

A.I.D. RESEARCH & DEVELOPMENT ABSTRACTS



**UNITED STATES AGENCY
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Volume 12, No. 1 1984
TN-AAA-041**

FROM THE EDITOR

Despite enormous recent advances in agricultural technology, there are still approximately 600 million people in developing countries who do not have access to enough food to meet their nutritional needs. Only a small proportion of these 600 million are clinically malnourished. Most suffer mild to moderate malnutrition, or are poorly nourished on a seasonal basis. Still others live on the margins of adequacy, where major illness, reduced income, or an increase in food prices could push them into nutritional deficit.

Malnutrition in developing countries is most often manifested in low stature and weight, limited work potential, reduced attentiveness and learning capacity, increased susceptibility to illness, and lowered life expectancy. Malnourished persons have less energy than do the well-nourished, are sick more often and more seriously, suffer more pregnancy losses, and give birth to smaller, less robust babies. They are less creative, less economically productive, and far more likely to die in infancy or childhood.

Inadequate food supply is the major cause of nutritional deficits, and improved agricultural technology the key to its solution. While the application of new agricultural technology — improved varieties, agronomic practices, and irrigation — has already resulted in spectacular growth in food production in much of the developing world, even greater increases are needed if we are to meet the food production challenges generated by continuing Third World population growth. Depending on the growth assumption one uses, the present world population is expected to double by the year 2020, the year 2030, or the year 2040. Thus, within the next 40 to 60 years, food production must be increased by an amount at least equal to the increase achieved since the discovery of agriculture 12,000 years ago.

Several papers announced in this issue of *ARDA* deal with the critical importance of agricultural research in alleviating food deficits. The role of international agricultural research centers in feeding the hungry is addressed in a speech given by Dr. Norman Borlaug at a 1/82 agricultural symposium (item 084). Dr. Borlaug surveys key factors affecting food production and identifies priority research areas, stressing the need for international cooperation and continued investment in agriculture. Nutritional concerns are also important in farm-level research, as reported in a case study (item 085) of an on-farm research project in Ecuador which pursued both dietary and food production goals.

Agricultural technology is the focus of a report (item 086), derived from CHEMRAWN II, the second International Conference on the Application of Chemical Research to World Food Needs. Provided are summaries of papers from a postconference workshop, focusing on soil infertility (probably the single major constraint to increased food production), plant nutrition, food

science, and aquaculture and integrated farming systems.

Proceedings of another workshop on the application of technology to nutritional needs (item 099) review plans by the Government of Indonesia to establish a pilot plant to produce single-cell protein from root crops to combat serious protein deficiencies among its people. Technology on another level is the topic of yet a third workshop report (item 098), on the significance of appropriate technologies for growing, handling, and using food in the home.

Multisectoral Development

Agricultural and other technological advances alone cannot solve the problem of malnutrition, however, for inadequate diets stem not only from insufficient food production, but also from lack of physical and economic access to food. Many countries with apparently adequate aggregate food supply, even some which are net food exporters, have serious nutrition problems. For this reason, A.I.D., which has long been a leader in international efforts to improve nutritional status, takes a multisectoral approach to the problem. A recent A.I.D. policy paper (item 091), examines a variety of initiatives that A.I.D., other donors, and developing countries themselves can adopt to maximize the impact of sectoral development programs on nutritional status. The

paper stresses the need to incorporate nutritional considerations into both the design and evaluation of programs and policies in agriculture, health, food assistance, population, and education and training. That these considerations have too often been neglected is demonstrated in an analysis (item 087) of ten A.I.D. project impact evaluations. Also cited in this issue is a 196-item annotated bibliography (item 088) on the nutritional impacts of specific development programs and methodologies for examining these impacts.

Food Aid

Food assistance is another important part of A.I.D.'s strategy to alleviate malnutrition. Since enactment of Public Law 480 in 1954, the United States has allocated more than \$22 billion to fund the purchase of food and other agricultural commodities by Third World countries on a concessional basis. This issue of *ARDA* announces A.I.D. impact evaluations of the P.L. 480 Title I food aid programs in Egypt, Peru, and Jamaica (items 080, 081, and 082, respectively), as well as an evaluation discussion paper (item 079) which describes the historical and administrative context of Title I aid and presents a comparative analysis of country programs in Egypt, Jamaica, Peru, Sri Lanka, and Bangladesh. The latter report concludes that the impacts of Title I aid on nutrition and dietary patterns vary according to the individual country situation; the need for better data on these impacts is stressed.

(Continued on inside back cover)

APPROPRIATE TECHNOLOGY SOURCEBOOK

Volunteers in Asia, publisher of the *Appropriate Technology Sourcebook*, Volumes One and Two, is now offering microfiche reproductions of its own comprehensive reference library on appropriate technology. The collection, which is the product of nearly a decade of research directed toward locating the best available reference publications on appropriate technology, consists of 872 practical books and plans — more than 112,000 pages of material. For further information on the microfiche reference library, as well as ordering instructions, please refer to the special insert at the back of this issue of *ARDA*.

Information on the Volunteers in Asia microfiche reference library is provided as a service to *ARDA* readers and does not represent an endorsement of the product by the Agency for International Development.

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 Washington, D.C.

ITEMS OF SPECIAL INTEREST

In keeping with its focus on food and nutrition, this issue of *ARDA* highlights a series of pioneering new studies in nutrition surveillance which promote the functional classification of malnutrition. To obtain microfiche or paper copies of these studies, which were conducted by Cornell University for A.I.D.'s Office of Nutrition, please refer to the ordering instructions in this issue.

CORNELL UNIVERSITY NUTRITIONAL SURVEILLANCE PAPERS

- PN-AAQ-176* Nutritional Surveillance
- PN-AAQ-177* Surveillance Summaries
- PN-AAQ-178* Analytical Methods for Nutritional and Socioeconomic Data
- PN-AAQ-179* Principles for Evaluation of On-going Programs
- PN-AAQ-181* Methods Used to Identify Priority Municipalities for Intervention Based on Operation TIMBANG and Socio-economic Data
- PN-AAQ-182* Preliminary Analysis of Nutritional and Agricultural Data, Eastern Province, Kenya
- PN-AAQ-183* Static and Dynamic Poverty Indicators: An Indonesian Example
- PN-AAQ-184* Assessing Likely Effects of Rural Development During Project Planning: A Test of Methods in N. Haiti
- PN-AAQ-185* Nutritional Effects of Rural Development: An Assessment as Part of the Planning of a Large-Scale Development Project in Palawan, Philippines
- PN-AAQ-186* Changes in Nutritional Status in the Philippines from 1979 to 1980
- PN-AAQ-187* National Health Information Systems and Their Use in Nutritional Surveillance
- PN-AAQ-190* Defining Nutritional Data Needs
- PN-AAQ-383* Minimum Data Needs for Assessing the Nutritional Effects of Agricultural and Rural Development
- PN-AAQ-388* Methods of Selecting, Designing, and Evaluating Food Aid Projects
- PN-AAQ-398* Using Nutritional Surveillance: More Will to Act, or Better Information and Policy Analysis?
- PN-AAQ-403* Report on the Evaluation of Botswana's Nutritional Surveillance System

QUESTIONS AND ANSWERS ABOUT ARDA

What is ARDA?	Division of Development Information, Center for Development Information and Evaluation, Bureau for Program and Policy Coordination.
What is the goal of ARDA?	The goal of ARDA is to transfer development and technical information to active practitioners in development assistance.
For whom is ARDA published?	ARDA's target audience is A.I.D. staff worldwide and selected key institutions in developing countries. Such institutions are government agencies, universities, libraries, research organizations, and other public and private sector organizations.
What materials are abstracted in ARDA?	ARDA presents abstracts of AID-funded current and less recent research studies, state-of-the-art reports, sector analyses, special evaluations, and other documents which, taken together, describe a broad spectrum of international development experience.
To whom do I address additional questions regarding ARDA?	Please direct all correspondence and requests for further information to: Editor of ARDA PPC/CDIE/DI Agency for International Development Washington, D.C. 20523 U.S.A.

QUESTIONS ET REPONSES RELATIVES A ARDA

Qu'est-ce qu'ARDA?	Division de l'Information sur le Développement, Centre d'Information et Dévaluation du Développement, Bureau de Coordination de Programmes et Politiques.
Quel est l'objectif d'ARDA?	Le but d'ARDA est de transmettre des informations techniques sur le développement à ceux qui prêtent assistance au développement.
A qui s'adresse ARDA?	ARDA s'adresse au personnel d'A.I.D. dans le monde entier et à certaines institutions clés situées dans les pays en voie de développement. Ces institutions comprennent des agences de gouvernement, des universités, des bibliothèques, des organisations de recherche, et d'autres organisations dans les secteurs publics et privés.
Que contiennent les résumés d'ARDA?	ARDA présente des résumés des recherches actuelles et moins récentes financées par A.I.D., des rapports sur l'état actuel du développement, des analyses de différents domaines, des évaluations spéciales, et d'autres documents. Le tout ensemble décrivent une vaste étendue d'expériences dans le domaine du développement international.
A qui est-ce qu'il faut poser des questions supplémentaires au sujet d'ARDA?	Veuillez envoyer toute correspondance et toute demande de plus amples renseignements à: Editor of ARDA PPC/CDIE/DI Agency for International Development Washington, D.C. 20523 U.S.A.

PREGUNTAS Y REPUESTAS SOBRE ARDA

¿Que es ARDA?	División de Información sobre el Desarrollo, Centro de Información y Devaluación del Desarrollo, Departamento de Coordinación de Programas y Políticas.
¿Cual es el objetivo de ARDA?	El objetivo de ARDA es comunicar información técnica y sobre el desarrollo a los participantes activos en las actividades del desarrollo.
¿Para quien se publica ARDA?	ARDA se dirige al personal mundial de A.I.D. y a las seleccionadas instituciones claves de los países en desarrollo. Tales instituciones cuentan con agencias de gobierno, universidades, bibliotecas, organizaciones de investigación, y otras organizaciones de los sectores público y privado.
¿Que contienen los informes de ARDA?	ARDA presenta resúmenes de estudios actuales y menos recientes financiados por A.I.D. relativos a la investigación, de informes sobre el estado del arte, de analisis de sectores, de evaluaciones especiales, y de otros documentos, los que todos juntos describen un panorama extensivo de experiencias dentro del dominio del desarrollo internacional.
¿A quien se dirigen preguntas adicionales sobre ARDA?	Sírvase remitir toda la correspondencia y los pedidos de más información a: Editor of ARDA PPC/CDIE/DI Agency for International Development Washington, D.C. 20523 U.S.A.

USER'S GUIDE TO ARDA CITATIONS

Item number	101	PN-AAK-592	Document number	
		MF \$3.24/PC \$28.47	Microfiche/ Paper Copy prices	
Title	Soybean seed quality and stand establishment; proceedings		Serial title and number, date, pagination, and language	
Author(s)				
Institution(s)	Sinclair, J.B.; Jackobs, J.A. University of Illinois at Urbana-Champaign. College of Agriculture. International Soybean Program (Conference on Soybean Seed Quality and Stand Establish- ment; Colombo, LK, 25-31 Jan 1981)		Publisher	
Meeting				
Supplementary note(s)	<i>INTSOY series, no. 22, 1982, xiii, 206 p., En</i> Published by University of Illinois at Urbana-Champaign <i>Grant DAN-1406-G-00-1015-00</i>			
Project number			93105600	
Contract/Grant			AID/ta-C-1294	

Soybean research has shown that both physical and biological factors are responsible for reduced seed quality and vigor, that stand establishment depends on seed quality, and that seed quality is directly influenced by weather conditions during seed maturation and harvest and by subsequent storage conditions. Because knowledge of these facts remains largely fragmented and is not being communicated to farmers, the International Soybean Program (INTSOY) hosted an international conference in Sri Lanka for research scientists and extensionists to correlate current knowledge on soybean seed quality and stand establishment, discuss ways to communicate this knowledge to farmers, and determine future research needs.

The conference proceedings presented in this volume include: (1) 19 invited papers and abstracts of 13 volunteered papers on soybean seed maturation, genetic differences in seeds, the effect of weather, harvesting and planting procedures, and the role of insects and pathogens; (2) 11 country reports from various Asian nations; and (3) reports from three working committees on soybean production, crop protection, and storage and mechanization

In the plenary sessions, the speakers voiced a number of proposals on what emerged as a major concern among the delegates—the importance of seed quality in expanding soybean production in tropical and semi-tropical areas. Pointed out in particular was the complexity of soybean seed production in the tropics and semi-tropics due to the high humidity and temperature levels that prevail throughout the year. Other themes sounded were the necessity for good seed to make soybean an economical crop and the nutritional importance of soybeans.

All information presented during the conference related to seed production, technology, and storage and to seed certification in tropical and semi-tropical developing countries. Such information is directly related not only to INTSOY goals, but to complementary efforts of other international donors such as the Food and Agriculture Organization's ongoing Regional Field Food Crops project in North Africa and the Middle East.

Abstract

To facilitate rapid and accurate processing of your requests for documents from this issue of ARDA, please observe closely the ordering instructions found on the page following the last abstract.



GENERAL DEVELOPMENT

001

PN-AAM-888

MF \$3.24/PC \$30.16

Development issues: U.S. actions affecting developing countries, the 1983 annual report of the Chairman of the Development Coordination Committee

McPherson, M.P.

U.S. International Development Cooperation Agency.

Development Coordination Committee

Feb 1983, v, 222p. : En

The Development Coordination Committee (DCC) was established by the U.S. Congress with the mandate to ensure the basic human needs thrust of U.S. foreign policy. This DCC Annual Report for FY 1982 provides evidence that this mandate is being fulfilled.

Following an introductory summary of economic development issues and U.S. assistance programs in 1982, Part II reviews the status of developing countries as a group in the world economy in terms of current levels of development, international trade and lending, private direct investment, economic policies, and the North-South dialogue in international economic systems.

Part III explains the objectives and priorities of U.S. support for both bilateral programs (including a description of major nonsectoral emphases and the priority sectors of food and agriculture, energy, and human resources development), and multilateral programs in conjunction with multilateral development banks (MDB's) and U.N. agencies.

Part IV provides an account of actual U.S. support during 1982 for MDB programs. A prefatory letter to the U.S. Congress by the DCC chairman notes that the ultimate objective of U.S. development assistance is to serve as a short-term catalyst to stimulate self-sustaining economic growth and development in recipient countries.

002

PN-AAL-122

MF \$1.08/PC \$9.75

El Salvador: a country profile

Evaluation Technologies, Inc.; U.S. Agency for International Development. Office of U.S. Foreign Disaster Assistance

Jun 1982, v, 69p. : En

AID/SOD/PDC-C-0283

Baseline information for the planning and relief operations of the U.S. Office of Foreign Disaster Assistance are presented in this country profile of El Salvador. Brief descriptions are presented of the country's historical, geographical, and infrastructural characteristics, government structures and processes, disaster preparedness organizations and procedures, and population status and trends. Health status, particularly the high prevalence of gastrointestinal diseases and of malnutrition, is reviewed in relation to sanitation, health facilities and personnel, nutrition, water supply, and housing. A description of the economy includes a historical overview since 1960, a review of trends in domestic production and trade, and an assessment of the current situation. For agriculture, recent declines in export crop production, problems in food storage, and trends in import-export activities are summarized. A description of the country's physical geography discusses climate, land and water resources and uses, and volcanic and earthquake activity. Transportation is reviewed in terms of roads, railroads, port facilities, and airports and airlines. A brief

description of the country's power and communications systems concludes the report. A 37-item bibliography (1958-82) is included.

003

* PN-AAN-030

MF \$2.16/PC \$23.53

Systematic project design: a handbook for volunteers

Vanderschmidt, Lori; Lent, Maria

Boston University. Center for Educational Development in

Health; U.S. Agency for Volunteer Service. Office of

Citizen Voluntary Participation

Aug 1981, vii, 156p. + attachments : En

* Boston University, Center for Educational Development in Health, 67 Bay State Road, Boston, MA 02215 USA, \$12.95 plus postage and handling.

A handbook to help volunteer personnel plan, implement, and evaluate social service and health programs in the uncertain or unfamiliar situations in which they often find themselves is herein presented.

Part I, a guidebook, describes the what, why, when, and how of executing projects. It explains how to analyze the local situation, assess specific needs and set specific goals, plan procedures to reach those goals, evaluate achievements, and identify and solve implementation problems.

Part II discusses methods for carrying out the above-noted processes, including library research, field surveys, community organization, group discussion, bargaining and negotiation, modeling, nonformal training, cost analysis, and evaluation methods. The advantages and disadvantages of each method are noted, and examples and references provided.

Part III presents a bibliography of manuals for use by volunteers in the areas of health and primary care, water and sanitation, nutrition and food production, education, economic development, community services, energy and conservation, and miscellaneous areas.

Examples of six data collection forms are included.

004

PN-AAN-633

MF \$1.08/PC \$4.29

Assessment of the Sahel development program

U.S. Agency for International Development. Bureau for Africa.

Office of Sahel and West African Affairs

Mar 1983, 23p. + 2 annexes : En

The Sahel Development Program (SDP) - a multidonor effort which grew out of drought relief activities in the early 1970's - is reviewed, with special reference to A.I.D.'s participation therein. The report specifically examines: the program's general economic effects; A.I.D. efforts in the agriculture, livestock, forestry/ecology, human resources, and health sectors; regional coordination by the Permanent Interstate Committee for Drought Control in the Sahel (CILSS) and by the Club du Sahel; program management; and the implications of economic and political change for the SDP.

The SDP is, the report concludes, while far from perfect, one of the best examples of international cooperation for development. Its quality and effectiveness have steadily improved as we have gradually come to better understand the



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Sahelian context, and its original objectives remain sound and feasible, despite problems encountered in their pursuit.

The following are among the major lessons of the SDP: (1) Because available technical packages are inadequate for most Sahelian areas, several food production and integrated development projects should be phased out or substantially reoriented. (2) Agricultural research must be strengthened, refocused on farming systems and on the development of national research systems, and selectively expanded; attention must also be given to strengthening agriculturally-oriented institutions and education. (3) Government agencies should restrict themselves to roles that cannot be appropriately performed by the private sector, and the private and cooperative sectors enabled to take up input and marketing functions. (4) Policy constraints to economic and agricultural development must be resolved. (5) River basin and irrigation development should be continued, and forestry and environmental efforts intensified. (6) Livestock production activities should be initiated only when a clearly adequate technology is being introduced. (7) A.I.D. has taken on too many projects, in too many widely dispersed geographical and sectoral areas. (8) Project design must give scrupulous and realistic attention to the financial and administrative capabilities of Sahelian institutions and of A.I.D. management resources.

005

PN-AAN-828

MF \$2.16/PC \$22.49

Niamey Department development project: managing rural development with minimal evidence

Wentling, Mark G.

Cornell University; U.S. Agency for International Development. Bureau for Development Support

Aug 1983, 164p. : En

Masters thesis submitted to Cornell University.

Managers of agricultural projects in developing countries need farm-level information that is useful and timely. The large-scale efforts which are frequently undertaken to obtain this information are often costly and cumbersome to execute and may produce a large amount of information that is inconsequential to project operations. Moreover, much of the essential information generated by these efforts often arrives too late to be of use in making key project decisions.

This paper uses the case of the Niamey Department Development Project in the Republic of Niger to illustrate how a minimal amount of easily obtainable data can be adequate to implement a new project or effectively manage an ongoing program. Drawing upon his own experience with this project, the author describes how this simple, common-sense approach was used to assist the administration of this complex regional development project. Many insights gained by the application of this approach as well as the problems involved in collecting farm-level data under uncertain agricultural conditions in a resource-poor country are related. This approach is recommended for areas where little concrete information is available, especially in those situations which call for an inexpensive means of quickly identifying principal farming practices and important constraints affecting major cropping systems. (Author abstract, modified)

006

PN-AAN-841

MF \$2.16/PC \$13.52

Practical manual for a simplified accounting system

Kante, Mamadou; Perkins, Patricia; et al.

Virginia Polytechnic Institute and State University; U.S.

Department of Agriculture; U.S. Agency for International Development. Bureau for Management. Office of Financial Management

1982, vi, 100p. : En
6250950

Reflecting experience gained in field tests in the Sahel, this updated manual presents a basic accounting system for use in the financial management of development projects.

The first two sections, respectively, note that the basis of project financial management is defined in project documentation and explain and illustrate three types of accounting books which need to be maintained – a donor receivable account, an encumbrance journal for ongoing transactions, and a cash receipts and disbursements control ledger. The bulk of the manual explains and illustrates 18 different project accounting operations, including establishing separate accounting books and records for each project, recording approval of official project documentation, requesting and receiving A.I.D. cash advances, preparing and adjusting the encumbrance journal, processing and recording payments, establishing an open payable file and a petty cash fund, closing the books, preparing bank reconciliation and monthly financial reports, and recording interest earned on AID-generated resources.

Appendices treat internal controls; accrual accounting, property records, revolving credit funds, and branch accounting; sample forms are provided.

007

PN-AAN-878

MF \$1.08/PC \$2.21

Forty years of U.S. Latin American technical and economic cooperation

Lowenthal, William

U.S. Agency for International Development. Bureau for Latin America and the Caribbean

1983, 17p. : En
LAC-000-0-00-3006-00

The history of U.S. technical and economic assistance to Latin America from the formation in 1942 of the Institute of Inter-American Affairs to the current Caribbean Basin Initiative is reviewed.

Early efforts centered on forming joint technical service units to improve the capabilities of Latin American ministries, especially in the areas of agriculture, health, and education. In the 1950's this assistance was expanded into new areas such as public administration and low-cost housing, loans for financing U.S. exports were introduced, and the capital of public lending institutions rose greatly. Nonetheless, a rising tide of social consciousness led Latin American leaders to see in this increased help only increased cause for the criticism that the United States was strengthening systems oppressing the poor. The U.S. response was summed up in the establishment in 1961 of the Alliance for Progress, the greatest achievement of which was to make development the number one agenda item of every country in the hemisphere. Nonetheless, failure to stimulate private enterprise has tended to widen the gap between developed and developing countries. Latin America's



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worsening economic condition since the 1970's has led to the recognition that financial and technical support of private enterprise is a sine qua non for progress.

