scenario

MILLS, E.S. and GRAVES, P.E.

The economics of environmental quality.

Norton, New York, 1986, 2nd ed., 368 pp., US\$ 20.00

In all countries, whether highly industrialized or not, there seems to be a considerable concern for problems related to extraction of natural resources, pollution of air and water, and contamination or other degradation of soil resources. Civil servants, politicians, scientists and citizen activists have debated these issues, and many books and reports have been written about how to approach the problems.

The approach in Part 1 of this book, "Basic theoretical analysis", can be described as an application of mainstream neoclassical economics to the environmental field. This is indicated by subtitles such as "Supply and demand for environmental goods", "Market failure: externalities", "Property rights, public goods and the free rider", "Microeconomic theory of discharges and environmental quality", "Welfare economics and environmental policy", "Benefits and costs of pollution abatement".

In Part 2 the environmental situation in the USA is described with specific chapters devoted to air quality, water quality and "Land quality and other environmental quality dimensions". Part 3 examines environmental policy in the USA whereas Part 4 is devoted to "Foreign and global problems". Environmental policy in Sweden, Japan and the Republic of Korea is compared with the US experience. The book ends with a chapter on "The future of environmental

economics", in which a "doomsday scenario" is compared with a "brighter future scenario".

This is a better book than many other mainstream, neoclassical works on environmental economics written since the beginning of the 1970s. But that is not only because of its own qualities but also for the shortcomings of other books in the same tradition. The weakest aspect of the book is the first part, on conceptual framework and theory. The authors are certainly well-acquainted with mainstream theory and explain it with clarity. But doubts can be raised about the relevance of mainstream theory and analysis to environmental problems. Neoclassical economic theory was developed to deal with other problems, and one may well ask whether this conceptual framework is the best to deal with some of the problems that we face today.

The theoretical part of the book and the more empirical parts are not always compatible. Parts 2, 3 and 4 are written in a more pragmatic way, with "pure economics" often pushed into the background and replaced by an interdisciplinary frame of reference. This is why this book compares favorably with other books on environmental economics. The description and examination of US legislation on air quality and water quality as well as comparisons with my own country (Sweden) and others is extremely valuable and interesting.

The authors are more modest in their conclusions than are many other neoclassical economists. This is so, for instance, when they address global pollution issues. Again, this is a reason why the book can be recommended as a textbook and for anyone who wants to work constructively for future solutions to environmental problems.

Abstract by P. Soderbaum

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88 - 5/20

Agroecology

Asia, India, review, book, ecology, environmental management, social forestry, population, coastal environment, irrigation
DESH, B.

Environmental management.

Papers of a Seminar held at New Delhi, 1980; 126 pp., Indian Environmental Society, 8 Darya Ganj, New Delhi 110002, India; Distributor for Europe: J. Margraf, Mühlstr. 9, 6992 Weikersheim, FRG; DM 24.00

Environmental management is not yet a full-fledged discipline in formal studies. In many countries, it is viewed as being irrelevant and counterproductive. This concept is changing fast. The developing countries have realized the importance of environmental management policies.

In India, the "Committee for Recommending Legislative Measures and Administrative Machinery for Environmental Protection" has recommended the need for training planners and administrators in environmental management. At higher levels, there must be 'environmental orientation' in order to expose the decision makers

to the system approach that should underpin all planning and execution of national building activities. There should be expertise in all the Ministries and Departments to assess the environmental impact of projects.

The Indian Environmental Society in association with the International Programme on Environmental Management Education (CEI/UNEP) organised two seminars on World Environment Day and Environment Impact Assessment during June 5-7, 1980 at the Indian National Science Academy, New Delhi.

A large number of papers on various aspects of Environmental Management were presented during the seminars. The papers cover a wide range of issues, including the environmental situations in India, social forestry, environmental impact assessment, the problems of mining, and other various related problems.

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88 - 5/21

Agroecology

Review, book, agriculture, ecology, climate, soils, vegetation, economics, politics, sociology, land clearing, farming systems, crops, livestock

WEBSTER, C.C. and WILSON, P.N.

Agriculture in the tropics.

Longman Group Ltd., Burnt Mill, Harlow, Essex CM20 2JE, UK, 1986, 623 pp., ISBN 0-582-46814-0, 4th ed., DM 81.90

This book gives a general idea of the basic factors affecting agriculture in the tropics and of the application of knowledge of the principles of agriculture to its improvement and development. It deals with tropical climates, soils and natural vegetation types and their influence on agriculture, together with the constraints imposed by certain socioeconomic factors. The principles of soil and water conservation, land clearing, drainage and tillage are then outlined. This section is followed by a chapter dealing with current practices and possibilities for the improvement in rainfed arable farming, systems based on swamp rice production, plantation monoculture of perennial crops, and in the utilization of natural and cultivated pastures. The last chapters cover the classes of livestock important in the tropics, the adaptation of animals to tropical environments, animal husbandry and the improvement of livestock by better nutrition, hygiene and breeding.

