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MATERIALS ON MARGINAL LANDS:

AN ANNOTATED ACCESSIONS LIST FOR USAID EAST AFRICA MISSIONS

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INTRODUCTION

Purpose

The purpose of this report is to recommend books and other documents dealing with topics relevant to the development of marginal lands for the USAID missions in Eastern Africa to acquire and hold. These materials are intended to provide background information for mission personnel and contractors preparing CDSSs and project documents or implementing projects.

In East Africa most of the lands considered marginal for agriculture are those in which rainfall is too scanty or too irregular to permit reliable rain-fed crop production. Although there are a few parts of Sudan, Uganda, and Tanzania where drainage patterns have created swampy lands that are only marginally useful for agriculture, in general the word "marginal" has been applied to the semi-arid and arid lands of the region. This report, therefore, concentrates on dry marginal lands.

There is a sizeable body of studies and research dealing with the development of marginal lands throughout the world. This list represents a limited selection from those materials. The criteria for choosing the materials recommended here are:

- Relevance to the East African context and to development concerns in that area. It is, of course, impossible to anticipate the precise form or the exact location of future projects, so as new projects are developed materials recommended in this report should be supplemented by any available in-depth studies of the project area.
- Availability for purchase or reproduction in Washington. Books that are only obtainable through libraries have not been recommended for acquisition, no matter how appropriate they may be. Likewise, many valuable research reports are available primarily through East African research institutions; interested mission staff report that it is easier for them to keep track of these in-country studies than it is to keep abreast of U.S. and European publications from overseas.

- Readability for non-experts. AID missions cannot expect to supply technical experts and consultants with specialized studies and reports in their own disciplines. Instead, the materials suggested here are meant to give both mission staff and outside specialists a broad view of the context in which programs and projects are set.

It has not been possible to check whether the materials recommended here are already owned by AID missions in East Africa. This list should thus be considered an acquisitions guide, to be supplemented or modified at the discretion of the missions and their staff.

Background and organization of this report

Early development efforts in East Africa concentrated on areas favored by good physical resources that promised the best economic returns for investment. Efforts to improve marginal lands have come later; as a result, basic research on the nature and traditional exploitation of the drier areas is only now becoming available, and technical development packages have yet to be tested and evaluated. Trying to transfer technical packages developed for Asia or Latin America to the African context is risky, since demographic and socio-economic factors crucial to the success of rural development projects are not commensurate in different parts of the world. For these reasons, some of the materials recommended in this report deal more with the socio-economic setting and with traditional modes of exploitation of marginal lands in East Africa than they do with types of modern intervention and with the results of past projects.

The list of recommended materials is divided into six main sections:

Water Resources, which includes materials on climate, rainfall, traditional water use, and irrigation;

Forestry, which comprises problems of land degradation through destruction of the ground cover, particularly acute in marginal lands, on the one hand, and issues of energy sources and fuel needs, on the other.

Pastoralism, a major form of traditional exploitation of drylands in East Africa;

Agriculture, the main alternative or complement to pastoralism in these areas, as well as the main thrust of planning for future development;

Other Works of interest, which includes several works that provide an overview or an integrated approach to the development of marginal lands or that focus on special issues.

Within each section works recommended for acquisition by all the East African missions and REDSO/East Africa are listed first. They are followed by a list or lists of materials discussing a particular country or region and recommended primarily for the mission in that country when such works are available and merit attention. Asterisks indicate materials most highly recommended as first choices, if your funds or space are limited. In suggesting materials of interest to particular missions I have concentrated on works of use to Kenya, Somalia, Sudan, and Tanzania, since these are the countries with active AID programs at the time this report is being prepared. For materials on the use of marginal lands in Uganda I recommend works listed in the Bibliography of Social Science Materials for Uganda (1980), particularly Sections IID: Eastern Nilotes; IIE: Western Nilotes; IIIB: Agriculture; and IIID: Livestock and Pastoralism.

WATER RESOURCES

General

Most of the materials recommended in this section discuss topics that transcend national boundaries; they should therefore be of interest to all the East African AID missions and REDSO. The following are recommended for mission holdings:

Berry, Leonard: The Impact of Irrigation on Development: Issues for a Comprehensive Evaluation Study, (1980). USAID/PPC/E/S.

This report presents a framework for evaluating irrigation projects. In doing so, it provides historical background, discusses the effects of projects and problems encountered, and describes particular cases.

Boudreau, Richard: "Irrigation: Training/planning/execution." Memo dated June 7, 1978. DS/DIU/DI.

A brief review of AID's experience with irrigation projects, including the Gezira scheme.

Dalby, David, R. J. H. Church, and F. Bezzaz: Drought in Africa - Sécheresse en Afrique 2, (1977). London: International African Institute.