008

* PN-AAN-899

MF \$6.48/PC \$76.31

U.S. nonprofit organizations in development assistance abroad: TAICH directory 1983

Boynes, Wynta; Lowenstein, Florence M.; McClanahan, Roger B.

Technical Assistance Information Clearing House; American Council of Voluntary Agencies for Foreign Service, Inc. 8th ed. 1983, xiv, 584p. : En

* TAICH, 200 Park Avenue South, New York, NY 10003

USA. Available to PVO's and government agencies from TAICH for \$15 plus \$3 handling. Also available from UNIPUB for \$25 plus postage.

Basic institutional and program data on nonprofit organizations involved in overseas development work are provided in this updated directory, first published in 1956.

A total of 497 organizations are listed: 189 voluntary agencies, 14 foundations, 207 religious organizations, and 87 others. Profiles are arranged alphabetically by organization and provide the following information to the extent it was supplied by the agencies themselves: name and address; Telex number/cable address; founding and incorporation dates (U.S. agencies); name and title of agency executive(s); director(s) of overseas programs (in the United States); objectives; program(s) and countries of assistance; resources (financial data, personnel); and publications and audiovisuals. Following the main text are category, country, organization, and state indexes.

009

* PN-AAP-123

MF \$4.32/PC \$8.00

Directory of development resources: U.S.-based, A.I.D.-funded services; international, regional, and national institutions; newsletters and journals; data base services

Roman, Marcia D.

Creative Associates, Inc.; U.S. Agency for International Development. Bureau for Science and Technology. Office of Technical Review and Information

Nov 1983, iii, 337p. : En

9362254

AID/DSAN-C-0243

* All non-A.I.D. requestors will be charged \$8.00 plus postage for each copy.

A multisector directory of U.S. and foreign development-oriented resources is presented. These resources include data bases, information clearinghouses, newsletters and journals, technical support services, and field research facilities which are available to development workers in more than one country; each project or institution described provides at least two of these services.

The publication is divided into two major sections: the first lists 70 international, regional, and national organizations and gives a profile of each; the second describes development services carried out by 36 U.S. institutions in connection with

AID-funded projects. Other services offered by these U.S. institutions are not listed. Likewise, only those private voluntary organizations working on AID-funded projects are listed. Institutions outside the United States were recommended by A.I.D. Missions. Descriptions of institutions are based as closely as possible on those provided by the institutions themselves.

A regional and country index is included, followed by a subject index. The appendices list newsletters and journals, along with data base services, in alphabetical order.

010

PN-AAN-463

MF \$4.32/PC \$42.38

Women and work in the third world: the impact of industrialization and global economic interdependence

El-Sanabary, Nagat M.

University of California, Berkeley. Center for the Study, Education and Advancement of Women; U.S. Agency for International Development. Bureau for Program and Policy Coordination. Office of Women in Development

(Women and Work in the Third World: The Impact of Industrialization and Global Economic Interdependence, Berkeley, CA, US, 6-7 May 1982 & 14-15 Apr 1983)

Jun 1983, viii, 322p. + appendices : En

OTR-0100-GSS-2138

Research presented at two conferences on women and work in the Third World indicates that the number of women workers in national and international industries has increased dramatically, thus increasing not only women's wage-earning capacity but also their social and personal problems. This report presents the proceedings of both conferences.

The first five papers discuss theory and research on women's participation in industrial work. A second section of five papers outlines opportunities and challenges posed to Third World women by multinational corporations. The socio-economic context of women's work is the subject of the next six papers. Eight case studies from Africa, Asia, Latin America, and the Middle East on women and industrial work are then presented, followed by three papers on education and training. A final section presents four papers on programs by and for women, an agenda for research on women in the Third World, and a 36-item bibliography (1973-82) which cites four other bibliographies.

011

PN-AAN-831

MF \$2.16/PC \$13.52

Sex roles in the Nigerian Tiv farm household and the differential impacts of development projects

Burfisher, Mary E.; Horenstein, Nadine R.

Population Council; U.S. Agency for International Development. Office of Women in Development

Case studies of the impact of large-scale development projects on women: study, no.2, Mar 1983, xv, 89p. : En

A planning methodology for development projects which incorporates sex role differences in the farm household is set forth in this paper. Data are drawn from an agricultural project in Central Nigeria, and focus on one ethnic group, the Tiv. The paper provides a quantitative comparison between the pro-

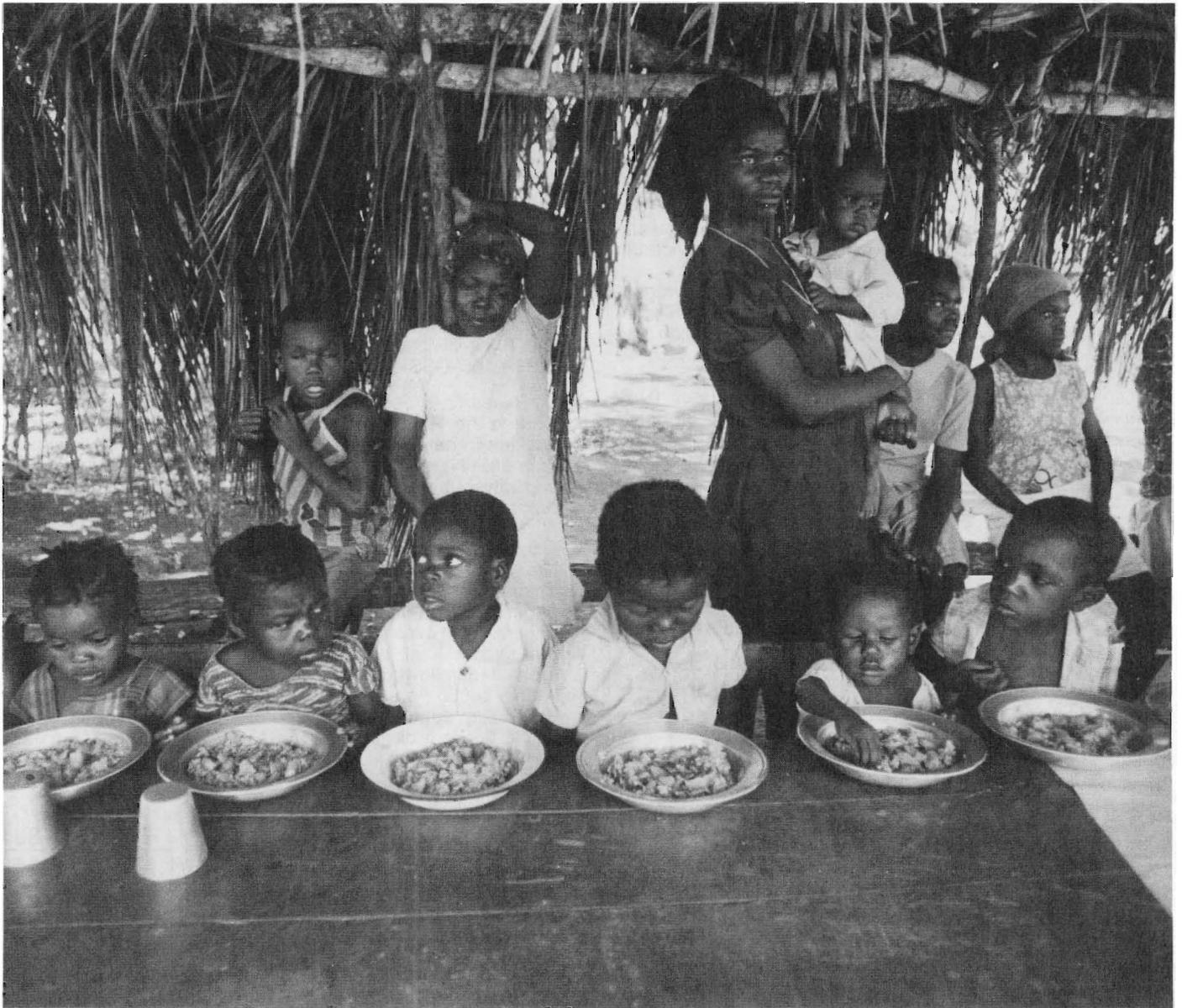


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jected impacts of a development project using a conventional planning methodology based on the aggregated farm household and one using the proposed methodology in which project impacts are disaggregated by sex. It finds that a consideration of sex role differences helps to identify obstacles and flexibili-

ties that are not anticipated by conventional analysis but which can influence farmers' decisions to adopt new technologies.

Appended are reports covering labor requirements for 10 crops on a typical farm, the division of labor in staple crop production, net returns by crop, farm labor profiles by crop, and a 46-item bibliography (1954-81). (Author abstract, modified)



A.I.D.'s child feeding and other food distribution programs help alleviate the malnutrition that perpetuates underdevelopment.

012

PN-AAL-031
MF \$2.16/PC \$13.00

Comparative analysis of policies and other factors which affect the role of the private sector in economic development

Dunlop, David W.

U.S. Agency for International Development. Bureau for Program and Policy Coordination. Office of Evaluation
A.I.D. program evaluation discussion paper, no.20, Dec 1983, xi, 80p. + attachment : En

How can governments foster the private sector? To help answer this question, six countries – Malawi, Cameroon, Costa Rica, Thailand, the Dominican Republic, and Sri Lanka – are herein compared in terms of economic development, international trade, economic policy and political economy, trends in mobilization and allocation of capital and human capital, and allied issues such as the development of entrepreneurial skills and the role of small businesses.

Although all of the governments professed to support the private sector, actual interventions varied. Positive actions included investing in infrastructures which are complementary to private production processes, contributing to the supply of savings and channeling donor assistance (preferably on concessionary terms), and improving the country's human capital, although it is probably wise for governments to focus on general education rather than on specific occupational requirements. Pragmatic leadership – requiring public entities to perform without subsidies or special assistance – is also important, especially in countries where resources are meager and private investors few.

On the other hand, governments should not try to control or regulate prices, establish quotas, or otherwise alter free-market functions to help finance social welfare programs; if they do, large-scale problems can quickly emerge, as Costa Rica and Sri Lanka have learned. This is especially true in regard to agriculture – marketing boards, established to stabilize prices for small producers, have in fact been used for taxation purposes, resulting in reduced output and a worsened economic situation. Finally, except where there are clear economies of scale and the potential for a natural monopoly, as in public utilities, governments should probably not own companies or producing units. Parastatals' lack of the discipline of the marketplace can lead to disastrous long-term implications, as a number of African countries have already witnessed.

013

PN-AAL-033
MF \$2.16/PC \$24.05

Capitalizing workers: the impact of employee stock ownership plans in selected developing countries

Goldmark, Susan G.; Roth, Alan D.; et al.
Development Alternatives, Inc.; U.S. Agency for International Development. Bureau for Program and Policy Coordination. Office of Evaluation
A.I.D. evaluation special study, no.19, Jan 1984, xiii, 41p. + annexes : En
PDC-1406-I-04-1089-00

Employee Stock Ownership Plans (ESOP's) represent a potential A.I.D. strategy for strengthening the private sector by extending capital ownership to economically disenfranchised groups. Such plans can supplement employee benefits and

improve workers' income and retirement security, while providing companies with capital formation, access to new credit sources, tax advantages, and gains in productivity.

This study examines two ESOP programs in each of three developing countries – Costa Rica, Thailand, and Zimbabwe – and two, for comparison, in the United States. Also provided are discussions of the theoretical framework behind ESOP's and of different types of plans.

All the companies studied were large and financially successful, but their success could not definitely be linked to the presence of ESOP's. All but one were enthusiastic about their ESOP's – the exception being a Zimbabwean company which borrowed money to purchase shares which later declined drastically in price. As none of the developing countries provided tax benefits or other incentives to encourage ESOP's, all the plans were instituted at some cost to the company or to stockholders. Three companies contributed post-tax earnings to purchase newly issued stock for employees; two provided an interest-free loan to a trust for that purpose. Thus the funds flowed back into the company so the main financial cost was the dilution of the value of existing shares. Employees' gains varied considerably: some employees obtained substantial income or retirement security, while others had not yet received any financial benefits. One company gave the employees' trust a controlling interest in the firm and others gave employees increased involvement in personnel management issues. Generally, national and company-specific factors affected the plans' success, precluding generalizations as to their impact.

In conclusion, the authors recommend an experimental A.I.D. program to promote ESOP's and evaluate their impact. The possible elements of such a program are described.

Appendices provide detailed information on the factors behind the adoption of ESOP's and their national- and company-level impacts. A 53-item bibliography (1958-82) is included.

014

PN-AAN-769
MF \$1.08/PC \$8.71

Short-run energy-economy interactions in Egypt

Choucri, Nazli; Lahiri, Supriya
Cairo University; Massachusetts Institute of Technology.
Technology Adaptation Program; U.S. Agency for International Development. Bureau for Near East. Egypt
TAP report, no.83-7, Jul 1983, 36p. : En
2630061
263-0061-C-00-1001-00

Much of the recent upsurge in the Egyptian economy has been provided by the strong, well-managed petroleum sector. Two obstacles to the continuation of these increased earnings are the highly subsidized domestic price of oil, which encourages domestic consumption, and the prevailing uncertainty as to reserve generation and the future production possibilities of oil. This report analyzes the effects of oil price increases, using a short-run ten-sector macro-economic model with explicit treatment of oil extraction, oil refining, and a sector consisting of electricity and natural gas.

While an increase in the domestic price of oil will diminish petroleum use and induce conservation of oil resources, the reduction in petroleum use will impose painful adjustment problems for the economy, causing increased inflation, a fall in the share of wage income, and sharp output losses. A gradual increase in the price of oil towards the world price level would be less painful than would a quantum jump rise, in terms of the

adjustment burdens for the economy. The most effective policy would be interfuel substitution in the industrial sector; however a high elasticity of substitution in the production processes between petroleum and natural gas will not succeed without efforts to increase the short-run supply of natural gas as well. The macro-economic implications of domestic petroleum pricing strategies in Egypt are extremely important; an overall energy/economy strategy is required in which adjusting domestic prices toward international prices is only one element. (Author abstract, modified)

015 **PN-AAN-829**
MF \$1.08/PC \$1.82

Farm household heterogeneity and rural financial markets: the case of Thailand

Meyer, Richard L.; Alicibusan, Adelaida P.
Ohio State University. Department of Agricultural Economics and Rural Sociology; U.S. Agency for International Development. Bureau for Asia. Thailand
Aug 1982, 12p. : En

Data collected during 1980-81 in Thailand on farm household cash flow patterns are herein analyzed to show how differences in household financial needs give rise to opportunities for financial intermediaries. The data show differences in cash flow between borrower and nonborrower households. Nonborrowers were basically self-financed, with higher and more evenly spread farm cash receipts, a more complex combination of enterprises (including more nonfarm income), and lower and more evenly distributed total family living expenses. Data suggest that the current one-sided emphasis in Thailand, as in other countries, on supplying agricultural credit funds to commercial banks and cooperatives should be broadened to include local savings mobilization programs for use in lending to the nonfarm but agriculturally linked firms and households whose financial needs are generally neglected.

016 **PN-AAN-843**
MF \$1.08/PC \$11.70

Annotated bibliography on agricultural credit and rural savings: a special issue on India

Ohio State University. Department of Agricultural Economics and Rural Sociology; U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture
May 1983, v, 84p. : En v.7
AID/CSD-2501

Extensive research on rural financial issues has been done in India in recent years. This bibliography, seventh in a series, presents abstracts of 196 important rural finance studies in India, categorized as rural credit or rural savings studies, and arranged in alphabetical order by author. The section on rural credit includes 167 items (1925-83); that on rural savings lists 29 (1954-81). An author and organization index is also provided.

017 *** PN-AAN-871**
MF \$1.08/PC \$8.84

Food subsidies in Egypt: their impact on foreign exchange and trade

Scobie, Grant M.
International Food Policy Research Institute
IFPRI research report, no.40, Aug 1983, 67p. : Bibliography: p.61-67, En
* IFPRI, 1776 Massachusetts Ave., NW, Washington, DC 20036 USA

Egypt's extensive system of food subsidies has adversely affected virtually every aspect of its economy, according to this study of the monetary and real effects of food subsidies on Egypt's foreign exchange and trade sector.

The author first reviews historical trends in government food subsidy expenditures and in food imports. An economic model employing monetary variables is then developed and used to determine the impact of food subsidy expenditures on domestic inflation, the balance of payments, and the exchange rate; results show that increased subsidy spending would increase inflation, reduce net foreign assets, and cause a devaluation in the black market exchange rate, effects likely to affect real resource allocation. Further analysis shows that food imports used in the food subsidy program are maintained at the expense of imports of essential raw materials needed by the industrial sector and of capital goods, making it likely that the food subsidy program has imposed real costs on nearly all of Egypt's nonfarm sectors. A final section notes some policy implications of these findings. Included are 24 tables, a discussion of post-World War II Egyptian exchange rate schemes, and general and special bibliographies (1952-82) totaling 121 items.

018 *** PN-AAN-873**
MF \$1.08/PC \$10.14

World rice market: structure, conduct, and performance

Siarnwalla, Arnmar; Haykin, Stephen
International Food Policy Research Institute
IFPRI research report, no.39, Jun 1983, 79p. : Bibliography: p.73-79, En
* IFPRI, 1776 Massachusetts Ave., NW, Washington, DC 20036 USA

The introduction of high-yielding rice varieties in Asia during the last two decades has, paradoxically, made the traditionally thin world rice market even more so. To explain this phenomenon, this report examines the structure, conduct, and performance of the world rice market from the viewpoint of interactions among sovereign governments, examining data on trade, prices, and production and consumption with the help of an econometric model to explain short-run government responses to price and production fluctuations.

It is found that only a small proportion of rice is traded on the world market, due to mistrust of the market's stability by both importing and exporting countries, causing them to depend primarily on their own stockpiles. Further factors are: wide fluctuations in world prices and domestic production; overlapping of production and consumption areas; an increased wheat supply; and the absence of a central rice market similar to that for wheat and maize, leading to large search and transaction costs. Poor market performance, it is concluded, is due to a failure to reallocate production from countries where

costs are high to those where costs are low. Discussion of the study's data sources and of the instrumental variable estimations employed are appended, along with a 6-page bibliography (1941-83). Twenty-five statistical tables are included.

019

* PN-AAN-887

MF \$1.08/PC \$8.45

Rural growth linkages: household expenditure patterns in Malaysia and Nigeria

Hazell, Peter B.; Roell, Ailsa

International Food Policy Research Institute

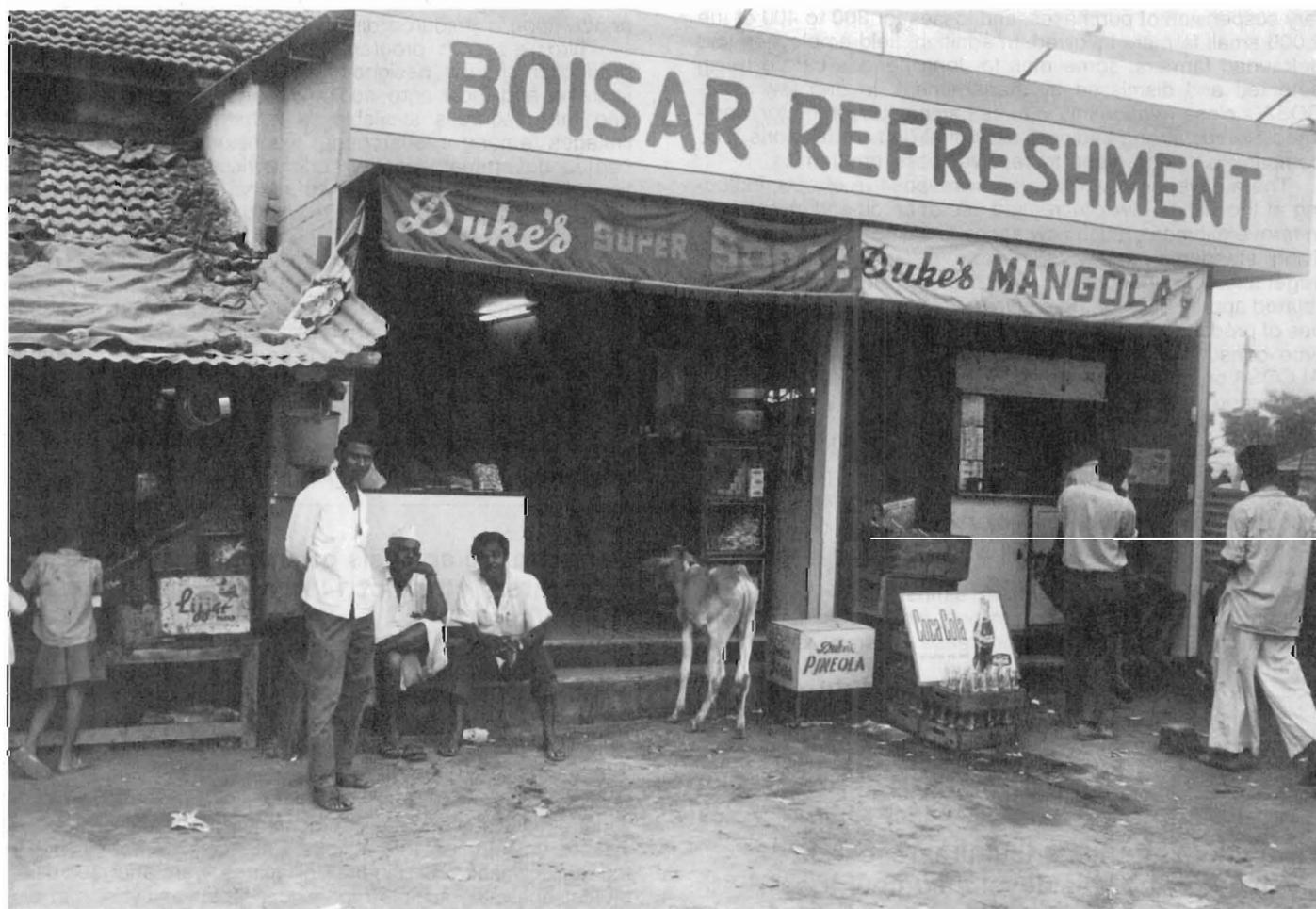
IFPRI research report, no.41, Sep 1983, 64p. : En

* IFPRI, 1776 Massachusetts Ave., NW, Washington, DC 20036 USA

Linkages between agricultural growth and the rural nonfarm economy are the subject of this study of household expenditure patterns in areas benefiting from two World Bank projects.