In general, the book deals with principles rather than with specific detail. It does not set out to give a comprehensive treatment of any given crop or farm animal. Nor does it cover in detail those aspects of agriculture such as, for example, pig and poultry husbandry, where temperate practice can readily be modified to suit the requirements of the tropics. However, the reader is referred in the next chapter to standard books dealing with these latter subjects, all giving specialized accounts of particular crops, animals or facets of tropical agriculture.

The aim has been to provide an outline of the subject for students in tropical agriculture and for those who proceed to work or study

in tropical agriculture after graduating in agriculture or related subjects in the temperate zone. It is also useful to farmers and to others indirectly concerned with agriculture, such as administrators, development planners, geographers, economists and veterinarians. This book gives a very good insight into tropical agriculture.

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88 - 5/22

Agroecology

Africa, review, book, report, natural resources, agroecology, environment, agriculture, food, management, soil degradation, pollution problems

FAO

Natural resources and the human environment for food and agriculture in Africa.

FAO Environmental and Energy Paper, No. 6, 1986, 83 pp., ISBN 92-5-102354-9; DM 18.00

The report, prepared in response to the recommendation of the Tenth FAO Regional Conference for Africa, surveys the state of principal natural resources for food and agricultural production in Africa, and some of the critical problems that have arisen from man's growing demands on these resources. It draws on recent information available from FAO and elsewhere. However, because of the lack of reliable recent information, some important natural resources have had to be covered in much less detail than others. The report is a preliminary survey, which will require revision and updating as better data become available.

The greater part of the report consists of an overview of knowledge of the extent, state and potential of natural resources for food and agricultural production (including fisheries and forestry) in Africa, and of related environmental issues. It includes a brief account of the mineral resources for fertilizer production. This review is followed by brief discussions of some specific problems resulting from the environmental impact of development needs. A first group of such problems concerns the major environmental issues of soil degradation and erosion, shifting cultivation, deforestation and the degradation of forest resources, and desertification as well as land-use problems in highland and upland zones. A second group covers environmental pollution by fertilizers, pesticides, forest industries and contamination of food and feed.

The final part attempts to draw some preliminary general comments on the state of the natural resources for food and agricultural production in Africa.

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88 - 5/23

Agroecology

Africa, review, booklet, conference synopsis, ecology, food production, potential, comprehensive approach, trade, self-sufficiency, land use, sustainability, adaptive research, women's role

CTA

Realisation of Africa's potential for food production. Summary Report of a Conf. of ACP and EC Ministers, Amsterdam, 1985, 25 pp.; available from: CTA, Postbus 380, 6700 AJ Wageningen, Netherlands

The agricultural sector in Africa is the most important sector in terms of employment. African agriculture is in crisis and per capita production figures are falling in a great many countries, resulting in growing food deficits. National-level food deficits have increased enormously with the results that African countries have become heavily dependent on the outside world for their food supply. Many African Governments have formulated the attainment of self-sufficiency in food as a high priority objective. This conference decided to go one step further and to explore practical ways to achieve a much higher degree of food self-sufficiency.

A number of papers were presented in the following issues:

- food aid and agricultural policies;
- incentives through pricing and marketing policies;
- export crops and food crops;
- rapid production increase and sustainability;
- agricultural research.

The papers did not deal exhaustively with all aspects of food production; they highlighted some of the critical issues based on research carried out at the Royal Tropical Institute of Amsterdam. The conclusions and recommendations of the CTA Conference of Ministers are related to the above-mentioned topics.

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88 - 5/24

Agroecology

Review, book, sustainable development, environmental planning, management, ecological processes, environmental problems, degradation, economics, politics

REDCLIFT, M.

Sustainable development: exploring the contradictions. Methuen, London and New York, US\$ 14.95

This is an important, stimulating book that should be read by all those who are seriously interested in the issues, contradictions and paradoxes associated with sustainable development. One key question addressed is: is it possible to undertake environmental planning and management in a way that does minimum damage to ecological processes without putting a brake on human aspirations for economic and social improvement? In this book, Redclift examines the transformation of the environment that occurs in the process

of development. He argues that environmental problems need to be looked at internationally, in terms of the global economic system. Redclift proposes that the degradation of the environment is not natural, but a historical process linked to economic and political structures. In the Third World, environmental management is assuming more importance as the contradictions of development - desertification, deforestation and food insecurity - become more important. At the same time we are increasingly involved in re-creating nature in an attempt to free ourselves from environmental constraints, through biotechnology and genetic engineering. We are in a position to produce nature for the first time while we are busily destroying it for the last time. This book is about both processes: the destruction of life support systems and their creation. In addition, Redclift argues that if the work of the World Commission on Environment and Development is to be taken seriously we need to redirect the development process itself. The purpose would be to give greater emphasis to indigenous knowledge and experience and to take effective political action on behalf of the environment.

Abstract from DESFIL

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88 - 5/25

Agroecology

Agroecology, farming systems, smallholder, productivity, planted fallows, soil fertility
PRINZ, D.

Increasing the productivity of smallholder farming systems by introduction of planted fallows.