This book is of interest for chapters in Part I on the climate of East Africa--particularly the effect of rainfall in Ethiopia on the level of Nile waters downstream, and for several that discuss the 1970-1974 drought, giving very different accounts and interpretations of its effects. (All the case studies in Part II are drawn from West Africa.)

*National Academy of Science: More Water for Arid Lands, (1974). Washington, D.C.: N.A.S.

This little book offers a cogent and excellent review of basic issues, techniques, and problems of water delivery systems and of water conservation techniques in arid areas.

*O'Keefe, Phil, and Ben Wisner: Landuse and Development, (1977). London: International African Institute.

This book contains valuable case studies on a variety of topics concerning East African development. With regard to water use, chapters by Hoyle and Sorbo, discussing indigenous responses to large-scale irrigation schemes in Sudan, offer examples that should be of interest as well to countries like Somalia where similar projects are envisaged. Later sections of this report will refer to chapters of this book devoted to other aspects of the development of East African marginal lands.

Richards, Paul: African Environment: Problems and Perspectives, (1975). London: International African Institute.

Three chapters of this book deal with climate and water resources. *Chapter 2: Environmental Monitoring Needs in Africa, by Lundholm, gives an excellent and readable overview of the methods and the usefulness of remote sensing and other forms of monitoring the environment. Chapter 5 also deals with water resource problems in Africa; Chapter 6 focuses on water and environment in Tanzania, pointing out gaps in basic information.

*White, Gilbert F., David J. Bradley, and Anne U. White: Drawers of Water: Domestic Water Use in East Africa, (1972). Chicago: University of Chicago Press.

A vivid and readable book on the topic of domestic water use, this discusses environmental factors, technical improvements, the economic and social costs of alternative uses of water resources, decision-making, and impacts on health. Case materials are taken from Kenya, Tanzania, and Uganda.

Of special interest to Sudan

In addition to these works, the Sudan mission should have copies of a study done for AFR/EA by Muneera Salem Murdock: The Impact of Agricultural Development on a Pastoral Society: the Shukriya of Eastern Sudan, which describes the effects of the establishment of New Halfa and the irrigated agriculture scheme in that area on indigenous nomads.

FORESTRY AND FUELWOOD

General

The destruction of the natural ground cover and increased exposure of soil to erosion is a particularly pressing problem in the fragile ecosystems of marginal areas. In recent years much attention has focused on how the increasing domestic demand for energy in marginal areas has made inroads on the tree cover, causing rapid degradation of the land. As a short, sound and thought-provoking overview, Eric Eckholm's paper, "The Other Energy Crisis," gives a thorough, yet succinct account of increased fuelwood needs, the effect of political pressures, and the impact of development efforts in forestry.

*Eckholm, Eric: "The Other Energy Crisis," (1975). Worldwatch Paper No. 1. Reprinted as Chapter 3 in M. Glantz, ed., Desertification, (1977). Boulder, Co.: Westview Press.

*Devres: The Socio-economic Context of Fuelwood Use in Small Rural Communities, (1980). USAID/PPC/PDPR.

This is a comprehensive review of current knowledge of fuelwood and charcoal use in rural areas of developing countries. It includes an excellent bibliography.

Planners in the missions should also be aware that Marilyn Hoskins and James Thomson have recently written useful reports for AID on particular aspects of this topic, based largely on field observation in West Africa.

Hoskins, Marilyn: Women in Forestry for Local Community Development, (1979). USAID/WID.

_____: Community participation in African Fuelwood Production, Transformation and Utilization, (1979). Discussion paper for Workshop on Fuelwood and other Renewable Fuels in Africa, Paris. USAID/AFR/DR.

Thomson: James T.: Firewood Survey: Theory and Methodology, (1979). USAID/AFR/DR.

Both Hoskins and Thomson raise general issues that must be considered in any fuelwood project. Hoskins emphasizes the need to examine culture-specific methods of fuel-gathering, fuel use, and cooking, particularly by women, in order to introduce technical improvements, such as stoves, that are truly more fuel efficient than traditional practices and that are appropriate to users' requirements. Thomson examines the impact of different types of property ownership, especially land and tree tenure and control of forests, on the outcome of afforestation projects.

Additional documents from the ODC-DAC Workshop on Fuelwood and other Renewable Fuels in Africa, for which Hoskins' second paper was written are also relevant and can be obtained through the Overseas Development Council.

Of special interest to particular missions

A few in-depth studies of particular villages or localities may be of interest to one or another of the missions, especially if a forestry project is developed in the area studied.