Introductory sections treat the indirect economic effects of agricultural growth; the geography, social structure, landholding patterns, and living standards of the two study areas, the Muda irrigation project in northwest Malaysia and the Gusau agricultural development project in Nigeria; and data sources and methods of data analysis. Household expenditure behavior is then broken down by commodity group, per capita income, and farm size, and linkages between expenditures and the origin of the goods bought are outlined.

Results show that larger and richer farm households spend more on local nontradable goods and services than do smaller and poorer ones and are thus more likely to stimulate local economic growth, making them more suitable targets for agricultural interventions. The authors qualify this conclusion in several ways, however (e.g., large farms in the study areas may not be large by other standards, large farm savings may not stay in the local economy), and suggest that study findings may indicate the need for a trade-off between growth and equity.



Energy sector investments can stimulate private enterprise development, as is evident in this Indian village.



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020

PN-AAJ-172

MF \$2.16/PC \$13.39

Social impact of agribusiness: a case study of Alcosa in Guatemala

Kusterer, Kenneth C.; Estrada De Batres, M.R.; Cuxil, J.X. U.S. Agency for International Development. Bureau for Program and Policy Coordination. Office of Evaluation *A.I.D. evaluation special study, no.4*, 1981, 103p. : En AID/LAC-C-1399

ALCOSA, a large agribusiness in Guatemala was evaluated favorably by A.I.D. in 1977, but subsequently criticized by others as having unexpected negative social impacts. This review attempts to resolve this ambiguity. ALCOSA's growth, operations, and its impacts - at the company processing plant and in three cauliflower-producing highland towns - are discussed.

By 1980, due to organizational and technical problems, ALCOSA was facing an operating crisis. Vegetable purchasing had outstripped the company's capacity to control and administer it, leading to a breakdown in field organization, temporary suspension of purchases, and losses for 300 to 400 of the 2,000 small farmers involved. In addition, field employees had defrauded farmers, sometimes for long periods before being detected and dismissed by management. In one town, ALCOSA's close relationship with its Ladino subcontractor worsened already strong Ladino-Cakchiquel (Indian) tensions. The company is taking steps to resolve these problems.

There have, however, been several positive effects, including at the village level: increased use of credit and investment in farm equipment; much new agricultural know-how; improved living standards; and a shift from cultivating a variety of vegetables to concentration on cauliflower and broccoli and a related appreciation of the efficiency of marketing large quantities of produce to a commercial purchaser as opposed to small time-consuming local sales. In many cases, participation in the ALCOSA program has enabled the poorest farmers to increase their incomes and to remain independent family farmers.

In one village, Santiago, women participate more fully in agricultural production, almost as equal partners with their husbands. Here, ALCOSA's impact has been most positive, perhaps because the residents have used the company as a resource for planned community development, and because ALCOSA works through a cooperative, avoiding the tensions existing elsewhere.

At the ALCOSA plant, where almost all employees are women, wages are high, permitting workers either a new economic freedom or a great increase in family standard of living; 95% of employees report high satisfaction with their jobs, pay, and lives as workers.

021

PN-AAL-020

MF \$3.24/PC \$31.59

Strengthening the agricultural research capacity of the less developed countries: lessons from A.I.D. experience

Murphy, Josette U.S. Agency for International Development. Bureau for Program and Policy Coordination. Office of Evaluation *A.I.D. program evaluation report, no.10*, Sep 1983, v, 49p. + 4 appendices : En

Lessons learned from A.I.D.'s efforts to strengthen developing country agricultural research capacities are assessed. The assessment is based on the findings of impact evaluations of AID-funded research projects in Kenya, Central America, Korea, Guatemala, Nepal, Thailand, Tunisia, and West Africa; a review of other project evaluations; and a 6/82 AID-hosted international conference (proceedings appended). Key findings and recommendations for future A.I.D. efforts fall into four categories.

First, a genuine, long-term commitment to agricultural research by the host government determines research sustainability and indirectly the use of research findings. Such support will be more likely if there is continuous dialogue among politicians, administrators, and researchers, and if the government receives a clear demonstration of the potential benefits of the research and agrees with the research institution on the latter's mandate and authority.

Second, since host government policies and infrastructure partially determine farmer adoption of new technologies and the availability of needed support services, research programs should be selected within a broad rural development policy and planning framework. Also, technological changes can sharpen inequity among rural households if technology adoption depends upon a resource distributed unequally.

Third, research programs can only help increase food production if their designers are aware of existing farming systems and local agro-ecological and economic conditions and the resources available to farmers. This will demand linkages among researchers, extensionists, farmers, concerned government entities, and agricultural training institutions. Fourth, the sustainability of research demands efforts to retain skilled personnel. To this end, A.I.D. training should complement technical assistance and be adapted to a country's real needs and capabilities, and returning trainees should be given adequate incentives. National research institutions should maintain an active network of information exchange with other national and international institutions.

Most of the above issues, it is concluded, share a common solution - coordination and information flow among all concerned.

022

* PN-AAL-860

MF \$1.08/PC \$2.34

Comparative analysis of cropping systems: an exploratory study of 14 rainfed sites in the Philippines

Paris, T.R.; Price, E.C.; Jayasuriya, S.K. International Rice Research Institute *IRRI research paper series, no.83*, Nov 1982, 17p. :

References p.16-17, En

* IRRI, P.O. Box 933, Manila, Philippines

The adaptation of cropping systems to the environment has been identified as a vital need. This study discusses the use of various multivariate statistical techniques to examine cropping system-environment interactions. Data, collected at 14 sites in four agroclimatic zones in the Philippines, were analyzed using tabular analysis, multiple regression, factor analysis, and discriminant analysis techniques.

All techniques showed that biophysical factors are the dominant influence determining the number of crops grown in sequence and the duration of land use by crops, while farm-level socioeconomic variables are less influential. The study showed that the complexity of components within farming



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systems makes it necessary to use multivariate statistical techniques to understand the underlying relationships. Single equation multiple regression models, while inadequate by themselves, can be used to understand how site-level factors are combined with farm-level system characteristics. Factor and discriminant analysis help to overcome some limitations of single equation multiple regression models, but results should be carefully interpreted because variables are not always normally distributed. In future studies, careful specification of hypotheses by interdisciplinary teams regarding system-environment relationships is desirable. (Author abstract, modified)

023

*** PN-AAL-972**

MF \$8.64/PC \$99.32

Report of a workshop on cropping systems research in Asia

International Rice Research Institute
(Cropping Systems Conference, Manila, PH, 3-7 Mar 1980)
1982, vii, 756p. : En

* *IRRI, P.O. Box 933, Manila, Philippines*

A Cropping Systems Conference, held in March 1980 at the International Rice Research Institute (IRRI), served as a forum for disseminating to 90 researchers and extensionists the results of recent research performed by the Asian Cropping Systems Network's Working Group. The Conference proceedings, herein presented, contain 60 papers covering a wide range of farmer-focused research which has resulted in workable cropping patterns acceptable to Asian farmers.

Introductory and background remarks are followed by reports grouped according to the following topics: establishment of upland crops before and after rice; dry seeding of rice; cropping pattern testing; technologies in insect management, weed science, varietal testing for intensive cropping, and cropping systems economics; and technology adoption. A summary report, closing remarks, and a list of participants conclude the volume.

024

*** PN-AAN-431**

MF \$2.16/PC \$15.99

Microcomputers and programmable calculators for agricultural research in developing countries

Weber, Michael T.; Pease, James W.; et al.
Michigan State University. Department of Agricultural Economics; U.S. Agency for International Development. Bureau for Science and Technology. Office of Multisectoral Development

MSU international development papers: working paper, no.5, 1983, viii, 114p. : En

DAN-1190-A-00-2069-00

* *MSU International Development Papers, Department of Agricultural Economics, Agriculture Hall, Michigan State University, East Lansing, Michigan 48824-1039 USA*

The potential contribution of hand-held programmable calculators and microcomputers to agricultural research in developing countries is explored in this report, based on an international conference held in 5/82 at Michigan State University (MSU) on specific country and/or institutional issues, and on work performed by faculty and graduate students of MSU's

Department of Agricultural Economics on cost-effective data collection, management, and analysis techniques.

Major topics discussed include: alternative approaches to data processing; hardware and software (including strategies for software development and exchange); and institutionalization (including technical recommendations for effective field use of microcomputers in developing countries). The discussion of each major topic includes a synthesis of important issues, along with direct quotes from conference materials and material produced by the conference's three working groups. Eight of the main papers presented at the conference are included.

025

*** PN-AAN-443**

MF \$1.08/PC \$9.62

Periodicals for microcomputers: an annotated bibliography

Stilwell, Thomas C.
Michigan State University. Department of Agricultural Economics; U.S. Agency for International Development. Bureau for Science and Technology. Office of Multisectoral Development

MSU international development papers: working paper, no.6, 1983, 67p. : En

DAN-1190-A-00-2069-00

* *MSU International Development Papers, Department of Agricultural Economics, Agriculture Hall, Michigan State University, East Lansing, Michigan 48824-1039 USA*

Because microcomputer technology is evolving so rapidly that books on the subject are outdated almost immediately, the best sources of information on new and existing hardware and software are in periodicals such as magazines, journals, and newspapers. This directory is intended to help increase awareness in developing countries of relevant periodicals that are available on the world market. (Newsletters, because there are so many, have not been included, but a source for them is given).

An alphabetical listing by title is presented, with the address for subscription information, subscription rates, the computer specialty, and usually a brief annotation. The list is cross-classified by specialty (brand of computer or operating system/language), with an indication as to whether the periodical is also a source of software; a further cross-classification is by country of publication. Copyright information is also provided.

026

*** PN-AAN-576**

MF \$1.08/PC \$3.12

Impact of agricultural mechanization on production and employment in rice areas of West Java

Bagyo, Al S.; Lingard, John
Agricultural Development Council, Inc.; International Rice Research Institute

Consequences of small rice farm mechanization project: working paper, no.61, Mar 1983, 19p. + appendix : En
Revised version of PN-AAN-541

931102601

AID/TA-C-1466

* *IRRI, P.O. Box 933, Manila, Philippines*



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The effects of farm mechanization on production and rural employment in the rice areas of West Java are analyzed, using a large data set and three different methods.

First a t-test was conducted to compare input use, labor use, cropping intensity, farm size, and output on mechanized and nonmechanized farms; results showed that mechanized farms (which tend to be about three times larger than non-mechanized farms) use more fertilizer, less pesticide, and less labor per ha and obtain higher yields, but have a lower cropping intensity. Next, decomposition analysis showed that farm size was the most important factor contributing to the difference in total output between the two types of farms, while yield and cropping intensity had only minor effects; area farmed was also the strongest explicator of total labor use. Regression analysis was then used to further determine whether yield differences were mainly due to mechanization or to other factors. Results again demonstrated that farm size and fertilizer were the most important factors; mechanization dummies were small and insignificant while pesticide use was both significant and negative. Results confirm the importance of fertilizers in explaining yield differences between different categories of rice farms. They further suggest that mechanization of farms currently using manual labor could result in major job displacement and should be guarded against unless there are significant yield or cropping intensity increases. (Author abstract, modified)

027

* PN-AAN-604

MF \$1.08/PC \$7.28

Asian cropping systems research: microeconomic evaluation procedures

Banta, Gordon R.

International Development Research Centre

1982, 56p. : En IDRC-197e

* IDRC, P.O. Box 8500, Ottawa, Ontario K1G 3H9 Canada

Traditional procedures used by agricultural economists in multidisciplinary cropping systems research carried out by the International Rice Research Institute were found to generate data faster than they could be analyzed, leaving little opportunity for a timely contribution by the economist to the research effort. To solve this problem, a set of informal procedures based on the case study method was developed to enable team economists to fulfill their main task - evaluation of the profitability of new technologies. These informal procedures, which involve partial budgeting, graphing for resource constraints, and program planning, were tested against the more formal procedures for accuracy of conclusions as well as time and other resource requirements. The informal procedures were found to be less precise but equally accurate in predicting the acceptability of new technology arising out of cropping systems research, and the procedures and results were more easily understood by other team members. A 30-item bibliography (1958-79) is appended. (Author abstract, modified)

028

PN-AAN-718

MF \$2.16/PC \$18.98

Use of plastics in agriculture: first report, September 1982

India. University of Energy. Department of Petroleum; U.S.

Agency for International Development. Bureau for Science and Technology. Office of Agriculture

Sep 1982, vii, 138p. : En

A National Committee on the Use of Plastics in Agriculture was formed in India in March 1981. This first report of the Committee was prepared to brief Government departments and other authorities on potential plasticulture applications in, e.g., plant and crop protection, water management, pesticide application, and handling and storage of agricultural products.

Reviewed initially are the types of plastics produced and used in India, plastic consumption trends according to application, potential versus demand, and the rationale for using plastics in the agricultural industry. More in-depth looks are then taken at (1) plastics use in the development of irrigation in India and (2) innovative applications of plastics in agriculture worldwide and the organized promotion, through National Committees, of plasticulture in individual countries. Finally, the status of 30 plasticulture applications in India's agricultural sector are described and recommendations are made regarding promotion of such applications.

Tables of supporting data, summaries of plastics uses in agriculture in five other countries, instructions and specifications for simple applications, and a 24-item bibliography are appended.

029

PN-AAN-757

MF \$3.24/PC \$35.75

Land and labor in Guatemala: an assessment

Hough, Richard L.; Kelley, John C.; et al.

Development Associates, Inc.; U.S. Agency for International Development. Bureau for Latin America and the Caribbean. Guatemala

1982, v, 104p. + 6 annexes : En

Work order no. 2

PDC-1406-I-02-1096-00

Guatemala, more than any other Central American country, suffers from striking inequalities in land distribution. This study provides a comprehensive historical and analytical assessment of agrarian reform programs and conditions in the country, with suggestions for further actions by the Government of Guatemala.

The report first examines the relationship between land tenancy patterns and landlessness and documents various estimates, made on the basis of soils assessment data, of land potentially available for distribution under current legislation. It is concluded that Guatemala has at best only enough land to accommodate 64% of its landless, and in the worst case only 31%. Patterns of permanent migration, with differences relating to Indian and Ladino populations, are considered.

Part 2 of the report explains the historical origins of these patterns and disequilibria and traces government responses over the last century to agrarian reform and land colonization efforts. Emphasis is placed on the post-1955 period, during which the pace of land distribution has slowed and government policies have mainly benefited large landowners and increasingly focused on costly efforts to colonize virgin lands rather than on relatively inexpensive efforts to distribute idle lands in the private sector. An AID-supported program to colonize the Franja Transversal is assessed.

Part 3 examines options which the Government of Guatemala, while conforming to its policy of excluding expropriation of privately-owned land in productive use, might consider in future agrarian reform efforts. These include developing an active commercial land market, refining its colonization strategy, and adopting the La Perla experiment of converting privately-owned agricultural estates into joint worker-employer enterprises by allowing permanent agricultural workers to purchase



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shares in the enterprise. A further possibility is the redesign of present agrarian reform legislation to facilitate the distribution of idle lands.

Included are a number of annexes containing data developed for the study. A 114-item bibliography (1958-82) cites works in Spanish and English.

030

*** PN-AAN-806**
MF \$1.08/PC \$1.17

New rice technology, intrarural migration, and institutional innovation in the Philippines

Kikuchi, Masao; Hayami, Yujiro

International Rice Research Institute

IRRI research paper series, no.86, Jan 1983, 8p. : En

* *IRRI, P.O. Box 933, Manila, Philippines*

Accentuation of interregional disparity is a major problem associated with the introduction of agricultural technology in the tropics. This case study analyzes the complex interrelationships among technology diffusion, labor migration, and institutions in Laguna Province, the Philippines. Reviewed in turn are: the rapid spread of new technology in the irrigated lowland areas and associated changes in labor demand; labor migration from upland to lowland areas; and resultant changes in labor contracts.

The new technology induced labor migration from unfavored upland areas to favored lowland areas, and the employment and income generated thereby have indirectly benefited upland populations, thus reducing the interregional income disparity created by the new technology. Migration was facilitated by the transfer to lowland areas of a traditional upland contractual arrangement called *gama*, a risk-reducing system for both farmers and workers in which workers weed fields for the right to participate in the harvesting and receive a share of rice. This transfer suggests the adaptability of indigenous community institutions to modern rural development.

031

PN-AAN-808
MF \$1.08/PC \$3.38

Information flows and institutional functions related to problems of small farmers

Badenhop, M.B.

University of Tennessee. Institute of Agriculture. International Agricultural Programs; U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture

International report, no.1, Sep 1981, 24p. : En

Attachments: XN-AAN-808-A; XN-AAN-808-B

If small farmers in developing countries are to significantly increase agricultural production, they must overcome obstacles to the adoption of new technologies. This paper discusses ways to identify and remove information-related and institutional constraints to small farmers' acceptance of emerging agricultural technologies.

The author first defines institutions as patterns of relations among people, and identifies five institutional systems of concern to small farmers. A model information system based on an agricultural university or research institute is then outlined. Two major shortcomings in developing country information systems, the lack of training for information personnel and the shortage of relevant educational materials and programs, are discussed,

and steps for remedying them listed. Lastly, key questions to be considered by those providing production and marketing information to farmers are identified. These questions are concerned with the context and the institutional framework within which information will be provided; the particular characteristics and needs of communities and farmers; and the types of information systems which will have the greatest impact on agricultural production.

Included with this paper are two others, which, respectively, discuss cooperatives in Thailand and present a framework for structural analysis of Thai communities and agricultural cooperatives.

032

PN-AAN-809
MF \$1.08/PC \$8.97

Exercises in the economic analysis of agronomic data

Harrington, Larry

International Maize and Wheat Improvement Center

1982, 66p. : En

6210107

AFR-0107-C-00-3001-00

A step-by-step manual for using partial budgets to analyze agronomic data, designed for inservice trainees at Mexico's International Maize and Wheat Improvement Center is presented. A brief introduction defines recommendation domain: a group of farmers with similar practices. These roughly homogeneous groups are the targets of analysis.

Sixteen specific exercises are presented for analyzing pooled data gathered from farmers in different domains at different periods of time. The exercises show how to determine the product field price, gross field benefits, value of byproducts, net benefits, field price of bulky purchased inputs, marginal rate of return, cost of investment capital, methods to increase the marginal rate of return, and partial budgets and fixed costs. Included are instructions for dominance analysis and the net benefit curve, economic analysis of verification trials, minimum returns analysis, sensitivity analysis, combining statistical and economic analysis, partial budgets for planning experiments, and adjusting for lost study sites. Answers to the exercises are appended.

033

PN-AAN-814
MF \$1.08/PC \$1.04

Nepal ridger

Lyons, Torrey; Bhattarai, A.N.

International Maize and Wheat Improvement Center

Jun 1981, 7p. : En

6210107

AFR-0107-C-00-3001-00

The tillage practices and extensive water application associated with the cultivation of flooded rice lead to unfavorable soil and moisture conditions for other crops grown in rotation with rice. This paper describes the manufacture and use of the Nepal ridger, a tool designed to overcome these problems.

The paper first describes how the ridger, a wooden plank with v-shaped shoes, acts to move soil, seeds, and fertilizer into ridges of well-aerated moist soil which can be easily weeded and irrigated. Steps for using the ridger, including land preparation, fertilization, seeding, ridging, irrigation, and weed-



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ing, are detailed. The ridger may be drawn by men, animals, or tractors, and furrow depth can be changed to suit the needs of various crops. The materials used to manufacture the ridger are discussed, and detailed instructions, including diagrams, for constructing a ridger are provided.

034

* PN-AAN-835
MF \$1.08/PC \$7.80

Adoption, spread, and production impact of modern rice varieties in Asia

Herd, Robert W.; Capule, C.
International Rice Research Institute
1983, 54p. : En
* IRRI, P.O. Box 933, Manila, Philippines

The degree to which modern rice varieties have been adopted in South and Southeast Asia and their production impact are assessed in this study.

First, the introduction of modern rice varieties in major South and Southeast Asian rice producing countries, where they now constitute 80% of the total rice area, and their contribution to increased production are examined. It is noted that rice production in Bangladesh, Indonesia, South Korea, Pakistan, Thailand, and the Philippines increased more than 3% annually between 1972-79, largely due to the introduction of modern varieties starting in 1965, while production in Burma, India, and China increased only slightly more slowly. The study goes on to review earlier studies that describe patterns of variety adoption and develops a theoretical framework to classify factors affecting the adoption process. A review of studies analyzing these factors - personal variables, tenure, and economic variables such as credit and market prices - concludes the report; the view that farm size is a key factor in adoption is rejected as an unfounded generalization. Appended are 9 statistical tables; 18 tables and 7 figures are included in the text.