Plant Research and Development, 24, 1986, pp. 31-56

The doubling of the population in the developing countries which is expected over the next 25 years makes it necessary, assuming that the same amount of land is available for cultivation, for productivity per unit area to be at least doubled.

Of the many possible methods offered by tropical crop science, one - planted fallow - has been selected and its potential briefly described in relation to peasant farming systems. Planted fallow is the targeted use of plant species in order to achieve one or more of the aims of bush fallow within a shorter period or on a smaller area.

Two main forms can be distinguished: successive and simultaneous fallow, and two sub-forms: ley farming and multistorey cropping. Apart from grasses, legume are the plants chiefly involved in systems of planted fallow.

A stable production system can be built up and an increase in area productivity achieved by using one or several forms of improved fallow combined. If yields per ha are to be doubled, all available elements of integrated plant nutrition will have to be used.

Author's summary

88 - 5/26

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Agroecology

Biological agriculture, developing countries, soil protection, rotations, organic manuring, water management

NATURE ET PROGRES COMMISSION TIERS MONDE

Biological agriculture: a solution for the Third World.

Rapp. de Nature et Progrés Commission Tiers Monde, 1987, 71 pp.;

available from: Service Librairie de Nature et Progrés,
Buzignargues, F-34160 Castries, France

It is said that biological agriculture was born in poor countries; it has developed in our industrialized countries, and it should help farmers of the Third World out of their deadlock with different development programs: economic development, environment, demography etc.

As introduction, the practical meaning of biological agriculture is outlined with special emphasis on problems of tropical countries: soil protection, integration of breeding into agriculture, crop rotations, organic manuring and water management. This publication groups together different articles published in the review "Nature et Progrés" since 1984, describing significant experiments of agrobiological development in rural and urban areas (Venezuela, Honduras, Burkina Faso, India).

The question arises as to how to define biological agriculture in the Third World: is it primarily a question of organic matter management (compost, mechanization) or a matter of improvement of traditional production techniques, of education and training, or is it simply taking into consideration the farmers' aims and purposes? Each article brings some propositions and principles. The "Nature et Progrés Commission Tiers Monde" wishes to contribute to both: discussion on one side and support of projects on the other. The responsible person of the Commission: Christian Wyttyneck, 40 Route de Rouen, F-80500 Montdidier.

Abstract from Alternatives Agricoles (GEYSER)

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88 - 5/27

Agroecology

Review, book, ecofarming, ecology, farming systems, agricultural production, low external input

ROTTACH, P.

Ökologischer Landbau in den Tropen.

Alternative Konzepte 47, Verlag C.F.Müller, Karlsruhe, 1984, 304 pp., ISBN 3-7880-9696-9

This book helps in evaluating the practicability of adapted production systems. It is a scientific but also political book. In Chapter 1 several authors discuss the crisis of tropical agriculture. New solutions and concepts for rural development are shown in Chapter 2 and examples of ecologically well-balanced systems, including agroforestry systems, are given in the following chapter.

Special attention is given to Rwanda in Chapter 4 'The ecofarming project'. Finally, interactions between industrial countries and hunger in the world are analyzed and hints are given for helping to solve this complex of problems.

The interested reader is able to go into more detail by making use of the contact addresses and references (most of them German) given in the annex. The motto of this book is optimizing agricultural production with intensive methods but low-cost inputs.

VI AGROMETEOROLOGY

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88 - 6/1

Agrometeorology

Review, climate, tropics, temperate regions, development, ecology, food production, environmental conditions

BISWAS, A.K.

Climate and development .

Development and Cooperation, 6, 1986, pp. 9-11

While the interdependencies of climate and development are self-evident, development planners have seldom considered climate as an explicit factor in the development process nor have climatologists generally played an active part in developing planning. The situation needs to be rectified as soon as possible so that the development process could be made sustainable on a long-term basis. The aggregation of the climatic events that contributed to the prolonged drought in the Sudano-Sahelian region of Africa, the failure of the Russian grain harvest, erratic monsoons in the Indian subcontinent, the disappearance of the anchovy fishery off the coast of Peru, and the serious drought conditions in the western part of North America, was a global catastrophe of major magnitude. The gravity of the conditions that developed in 1972 can be best illustrated by the fact that the total world output of food declined from the preceding year for the first time in 20 years, due to the adverse climatic conditions. This serious situation shattered some people, who during the 1960s had prematurely and optimistically claimed that technological developments had freed modern agriculture from vagaries of climate. To some extent, such overconfidence can be accounted for by the generally benign nature of the climate in the 1960s. It became clear that climate still was a major factor for overall agricultural production and it will continue to remain so in the foreseeable future. For the developing countries, which are located in the tropics and subtropics, climate should be considered as an important resource which provides certain opportunities for development but also simultaneously poses some constraints. Hence, development strategies should be formulated that specifically attempt to maximize the benefits such opportunities can bring but do not ignore the constraints imposed by climate.

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88 - 6/2

Agrometeorology

Review, climate, crops, ecology, light, temperature, hydrological balance, productivity

FERWERDA, J.D.

The ecology of tropical crops. Part 2. Climate.

Span, 22, 1979, pp. 58-60