Sudan: The socioeconomic and ecological dimensions of fuelwood use in Dara, Sudan, are the subject of a recent PhD. dissertation and follow-up report by Turi Hamer Digernes.

Digernes, Turi Hamer: Wood for Fuel--Energy Crisis Implying Desertification: The Case of Bara, the Sudan, (1977). Thesis for the University of Bergen, Bergen, Norway.

_____: Addendum to Thesis, Follow-up Study, (1978). Bergen: Chr. Michelsen Institute.

Kenya:

Brokensha, David, and Bernard Riley: "Forest, Foraging, Fences and Fuel in a Marginal Area of Kenya," (1978). Paper prepared for the Africa Bureau Firewood Workshop. USAID.

This is a study of fuelwood use and charcoal production in Mbere, done as part of the SRDP project.

Tanzania:

Fleuret, Patrick, and Anne K. Fleuret: "Fuelwood use in a peasant community: a Tanzanian case study." Journal of Developing Areas 12:315-322 (April 1978).

The Fleurets measured the amount of fuelwood gathered, alternative collection strategies, and household and per capita use in the Usambara mountains of northeastern Tanzania.

PASTORALISM AND LIVESTOCK

The main traditional mode of exploitation of the dry savannah lands, semi-deserts, and deserts of Africa is pastoralism. Trans-humant herds of cattle, sheep, goats, and camels are able to take advantage of seasonal and local ecological variation in the productivity of marginal lands. Pastoralism has been the mainstay of subsistence among the Somalis and among related groups of Oromo-Borana in eastern and southern Ethiopia and northeastern Kenya, as well as for the Maasai and Samburu groups on the Kenya-Tanzania borderlands and the Jie, Turkana, Dodosh, and Karimojong peoples inhabiting northwestern Kenya and adjoining northeastern Uganda. Herding is an important economic activity throughout northern Uganda and nomadism is the main way of using the unirrigated lands of Sudan.

Social scientists have studied East African pastoral systems far more thoroughly than they have the farming systems or the "social forestry" of the region. Since much of the work published deals with a particular ethnic group or a limited topic, different missions will want to select materials appropriate to their country and its problems.

General

*Dahl, Gudrun: Suffering Grass, (1979). Stockholm: Department of Social Anthropology, University of Stockholm.

This is a recent, readable anthropological study demonstrating how livestock, pastoral products, and other resources are managed through the traditional family organization and the social institutions of Boran pastoralists in Kenya. It also discusses the impact of modern changes on the Borana and their response to widening opportunities. Although it is a monograph focused on one ethnic sub-group this book provides a model for development-oriented social analyses, raising pertinent though not obvious questions about the impact of traditional pastoral practices and modern development on women, children, and youths; on rich and poor; on marriage patterns, fertility, and family cohesion; and on the dynamics of risk aversion strategies in a marginal area.

Heady, Harold F.: Rangeland Management, (1975). New York: McGraw Hill.

This book addresses classic western range management issues with a perspective tempered by experience in East Africa.

Institute for Development Anthropology: materials from the PPC Workshop on Pastoralism, especially:

Hoben, Allan: Lessons from a critical evaluation of livestock projects in Africa, (1979). PPC/E/S.

Horowitz, Michael M.: The sociology of pastoralism and African livestock projects, (1979). PPC/E/S

AID Program Evaluation Report No. 4: Workshop on Pastoralism and African Livestock Development, (1980). PPC/E/S.

These materials provide retrospective views of issues, problems, and conclusions from AID's participation in livestock projects.

*Little, Peter: The Socio-economic Aspects of Pastoralism and Livestock Development in Eastern and Southern Africa: An Annotated Bibliography, (1979). USAID/DS/RAD.

Prepared for the use of USAID, this is a concise and valuable guide to literature on pastoralism in the area covered. Its organization, by country, makes it easy to locate pertinent works. The commentaries provide good indications of the kinds of information available in the studies cited.

*Monod, Theodore: Pastoralism in Tropical Africa, (1975).
London: Oxford University Press.

Valuable for the comparative material and case studies it offers. Chapters by Baker on Karamoja, Gulliver using examples from northwest Kenya, Jacobs on the Maasai, and I. M. Lewis using Somali and Boran data are directly relevant to East Africa. Chapters by Baxter, Frantz, Horowitz, and Swift raise pertinent comparative issues illustrated mainly with West African material.

*O'Keefe, Phil, and Ben Wisner: Landuse and Development, (1977).
London: I.A.I.

This book, already cited under Water Resources, contains a number of chapters that discuss the impact of development projects on pastoralists. In addition to the two chapters by Hoyle and Sörbo on irrigation projects in Sudan, which attempted to settle nomads, a chapter by P. R. Baker traces development attempts in Karamoja from 1890 to 1971 and the Karimojong reactions, and chapters by Swift and Haaland discuss pastoral ecology and production systems, drawing on case material from Senegal and Sudan respectively.