035

PN-AAN-864
MF \$1.08/PC \$12.35

Introduction to the major pests of food legume crops in West Asia

International Center for Agricultural Research in the Dry Areas; U.S. Agency for International Development. Bureau for Development Support. Office of Agriculture
1982, 87p. + appendix : En Technical manual no.4
936411112
AID/TA-G-1490

Up-to-date practical information on the major pests causing economically significant damage to food legume crops in West Asia is compiled in this manual.

First discussed are insects in general, including their structure, reproduction, growth, metamorphosis, and classification, as well as the types of crop damage they cause. Succeeding chapters describe, respectively, Lepidoptera (e.g., army worms), Coleoptera (weevils), Diptera (leaf mining flies), Hemiptera (aphids), and others (mole crickets and pea thrips). A second section provides information on pests other than insects, including the red spider mite, nematodes, molluscs, and chordates. Finally, indirect, direct and integrated pest control methods are outlined. Emphasis is placed throughout on the applied considerations needed to identify the causes of

damage to crops in the field and to implement ways of reducing this damage.

Appended are lists of common pesticides (organophosphorus, organochloride, carbamate), fumigants, molluscicides, and rodenticides. For each pesticide, the following information is supplied: classification, common and trade name, action, selectivity, form, main application, and toxicity.

036

PN-AAN-869
MF \$1.08/PC \$1.30

Understanding small farmers: sociocultural perspectives on experimental farm trials

Rhoades, Robert E.
International Potato Center; U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture
Social science department training document 1982-3, Jun 1982, 9p. : En
936411107
AID/TA-G-1492

In developing new agricultural technology, on-farm trials are valuable in bringing farmers into the research process and promoting communication between farmers and scientists. In this training document, guidelines are provided to help the applied scientist or practical field technician understand the farmer's point of view. The agricultural scientist is reminded that present farming systems are the result of centuries of experience and adaptation; that farmers are usually doubtful of new methods proposed by outsiders; and that they will often, from motives either of gain or politeness, say what they think outsiders want to hear. Scientists in turn may be biased in selecting cooperating farmers and locations for trials. The basic questions to be held constantly in mind are: (1) Is the problem to be solved important to farmers? (2) Do they understand the trials? (3) Do farmers have the time, inputs, and labor required by the improved technology? (4) Does the proposed technology make sense within the present farming system? (5) Are economic conditions favorable for investing in certain crops in a region? (6) Is the proposed change compatible with local preferences, beliefs, or community sanctions? (7) Do farmers believe the technology will hold up over the long term? A discussion of these questions leads to the conclusion that it is generally better to adapt a specific technology or practice to a complex farming system than to ask the farmer to change his farming system to fit a new technology.

037

PN-AAN-888
MF \$1.08/PC \$7.41

Analysis of economic, social, institutional and manpower issues

Shearer, Eric B.
Development Alternatives, Inc.; Research Triangle Institute; U.S. Agency for International Development. Bureau for Africa. Mauritania
Food and agriculture sector assessment, 28 Jan 1983, v.p. : En
9361406
AID/SOD/PDC-C-0392



AGRICULTURE

Economic, social, and manpower/institutional analyses of Mauritania's food and agricultural sectors are provided in three separate papers.

Stressing the unreliability of available data, the first paper assesses: the country's largely nomadic and externally dependent economy; the relatively small economic role played by the rural primary sector; the food production-consumption gap; grain prices and price policies; and rural income and food consumption patterns. It is concluded that the costs entailed by infrastructural constraints and institutional inefficiencies would doom outside agricultural investment from the outset.

The social analysis covers historical factors shaping Mauritanian society and the main socioethnic groups (Moors and Black Africans); factors of social change such as colonization, drought, and migration patterns; and pressing social issues related to agricultural development (e.g., land tenure, sedentarization of nomads, participation, and the role of women).

The final paper evaluates: educational, training, and manpower development in Mauritania; public and private bureaucracies in light of the sociopolitical milieu; and overall institutional capacity. It is concluded that manpower skills are lower than in most developing countries and that the capacity for developing public institutions is very limited. Suggestions for reallocating government resources and involving private sectors in development conclude the study.

038

* PN-AAN-893

MF \$2.16/PC \$15.21

Evaluating technology for new farming systems: case studies from Philippine rice farms

Barlow, C.; Jayasuriya, S.K.; Price, E.C.
International Rice Research Institute
1983, vii, 99p. + attachments : En

* *IRRI, P.O. Box 933, Manila, Philippines*

Research has been underway since 1964 to develop techniques for growing rice in combination with other crops. This report presents a whole-farm concept for analyzing new farming systems in the Philippines using the linear programming method.

Cost and returns analysis of new multiple cropping technologies is first undertaken at the household level through 10 case study farms (5 in Iloilo, 5 in Pangasinan). An introductory chapter covers the physical and socioeconomic conditions and farming practices at these locations and their use as linear programming models. Next, farm household-level assessments made by using these models are examined, and district-level dynamics of technology adoption are analyzed. A final chapter reviews the difficulties in assessing the benefits of new technology.

Conclusions drawn from household-level technology assessment indicate that technology adoption in one location affects deployment of other technologies in other places; and that the economic impact of new technologies depends on the farmers' resource levels (e.g., degree of irrigation, purchasing power). A 49-item bibliography (1958-81) is appended.

039

PN-AAN-959

MF \$1.08/PC \$8.19

Catalog of courses in agriculture and rural development, 1984: programs in the United States for foreign agriculturalists

U.S. Department of Agriculture. Office of International Cooperation and Development; U.S. Agency for International Development

Sep 1983, iii, 60p. : En

The U.S. Department of Agriculture (USDA) sponsors over 50 short-term programs (2-13 weeks) designed specifically for agriculturalists from developing nations. The 1984 catalogue for this program is herein presented.

Introductory sections list the courses (which are in the areas of science and natural resources; economics and policy; management, education, and human resource development; and production and technology), outline the capabilities of the USDA's International Training Division, and present general program information. The bulk of the catalogue consists of course descriptions, including information on dates and duration, target audience, objectives, content, cost, location and travel requirements, and whether simultaneous translation and overseas presentation are or are not available. Finally, critical dates for enrollment and course activities are listed.

040

PN-AAP-003

MF \$1.08/PC \$7.28

Review of cooperative development in Tanzania as it relates to agriculture

Savage, Job K.; Guderyon, Newton J.; Jordan, Harold P.
Agricultural Cooperative Development International
Dec 1982, 41p. + 3 annexes : En

Due to the poor performance of the marketing input and credit systems for cash crops operated by its parastatals, the Tanzanian government has decided to reestablish the cooperative system banned in 1976. After briefly comparing the agricultural situation under the two systems, this study develops a workable concept for a renewed cooperative system, analyzes needs and opportunities for cooperative education and training, and specifies preconditions to successful reestablishment of cooperatives.

The authors recommend that cooperatives be organized on a voluntary and democratic basis and operate as competitive business enterprises under sound, well-trained management. A three-tier system is advised: primary societies formed on a village or multivillage basis sufficiently large for cooperative purposes; cooperative unions, one per region, to acquire, sell, and deliver needed inputs to the primary societies and to market their crops; and a national organization, controlled by a board democratically elected by the unions, to educate, support, and promote the system. Training needs could be met by the Cooperative College and Comparative Education Centre, with help from USAID/T's Nordic project. First, however, the Tanzanian Government must improve the economic climate which at present is not favorable to cooperatives.



AGRICULTURE

041

PN-AAK-980

MF \$1.08/PC \$4.68

Thailand: assessment of agro-industry investment opportunities

Leeper, Donald S.

University of Idaho. Postharvest Institute for Perishables; U.S.

Agency for International Development. Bureau for Private Enterprise

April 1982, 33p. : En GTS report no.82-05

9311323

AID/DSAN-CA-0265

The attractiveness to U.S. investors of specific Thai agro-industrial enterprises are analyzed in this report on a 10-day in-country consultancy.

The consultant found the investment climate in Thailand to be better than in many other developing countries. The private sector is capable and active, government intervention relatively limited, and farmers adequately productive. Agricultural potential is significant, and the country seems particularly well-situated to supply the Mideastern and Asian markets.

Two specific investment opportunities were identified: vegetable seed production/processing and fruit/vegetable processing. Draft Investment Opportunity Proposals for each are annexed to the report. The author also lists several other potential investment areas, describes further data and analyses needed to explore these possibilities, and comments on enterprises which appear to have only limited investment potential. He stresses that the principal need of Thai industries is for U.S. technology, continuing technical assistance, and marketing help rather than capital investment and financing.

042

PN-AAK-988

MF \$2.16/PC \$15.60

Project identification study of fruit and vegetable production and marketing in the Northwest Frontier Province of Pakistan

Babb, Tony; Peters, Charles W.; et al.

University of Idaho. Postharvest Institute for Perishables;

Development Alternatives, Inc.; Agri-Food Systems

International, Inc.; U.S. Agency for International

Development. Bureau for Asia. Pakistan

May 1982, 32p. + 6 annexes : En GTS report no.82-04

9311323

AID/DSAN-CA-0265

A preliminary study of production and marketing techniques for fruits and vegetables in Pakistan's Northwest Frontier Province is presented.

The report examines the agronomic features of the Province's agricultural system, as well as its transport, credit, marketing, and input facilities and current output. Constraints to agricultural development and the potential for growth in the fruit and vegetable industry are assessed. A project to help the Province's newly created Fruit and Vegetable Development Board implement fruit and vegetable production and marketing activities is proposed, and a scope of work for a project design team is described, along with the expertise required by members of the team and the key issues facing it. Discussion is briefly given to the need for a comprehensive water resources study if similar efforts are to succeed in Baluchistan Province.

Appendices include a strategy for improving vegetable yields in the Northwest Frontier Province; a report on the

potential for tree fruit production; a report on Baluchistan Province's Quetta region; a marketing report on fruits and vegetables in Pakistan; and a 37-item (1952-1982) bibliography.

043

PN-AAL-386

MF \$1.08/PC \$6.89

Marketing efficiency for selected crops in semi-arid tropical India

Raju, V.T.; von Oppen, M.K.

International Crops Research Institute for the Semi-Arid

Tropics; U.S. Agency for International Development.

Bureau for Asia. India

Economics program progress report, no.32, Jan 1982, 50p. :

References p.39-40, En

An efficient farm marketing system is an important means of raising farmers' incomes and promoting general economic development. The study reported here analyzes marketing efficiency during 1974-75 in three different regions in India for sorghum, pearl millet, pigeonpea, chickpea, and groundnuts.

Two measures of market efficiency are compared: operational efficiency, measured in terms of market costs and marketing margins; and pricing efficiency, measured in terms of correlations among price changes for the same product in separate markets. The markets examined were found to be operationally efficient for all five crops. In all cases the farmer received the largest share of the consumer's rupee. With regard to pricing correlations, most of the markets examined were integrated well for most crops, with sorghum a notable exception. The authors conclude that neither operational nor pricing efficiency measures are in themselves complete, but if applied together they may complement one another. In this study the two measures tended to agree. A 22-item bibliography is appended.

044

PN-AAM-039

MF \$1.08/PC \$7.78

Size and weight of coconuts damaged by rats

Reidinger, Russell F. Jr.; Libay, Justiniano L.

U.S. Department of the Interior. Fish and Wildlife Service;

U.S. Agency for International Development. Bureau for

Science and Technology. Office of Agriculture

Philippine agriculturist, v.64, Jul-Sep 1981, p.281-286 : En

931047311

PASA ID/TAB-473-1-67

To determine if several Philippine varieties of palms compensated for rat damage by producing larger or heavier nuts, measurements were made of 60 nuts, taken randomly from those harvested in a plot (A) that had been effectively treated for rat damage for 21 months, and the measurements compared with those of 60 nuts taken from a plot (B) that suffered chronic, heavy rat damage. Based on one-sided Student's *t* tests, fresh and dry (i.e., copra) weights of the endosperm of nuts from Plot B were slightly but significantly greater than those of nuts from Plot A. However, based on strength of association tests, only about 7% of the variance in copra weight and only about 2% of the variance in fresh endosperm weights were due to the presence or absence of rat damage. Thus, compensation by increased copra content of undamaged nuts played at most a minor part in the weight differences of the



nuts. The differences were unimportant in assessing the economic benefits of the control used in Plot A. (Author abstract, modified)

045 **PN-AAM-050**
MF \$1.08/PC \$1.82

Suggested methods for determining the efficacy of vertebrate control agents in developing countries

Bruggers, Richard L.; Jackson, W.B.
U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture
American Society for Testing and Materials: special technical publication, no.752, 1982, p.15-28 : En
931047311

Sophisticated techniques for testing pesticides and pest repellents are often unavailable or impracticable in developing countries. This report identifies impediments to evaluating pest control agents in developing countries and suggests methods suitable to these areas, drawing on examples from field trials in several countries, primarily in Africa.

Among the conditions impeding use of sophisticated testing techniques in developing countries are the varied size of test sites, limited personnel and technical expertise, cropping practices, farmers' unwillingness to risk losing part of their yields, and a superabundance of depredating species. Nonetheless, some test of product efficacy, using scientifically acceptable procedures, needs to be conducted under actual use conditions. The authors suggest systematic-random sampling patterns and simplified data collection procedures. It is noted that farmer cooperation in field trials is essential and farmer participation desirable.

046 **PN-AAM-087**
MF \$1.08/PC \$1.04

Comparing food preference evaluation techniques for lesser bandicoot rats, (*Bandicota bengalensis* gray)

Sultana, Parvin
Bangladesh journal of agricultural research, v.6(2), Jul 1981, p.51-57 : En
931047311

An important part of developing adequate rodent control techniques is determining what type of bait carriers (foods containing rodenticides) are acceptable to rodents. The study reported here investigated the preferences of the lesser bandicoot rat (*Bandicota bengalensis* Gray) for 3 cereal grains (whole polished rice, unpolished rice, and wheat) using three types of food presentation (single-cup, in which only one grain was given; double-cup, with two grains offered; and triple or multiple-cup, with three grains offered). The six rats tested consumed more food in double-cup feeding trials than in either single-cup or multi-cup presentations. In all presentations polished and unpolished rice were preferred to wheat.

047 **PN-AAM-088**
MF \$1.08/PC \$1.30

Evaluating the bird repellency of methiocarb

Hamza, M.; Ali, B.; et al.
U.S. Department of the Interior. Fish and Wildlife Service; U.S. Agency for International Development. Bureau for Science and Technology
Journal of the West African Ornithological Society, v.4(1), May 1982, p.33-41 : En
931047311
PASA ID/TAB-473-1-67

Pest birds such as the red-billed quelea (*Quelea quelea*) and village weavers (*Ploceus cucullatus*) cause extensive damage to cereal crops in sub-Saharan Africa. Because traditional farmers suffer a disproportionate share of this damage, there is a need for simple, economical methods of bird damage control. This article reports on tests conducted in Sudan, Kenya, and Tanzania to evaluate the effectiveness of the chemical methiocarb as a bird repellent on ripening grain and broadcast seed.

In ripening grain tests using enclosures, yields from untreated sorghum crops were 94% to 98% lower than were yields from treated crops. A test aerial application of methiocarb proved ineffective due to application problems. Field tests explored the use of various methiocarb concentrations, adhesive solutions, and edge applications, as well as the use of methiocarb on experimental wheat varieties; in all tests, untreated crops suffered significantly more damage than did treated crops. In a test with broadcast rice seed, the proportion of damaged seeds was 3.8 times greater in untreated plots than in treated plots. Methiocarb residues were found to be within tolerable levels. Although test results are encouraging, additional tests, especially with farmer participation, are needed to further delineate the conditions for methiocarb use.

048 **PN-AAM-265**
MF \$1.08/PC \$0.78

Conditioned taste aversion in Philippine rice rats (*R. r. mindanensis*): comparisons among drugs, dosages, modes of administration, and sexes

Shumake, Stephen A.; Sterner, Ray T.; et al.
U.S. Department of the Interior. Fish and Wildlife Service; U.S. Agency for International Development. Bureau for Science and Technology
Animal learning and behavior, v.10(4), 1982, p.499-504 : En
931047311
PASA ID/TAB-473-1-67

The effects of select drugs, dosages, and modes of administration upon learned taste aversions were compared among groups of wild-caught Philippine rice rats (*Rattus rattus mindanensis*). Two-choice saccharin aversions were compared for 28 days among groups of rats intubated with various drugs, including control rats intubated with sodium chloride and deionized water. Of the experimental drugs, lithium chloride produced the greatest sustained aversions, while cyclophosphamide and red squill produced moderate aversions; survival rates were greater among males than females. A second experiment compared saccharin aversion among matched groups of male and female rats which received low, moderate, or high dosages of lithium by gavage, intraperitoneal



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injection, or ingestion. Sex differences in death rates were found for the latter two dosage methods. Death occurred most rapidly in rats dosed by gavage. For all modes of administration, high dosages yielded intense 28-day aversion, moderate dosages produced intermediate 3-5 day aversion, and low dosages caused no aversion. (Author abstract, modified)

049

* PN-AAM-072

MF \$5.40/PC \$53.69

Bean production problems: disease, insect, soil and climatic constraints of *Phaseolus vulgaris*

Schwartz, Howard F.; Galvez, Guillermo E.
International Center for Tropical Agriculture
Jan 1980, xii, 424p. : En

* CIAT, Apartado Aereo 67-13, Cali, Colombia

Many factors – including diseases, insects, soil problems, climatic stresses, and poor agronomic practices – contribute to the large gap between actual and potential yields of the dry or common bean (*Phaseolus vulgaris* L.). In Latin America, for example, average yields are less than 600 kg/ha although in temperate areas of the region and in other parts of the world, average yields of up to 1,400 kg have been attained under conditions of intensive production. Even in those zones, however, yields have leveled off or even declined, largely due to complex production problems. On the other hand, many cultivars currently grown and breeding materials being developed may yield much more than 2,000 kg/ha under experimental conditions.

In this publication, 20 authors review more than 100 specific conditions affecting the production of dry beans. Chapters are preceded by detailed tables of contents to provide easy access to specific topics, while comprehensive reference lists facilitate referral to original literature sources. More than 200 figures and color plates illustrate most of the problems described. Appendices are included to aid in identifying pesticides, in converting measurements, and in clarifying the current taxonomy of various legume species. (Author abstract, modified).

050

PN-AAM-078

MF \$5.40/PC \$62.40

Sweet potato: proceedings of the first international symposium

Villareal, Ruben L.; Griggs, T.D.

Asian Vegetable Research and Development Center; U.S.

Agency for International Development. Bureau for Science and Technology. Office of Agriculture
(International Symposium on Sweet Potato, 1st, Shanhua, TW, 1982)

1982, xii, 481p. : En

AVRDC publication no. 82-172

936411105

The high-yielding, adaptable sweet potato, an underrated crop grown principally in Asia, was the subject of an international symposium held in Taiwan in 1982. At the symposium's six sessions, proceedings of which are herein presented, 44 papers were delivered covering topics such as the status of sweet potato cultivation in the tropics (including parts of Africa); the sweet potato's use as a supplemental staple food and its nutritive value; aspects of crop growth such as root tuberiza-

tion, carbon assimilation, dry matter and yield characteristics, and photosynthetic activity; crop diseases and disease control methods; crop production, including such areas as the physical factors affecting yield, nitrogen topping, and intercropping; the breeding of newer, more disease-resistant, and more nutritious varieties; and various aspects of crop processing, marketing, and use.

Included are summaries of the general discussions following each session, author and subject indexes, and an index to sweet potato cultivars, selections, and lines. Also provided is an initial overview indicating the need for trained extensionists to transfer to developing country farmers the considerable sweet potato technology already developed, the advisability of promoting the sweet potato as a complementary staple crop through such practices as crop rotation and multiple cropping, and the need for joint research projects conducted by national and international organizations.

051

PN-AAM-344

MF \$1.08/PC \$11.05

Analysis of constraints on expanding rice output in the Casamance region of Senegal

Rigoulot, Jean P.

Michigan State University. Department of Agricultural

Economics; U.S. Agency for International Development.

Bureau for Development Support. Office of Agriculture

African rural economy program: working paper, no.31, Aug

1980, viii, 65p. : Bibliography p.64-65, En

Submitted thesis (M.S.), 1979

6250926

AID/AFR-C-1267

Because of a deficit in domestic rice production, Senegal relies heavily on imports, which represent a large outflow of foreign exchange. This paper identifies and analyzes several factors believed to limit rice production in the Casamance (southern) region, where 80% of Senegal's rice is produced.

The following factors are studied: (1) climatic uncertainties resulting from drought in the Sahel; (2) competition between groundnuts and rice for the allocation of family labor; (3) institutional constraints on the marketing system in general and on processing in particular; and (4) the effects of seasonal and permanent migration and of the lack of postprimary educational facilities and of agriculture-oriented schools. The possibility offered by improved production techniques and small mill processing to make rice produced in Casamance competitive with imported rice is shown, and the comparative advantage of groundnuts over rice questioned.

The analysis suggests that the present rice production-marketing subsystem could be significantly improved if more consistent price and marketing policies were defined and applied, and if production and credit were reorganized. (Author abstract, modified)

052

* PN-AAM-447

MF \$1.08/PC \$10.92

Major weeds of rice in South and Southeast Asia

Moody, Keith

International Rice Research Institute

1981, iv, 79p. : En

* IRRI, P.O. Box 933, Manila, Philippines



AGRICULTURE

Rice weeds in South and Southeast Asia can be identified by reference to published floras, but these are not widely available and many are out of date. This booklet provides information and illustrations to help scientists, extensionists, and students visually identify the major weeds that limit rice yields in the two regions. A total of 32 weed species in 12 families are listed alphabetically along with brief descriptions of their leaves, inflorescence, fruits, seeds, and propagation. Each listing is accompanied by color photographs.

053 * **PN-AAN-804**
MF \$1.08/PC \$4.42

RICEMOD: a physiologically based rice growth and yield model

McMennamy, John A.; O'Toole, J.C.
International Rice Research Institute
IRRI research paper series, no.87, Apr 1983, 33p. : En
* *IRRI, P.O. Box 933, Manila, Philippines*

A synthesis or crop modeling approach is helpful in studying rice crop growth and yield as a system. RICEMOD is a rice crop simulation model developed in 1979 as a tool for assessing rice research needs. This paper describes RICEMOD's development from a relatively simple model for rice growth and yield under luxury nitrogen and water conditions to its current state in which many physical and physiological aspects of crop water deficits have been incorporated.

Part I describes the structure and function of the initial physiologically based simulation model. Part II illustrates soil physical and plant physiological components incorporated to give RICEMOD soil and plant water balance capabilities, extending its potential use to rainfed rice research. Part III compares the model output with experimental data in which soil and plant water status were monitored during water stress. The model output usually agreed (within one standard deviation) with the measured soil and plant variables.

Development of the current version of RICEMOD (RICEMOD 300) revealed a lack of field level information about soil physics and root system growth and development. These deficiencies are most acute in rainfed wetlands (lowlands) where subsurface hydrology and soil and plant response to varying water status have received little interdisciplinary research effort. Sample input-output sets and a 36-item bibliography of rice crop modeling (1951-82) conclude the paper. (Author abstract, modified)

054 * **PN-AAN-818**
MF \$1.08/PC \$2.47

Improving adaptation and yield dependability in maize in the developing world

Paliwal, R.L.; Sprague, Ernest W.
International Maize and Wheat Improvement Center
n.d., 17p. : En
6210107
AFR-0107-C-00-3001-00

Studies on trait inheritance in maize have contributed significantly to the understanding of qualitative and quantitative genetics and their application to crop improvement. This paper focuses on the problems of maize improvement in the tropics.

The authors stress the need to develop and maintain broadbased gene pools and populations. They describe the

continuous flow system developed by the International Maize and Wheat Improvement Center (CIMMYT), where materials are assembled into continuously improving gene pools and increasingly refined selection makes possible high yielding stable varieties. International testing of materials at several stages of development under different conditions plays a major role. These experimental varieties compare favorably with hybrids in yield potential and unlike hybrids do not need a substantial developmental period or to be supplied anew at each planting. CIMMYT's research for improving the grain efficiency of tropical maize to increase drought tolerance, insect and disease resistance, and nutritional quality is then described. Key factors in this process include breeding technique selection, field execution, increased yield stability, on-farm surveys, seed production programs, and attention to production, marketing, and distribution problems of open-pollinated maize seed varieties. (Author abstract, modified)

055 * **PN-AAN-821**
MF \$1.08/PC \$2.60

Techniques for efficient mass rearing and infestation in screening for host plant resistance to corn earworm, *Heliothis zea*

Mihm, John A.
International Maize and Wheat Improvement Center
1982, 16p. : En
6210107
AFR-0107-C-00-3001-00

Insect resistant cultivars have resulted from development of techniques to mass rear the insects, artificially infest the crop species, and screen the species' germplasm for resistance, followed by crop breeding to improve the resistance trait over several generations. This bulletin presents the techniques used by the International Maize and Wheat Improvement Center (CIMMYT) to develop corn resistant to the corn earworm, *Heliothis zea*.

These techniques, which show promise of adaptation to other pest and crop species and other screening/breeding efforts, include the establishment of the colony and provisions of the basic requirements for efficient mass rearing: facilities; diet; containers; and procedures for handling the various life stages (adult, egg, larva, pupa). A method of efficient field infestation is presented, along with a description of the rating scales used to evaluate the resultant damage and aid in identifying resistant genotypes for immediate use in farmers' fields and in plant breeding programs. A 28-item bibliography (1937-81) is appended.

056 * **PN-AAN-834**
MF \$5.40/PC \$53.17

Weed control in rice

International Weed Science Society; International Rice Research Institute; U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture
(Conference on Weed Control in Rice, Los Banos, PH, 31 Aug-4 Sep 1981)
4 Sep 1981, 422p. : En
* *IRRI, P.O. Box 933, Manila, Philippines*



AGRICULTURE

A conference on weed control in rice held at Los Banos, the Philippines, underscored the importance of the advance of weed science as a major factor in improving rice production. Proceedings of the conference, herein presented, consist of 33 studies in such areas as: formulation of the weed control problem; factors affecting weed populations and methods of weed control; weed control technologies common among farmers in Africa, mainland and insular East Asia, North America, Eastern and Southern Europe, and mainland and insular Southeast Asia; weed, disease, and insect interactions; special problems such as weed shift; perennial weeds and their control; wild and red rice; constraints on the adoption of weed control technologies; and pesticides and the environment. Most of the papers are supported by charts, tables, graphs, diagrams, and bibliographies. Included are results of panel discussions on new herbicides and application techniques and workshop recommendations on training needs and opportunities and priority areas for collaborative research. Appendices include lists of scientific or chemical names for pesticides, cultivated crops (besides rice), crop and weed diseases, insects and nematodes, and weeds and weed synonyms.

057

PN-AAL-121

MF \$1.08/PC \$.52

L-arabinose metabolism in *Azospirillum brasiliense*

Novick, Norman J.; Tyler, Max E.

Journal of bacteriology, v.149(1), Jan 1982, p.364-367 : En 9311004

AID/TA-C-1376

An oxidative pathway by which L-arabinose is converted to alpha-ketoglutarate in crude extracts of *Azospirillum brasiliense* is demonstrated. Specific activities of enzymes involved in the pathway were determined, and several pathway intermediates were identified.

L-arabinose dehydrogenase activity was not detected when *A. brasiliense* was grown on malate or succinate. The ability to metabolize L-arabinose may offer some advantages to this soil bacterium. Plant cell walls are rich in compounds with the L-arabino-configuration (L-arabinose, D-fucose, D-galactose). It is possible that root cell death and the sloughing off of cells provide root-associated bacteria such as *A. brasiliense*, which are able to metabolize these sugars, with a plentiful substrate. (Author abstract, modified)

058

PN-AAM-937

MF \$1.08/PC \$.65

Statewide search for highly active associative N₂-fixation systems

Smith, Rex L.; Schank, Stanley C.; et al.

(Soil and Crop Science Society of Florida meeting, 1982)

Soil and Crop Science Society of Florida: proceedings, v.41,

1982, p.122-126 : En

9311004

AID/TA-C-1376

A search was conducted in 57 of Florida's 67 counties for highly active, associative (grass-bacteria) N₂-fixing sites, and the sites were then compared for the purpose of identifying environmental and other conditions associated with high nitrogen fixation. A total of 264 soil-grass cores were analyzed for

nitrogenase activity by the acetylene reduction method; cores analyzed after standardization in a greenhouse gave results similar to cores that were taken and analyzed directly.

Four sites had cores which evolved over 1000 nM ethylene core⁻¹ hr⁻¹, which is very high for grass-root-soil cores. Nineteen sites had cores with over 500 nM core⁻¹ hr⁻¹, and 34 cores had over 300 nM core⁻¹ hr⁻¹. *Paspalum notatum* Flugge was the most prevalent grass species in the highly active cores, and *Cynodon dactylon* (L.) Pers. was the next most prevalent.

Soil moisture and zinc content were positively correlated with acetylene reduction, while calcium content was negatively correlated. Elevated soil moisture was required for high acetylene reduction, but not all cores with elevated soil moisture were active. Acetylene reduction was positively correlated with CO₂ concentration and negatively correlated with O₂ concentration in the cores at the end of incubation. These active sites are being evaluated further to determine the necessary requirements and best organisms for active associative N₂-fixation. (Author abstract, modified)

059

PN-AAM-938

MF \$1.08/PC \$.65

Growth of *Rhizobium* in unamended soil

Pena-Cabrales, J.J.; Alexander, Martin

Soil Science Society of America journal, v.47(1), Jan-Feb

1983, p.81-84 : En

9310127

AID/DSAN-G-0090

A study was conducted to determine the conditions in unamended soil that favor growth of *Rhizobium*. Moistening a dry soil resulted in growth of *R. japonicum* and a strain of *Rhizobium*-nodulating cowpeas, but not of *R. meliloti*. The extent of decline resulting from desiccation was usually greater than the increase following wetting. The extent of growth varied among soils. A freezing-thawing cycle did not promote growth of *R. phaseoli* and the cowpea *Rhizobium*. The latter bacterium was more tolerant of a freezing-thawing cycle than the former. *Rhizobium japonicum* and *R. phaseoli* grew readily in the presence of germinating seeds and developing root systems of soybeans, kidney beans, red clover, cowpeas, oats, wheat, and corn; the population size varied among the plant species and legumes were no more stimulatory than non-legumes. The numbers of *R. phaseoli* in the rhizosphere of several plants declined in one week and the abundance of *R. japonicum* fell after 6 weeks in the soybean rhizosphere, but the population size of the cowpea *Rhizobium* was high for at least 20 weeks. Counts of *R. japonicum* in soil increased after the soil was amended with soybean nodules. It is suggested that appreciable rhizobium growth in unamended soil occurs only in the presence of germinating seeds, growing roots, and decomposing nodules. (Author abstract)

060

PN-AAL-019

MF \$3.24/PC \$34.32

Irrigation and A.I.D.'s experience: a consideration based on evaluations

Steinberg, David I.; Clapp-Wincek, Cynthia; Turner, Allen G.

U.S. Agency for International Development. Bureau for

Program and Policy Coordination

A.I.D. program evaluation report, no.8, Aug 1983, xii, 237p. :

En



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Lack of good management is the principal reason that most irrigation projects have failed to reach their potential. This concludes this review of A.I.D. irrigation projects, based on impact evaluations, other studies, and a 5/83 AID-sponsored conference on irrigation management. Included are discussions of types of irrigation systems; social and economic impacts; policies and investment strategies; management; maintenance and rehabilitation; and project planning, monitoring, and sustainability.

Although irrigation normally improves yields, it is not a simple solution to food deficits. Socioeconomic impacts (on, e.g., civic participation, women, the environment) are difficult to assess. Irrigation systems range along a continuum from local management to external control. The former is most effective, yet traditional community-based systems are often ignored in policy considerations.

Problems of water management, either by water user associations or implementing agency, are exacerbated by donors' bureaucratic priorities; involving farmers in planning undoubtedly leads to improved management. System maintenance is also best done at the local level. Existing water user associations should be encouraged and equitable cost recovery from users fostered.

Irrigation project planning is subject to a series of pressures prompting hurried approval. Design problems include poor donor coordination and failure to adequately consider such factors as farmer needs, host country commitment, agronomic realities, and social context. Planning should be done within the context of natural resource strategy, and relationships between irrigated and nonirrigated areas understood. Issues such as system size, public vs. private, or rehabilitation vs. new construction are closely interrelated. Technology choice should allow maximum flexibility in design, installation, and operation.

Agricultural triage (choosing between competing needs and goals) is usually dictated by fiscal constraints, but may reinforce income and social differences; a donor influencing policy should realize the implications thereof.

Appended are a 9-page bibliography (1950-83), a list of A.I.D. irrigation studies, summaries and a discussion of the impact evaluations, and the conference proceedings.

061 **PN-AAM-396**
MF \$2.16/PC \$21.19

Identification and estimation of a monthly multivariate stochastic streamflow model for the Nile river basin

Diaz-Granados, Mario A.; Bras, Rafael L.
Cairo University; Massachusetts Institute of Technology.

Technology Adaptation Program; U.S. Agency for International Development. Bureau for Near East. Egypt
TAP report, no.82-6, Jul 1982, iv, 157p. : En Report no.283; Report no.OSP 89965; Report no.R82-42
2630013
AID/NE-C-1291

Stochastic mathematical programming models are commonly used to develop optimal release policies for multiple purpose reservoirs. This report presents a technique, appropriate for forecasting purposes, for identification and estimation of a monthly multivariate stochastic streamflow model for the Nile River Basin.

The model uses a black-box approach; its basic structure is determined by physical principles, while its coefficients are obtained by statistical techniques, such as the Ordinary and

Iterative Generalized Least Square methods. Nile River Basin data are used in a general computer program for parameter estimation and residual analysis. This program, known as the Autoregressive Multivariate Model Estimation Program (AUMESP), is described and a user's manual is presented. Appended are the program itself, input data, an example of output data, instructions on changing the program's capacity, and Durbin-Watson statistic-tabulated values.

062 **PN-AAN-486**
MF \$1.08/PC \$8.71

Socioeconomic issues in irrigation development and distribution

Easter, K.W.; Welsch, Delane E.
University of Minnesota. Institute of Agriculture, Forestry and Home Economics; U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture
Apr 1983, ii, 64p. : En Economic report no.83-5
931023609
AID/TA-BMA-5

Socioeconomic problems facing irrigation planners and managers are examined in this review of the literature on irrigation in India, Pakistan, Thailand, and Egypt. Focus is on three critical areas: water allocation; institutional arrangements for irrigation management; and investment alternatives.

Section I, on water allocation, reviews research on a variety of issues, e.g., allocation of water over time and among users; conjunctive use of groundwater and surface water; system size; means of reducing water loss; the impact of allocation procedures on waterlogging and salinity; and differing perceptions of farmers and irrigation managers. This last issue - the need to make individual and societal incentives compatible - recurs in Section II on institutional arrangements. Other institutional issues include: coordinating government involvement; financing water user associations; farmer participation; and the role of land tenure and water rights. Section III discusses two key investment questions - new projects vs. rehabilitation and small projects vs. large ones. Topics here include: frequency and type of maintenance and rehabilitation; preventing overuse of groundwater; communal-vs. government-operated systems; tank projects; the relationship between socioeconomic problems and system size; water application intensity; and drainage and terminal infrastructure.

063 **PN-AAN-638**
MF \$2.16/PC \$19.11

Tanks of South India (a potential for future expansion in irrigation)

Palanisami, K.; Easter, K.W.
University of Minnesota. Institute of Agriculture, Forestry and Home Economics; U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture
Jun 1983, ix, 137p. : En Economic report no.83-4
931023609
AID/TA-BMA-5

The potential for modernizing and improving tank (small reservoir) irrigation in the Indian state of Tamil Nadu is assessed.



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After reviewing tank irrigation in Tamil Nadu and the problems affecting its performance, the report examines irrigation in the drought-prone Ramanathapuram District (where there is a large concentration of tanks), focusing on climate and rainfall, irrigation sources, soil conditions, land use and cropping patterns, and farm labor. Data collected via interviews with farmers and officials on the characteristics and performance of 10 tanks of varying dimensions in the District are presented, covering, inter alia, tank scale and type; tank water supply, distribution, and management; encroachment; sluice location; and the role of water user organizations. It was found that 7 of the 10 tanks have inadequate water supplies 50–70% of the time and that a third of the farmers use supplemental water from wells. Two models – production function and simultaneous equation – are employed to measure the impact of varying water conditions on rice production; both reveal the critical importance of adequate irrigation water. Finally, channel lining and community wells are proposed as means of improving tank irrigation. A summary of findings and suggestions for further rehabilitation and research efforts concludes the report. Included are 37 tables, 5 figures, the production function model, and a 4-page bibliography (1935–82).

064

PN-AAN-847

MF \$1.08/PC \$4.55

Command area development authorities for improved water management

Jayaraman, T.K.; Lowdermilk, Max K.; Clyma, Wayne
Utah State University. Department of Agricultural and
Irrigation Engineering; Colorado State University; U.S.
Agency for International Development. Bureau for Asia.
India

Water management synthesis project: WMS report, no.8, Oct
1982, iii, 33p. : En
AID/DSAN-C-0058

Command Area Development Authorities (CADA's) are an administrative mechanism created by the Government of India at the State level to improve the lagging performance of irrigation projects by placing all irrigation-related departments under a single administrative authority. This review of the CADA experiment examines the organization and operations of CADA's in various Indian states, especially Gujarat State; the relation of CADA's to State Irrigation Departments; and the role of CADA's in promoting experimental rotational water supply programs. Based on these analyses, two key CADA needs – to improve technical and interdisciplinary skills and to develop a cadre of water management personnel – are identified and a strategy to achieve these improvements is indicated. A summary of findings and specific recommendations concludes the report.

065

PN-AAK-996

MF \$1.08/PC \$4.55

Working group as a mechanism for managing bureaucratic reorientation: experience from the Philippines

Korten, David C.

National Association of Schools of Public Affairs and
Administration; U.S. Agency for International
Development. Bureau for Science and Technology. Office
of Multisectoral Development; U.S. Agency for
International Development. Bureau for Asia. Philippines
NASPAA working paper, no.4, May 1982, 33p. : En
9360096
AID/DSAN-CA-0180

To introduce a participatory approach to working with farmer-owned irrigation systems, the Philippine National Irrigation Administration (NIA) established in 1976 a special working group known as the Communal Irrigation Committee. This working paper analyzes the Committee's role in the NIA, with special attention to its unique characteristics, its mode of functioning, and the nature of its support systems.

Headed by a key NIA official, the Committee is an informal and nonbureaucratic coalition of committed professionals, many from outside the NIA. Critical to the Committee's success has been its focus, through the provision of special training, research, technical assistance, community organizers, etc., on field work in conjunction with farmer beneficiaries. Support from donors, particularly the Ford Foundation, has lent credibility to the Committee's innovations, enabled it to develop new capacities in collaborating institutions, and provided it with an independent and flexible source of funding and staff help in facilitating acceptance of the Committee. In 1982, it is noted in conclusion, over 100 new communal irrigation projects were scheduled to use the participatory approach. Two exhibits describing critical events in the Committee's history are included.

066

* PN-AAM-953

MF \$1.08/PC \$12.74

Small ruminant breed productivity in Africa: proceedings of a seminar

Gatenby, Ruth M.; Trail, John C.

International Livestock Centre for Africa
(Small Ruminant Breed Productivity in Africa Seminar, Addis
Ababa, ET, Oct 1982)

Dec 1982, 96p. : En

* ILCA, P.O. Box 5689, Addis Ababa, Ethiopia

Small ruminants are a major source of livelihood in many areas of Africa. To consider how research on small ruminants in the tropics and especially on breed productivity can help increase output, a seminar was held at the International Livestock Centre for Africa (ILCA) in October 1980.

Four broad areas were covered by eight speakers: (1) production and market objectives, and breeding plans relevant to these; (2) current research approaches in sub-Saharan Africa and relevant information from India and Australia; (3) requirements, collection, analysis, and interpretation of field data; and (4) current research findings in Africa. Some of the seminar conclusions were that key production constraints appear to be animal malnutrition (in the more arid areas), animal disease (in more humid areas), and sociological, espe-



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cially marketing, constraints and that crossbreeding attempts have usually failed, although leaving the possibility of selection within, and perhaps among, indigenous breeds. Proposals were made for ways to obtain international funding for further research. A 34-item bibliography (1970-82) is appended.

067

*** PN-AAM-065**
MF \$4.32/PC \$38.35

Tropical pastures program; annual report 1981

International Center for Tropical Agriculture
CIAT series, no.02ETP(1)82, Sep 1982, 304p. : En
9310863

* CIAT, Apartado Aereo 67-13, Cali, Colombia

In Latin America, except in temperate zones, the demand for beef and dairy products is not being met by cattle production, causing a continuous increase in real prices which affects both the diets and standards of living of lower-income persons. In this report, The International Center for Tropical Agriculture (CIAT) describes activities conducted during 1981 under its Tropical Pastures Program to increase beef and milk production.

The CIAT Tropical Pastures Program focuses on interdisciplinary research in three areas—germplasm evaluation, pasture management evaluation, and pasture evaluation in farm systems. Eighteen reports are presented, covering germplasm, agronomy and pasture development in isothermic and hyperthermic savannas, regional agronomy evaluation trials, plant pathology, entomology, forage breeding agronomy, legume improvement, soil microbiology, seed production, soil fertility and plant nutrition, pasture quality and nutrition, pasture productivity and management, cattle production, animal health, and economics.

068

PN-AAN-484
MF \$3.24/PC \$35.49

Livestock production systems and livestock development in tropical Africa

Jahnke, Hans E.
1982, xx, 253p. : En

Research efforts of the International Livestock Centre for Africa (ILCA) have focused on the need to thoroughly understand the biological, economic, and social components of livestock production. This book, written from the viewpoint of an economist, synthesizes data accumulated by ILCA.

Following an introductory overview, quantitative data on the resources engaged in livestock production in Tropical Africa, as a whole, by different ecological zones, and by level of tsetse infestation, are provided. Livestock production (meat, milk, and egg production; hide, skins, pelts, horns; dung as fuel and fertilizer; etc.) is then characterized by country and by ecological zone. Next, livestock development to date is examined and development considerations are linked to a typology of livestock production systems. This typology, adapted from Ruthenberg's classification of tropical farming systems, includes: pastoral range systems; lowland and highland crop-livestock systems; ranching; and landless systems (the latter focusing on pigs, poultry, and intensive beef fattening). The general characteristics of each system are described, production and productivity levels are characterized, and specific development possibilities are outlined. Finally, conclusions for livestock develop-

ment planning that go beyond specific systems are discussed. Attention is given to the role of, limitations of, and context for planning; specific strategies are discussed and the importance of monitoring stressed. A 253-item bibliography (1906-1981), 75 tables, and 18 figures are included.

069

PN-AAN-488
MF \$1.08/PC \$8.06

Market for livestock and meat in Saudi Arabia: implications for Somalia

Holtzman, John S.
Michigan State University; U.S. Agency for International Development. Bureau for Africa. Somalia
Jun 1982, viii, 52p. : En

Trends in Saudi Arabia's importation of livestock and meat and the resulting implications for Somalia and other countries in the region are assessed.

Discussion is given in turn to: (1) trends in the composition of live animal and chilled/frozen meat imports to Saudi Arabia and the estimated consumption of red and white meat; (2) livestock prices and consumer preferences for different types of meat; (3) the structure of Saudi Arabia's livestock trade with Near Eastern/East African suppliers and Australia; and (4) the projected demand and supply of meat in Saudi Arabia, with reference to earlier projections, possible allocation of supply, and the potential for increasing livestock exports from regional suppliers.