*Pratt, D. J., and M. D. Gwynne: Rangeland Management and Ecology in East Africa, (1977). London: Hodder and Stoughton.

This work presents a comprehensive survey of the range environment of East Africa, including consideration of the interaction between wild game and livestock in the savannah ecosystem. It contains a chapter on livestock development and a detailed social and ecological analysis of the Kaputei group ranch scheme as a case study in rangeland development.

Special topics

Rapp, Anders, H. N. LeHouerou, and B. Lundholm: Can Desert Encroachment Be Stopped? (1976). Ecological Bulletin No. 24, Stockholm: Swedish National Research Council (NFR).

Chapter 1 of this collection discusses animal adaptation to drought and reaches some unexpected conclusions about the optimal types and timing of interventions for saving drought-stricken herds. Other chapters also deal with other aspects of East African pastoralism, but if the book is difficult to purchase (since it is published in Sweden), chapter 1, at least, is worth xeroxing.

Richards, Paul: African Environment, (1975). London: I.A.I.

This volume, listed above in the section on Water Resources, has an excellent chapter, Chapter 8, on the history, spread, impact, and control of trypanosomiasis, an important factor in the vicissitudes of pastoralists and pastoralism in East Africa.

Teitelbaum, Joel: Nutritional Impacts of Livestock Development Schemes, (1980). USAID/PPC/PDPR.

This report documents in detail how pastoralists' traditional diets provide for their nutritional needs. It then explains in what ways livestock development projects have threatened the basic diet and have therefore met with grass-roots resistance to change. Finally, it offers guidelines for future projects. Examples are drawn mainly from West Africa.

A final reference on this topic is out of print but nonetheless of such quality that it is worth learning whether it is available through host-country research libraries for AID staff and contractors to use:

Dahl, Gudrun, and Anders Hjort: Having Herds, (1976). Stockholm: Liber Tryck.

This is a remarkable compendium of statistics and comparative data on the economics and ecology of subsistence herding world-wide. The authors look at issues from the point of view of social scientists, not western range management experts, which leads them to pose some unusual and pertinent questions. The thorough documentation makes this a seminal study.

Of special interest to particular missions

Sudan: Since pastoral nomads play a major role in the traditional subsistence economy of Sudan there is a sizeable body of literature on pastoralism in the area.

You should have on hand the recent report written for USAID/AFR/EA by Muneera Salem Murdock of the Institute for Development Anthropology on the impact of the New Halfa resettlement scheme on Shukriya pastoralists, the original occupants of the area. It examines the social organization of the Shukriya, identifying the gainers and losers within Shukriya society affected by the scheme.

Other works you may want to obtain include:

Cunnison, Ian, and Wendy James: Studies in Sudan Ethnography, (1972). New York: Humanities Press.

Some of the articles in this volume, notably one by G. Haaland on Nuer nomadism, and the final one, by Peter

Harris-Jones, on the Jamu'iya development scheme address development issues more directly than the title suggests. As a whole the book is a rather motley collection of essays but useful to dip into.

Nelson, Cynthia, ed.: The Desert and the Sown: Nomads in the Wider Society. Institute of International Studies, Research Series no. 21. Berkeley: University of California Press.

Two chapters in this volume, by Abdel Ghaffar M. Ahmed and by Abbas Mohammed, describe the socio-economic interaction of nomads and sedentary villagers and farmers in the Gezira area.

Note, too, that chapters by Hoyle, Sörbo, and Haaland in O'Keefe and Wisner's Landuse and Development are based on studies of Sudan pastoralists. The first two, in particular, examine nomads' responses to attempts to settle them on the Khashm el Girba irrigation scheme.

Recent work on the Zaghwa on the Chad-Sudan border and anthropological work on the Zande would be of interest primarily if projects are contemplated in those areas. Conrad Reining's work on the Zande, particularly his chapter in African Food Production Systems, P. F. M. McLoughlin, ed., (1970). Baltimore: Johns Hopkins Press, provides useful background on that group. On the Zaghwa, The Zaghwa from an Ecological Perspective: Food Gathering, the Pastoral System, Trade, and Development of the Zaghwa, by M. J. Tubiana and J. T. Tubiana, (1977); Paris: CNRS, is a readable and valuable baseline study of the socio-ecological adaptation of this tribe of pastoralists.