Projections for the 1980's are: (1) while cattle exports from Somalia will not expand at 1977-81 rates, Sudan and Ethiopia will be able to satisfy the Saudi's increasing demand for beef; and (2) low-cost Australian sheep will regularly provide the major part of additional sheep imports, although it is unlikely that the demand for the leaner small ruminants of the Near East and East Africa will decline, especially during Ramadan, the *hadj*, and other peak seasons.

Included are 19 tables and annexes on annual and monthly arrivals of livestock at Saudi ports and on 1976-81 imports of chilled and frozen beef.

070

PN-AAN-801
MF \$2.16/PC \$22.88

Economics of improving animal health and livestock marketing in Somalia

Holtzman, John S.
Michigan State University; U.S. Agency for International Development. Bureau for Africa. Somalia
Jun 1982, xi, 163p. : En

The livestock sector is the backbone of Somalia's economy. This report examines the economic merit of improving the sector's health and marketing components.

The report first examines trends in Somalia's livestock exports and foreign exchange earnings and the evolution of the country's pastoral economy over the period from 1966-81. Next, the country's livestock trade is analyzed in terms of seasonal variation, the organization of transport and shipping, and consumer preferences in Saudi Arabia, a leading livestock importer. Constraints affecting the marketing, production, and export of livestock are identified with reference to supply and demand, marketing infrastructure, and institutional factors. Recommendations to improve animal health services, bolster



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marketing infrastructure, and strengthen export-promoting institutions are set forth. An economic analysis of a possible animal health and livestock marketing project concludes the report.

Appendices discuss sheep and goat herd data; trends in hide and skin production/export; annual and seasonal variations in livestock slaughter; operations at two meat factories; a proposed World Bank livestock marketing project; and international animal health standards for trade stock. Also included are a 3-page bibliography (1963-84), 17 tables, and 6 figures.

071

PN-AAN-863

MF \$1.08/PC \$5.59

Aspects of sheep husbandry systems in Aleppo Province of Northwest Syria

Thompson, E.F.; Bahhady, F.; et al.

International Center for Agricultural Research in the Dry

Areas; U.S. Agency for International Development. Bureau for Development Support. Office of Agriculture

Farming systems program research report 1983, Apr 1983, iv, 35p. + appendix : En

936411112

AID/TA-G-1490

Results of interviews with farmers on sheep husbandry systems prevalent in the Aleppo Province of Northwest Syria are presented in this report.

After background information on the importance of sheep (and goats) in the Province's farming systems and the interdependence of cropped and steppe areas due to the seasonal movement of sheep, the effects on the Province's ecosystem of the introduction of the tractor, the supplementary feeding of sheep, and the settling of nomadic herders are discussed. Next, the use and importance of forage crops, particularly barley, are assessed. A final section provides general information on grazing, herding, supplementary feeding, and watering practices, and on the management of breeding stock, flock structure, culling rates, milking practices, and shearing. Goat husbandry is briefly addressed. It is concluded that: links between the cropped and steppe areas have weakened over the last 20 years, due mainly to the introduction of the tractor and supplementary feed; opportunistic barley cultivation in drier zones destabilizes the ecosystem; barley should be viewed as a pasture and forage crop; and expanded on-farm trials of annual and perennial pasture and forage species should be encouraged.

072

PN-AAN-891

MF \$3.24/PC \$30.68

Proceedings of the first international symposium on avian influenza

Bankowski, R.A.; Peterson, I.L.; et al.

Carter Composition Corp.; U.S. Agency for International

Development. Bureau for Development Support. Office of Agriculture

(International Symposium on Avian Influenza, 1st, Beltsville, MD, US, 22-24 April 1981)

24 Apr 1981, xxi, 215p. : En

Avian influenza or fowl plague is potentially one of the most economically destructive poultry diseases due to the plurality of its immunologic types and its mode of introduction and spread

in flocks. This report presents the proceedings of the first international symposium on avian influenza, which was attended by about 100 scientific, regulatory, and agroindustrial personnel.

Three general papers are presented, followed by papers on: the current worldwide status of avian influenza (11 papers); epidemiology and sources of infection (8 papers); the molecular basis of the disease's pathogenicity and virulence (3); diagnosis and immunization (5); and avian influenza control (3). Included are recommendations and definitions of research priorities regarding uniform identification and terminology of avian influenza viruses, uniform international understanding of import-export requirements, and methods to prevent and control outbreaks associated with low-virulent strains.

073

* PN-AAN-895

MF \$1.08/PC \$6.11

Butterfly farming in Papua New Guinea

Pyle, Robert M.; Ayensu, Edward S.; et al.

National Academy of Sciences. National Research Council.

Office of International Affairs. Board on Science and Technology for International Development; U.S. Agency for International Development. Bureau for Science and Technology. Office of the Science Advisor; U.S. Agency for International Development. Bureau for Asia. Office of Technical Resources

Managing tropical animal resources, 1983, vii, 22p. + 3 appendices + attachments : En

9365538

DAN-5538-G-SS-1023-00; ASB-0249-SS-00-1026

* *National Academy of Sciences, 2101 Constitution Ave., NW, Washington, DC 20418 USA*

Butterfly farming is being used in Papua New Guinea to provide villagers with a cash crop and to help preserve the most endangered butterfly species and their habitats. A report on this unique program is presented.

Initial discussion is given to the array of butterfly species found in the country and the status of butterfly conservation, and to the role and function of Papua New Guinea's Insect Farming and Trading Agency in protecting butterfly resources, fostering butterfly farming, and ensuring a high-quality export product. Next, methods of operating a butterfly farm, including planting, harvesting, and processing techniques, are described. Finally, the application of this technology to other regions of the world is evaluated.

This pioneering activity, it is concluded, shows that: indigenous wildlife resources (especially those being depleted because of their commercial value) can contribute to village development; certain natural resources can be used profitably in a way that protects the environment and relieves threats to endangered species; and the program's strategy and organizational structure could well be applied to other endangered plant and animal species such as rare orchids and crocodiles.



074

PN-AAM-838
MF \$4.32/PC \$44.72

Bibliography of important Tilapias (Pisces: Cichlidae) for aquaculture

Schoenen, Peter
International Center for Living Aquatic Resources
Management; U.S. Agency for International Development.
Bureau for Science and Technology. Office of Agriculture
ICLARM bibliographies, no.3, Mar 1982, vii, 336p. : En
9311050
AID/DSAN-G-0178

Tilapias, fish of African origin, are now important in warm water aquaculture and fisheries worldwide, with culture systems ranging from rice field culture in Asia to experimental systems using power station waste heat in Europe. The present volume is the first bibliography dealing comprehensively with cultured tilapias, i.e., species of the former genera *Tilapia* and *Sarotherodon*. Included are all available references on eight species of tilapia: *Oreochromis (Nyasalapia) macrochir*; *Oreochromis (Oreochromis) aureus*; *Oreochromis (O.) hornorum*; *Oreochromis (O.) mossambicus*; *Oreochromis (O.) niloticus*; *Sarotherodon galilaeus*; *Tilapia rendalli*; and *Tilapia zillii*. Subject and geographical indexes are included.

075

PN-AAN-485
MF \$1.08/PC \$6.24

Plywood workboats for small scale fisheries

Visel, Timothy C.; Highsmith, William H.
University of Rhode Island. International Center for Marine
Resource Development
1982, ii, 38p. : En
AID/DSAN-G-0116

Because expense and lack of supporting technology and skilled labor often preclude using steel or fiberglass to build the small, inshore fishing vessels used in developing country artisanal fisheries, attention is now being focused on plywood as a basic boatbuilding material. This practical manual presents a detailed description, illustrated with diagrams and photographs, of the plywood skiffs made at Brockway Boat Works in Connecticut. These vessels are inexpensive, versatile, and easy to maintain; they run mainly on low horsepower outboard motors, and their flat-bottomed design saves on fuel consumption and affords maneuverability. Included are lists of necessary materials and tools, and plans for both a trolling and an outboard skiff.

076

PN-AAN-495
MF \$4.32/PC \$46.67

Theory and management of tropical fisheries

Pauly, Daniel; Murphy, G.I.
International Center for Living Aquatic Resources
Management; Commonwealth Scientific and Industrial
Research Organization
(ICLARM/CSIRO Workshop on the Theory and Management
of Tropical Multispecies Stocks, Cronulla, AU, 12-21 Jan
1981)
1982, vii, 360p. : En ICLARM contribution no.105

As yet no satisfactory sophisticated technique exists for assessing the effects of harvesting on multispecies tropical

fisheries. Since these fisheries are so intense, however, the workshop reported here represented an attempt to develop a set of practical stock assessment techniques as well as to promote understanding of multispecies relationships. Focus is on freshwater, estuarial, and marine fisheries in Southeast Asia, although much of the discussion has worldwide applicability.

Fifteen papers are presented, covering: the inadequacy of available data for even the simplest assessment techniques; simple assessment models, single-species models, ecological simulation models, and the three-bays ecosystem model; *intra* as opposed to *inter* species interactions; comparative fish yields from various tropical ecosystems; coral reef fisheries; tropical demersal fisheries; the relationships among ecosystems, food chains, and yields; sensitivity analysis in fisheries management; patterns of management throughout the world and the realities of contemporary fisheries management in Southeast Asia; and directions for future research. Taken together, the papers strongly indicate the paucity of data, the difficulty of the scientific problems, and the urgency for rapid advances in understanding, leading to recommendations which conclude the proceedings.

077

PN-AAN-775
MF \$1.08/PC \$9.10

Small-scale fisheries of San Miguel Bay, Philippines: occupational and geographic mobility

Bailey, Conner
University of the Philippines in the Visayas. College of
Fisheries. Institute of Fisheries Development and
Research; International Center for Living Aquatic
Resources Management; U.N. University
ICLARM technical reports, no.10, 1982, x, 57p. : En

The possibility of raising incomes and standards of living among small-scale fishermen in much of the developing world is constrained by the limited nature of fishery resources. In this report existing patterns and future potential for occupational and geographic mobility among small-scale fishermen of San Miguel Bay, Philippines are examined to determine whether mobility has or is likely to reduce surplus fishing labor or improve the productivity and income of the fishermen who remain.

Existing alternatives to fishing within the local economy are examined and found to offer only limited potential for absorbing fisheries labor. A 1982 survey found a high degree of willingness to change both occupation and residence on the part of all fishermen.

Examination of census data at the community (*barangay*) level for the years 1939-80 indicates substantial net outmigration from the Bay area. Nonetheless, in absolute terms, the number of fishermen has increased during this period, putting heavy pressure on the Bay's marine resources. Of equal significance, the trawlers which began operating within the Bay during the 1970's accounted for 47% of the total catch in 1980 while employing only 10% of the Bay's fishermen. Competition between small-scale fishermen and trawler operators is discussed.

The appropriateness of displacing small-scale fishermen from their traditional fishing grounds is questioned, especially where alternative employment opportunities are limited, as in the Bay area. It is concluded that, while over the long term the encouragement of economic alternatives to fishing is essential,



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in the short term efforts to improve conditions among small-scale fishermen might more effectively be based on better enforcement of regulations limiting competition between small-scale fishermen and trawlers. (Author abstract, modified)

078

PN-AAN-956

MF \$1.08/PC \$8.06

Small-scale fisheries of San Miguel Bay, Philippines: social aspects of production and marketing

Bailey, Conner

International Center for Living Aquatic Resources Management; University of the Philippines in the Visayas. College of Fisheries. Institute of Fisheries Development and Research; U.N. University

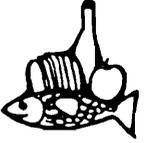
ICLARM technical reports, no.9, 1982, v, 57p. : En ICLARM contribution no. 103

To examine the possibility of incorporating fishing communities into the Bicol River Basin Development Program, five studies were conducted in the San Miguel Bay area. Data were gathered from interviews with 641 fishing households and were supplemented by observing participants over a 2-year period.

The first three studies analyze, respectively, the socioeconomic characteristics of fishing communities; the seasonality of fishing, processing, and marketing; and the economic role of women and children. Variations in sharing systems and patterns of gear ownership among small-scale fishermen in comparison with those of small and medium trawlers operating in the area are analyzed in the fourth study. Notable differences were found in concentration of ownership, presence of non-economic relationships between owners and crewmen, and flexibility of sharing arrangements. These differences are discussed in terms of existing legal definitions of municipal and commercial fisheries. The final study considers fishermen's perceptions of problems affecting small-scale fisheries in the area - mainly declining production - and the solutions proposed by the fishermen: improved fishing boats and gear and regulation of trawlers.



Researchers at the International Maize and Wheat Improvement Center observe a new hybrid.



079

PN-AAL-030
MF \$1.08/PC \$12.35

Comparative analysis of five PL 480 Title I impact evaluation studies

Dunlop, David W.; Adamczyk, Christine; et al.
U.S. Agency for International Development. Bureau for Program and Policy Coordination. Office of Evaluation
A.I.D. program evaluation discussion paper, no.19, Dec 1983, xiv, 62p. + annexes : En

A comparative analysis of the findings of impact evaluations of P.L. 480 Title I programs in Bangladesh, Egypt, Jamaica, Peru, and Sri Lanka is presented.

Initial sections describe changes in U.S. agriculture and policies since Title I's inception in 1954, and the resulting effect on P.L. 480 programming. Next discussed are the various host country contexts and their evolution, including two cases (Egypt and Peru) where Title I aid was interrupted. A review of socioeconomic development in the five countries highlights differing possibilities for program impact. Assessment of Title I's macroeconomic impact shows that the impact on balance of payments support, while positive in each case, was more apparent in countries with greater economic constraints (Bangladesh, Jamaica) and that the program tended to directly benefit the more affluent in Jamaica and Peru. Evaluation of microeconomic and development impacts reveals a production disincentive effect since the early 1960's for one or more food crops, although these disincentives may be offset by improvements in food import policy. The impact on nutritional status and dietary patterns was found to vary: wheat consumption increased in Egypt and Sri Lanka, while the program helped place a floor on caloric intake in Bangladesh and Sri Lanka. A final section notes that Title I has promoted U.S. foreign policy aims but has not strengthened U.S. agricultural markets or (except in Bangladesh) policy dialogue.

It is concluded that: either Title I's multiyear option or a modified Title III would provide significant programmatic and policy improvements; self-help agreements are too vague and should be replaced by a rolling 5-year planning exercise, as in Peru; improved coordination between food and nonfood donors, especially the International Monetary Fund, can increase the likelihood of desired policy changes and minimize host country logistical problems. Further data needs are to measure more precisely the long- and short-run disincentive effects of P.L. 480 on large and marginal programs and to better document the nutrition and dietary pattern impacts of food aid, especially Title I. The impact evaluations demonstrate the need to monitor A.I.D. programs continuously.

080

PN-AAL-015
MF \$2.16/PC \$17.29

PL 480 Title I: the Egyptian case

Blue, Richard N.; Dunlop, David W.; et al.
U.S. Agency for International Development. Bureau for Program and Policy Coordination. Office of Evaluation
A.I.D. project impact evaluation report, no.45, Jun 1983, xix, 48p. + 9 appendices : En
263PL01

The history and varied impacts of the P.L. 480 Title I program in Egypt (reinstated in 1974 following a break in 1967) are assessed in light of Government of Egypt (GOE) policies and food needs. Also assessed is the program's impact on U.S. objectives.

Major conclusions are: (1) To the extent that it reduces the cost of food imports essential to the GOE's policy of ensuring a plentiful supply of cheap bread, Title I supports policies that act as disincentives to farmers (despite evidence that improved technologies could increase production by 50%); 1967-74 data support the inference of a disincentive effect. Population growth and other pressures, however, may force the GOE to improve domestic production; options for doing so are presented. (2) Wheat distribution by the Ministry of Supply tends to strengthen the Ministry's control over all elements of the food distribution chain, possibly making it difficult to reorient the system - which has eliminated or severely reduced regionally centered private marketing and processing of wheat and wheat flour - toward increased local production. (3) General data (it is almost impossible to disaggregate Title I wheat from the total supply) show that daily per capita caloric intake has reached nearly 2,800 and that infant mortality increases when the wheat supply is interrupted, but also that there may be increased obesity and diabetes due to high carbohydrate intake. (4) Self-help provisions have been poorly monitored by USAID/E, although policy dialogue, Egyptian coordination, and the specificity of the agreements have improved since 1979. (5) Title I, which the GOE considers critical to U.S.-Egyptian relations, has helped ensure the U.S. foreign policy objective - which has been overriding - of Egyptian stability, a key factor in the Mideast peace process. (6) Marketing and budgetary effects have been limited.

The United States should continue to encourage GOE efforts to adjust its agricultural pricing policy in order to ensure that this largest of all Title I programs fully complies with the letter and spirit of recent P.L. 480 legislation and U.S. development policy initiatives. Included are 25 tables, 13 figures, several complementary analyses, and a 40-item bibliography (1968-82).

081

PN-AAL-021
MF \$2.16/PC \$21.32

Impact of PL 480 Title I in Peru: food aid as an effective development resource

Johnson, Twig; Berry, Elizabeth B.; et al.
U.S. Agency for International Development. Bureau for Program and Policy Coordination. Office of Evaluation
A.I.D. project impact evaluation report, no.47, Oct 1983, xvii, 49p. + 10 appendices : En

Peru's experience with P.L. 480 Title I food aid provides some important lessons, especially regarding USAID/P's success in integrating Title I into overall A.I.D. assistance. The Title I program's in-country context, key elements, and impacts in Peru, 1978-83, are herein reviewed.

While it is difficult to isolate Title I impacts on agricultural production or nutritional status, several results of long-term importance can be noted. USAID/P's use of Title I-generated local currency to provide counterpart funding has kept USAID/P development projects fully funded in times of economic crisis, allowed the Mission to respond quickly to new initiatives and special projects, leveraged additional Government of Peru (GOP) resources into successful projects launched with the help of Title I resources, and, perhaps most importantly, significantly increased funding for PVO Food for Work projects. Its inclusion as part of the U.S.-GOP project level dialogue indicates Title I's integration into the total USAID/P program.



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On the other hand, the year-to-year uncertainty of Title I resources makes programming hazardous, sometimes forcing projects to be terminated or reduced, even, as in the case of reforestation, to the jeopardy of previous gains. Further, USAID/P development objectives seem to carry no weight in AID/W program decisions. The program's instability is further increased by the sometimes conflicting aims pursued by the many agencies defining yearly programs and by U.S. and GOP staff and institutional changes. It is noted that the actions of special interests (such as the U.S. rice lobby in 1982), when not coordinated through Embassy channels, can jeopardize U.S. foreign policy interests.

A pilot 3-4 year Title I program is recommended in order to eliminate program uncertainties and allow USAID/P to exert greater policy leverage, e.g., in reforming agricultural credit policies, and to allow the programming of local currencies to be integrated with the Peruvian budget cycle rather than the Title I cycle.

Appendices include, inter alia, overviews of Peru's economic situation since 1968, of P.L. 480 programs, and of the uses of local currency 1955-65 and 1979-82, and a 67-item bibliography (1961-82).

082

PN-AAL-035

MF \$3.24/PC \$28.34

Jamaica: the impact and effectiveness of the PL 480 Title I program

Sidman, Barry; Crosswell, Michael; et al.
U.S. Agency for International Development. Bureau for Program and Policy Coordination. Office of Evaluation
A.I.D. project impact evaluation report, no.51, Feb 1984, xv, 31p. + 12 appendices : En
532PL01

The impact of A.I.D.'s P.L. 480, Title I program in Jamaica during the period 1975-80 is evaluated.

Despite increases in P.L. 480 and other direct and indirect forms of A.I.D. assistance, Jamaica's economy continued to decline during the period: the Gross Domestic Product fell 14%; unemployment rose 5% to 27%; and production remained overly dependent on imports with no increased export capacity. P.L. 480 food aid, which averaged \$10 million annually (1977-80), at best alleviated the symptoms of economic crisis - while at the same time increasing the country's foreign debt. Positively, P.L. 480 aid did not increase food imports (although it may have affected their composition), because post-1975 Jamaican policies stimulated domestic food production and helped reduce food imports by 54%; this indicates the importance of host country food import policies in determining potential disincentive effects of food aid. Self-help measures had little if any effect on Jamaican development, although agreement on counterpart allocations stimulated line ministries to meet their implementation responsibilities to avoid forfeiting future P.L. 480 funds. Reports on self-help measures should be given importance in designing and implementing Title I programs.

While generally consonant with P.L. 480 objectives, the program did not directly promote the key objectives of economic reform and structural adjustment; nor are these sufficiently ensured by agreements with the International Monetary Fund, agreements which USAID/J should scrutinize carefully. Further, the program's foreign policy and balance of payments justifications clashed and ultimately overcame market development objectives, although this was perhaps inevitable given the

economic situation. Recommendations are that: school feeding be either phased out or supplied by counterpart funds and local commodity purchases; efforts be made to ensure that all parties participate in determining self-help measures and local currency uses; and Title I impacts be evaluated on the basis of economic indicators and policy concerns rather than such elements as institutional change, technology transfer, and small farmer benefits.

083

* PN-AAN-444

MF \$1.08/PC \$4.55

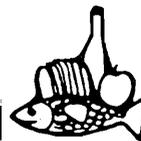
Faire face a la crise alimentaire de l'Afrique (Facing the food crisis in Africa)

Eicher, Carl K.
Michigan State University. Department of Agricultural Economics. African Rural Development Program; U.S. Agency for International Development. Bureau for Science and Technology. Office of Multisectoral Development
MSU international development papers: working paper, no.8, 1983, 29p. : Fr
AID/TA-CA-3
* *MSU International Development Papers, Department of Agricultural Economics, Agriculture Hall, Michigan State University, East Lansing, MI 48824-1039 USA*

The food crisis in Africa, which has been worsening for the last 10 to 20 years, cannot be solved without facing many hard political, structural, and technical problems. This report provides an overview of the crisis and suggests some strategies to overcome it.

African economic constraints (low population density, small-scale economies, colonial institutional heritage, agricultural emphasis, and non-cultivation of much arable land due to natural problems such as tsetse fly infestation), and the historical roots of the food crisis are outlined. Five key debates on food and agriculture which have exercised the African states during the past 25 years are reviewed: priority levels assigned to agriculture and industry in budgets and planning; the utility of western development models; the use of price and taxation policies for political objectives; capitalism versus agrarian socialism; and the effects of the Green Revolution on the African peasant.

Political orientations in the 1980's are outlined, as is the need for food policy reform to develop a reliable surplus and reduce hunger; suggestions are made for interim and long-term accomplishment of these objectives. Interim strategies include expanding commercial food imports, providing food aid, and promoting seasonal and international migrations until more land is cultivated and high-rainfall regions are rid of the tsetse fly and river blindness. For the long term, the African states, donors, and economic advisors should rid themselves of ambiguous slogans (e.g., food self-sufficiency), and eliminate those emergency food production and integrated rural development projects which are untested and not part of a solid technological package. Agricultural research and management are essential to solving food problems, especially those of food production, breeding, and irrigation; this will require university training for scientists and farm managers. Finally, it is noted that foreign aid administrators must resolve problems concerning long-term investment, coordinating assistance, developing strategies to improve government food policies, generating technology in Africa itself, and investment by foreign private enterprise.



084

PN-AAN-823

MF \$1.08/PC \$4.55

Feeding mankind in the 1980's: the role of international agricultural research

Borlaug, Norman E.
International Maize and Wheat Improvement Center
(Annual Agricultural Sector Symposia, 3rd, Washington, DC,
US, 5 Jan 1982)
5 Jan 1982, 33p. : En
6210107
AFR-0107-C-00-3001-00*

The role of international agricultural research in helping developing countries meet the massive challenge of feeding their people is examined in this report.

An initial section surveys the world food problem and describes key factors affecting food production – soil fertility, disease and insect control, yield potential of traditional crop varieties, traditional agronomic practices, availability of production inputs, governmental agricultural policies, and research/extension programs. The important role that international agricultural research centers can play in dealing with these issues and the centers' relationships with national food production programs are then examined. Priority research areas and the dangers posed to free exchange of germplasm by monopolies are also assessed. Environmental concerns regarding the use of insecticides, fungicides, and chemical fertilizers are considered, but minimized, while the use of energy to develop badly needed new sources of nitrogen for fertilizers is strongly supported. Adopting a wait-and-see attitude towards the value of genetic engineering in boosting crop yields, the author concludes by pointing out the need for research to assist the world's marginal production areas and, more generally, for international cooperation and continued investment in agriculture.

085

PN-AAN-812

MF \$1.08/PC \$5.46

Including dietary concerns in on-farm research: an example from Imbabura, Ecuador

Tripp, Robert
International Maize and Wheat Improvement Center
1982, 38p. : En Working paper no.82/2
6210107
AFR-0107-C-00-3001-00

The inclusion of dietary and nutritional concerns in an on-farm research program in Ecuador's Imbabura Province is examined in this report.

After providing background information on the program, which focuses primarily on maize (the major staple), the report describes traditional maize varieties and their dietary uses and shows how this information twice proved helpful in deciding whether or not to introduce new varieties. Next, data provided by farmers are analyzed as to the role played by maize, barley and wheat, potatoes, beans, peas, broad beans, lupine, and quinoa in farmer diets, and the value of these foods as sources of energy and protein is assessed. Recommendations are made for expanding maize production through such means as crop rotation and intercropping with early-maturing maize. A final section assesses the relative value of the various methods used to collect dietary data – formal on-farm surveys, qualitative 24-hour recall (for measuring consumption frequency of different foods), and informal questioning and casual observa-

tion (for studying complicated, sensitive, and long-term matters) – and summarizes the need taught by the program of integrating dietary and production concerns.

086

*** PN-AAN-892**

MF \$2.16/PC \$16.12

Chemistry and world food supplies: research priorities for development

Nickell, Louis G.; Pimentel, David; et al.
National Academy of Sciences. National Research Council.
Office of International Affairs. Board on Science and Technology for International Development; U.S. Agency for International Development. Bureau for Science and Technology
(Board on Science and Technology for International Development Workshop, Los Banos, PH, 11-14 Dec 1982)

1983, vii, 101p. + 2 appendices : En
9365538

DAN-5538-G-SS-1023-00

* National Academy of Sciences, 2101 Constitution Ave., NW, Washington, DC 20418 USA

CHEMRAWN II, the second international conference on the application of chemical research to burgeoning world food needs, was held in 12/82 at Los Banos, the Philippines. After the conference, a select number of participants met at a workshop to discuss research and development opportunities in conference-related areas. Four working groups focused, respectively, on soil fertility and plant nutrition, plant growth regulators and plant-pest relationships, food science and technology, and aquaculture and integrated farming systems. Summaries of these deliberations are presented in this report, along with a summary of the resulting recommendations and research priorities. Also included are the conclusions and recommendations of a group that discussed issues in environmental monitoring and chemical analysis. Several themes emerged as constants in the various workshop discussions – the importance of research on traditional farming systems and on the role of microorganisms in food and soil science, the importance of interdisciplinary and collaborative research and networking, and the need to keep food science research site specific.

087

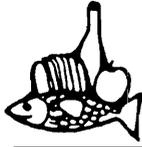
PN-AAQ-026

MF \$1.08/PC \$9.62

Consumption/nutrition factors in A.I.D. impact evaluations of agricultural research, rural roads, rural electrification, and water projects

Berry, Elizabeth B.; Miller, Charlotte I.
U.S. Department of Agriculture. Office of International Cooperation and Development. Nutrition Economics Group; U.S. Agency for International Development.
Bureau for Science and Technology. Office of Nutrition
Jan 1983, viii, 54p. + 4 appendices : En
RSSA 3-77

The food consumption and nutrition impacts of sectoral development projects have generally been neglected in A.I.D. project impact evaluations, due mainly to time and data constraints and to the low priority given these factors by project designers and evaluators. Thus concludes this review of ten



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impact evaluations, based in part on interviews with evaluation team members.

The ten evaluations reviewed fall into four categories: agricultural research; water resources; rural electrification; and rural roads development. The possible effects that each type of project could have on nutrition/food consumption are described and analyses of specific evaluations presented. In conclusion, it is suggested that project analysis (whether in the design, implementation, or evaluation phase) always attempt to consider: the nature of pre-project food consumption; the pre-project household and community social structure affecting food resources and distribution; unplanned project impacts (e.g., crop substitutions, labor shifts); changes in types and quantities of food consumed; and changes in income, expenditure, and prices. Specific recommendations for incorporating nutrition/food consumption concerns into the project impact evaluation process are also made.

088

PN-AAP-931

MF \$2.16/PC \$13.39

Food consumption and nutrition effects of international development projects and programs: an annotated bibliography

Editorial Experts, Inc.; U.S. Agency for International Development. Bureau for Science and Technology. Office of Nutrition; U.S. Department of Agriculture. Office of International Cooperation and Development. Nutrition Economics Group
1983, ii, 100p. : En

The 196 entries in this multidisciplinary bibliography on food and nutrition are drawn mostly from the fields of economics, technical agriculture, anthropology, and project management.

Entries, each including an abstract of its subject matter, are presented under three headings. The first section contains articles which deal with the causes and solutions of malnutrition problems from technical or policy perspectives. The second contains articles showing the effects that specific development programs and policies (e.g., agricultural production, food marketing, price subsidy) have had on nutrition, while articles in the third section discuss guidelines and methodologies for exploring the nutritional impact of development projects. Three indexes, one linking agricultural development to nutrition, the second by author, and the third by geographic area, are provided. (Author abstract, modified)

089

PN-AAN-681

MF \$2.16/PC \$24.44

Background papers

Berry, Len; Ford, Richard; et al.
Clark University. Program for International Development; U.S. Agency for International Development. Bureau for Africa. Office of Development Resources
Dec 1980, iv, 178p. : En
Eastern Africa regional studies: trends and interrelationships in food, population, and energy in Eastern Africa: a preliminary analysis, v.2
Vol. 3: PN-AAN-680
6980135

Interrelationships among food production, population growth, and energy use in East African development are examined in this compilation of policy background papers.

The first paper examines food production and consumption problems and the strategies commonly used to resolve them; stress is laid on the need for bottom-up strategies, based on an understanding of the objectives of traditional farmers. The second paper addresses the problem of burgeoning population growth and the unconcern of governments to its significance; included is a discussion of the causes of high fertility and of population migration, as well as brief resumes of population policies in Sudan, Tanzania, and Uganda. The third paper reviews the relationship between energy and food systems, including energy costs and shortages, appropriate technology, energy allocation, and energy management. Succeeding papers assess the poor quality of collected data in East Africa (a problem noted in several of the papers); analyze the causes of food shortages in Tanzania; and review food production, population growth, and energy needs in seven East African countries. A final paper presents a set of recommendations to address the above-noted problems. Appended are 9 figures, 11 tables, and a 5-page bibliography (1966-79).

090

PN-AAN-680

MF \$3.24/PC \$25.87

Literature summaries and reviews

Abdu, Anwar; Campbell, Leigh; et al.
Clark University. Program for International Development; U.S. Agency for International Development. Bureau for Africa. Office of Development Resources
Dec 1980, v, 192p. : En
Eastern Africa regional studies: trends and interrelationships in food, population, and energy in Eastern Africa: a preliminary analysis, v.3
Vol. 2: PN-AAN-681
6980135

This annotated bibliography is the third of three volumes of working papers concerned with interrelationships among food production, energy use, and population growth in Eastern Africa (Burundi, Djibouti, Ethiopia, Kenya, Rwanda, Somalia, Sudan, Tanzania, Uganda). The bibliography is arranged from the general to the specific, starting with a general or global examination of the literature and continuing with sections on Africa, East Africa, and each of the nine above-mentioned countries. The general literature is quite extensive, reflecting an increasing awareness of the problems of food, population, and energy as discrete topics and to a lesser extent their interrelationship, but studies specific to Africa and East Africa have been more difficult to discover. The difference in the coverage for each country is due to availability of material and temporal limitations, Kenya and Tanzania having the most references. Each entry includes a description of scope and contents; some include an evaluation and/or summary of findings. The bibliography includes items in French and German, and spans the period 1934-80.



091

PN-AAM-321

MF \$1.08/PC \$2.21

Nutrition

U.S. Agency for International Development. Bureau for Program and Policy Coordination
A.I.D. policy paper, May 1982, ii, 12p. : En

Approximately 600 million people in the developing world do not have access to enough food to meet their nutritional needs. This A.I.D. policy paper examines a variety of initiatives that the U.S., other donors, and developing countries themselves can adopt to improve the nutritional status of Third World citizens.

The objective of A.I.D.'s nutrition policy, it is shown, is to maximize the impact of A.I.D. sectoral development programs on nutritional well-being. Highest priority is placed on alleviating undernutrition, or inadequate consumption of food; (especially important are protein inadequacy and micronutrient deficiencies). To this end, nutritional issues should be incorporated into A.I.D. programs and policies in agriculture, health, food assistance, population, and education and training. Wherever possible sectoral programs should be targeted to households and individuals at risk of developing nutritional problems, and the nutrition impacts of projects likely to affect health, food production, or food consumption should be systematically evaluated. Further, sectoral programs should be complemented with nutrition projects; private sector efforts, especially in food marketing and distribution, should be supported; and strong host country nutrition policies should be encouraged.

092

PN-AAM-832

MF \$1.08/PC \$8.97

Pakistan: a guide to the literature

Israel, Ron; Nestor, Joanne; et al.
Education Development Center, Inc. International Nutrition Communication Service; U.S. Agency for International Development. Bureau for Science and Technology. Office of Nutrition

Maternal and infant nutrition reviews, Mar 1982, vi, 62p. : En
9311010
AID/DSAN-C-0209

This review of available literature concerning maternal and infant nutrition in Pakistan provides health and nutrition planners with information on: the nutritional and health status of pregnant and lactating women and of children aged 0-6 and 6-24 months; dietary beliefs and practices related to pregnancy, breastfeeding, weaning, and infant illness; correlations between maternal/infant nutrition and various socioeconomic and other factors; and current USAID/P, Government of Pakistan, international agency, and PVO nutrition-related programs and policies.

Data are presented for urban and rural areas and for the nation as a whole. Highlights of the review include: maternal mortality is 8/1000 and infant mortality 111/1000; low or deficient levels of hemoglobin are near universal among pregnant and lactating women in urban areas; people have faith in traditional health care providers and distrust Western medicine; weaning is very late; and a significant number of children receive only liquids until 2 years of age. Included are suggestions for strengthening nutrition programs and a 40-item annotated bibliography (1970-81).

093

PN-AAL-202

MF \$1.08/PC \$2.21

Infant mortality and breastfeeding in Northeastern Brazil

Goldberg, Howard I.; Rodrigues, Walter; et al.
U.S. Department of Health and Human Services. Public Health Service. Centers for Disease Control
1982, (16p.) : En

Data from a 1980 family planning maternal and child health survey are used in this report to analyze the relationship between failure to breastfeed and infant mortality in Northeastern Brazil. Interviews were held with 7,852 women of all marital statuses between the ages of 15 and 44; breastfeeding information was obtained on 3,457 children.

The survey revealed infant mortality rates slightly over 100 per 1,000 births. Within urban areas the relationship between mortality and breastfeeding appears to be quite weak, but in rural areas mortality among never-breastfed infants was 2.3 times higher than among breastfed infants. Although the analysis is limited by the possibility of still unrecognized factors determining infant mortality, the following factors seem most important: prenatal care, socioeconomic status, residence, use of maternal-child health services, and the number of years since birth. Only prenatal care, as an indicator of a mother's access to health services, was significant in both the urban and rural sectors, and was the most important factor overall. Never-breastfed children in general are 1.6 times more likely to die in infancy than are others, and mortality is greater among non-breastfed than among breastfed infants within every category of every control variable. An 18-item bibliography (1967-82) is included.

094

* PN-AAN-634

MF \$1.08/PC \$10.92

Maternal and infant nutrition in developing countries with special reference to possible intervention programs in the context of health

National Academy of Sciences. National Research Council.
Food and Nutrition Board; U.S. Agency for International Development. Bureau for Science and Technology. Office of Health

1983, 77p. : En
9310799
AID/TA-C-1428

* *National Academy of Sciences, 2101 Constitution Ave., NW, Washington, DC 20418 USA*

Scientific knowledge of maternal and infant nutrition and of feeding practices in developing countries is assessed as a starting point for possible health interventions.

Discussion is given to the nutritional status of women prior to pregnancy, during pregnancy (including adolescent pregnancy), and during lactation, and to the nutritional status of infants and young children. Knowledge gaps in these areas are identified and four priority research areas listed: (1) the effects of physical activity on weight gain during pregnancy, pregnancy outcome, and lactation performance; (2) causes of perinatal complications; (3) nutritional risk factors that can identify those who would benefit most from health care interventions; and (4) development of safe, feasible, and acceptable complementary feeding and weaning practices. Recommendations for specific nutrition interventions conclude the report; the need to inte-



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grate these with health and other development activities is stressed. Appended are a discussion of the effect of lactation on maternal energy balance and on protein, vitamin, and mineral status; recipes for complementary foods; a list of activities considered essential in health and nutrition programs; and a 200-item bibliography (1935-83).

095

PN-AAP-370

MF \$1.08/PC \$11.44

Bangladesh: a guide to the literature

Israel, Ron; Tighe, Joanne N.; et al.

Education Development Center, Inc. International Nutrition Communication Service; U.S. Agency for International Development. Bureau for Science and Technology. Office of Nutrition

Maternal and infant nutrition reviews, Dec 1983, ix, 79p. :

Bibliography: p.61-79, En

9311010

AID/DSAN-C-0209

A profile of maternal and infant nutrition status, beliefs, and practices in rural and urban areas of Bangladesh as represented in available literature is presented. The subjects are arranged as follows: (1) nutrition and health status in general, among pregnant and lactating women, and among infants aged 0-6 and 6-24 months; (2) dietary beliefs about pregnancy, lactation, breast milk substitutes, weaning, and illness and cure; (3) maternal/child dietary practices and health and medicine practices; (4) the correlation of nutritional status with other socioeconomic variables; (5) and nutrition and health policies and programs. An introductory overview notes that 20% of all children die before the age of 2; that 17,000 children a year go blind due to vitamin A deficiency; and that a 1975-76 survey showed that 86% of children suffer moderate to severe malnutrition.

Brief commentaries on nutrition-related issues, a 49-item annotated bibliography (1975-82), 13 other references (1974-80), and a table of locations studied are appended.

096

PN-AAQ-024

MF \$2.16/PC \$19.76

Socio-economic factors associated with undernourished children, El Salvador rural poor survey, June 1977 - May 1978

Vaughan, Suzanne; Flinn, William L.

U.S. Department of Agriculture. Office of International Cooperation and Development. Nutrition Economics Group; U.S. Agency for International Development. Bureau for Science and Technology. Office of Nutrition

Jul 1983, xi, 63p. + 3 appendices : En

RSSA BST-1171-R-AG-3125-01

A multivariate functional classification system for use in identifying households at risk of producing malnourished children is developed, based on analysis of data obtained from the 1978 El Salvador Rural Poor Survey. Such a system is essential in coordinating sectoral policies likely to affect nutritional status and monitoring the impact of such policies.

After defining the survey sample and the measures used to identify protein-calorie malnutrition (the most prevalent form of malnutrition among Salvadoran children), the authors identify family-unit socioeconomic factors associated with child mal-

nutrition in El Salvador (e.g., low income, lack of basic services, agricultural employment, smaller landholdings, illiteracy, and elderly and female heads of households). The impact of several of these factors is shown to vary greatly by urban vs. rural residency. Income, for example, is of little use in explaining malnutrition in rural households. The policy implications of these findings are then discussed and a multivariate model for targeting those at risk, designing appropriate interventions, and monitoring nutritional impacts is proposed. The model is characterized by its use of discriminant analysis to predict malnutrition; components of the model may vary depending on the population targeted.

The text is illustrated by 14 maps and 72 tables; a 25-item bibliography (1950-83) is appended.

097

PN-AAQ-042

MF \$1.08/PC \$10.92

Socioeconomic determinants of child malnutrition in Sri Lanka: the evidence from Galle and Kalutara districts

Abeyratne, Seneka; Poleman, Thomas T.

Cornell University. New York State College of Agriculture and Life Sciences. Department of Agricultural Economics

Jul 1983, 76p. : En A.E. research no.83-25

RSSA BST-1171-R-AG-3125-01

To identify socioeconomic determinants of malnutrition in Sri Lanka, dietary, socioeconomic, and anthropometric data (the latter for preschool children only) were obtained during a survey of 1,000 rural households with at least one preschool child in Sri Lanka's Galle and Kalutara Districts.

The findings suggest that previous anthropometric studies have overestimated the extent of protein-calorie malnutrition (PEM), due mainly to overly rigid interpretation of rather arbitrary criteria - very slight changes in the criteria for assessing PEM can lead to dramatically differing conclusions. Key findings are: (1) the majority of PEM cases are moderate and only a minute fraction severe; (2) PEM is highest among unemployed and landless households, lowest among farmers and mixed on-farm/off-farm income earners; (3) children experience sudden deterioration in nutritional status during weaning; and (4) preschool children are as vulnerable as are pregnant and lactating women to second and third degree PEM.

The author concludes that child malnutrition in Sri Lanka could be eliminated quickly and with minimal expense through oral rehydration therapy and the provision of Thripasha (a nutritious weaning food).

098

PN-AAP-933

MF \$3.24/PC \$29.90

Proceedings: first Asian household nutrition appropriate technology conference

Israel, Ron

U.S. Agency for International Development. Bureau for Science and Technology. Office of Nutrition; U.N.

International Children's Emergency Fund (Asian Household Nutrition Appropriate Technology Conference, 1st, Colombo, LK, 12-17 Jul 1981)

1981, iii, 247p. : En

9311010

AID/DSAN-C-0209



The nutritional significance of appropriate technologies for growing, handling, and using food in the home is often underestimated. Provided here are the proceedings of a 7/81 conference, held in Colombo, Sri Lanka, addressing this topic.

After listing committee recommendations, the report briefly recounts meetings of technology exchange groups on family food gardens; food storage and processing; food preparation, preservation, and culinary technology; weaning foods; and food sanitation. Next, profiles of community-based appropriate technology projects conducted in nine Asian countries are presented. Following this, 15 papers delivered before the conference are provided, covering: applications of appropriate technology for dealing with malnourishment; task analysis and priorities in programs to improve infant feeding; the relationship between children's circumstances and nutritional problems; home gardening; Nepal's Save the Grain food storage program; household food preservation and processing in Malaysia; preparation of nutritious food; technologies for developing weaning foods; applied food/nutrition policy planning; and the evaluation of nutritionally oriented technology programs. Appended is a curriculum design for training.

099

* PN-AAN-774

MF \$1.08/PC \$8.97

Workshop on single-cell protein: summary report

Indonesia. Agency for the Assessment and Application of Technology; National Academy of Sciences. National Research Council. Office of International Affairs. Board on Science and Technology for International Development (Workshop on Single-Cell Protein, Jakarta, ID, 1-5 Feb 1983) 1983, v, 68p. : En 4970266

* National Academy of Sciences, 2101 Constitution Ave., NW, Washington, DC 20418 USA

To combat serious protein deficiencies among its people, the Indonesian government plans to establish a rural pilot plant to produce single-cell protein from root crops, primarily cassava, as a supplement for both animal and human food. Results of a February 1983 workshop at which Indonesian and U.S. scientists, engineers, economists, and administrators reviewed the proposed project are herein summarized.