Somalia: Note that I. M. Lewis' A Pastoral Democracy has been reprinted in a new edition this year (1981). Lewis also has a good chapter on the interrelation of herd strategies, sedentarization, religion, and labor surpluses in Monod's Pastoralism in Tropical Africa (1975). More recently, Jeremy Swift has done research on the ecological and economic responses of Somali pastoralists to changes in climate and market, publishing his findings as contributions to the following volumes:

Swift, J.: "Pastoral development in Somalia: herding cooperatives as a strategy against desertification and famine," In M. Glantz, ed., (1977); Desertification, pp. 275-305. Boulder, Colo.: Westview Press.

_____: "The development of livestock trading in nomad pastoral economy: the Somali case." In Equipe Ecologie et Anthropologie des Sociétés Pastorales, (1979), Pastoral Production and Society, pp. 447-466. Cambridge: Cambridge University Press.

Kenya: Dahl's book, Suffering Grass, mentioned above, is based on research in Kenya. Dahl also has a chapter, "Ecology and equality: the Boran case," in the Equipe Ecologie et Anthropologie des Sociétés Pastorales' volume, Pastoral Production and Society (1977; Cambridge: Cambridge University Press), in which she describes how climate, ecology, and labor resources constrain Boran accumulation of wealth.

The Maasai - Kenya-Tanzania border: Since the national boundary cuts through traditional Maasai territory, material on this group is probably of equal interest to the Kenya and Tanzania missions.

The anthropologist who has worked most among the Maasai in recent decades, Alan Jacobs, has not published much. His chapter in Monod's Pastoralism in Tropical Africa gives an overview of history, social organization, diet, herding systems, and the effects of economic development efforts among the Maasai. A recent paper, "Pastoral development in Tanzanian Maasailand," presented at the 1980 African Studies Association meetings, focuses more precisely on the positive and negative effects of past development projects on the Maasai.

The evaluation documents written over the course of the Masai Livestock project for USAID/Tanzania, particularly Allan Hoben's "Social Soundness of Masai Livestock and Range Management Project" (1976) and the final evaluation of the project by Devres (1979) should be available through the Tanzania mission and may be of interest in Nairobi, as well. Hoben's report, in particular, discusses the impact of outside, economically and politically motivated encroachments and pressures on the Maasai, and describes their effect on Maasai diet, subsistence strategies, and environmental degradation, as well as on Maasai reactions to the spectrum of introduced changes. He concludes with suggested guidelines not only for the remainder of the project but for future ones.

Tanzania: In addition to work on the Maasai, the mission may be interested in work by Peter Rigby on the pastoral Gogo and Baraguyu:

Rigby, Peter: Cattle and Kinship among the Gogo, (1969). Ithaca: Cornell University Press.

The first few chapters of this monograph provide a baseline description of traditional Gogo livelihood. The book as a whole is readable, making generous use of case material and explaining the legal, political, and economic importance of the kinship system of the Gogo.

_____ : "Opul and entoroj: the economy of sharing among the pastoral Baraguyu of Tanzania." In Equipe Ecologie et Anthropologie des Sociétés Pastorales, (1979), Pastoral Production and Society, pp. 329-348. Cambridge: Cambridge University Press.

This is another demonstration of the economic repercussions of a cultural principle of organization.

AGRICULTURE: FARMING SYSTEMS IN MARGINAL LANDS

There is currently a shift in the type of development projects proposed for African agriculture from concentrating on improving strains of crop seed toward a more holistic approach based on study of the farming systems into which new and improved crops will fit. Because farm systems research takes account not only of the adaptation of crops to the environment but also of socio-economic factors affecting the production and distribution of crops it offers a needed perspective for agricultural development in East Africa. However, since farm systems research recognizes the significance of micro-level variation it tends to be area-specific and not broadly applicable beyond the study area, though the results are extremely useful in planning development in regions where the basic research has been done.

Research in East Africa using a farm systems approach has been undertaken only recently, for the most part, and is spotty. Considerable work using this approach has been done in parts of Kenya, several excellent studies have been carried out in Tanzania, and some work has been done in Sudan. Not surprisingly, development-oriented farm systems research in East Africa has tended to focus first on areas likely to produce the greatest gain from development--those with adequate rainfall and soil. Some work on marginal areas is now beginning to appear, and under the aegis of organizations like ICRISAT and CIMMYT, which are setting up centers in Sudan and Kenya, more can be expected in the future.

General

Two general studies of African and other tropical farming systems, not confined to marginal lands, are worth consideration if you do not already have access to them.

*Allan, William: The African Husbandman, (1965, reprinted 1977). London: Greenwood.

This work provides baseline information on traditional modes of agricultural exploitation of Africa's varied ecozones, based on the author's decades of observations as a colonial Agriculture Officer, compelled in the absence of modern western data to heed and rely on indigenous farmers' knowledge of their environment and their techniques for cultivation as the basis for agricultural planning.

*Ruthenberg, Hans: Farming Systems in the Tropics, (1971, reprinted 1980). Oxford: Clarendon Press.

This book discusses indigenous strategies for cultivation in different types of tropical environments and gives cases

illustrating each type of farming system it identifies. The scope of the book is not confined to Africa or to drylands; Chapters 2, on shifting cultivation, and 5, on upland systems are those most relevant to East African marginal lands. The 1980 edition has an excellent supplement by Michael P. Collinson on farming systems in Tanzania. The book's price, unfortunately, is also impressive at \$69.

The following works focus more narrowly on East Africa or on marginal lands:

*Collinson, Michael P.: Farm Management in Peasant Agriculture, (1972). New York: Praeger.

Part I of this book discusses the physical and social conditions that shape traditional peasant agriculture, particularly in East Africa. Parts II and III provide a framework for designing, planning, and implementing appropriate agricultural development projects. Collinson has done long-term field research among the Sukuma of Tanzania and is currently head of CIMMYT in Nairobi. His examples are drawn largely from East Africa and particularly from the Sukuma. (Out of print; State Dept. Library)

*Hall, Anthony H., G. H. Cannell, and H. W. Lawton, eds: Agriculture in Semi-Arid Environments, (1979). New York: Springer Verlag.

With its chapters on the topics of soil management, crop adaptation, climate characteristics, pest and weed control, ancient and existing farming systems, and the interaction between cultivation and livestock, this book provides a comprehensive and comprehensible overview of agricultural issues to consider in the development of marginal lands. It is not limited to Africa.

Again, O'Keefe and Wisner's Landuse and Development, mentioned above, includes several studies of agriculture and development, among which Diana Hunt's analysis of the impact of the SRDP project on farmers in Mbere, a semi-arid region of Kenya, is a particularly relevant recent in-depth case study. In addition, the chapters by Hoyle and Sorko on the Khashm el Girba scheme deal with agricultural development in Sudan.

*University of California, Oregon State University, and Consortium for Arid Lands Institute: Proceedings of an International Symposium on Rainfed Agriculture in Semi-Arid Regions. Glen H. Cannell, ed., (1977). Riverside: University of California.

The papers in this compendium, written by scholars from diverse disciplines, vary widely in quality and relevance.

Among them, however, are several excellent discussions of background issues as well as thought-provoking historical studies and case studies from different geographic regions for comparison. Worthwhile papers include the overview papers from Session I, papers by Ahn on soil characteristics, by Winward and Miller on the role of ruminants, by Fitch and Nordblom on farmer decision-making, the papers on dryland farming practices from Session IV, and last but noteworthy, the two papers of Session VI on marketing and distribution systems in dryland regions, particularly the final one by William O. Jones.

Of special interest to particular missions

Kenya: Kenya is the East African country in which the most farm systems research has been carried out. Diana Hunt's chapter on Mbera in O'Keefe and Wisner's book has already been mentioned. Among other relevant works are the following:

DeWilde, John C.: Experiences in Agricultural Development in Tropical Africa, Vol. II, (1967). Baltimore: Johns Hopkins Press.

Much of the case material on which this work is based is from Kenya and primarily in marginal lands: Nyeri, Machakos, and Baringo. Volume II includes discussion of development problems and program planning in these areas in the mid-1960s.

Heyer, Judith, J. K. Maitha, and W. M. Senga, eds.: Agricultural Development in Kenya: An Economic Assessment, (1976). Nairobi: Oxford University Press.

The articles contained in this book examine the Kenyan agricultural economy from many different viewpoints, looking at large and small farmers, cash crops, marginal areas, government and development policies, and the infrastructure of credit and marketing.

Leonard, David: Reaching the Peasant Farmer: Organization, Theory, and Practice in Kenya, (1977). Chicago: University of Chicago Press.

This is a political scientist's organizational analysis of the Ministry of Agriculture in Kenya, examining the effects of the Ministry's structure on the motivation of its personnel, down to extension workers, and ultimately on the effectiveness of delivery of its services to farmers.

In addition to these, Appendix A of this report is a user's guide to the Consortium for International Development's Kenya Marginal/Semi-Arid Lands Pre-Investment Inventory. Of the eleven volumes of that report, I particularly recommend Volume 2: Economy, which analyses social as well as economic constraints on small-farmer decision-making, based on careful field research.

In this report I have intentionally passed over much excellent work by Philip Mbiti and others that is published and distributed in Nairobi, since mission and REDSO staff there have better access to it than I.

Tanzania: Collinson's Farm Management in Peasant Agriculture, based as it is on extended field work in Tanzania and liberally illustrated with Tanzanian case material, would be a particularly desirable source for the mission. Unfortunately it is out of print. Since outright purchase is not possible, it would be useful to ascertain whether local research institutions hold a copy you can refer to. Otherwise you may want to have the State Department library copy xeroxed.

The appendix by Collinson in Ruthenberg's Farming Systems in the Tropics, 1980 edition only, is added reason for USAID/Tanzania to consider purchasing that book.

*Kjekshus, Helge: Ecology Control and Economic Development in East African History: The Case of Tanganyika 1850-1950. (1977). London: Heinemann.

This is a study of the impact of colonial development policies on Tanzanian agricultural systems. It takes a broad view of the topic, describing the range of traditional modes of exploitation of the various ecozones of Tanzania and the ecological consequences of colonial attempts at exploitation and development. It is a good source for baseline information on Tanzanian agriculture.

Newman, J. L.: The Ecological Basis for Subsistence Change among the Sandawe of Tanzania. Washington, D.C.: National Academy of Science.

Useful if development projects are planned for the area Newman studied.

Sudan: The sections on Water Resources and on Pastoralism and Livestock above have covered much of the research on Sudan irrigation agriculture and sedentarization of nomads (see chapters cited from O'Keefe and Wisner, Landuse and Development, and from Nelson, The Desert and the Sown). You may also want:

Barnett, Tony: The Gezira Scheme: an Illusion of Development, (1977). London: F. Cass and Co.

Good background work has been done on the Zande, around Yambio. The classic study of their agricultural system is not in print but should be available in library collections in Sudan:

de Schlippe, Pierre: Shifting Cultivation in Africa: the Zande System of Agriculture, (1956). London: Routledge and Kegan Paul.

The author, a senior extension research officer, made a socio-cultural survey, looking at soils and fallow system, crops, tools, labor, and the agricultural cycle.

The chapter on the Zande by Conrad Reining in P.F.M. McLoughlin's African Food Production Systems, (1970; Baltimore: Johns Hopkins Press) is a somewhat more recent and shorter but also useful discussion of Zande subsistence production.

A recent article in The Geographical Journal (vol. 145, no. 3, pp. 452-460; 1979) by R. T. Wilson, "Recent resource surveys for rural development in Southern Darfur," should provide useful references for the background to development of that area.

In southwestern Sudan, Hunting Technical Services has carried out a land use survey in the dry savannah, including study of the system of subsistence farming.

OTHER WORKS OF INTEREST

Materials from a 1976 United Nations Conference on Desertification held in Nairobi are now available in published form in two books:

*Biswas, Margaret R., and Asit K. Biswas: Desertification: Its Causes and Consequences, (1977). Oxford: Pergamon.

This book contains the overview reports presented at the conference on climate, ecological change, demographic and social pressure on marginal lands, and technical and development impacts. The quality of the reports is high; it is a valuable book (and the highest-priced of all those listed).

*Walls, James: Land, Man, and Sand: Desertification and its Solution, (1980). New York: MacMillan.

This book contains the case studies of development projects in arid lands that were presented at UNCOD. They provide excellent comparative case study material for development planners. And, in contrast to its companion volume, the book is not exorbitantly priced.

A recent state-of-the-art article in *Current Anthropology* (vol. 21, no. 1, pp. 21-44; 1980), Robert Dirks' "Social Responses during severe food shortages and famine," may prove relevant to relief aid in East Africa. Extrapolating from anthropological reports of communities experiencing varying degrees of hardship, Dirks suggests that there are generally identifiable stages in community and personal responses to short or prolonged food shortages that transcend cultural differences to some extent. He recommends that assistance efforts take into account the degrees of community cohesion or fragmentation that characterize these stages.

APPENDIX A

A USER'S GUIDE TO THE
KENYA MARGINAL/SEMI-ARID LANDS PRE-INVESTMENT INVENTORY

The eleven volumes of the Kenya Marginal/Semi-Arid Lands Pre-investment Inventory are the fruits of a serious research effort, but they present a formidable quantity of reading matter. These notes are intended to help generalist development planners sift through and use the study.

The first and last volumes, Volume 1: Analysis and Project Identification, and Volume 11: Baringo/Kerio Valley: Analysis and Project Identification, together provide a good overview and summary of the survey, as well as a "laundry list" of possible projects (in Volume 11). They are not over-long and are written for a wide readership.

Volume 2: Agronomy shows the mark of conscientious fieldwork in the countryside and contains sensitive observation of farming practices although its recommendations for project inputs are rather helter-skelter and not particularly useful. It, too, is quite readable.

*Volume 3: Economy, by Charles T. Hash and Bernard Mbatha, deserves special notice. It discusses economic issues from the perspective of the small farmer and looks closely at local social organization as it impinges on economic decision-making. This is a micro-economic analysis based on sociological fieldwork, a well-written and useful volume of general interest.

Volumes 4 through 10 are of much more limited use. Mostly they are special, often technical reports on: water and soils (Volumes 4, 10); forestry (Volume 5); seeds, especially maize (Volume 9); livestock (Volume 8, which takes a U.S. range management perspective); and the bureaucratic infrastructure of agricultural development (Volume 7). Volume 6: Human Resources and Social Characteristics also discusses local social organization but so pedantically that it falls far short of Volume 3 in portraying or predicting beneficiary interests and concerns; it might be of some use in planning for local level participation, however.

APPENDIX B: AVAILABILITY OF MATERIALS RECOMMENDED

Within AID/Washington:

The following were obtained through offices in AID/Washington and should be procurable through the offices listed. If they are no longer available within the Agency, I also hold copies of them.

- Berry, Leonard, The Impact of Irrigation on Development. PPC/PDPR.
- Soudreau, Richard, "Irrigation: Training/Planning/Execution." DS/DIN/DI.
- Brokensha and Riley, "Forest, Foraging, Fences and Fuel." PPC/PDPR
- Davies, The Socio-Economic Context of Fuelwood Use. PPC/PDPR
- Hoskins, "Women in Forestry." WID.
- Hoskins, "Community Participation in African Fuelwood Production, Transformation, and Utilization." AFR/DR/SDP.
- I.D.A., Workshop on Pastoralism papers. PPC/E/3.
- Little, "The Socio-economic Aspects of Pastoralism...Bibliography." DS/RAD.
- Murdock, "The Impact of Agricultural Development on a Pastoral Society: the Shukriya." AFR/EA.
- Teitelbaum, Nutritional Impacts of Livestock Schemes. PPC/PDPR.
- University of California, Riverside, Proceedings of a Symposium on Rainfed Agriculture. AFR/DR/ARD.

From an academic book store, such as Kramer:

The following books in print are given with indicative prices; the costs are subject to change. Some of the books published abroad may cost less if ordered from European publishers; however they can be obtained through local book sellers.

- Allan, William: The African Husbandman. Greenwood. \$28.
- Barnett, Tony: The Gezira Scheme. Biblio Dist. \$28.
- Biswas, Margaret R., and A. K. Biswas: Desertification. Pergamon. \$75.
- Cunnison, Ian: Studies in Sudan Ethnography. Humanities. \$17.50
- Dalby, David, Chruch and Bezzaz: Drought in Africa. International Publications Service. \$16.50.
- DeWilde, John: Experiences in Agricultural Development. Johns Hopkins. \$15.
- Equipe Ecologie et Anthropologie: Pastoral Production and Society. Cambridge University Press. \$14.95 (paper).
- Hall, Anthony E., Cannell and Lawton: Agriculture in Semi-arid Environments. Springer. \$49.95.
- Heady, Harold: Rangeland Management. McGraw. \$22.
- Heyer, Judith, Maitha, and Senga: Agricultural Development in Kenya. Oxford University Press. \$17.50.

- Kjekshus, Helge: Ecology Control and Economic Development in East African History. University of California Press. \$18.
- Leonard, David: Reaching the Peasant Farmer. University of Chicago Press. \$19.
- Lewis, I. M. A Pastoral Democracy. Holmes and Meier. \$34.50.
- Monod, Theodore: Pastoralism in Tropical Africa. Oxford University Press. \$49.50.
- Nelson, Cynthia: The Desert and the Sown. University of California Press. \$3.50 (paper).
- O'Keefe, Phil, and Wisner: Landuse and Development. International Publications Service. \$16.50.
- Pratt, D. J., and Gwynne: Rangeland Management and Ecology in East Africa. Kieger. \$23.50.
- Richards, Paul: African Environment: Problems and Perspectives. International Publications Service. \$6.50. (May only be available in French)
- Rigby, Peter: Cattle and Kinship among the Gogo. Cornell University Press. \$25.
- Ruthenberg, Hans: Farming Systems in the Tropics. Oxford University Press. \$69.
- Walls, James: Land, Man, and Sand. MacMillan. \$20.
- White, Gilbert F., Bradley, and White: Drawers of Water. University of Chicago Press. \$16.

From other sources:

James Newman's Ecological Basis for Subsistence Change among the Sandawe is available from the National Academy of Science, for \$11.75.

More Water for Arid Lands (PB 239-472) should be ordered from National Technical Information Service, Springfield, VA 22161, for \$11.

Gudrun Dahl's Suffering Grass can be ordered from the Department of Social Anthropology, University of Stockholm, S-10691 Stockholm, Sweden, for \$10.