The first workshop presentation describes traditional fermented foods of Indonesia and discusses possible substrates and microorganisms suitable for single-cell protein production in Indonesia; the second considers the production process. Comments by a U.S. National Research Council panel and working group recommendations cover single-cell protein production, its use as feed for animals and food for humans, and (for the working group alone) engineering considerations. Six pages of references (1961-83) are provided. Appendices include a brief discussion on the conversion of cassava starch to fermentable sugars.

100

* PN-AAN-323

MF \$1.08/PC \$4.16

Contingency planning for famines and other acute food shortages: a brief review

Sarma, J.S.

International Food Policy Research Institute

Apr 1983, vi, 28p. : En

936411114

* IFPRI, 1776 Massachusetts Ave., NW, Washington, DC 20036 USA

Although the adverse effects of natural disasters are especially severe in developing countries already affected by chronic food shortages, not enough is known about how to plan for such emergencies in different countries with differing food systems. This review of contingency planning for famine and acute food shortages describes the complexity of the problem and possible remedies and reviews the work of concerned international organizations, especially the Food and Agriculture Organization (FAO) and World Food Programme of the United Nations.

A summary section assesses the FAO guidelines for contingency food planning, noting their generality and other weaknesses; regional workshops on the guidelines and on the national and global indicators of food emergencies are suggested. One alternative to the FAO approach would be to make a comparative study of typical countries in different regions and their experiences in past emergency situations; use in this connection of an appended table of selected indicators of the food economy of 99 developing countries, categorized by area, income, and import dependence, is recommended. Also appended are the table of contents of a pertinent FAO study; a list of objective national and global indicators; suggested advance arrangements for improving preparedness; and a 26-item bibliography (1967-82).

101

PN-AAN-832

MF \$2.16/PC \$14.56

Behavioral thresholds as indicators of perceived dietary adequacy or inadequacy

Edirisinghe, Neville; Poleman, Thomas T.

Cornell University. New York State College of Agriculture and Life Sciences. Department of Agricultural Economics; U.S.

Agency for International Development. Bureau for Science and Technology. Office of Agriculture

Cornell / International agricultural economics study, Jul 1983, ii, 106p. : En A.E. research no.83-24

RSSA BST-1171-R-AG-3125-01

Is world hunger increasing or decreasing? As an alternative to the often inadequate traditional method of answering this question by comparing food availabilities with food needs, analysis of the economic thresholds at which food is purchased for quality rather than quantity has recently been suggested. The legitimacy of this concept is herein analyzed.

After reviewing the controversy regarding quantification of the nutrition problem, the author discusses the rationale for focusing on quantity-quality substitutions as a means to discern behavioral thresholds of dietary adequacy. Next, the basic empirical validity of the threshold concept is established by a preliminary examination of available data from Sri Lanka, Brazil, Peru, and Indonesia. After noting potential limitations to the concept's utility posed by the lack of sufficiently disaggregated data, the author introduces a starchy staples consumption



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model as a basis for making reasonable inferences on consumer perceptions of nutritional adequacy or inadequacy. Results of tests of the behavioral model in Indonesia and Peru are then presented. Study results indicate the broad validity of the threshold approach and strongly suggest that the energy requirement figures used in traditional methodologies have exaggerated the extent of the hunger problem.

102

PN-AAP-033

MF \$2.16/PC \$16.90

Tunisia: description of a materials development workshop for the nutrition education audio-visual unit of the National Institute of Child Health

Mandelbaum, Juan; Holmes, Olivia

Education Development Center, Inc. International Nutrition Communication Service; U.S. Agency for International Development. Bureau for Science and Technology. Office of Nutrition

INCS consultant report series, Jul 1983, i, 112p. : En, Fr 9311010

AID/DSAN-C-0209

In May 1983, a 1-week workshop, sponsored by the International Nutrition Communication Service (INCS), was held to train personnel of the Tunisian Institut National de Sante de l'Enfance (INSE) to produce audiovisual maternal/infant nutrition materials and develop audience testing methodologies.

This report describes how workshop participants, working together in focused group sessions, conceptualized, produced, and pretested a slide/tape presentation on breastfeeding. The production process included scriptwriting, slide photography, and pretesting with a class of fourth year medical students; instructions on operating and synchronizing projectors and tape recorders were also provided. Despite the short time allocated, the group proved its capacity to handle all technical

aspects of production well. Recommendations are made regarding further needs of INSE's audiovisual production unit. Appendices include guides in French and English on audiovisual production techniques and market research procedures, as well as an equipment list and guidelines for group discussion.

103

PN-AAN-867

MF \$1.08/PC \$3.77

Simple processing of dehydrated potatoes and potato starch

Shaw, Roy L.; Booth, Robert

International Potato Center; U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture

1982, 32p. : En

936411107

AID/TA-G-1492

Dehydration processing is a simple, economical way to significantly lengthen the amount of time that potatoes can be safely stored. This paper discusses the technical aspects of establishing a plant for dehydration processing of potatoes and potato starch.

The authors first review socioeconomic factors to be considered prior to the construction of a processing plant and discuss aspects of potato composition which affect the yield and economics of processing. Potato selection standards and storage requirements are listed, and procedures and equipment used to select, store, wash, peel, cook, cut, dry, mill, and size potatoes in an International Potato Center pilot processing plant described. Attention is also given to equipment motor needs and a plant operation schedule. Similar steps and equipment used in producing potato starch are then detailed. Included in the text are diagrams and photos illustrating equipment design and function as well as suggested modifications to improve plant operation.



104

PN-AAN-765
MF \$2.16/PC \$23.53

Oral rehydration therapy: an annotated bibliography

Pan American Health Organization; World Health Organization

Pan American Health Organization scientific publication, no. 445, 1983, ix, 172p. : 2nd ed., En 1st ed.: PN-AAH-149

Major published literature on oral rehydration therapy (ORT) as a treatment for the critical problem of infant diarrheal dehydration is made available in this updated collection of 277 annotative abstracts, 144 of them representing recent (1980-82) material.

The abstracts are presented in five sections, each arranged chronologically. These cover: (1) studies supporting the clinical and physiological rationale for ORT; (2) clinical trials on methods of ORT administration, reduction of intravenous requirements, limitations of ORT, and ORT delivery in various cultural and social settings; (3) efforts to develop an optimum solution usable for all ages and with all types of diarrhea, including results of tests on variations in type and amount of sugar electrolytes, in sodium and potassium compositions, and in treatments derived from natural food sources; (4) studies showing actual impacts of ORT use and sociocultural factors influencing its effective delivery and application; and (5) articles on implementation, including training for ORT distribution, solution preparation, and alternative treatments. It is noted that local beliefs and practices need to be incorporated into ORT programs.

A sequential bibliography for the collection and author and country indexes are provided.

105

PN-AAN-740
MF \$1.08/PC \$12.35

Health and population problems in Sri Lanka

Immerwahr, George E.; Pollack, Marjorie P.

American Public Health Association. International Health Programs; U.S. Agency for International Development.

Bureau for Development Support. Office of Population
19 Mar 1983, ix, 36p. + annexes : En
AID/DSPE-C-0053

Despite declining fertility, a successful expanded program of immunization (EPI), and one of the most rapid mortality decreases in world history, Sri Lanka continues to have very serious health and population problems, according to this study.

The most pressing problems noted by the research team included diarrheal diseases (oral rehydration salts are not routinely used); preventable maternal deaths from toxemia, hemorrhage, and sepsis; and a conspicuously high prevalence of motor vehicle fatalities, most of them pedestrians and cyclists. Interventions for several of these problems are proposed, as is a health systems management project comprised of five components - family planning, diarrheal disease control, nutrition, perinatal care, and EPI.

The major recommendation in regard to family planning is for a survey of population growth awareness and attitudes, followed by an awareness and promotion program throughout all strata of Sri Lankan society. Also recommended is completion of the detailed morbidity and mortality analysis. Appendices treat causes of mortality, morbidity and mortality trends,

vaccine-preventable and intestinal infectious diseases, nutritional status, and malaria and provide 24 tables and 7 figures.

106

PN-AAN-727
MF \$1.08/PC \$10.53

Rural community health nursing curriculum model for implementation in integrated rural development projects in Ecuador

Ruffing, Karen L.

American Public Health Association. International Health Programs; U.S. Agency for International Development.

Bureau for Development Support. Office of Health

1 Jun 1983, ix, 27p. + appendices : En Assgn.

no.583126(5103979)

AID/DSPE-C-0053

As a follow-on to a field study revealing that lack of orientation to primary health care in Ecuadorean institutions of higher learning was leading to serious deficiencies in community health care delivery, a consultant worked with staff at the Catholic University of Ecuador to prepare this model curriculum for community health nurses for use in the University's School of Nursing. Graduates of the program are to be employed in A.I.D. integrated rural development projects in Peru.

The curriculum has an interdisciplinary pre-professional level and 4 semi-integrated professional levels. It focuses on community health, following a levels-of-prevention model, progressing from primary to tertiary care and program planning. The content and associated disciplines (research, administration, nursing process, health education, and transcultural nursing) are taught in units organized according to the life cycle. Appended are the curriculum design for all levels, including performance objectives, general implementation guidelines, a plan for nursing school development, and a 52-item bibliography (1966-82).

107

PN-AAM-345
MF \$1.08/PC \$6.63

Mass distribution of vitamin A

West, Keith P.; Sommer, Alfred

Johns Hopkins University. School of Hygiene and Public

Health. International Center for Epidemiologic and Preventative Ophthalmology; U.S. Agency for International Development. Bureau for Science and Technology. Office of Nutrition

15 Feb 1983, 48p. : En

AID/DSAN-CA-0267

Periodic provision of massive doses of vitamin A to vulnerable groups has become a component of long-term vitamin deficiency intervention strategies in some developing countries. This paper reviews the origin, rationale, and effectiveness of this strategy.

The efficacy of oral vitamin A administration is examined in terms of: (1) the efficiency of absorption of vitamin A as an ester and as an alcohol, and in either water-miscible or oil-soluble preparations, given the health status of the recipient; (2) the retention of oil-soluble physiologic and massive dosages; and (3) the protective period provided against low serum retinol levels and xerophthalmia.

Means of evaluating the effectiveness of the massive-dose intervention strategy are then examined; specific attention is



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given to measures of postintervention reduction of xerophthalmia, to comparisons of intervention and control populations, to the slope test for age-prevalence association, and to mathematical estimates of expected xerophthalmic prevalence or incidence reduction. Finally, it is noted that effectiveness evaluations that used pre/post-intervention measures have shown that mass distribution of vitamin A can reduce the incidence of mild xerophthalmia.

Tables and graphs derived from intervention evaluations provide supporting data. A 79-item bibliography (1935-82) is provided.

108 * **PN-AAN-685**
MF \$1.08/PC \$9.10

Opportunities for control of dracunculiasis: report of a workshop

National Academy of Sciences. National Research Council. Office of International Affairs. Board on Science and Technology for International Development; World Health Organization; U.S. Agency for International Development. Bureau for Science and Technology. Office of the Science Advisor

(Workshop on Opportunities for Control of Dracunculiasis, Washington, DC, US, 16-19 Jun 1982)

1983, vii, 65p. : En
9365538

DAN-5538-G-SS-1023-00

* *National Academy of Sciences, 2101 Constitution Ave., NW, Washington, DC 20418 USA*

Growing recognition of the widespread human suffering caused in Africa, India, and the Middle East by dracunculiasis (guinea worm disease), a parasitic infection transmitted by drinking contaminated water, led to a June 1982 workshop on dracunculiasis control. A report on the conference is herein presented.

After an overview of the disease (etiology and life cycle, symptoms, treatment, epidemiology, social and economic effects, control measures), recommendations are made for national disease control measures in endemic countries. These include: problem assessment; improved case reporting, strategy planning; pilot projects and training; protecting water sources; in-school and adult health education; and a treatment protocol with emphasis on prevention. Recommended research priorities include developing health education materials and field methods for species identification and quantification; comparing the efficacy and cost of intervention methods; and evaluating techniques for analyzing patterns of community water use. Biomedical research should emphasize development of therapeutic and preventive measures, along with ecological studies of the effect of surface water conditions on cyclops infestation. Measures for international or bilateral assistance agencies are also outlined. Included are working papers on: problem assessment and data collection; control strategies; and program monitoring and evaluation. Appendices include 46 references (1938-83) and a list of workshop papers to be published separately.

109 * **PN-AAN-952**
MF \$1.08/PC \$8.45

Manpower needs and career opportunities in the field aspects of vector biology: report of a workshop

National Academy of Sciences. National Research Council. Office of International Affairs. Board on Science and Technology for International Development; U.S. Agency for International Development. Bureau for Science and Technology. Office of the Science Advisor
(Manpower Needs and Career Opportunities in the Field Aspects of Vector Biology, Washington, DC, US, 29 Sep-2 Oct 1982)

1983, xii, 53p. : En
9365538

DAN-5538-G-SS-1023-00

* *National Academy of Sciences, 2101 Constitution Ave., NW, Washington, DC 20418 USA*

Vector-borne diseases continue to imperil socioeconomic development in many developing countries, yet there is a shortage of field-oriented vector biologists, according to this report on an international workshop held in Fall 1982 on problems associated with vector biology research. The report consists of working group presentations and recommendations on the need for field studies in vector biology, on training and employment opportunities, and on applied malacology. The recommendations focus on ways to ensure the future availability of a cadre of experts capable of understanding and dealing with the complex ecological relationships of vectors with human hosts and with pathogens that cause diseases such as malaria, dengue fever, filariasis, and schistosomiasis. Presentations given at the plenary sessions are not included in the report. (Author abstract, modified).

110 **PN-AAN-734**
MF \$2.16/PC \$16.64

Evaluation of the feasibility of manufacturing and marketing the A.I.D.-design handpump and roboscreen in Peru

Camp Dresser and McKee, Inc.; U.S. Agency for International Development. Bureau for Science and Technology. Office of Health; U.S. Agency for International Development. Bureau for Latin America and the Caribbean. Peru
WASH field report, no.89, Jun 1983, v, 119p. : En
Order of technical direction no.114
9311176
AID/DSPE-C-0080

The feasibility of manufacturing and marketing an AID-designed handpump and roboscreen (a plastic well screen) in Peru is assessed.

After indicating Peru's need for water supply programs, the report describes A.I.D.'s handpump and technology transfer programs and the problems involved in local manufacture of handpumps. Succeeding chapters treat: governmental, sociocultural, and other in-country factors involved in implementing a handpump program; the potential demand for handpumps; elements to be included in a marketing study for the handpump; and handpump installation requirements/constraints. Peru's handpump manufacturing capabilities are then analyzed in greater detail. It is concluded that interest in having a handpump manufactured locally is widespread in Peru and



that the planned infrastructure could support its installation and maintenance, but that further study is needed to determine the commercial feasibility of such a program.

Appendices provide selected lists of drillers and drilling costs, suppliers, materials, and foundries; data on facilities and capabilities of individual manufacturers; a statistical table on pump machining time; roboscreen and cylinder liner specifications; and roboscreen manufacturing data.

111 * **PN-AAN-771**
MF \$1.08/PC \$7.15

Workshops on the management of urban waste and on wastewater reuse in agriculture: staff summary report

Tunisia. Ministry of Higher Education and Scientific Research; National Academy of Sciences. National Research Council. Office of International Affairs. Board on Science and Technology for International Development (Workshop on Management of Urban Waste, Tunis, TN, 12-16 Apr 1983)

(Workshop on Wastewater Reuse in Agriculture, Tunis, TN, 18-22 Apr 1983)

1983, iii, 52p. : En
6640300

AID/NE-C-1536

* National Academy of Sciences, 2101 Constitution Ave., NW, Washington, DC 20418 USA

At the request of the Tunisian Ministry of Higher Education and Scientific Research, two workshops, one on the management of urban waste and a second on wastewater reuse in agriculture, were held in Tunis in April 1983. This report summarizes workshop activities.

First described are visits made during the first workshop to a refuse disposal site and two wastewater treatment plants. Topics of workshop presentations are listed, and potential public health problems related to composting and wastewater treatment highlighted. Findings of a roundtable discussion on interdepartmental waste management schemes are discussed and a framework for such a scheme outlined. In regard to the second workshop, results of visits to universities and government and municipal agencies are summarized and recommendations for sewage irrigation made by workshop participants as well as by the Tunisian government detailed. Topics of the formal presentations are listed; excerpts from those on the microbiological and toxicological health effects of land treatment conclude the report. A 5-page bibliography (1951-81) is appended.

112 **PN-AAL-370**
MF \$1.08/PC \$3.38

Recommendations for initial water and sanitation decade planning activities in the Central African Republic

Warner, Dennis B.

U.S. Agency for International Development. Bureau for Science and Technology. Office of Health; Camp Dresser and McKee, Inc.

WASH field report, no.53, Sep 1982, i, 22p. : References p.22, En

9311176

AID/DSPE-C-0080

In the Central African Republic, where only four towns have piped water systems and no towns have sewer systems, little effective action has been taken by the Government to improve deteriorating water and sanitation conditions. This report describes current host government and donor efforts in the area of water and sanitation and outlines a detailed strategy for A.I.D. assistance in the preparation of a Water and Sanitation Decade plan.

The Government of the Central African Republic is concerned about its water and sanitation problems but has only limited capabilities for solving them. The Government is currently establishing an interministerial National Action Committee (NAC) to coordinate water and sanitation activities. There is also growing donor interest in supporting water/sanitation efforts. Two regional projects to be supported respectively by WHO and the World Bank are in the final stages of review.

The author concludes that A.I.D. assistance can have a significant long-term effect on the water/sanitation sector. It is recommended that A.I.D. provide technical assistance to help the Government prepare an official water/sanitation strategy and subsequently support a seminar so that Government and donor officials can discuss the strategy and its implementation.

113 **PN-AAN-850**
MF \$1.08/PC \$7.54

Workshop on sanitation in Bakel, Senegal, April 20-May 3, 1983: an assessment of environmental health conditions

Talbot, Thomas; Rosensweig, Fred
Camp Dresser and McKee, Inc.; U.S. Agency for International Development. Bureau for Science and Technology. Office of Health

(Workshop on Sanitation, Bakel, SN, 20 Apr-3 May 1983)

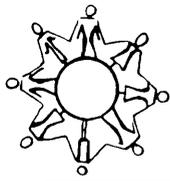
WASH field report, no.91, Jun 1983, vi, 49p. : En Order of technical direction no.147

9311176

AID/DSPE-C-0080

In spring 1983, a workshop on rural sanitation, herein summarized, was held in Bakel, Senegal, to give 16 people, including 12 nurses participating in A.I.D.'s Small Irrigated Perimeters Project, the skills needed to plan village-level sanitation projects. The workshop focused on latrine construction and solid waste and wastewater disposal. The methodology, highly participatory, involved such tasks as constructing three latrines, conducting a sanitary survey and analyzing the data, examining the role of a village health committee, planning an education program, designing improvements for existing latrines, and planning a solid waste disposal system. Participants felt the workshop was successful, especially the participatory approach, the focus on project planning, and the technical aspects of latrine construction.

Included in the report is a sanitary assessment of the villages in the Bakel region in terms of: excreta, wastewater, and solid waste disposal; water supply; schistosomiasis and irrigation; and dispensaries and hospitals. Recommendations in these areas and for workshop follow-on activities conclude the report. Designs for the excreta and solid waste disposal systems used in the workshop are appended.



114

* **PN-AAM-438**
MF \$1.08/PC \$6.76

Collecting demographic data in Bangladesh: evidence from tape-recorded interviews

Thompson, L.V.; Ali, M.N.; Casterline, J.B.
World Fertility Survey; International Statistical Institute; U.S. Agency for International Development. Bureau for Science and Technology. Office of Population
Scientific reports, no.41, Dec 1982, 51p. : En
9320547

* *International Statistical Institute, 428 Prinses Beatrixlaan, P.O. Box 950, 2270 AZ Voorburg, Netherlands*

In developing countries, most current demographic information is gathered through structured interviews with women. This report analyzes the transcripts of 220 such interviews – tape-recorded during the 1975–76 Bangladesh Fertility Survey (BFS) – in order to enhance understanding of some puzzling findings, describe interview dynamics, and illustrate the use of tape-recording in evaluating a demographic survey.

After examining the use of tape-recording in demographic surveys and describing the rationale and methodology of the present study, the authors analyze BFS respondents' dating of their births, first marriages, and pregnancies. They then examine survey questioning about contraceptive knowledge and use and about fertility preferences. The authors find that the transcript material makes vividly clear the lack of knowledge of dates and ages in Bangladesh, and that there is little reason to believe that different interviewing techniques would have yielded more precise data. On the other hand, suspiciously low reported fertility and infant mortality for the 5 years preceding the BFS may be due in part to interviewers' failure to probe for unreported births (and subsequent infant deaths). Moreover, both interviewers and respondents were uncomfortable during questioning on knowledge and use of contraception, and respondents had difficulty supplying numeric responses to questions about family size desires. Recommendations are made regarding questionnaire design and interviewer strategies.

115

* **PN-AAM-439**
MF \$1.08/PC \$8.32

Illustrative analysis: family structure and fertility

Caldwell, John C.; Immerwahr, George E.; Ruzicka, Lado T.
World Fertility Survey; International Statistical Institute; U.S. Agency for International Development. Bureau for Science and Technology. Office of Population
Scientific reports, no.39, Dec 1982, 64p. : En
9320547

* *International Statistical Institute, 428 Prinses Beatrixlaan, P.O. Box 950, 2270 AZ Voorburg, Netherlands*

The relationship between household structure and fertility was explored using data from the Bangladesh and Sri Lanka Fertility Surveys. Findings are herein reported.

The authors begin by discussing previous investigations of household structure and fertility, problems in interpreting and analyzing World Fertility Survey data on household structure, and the limitations of these data. The method chosen for classifying households is then explained, and data from Sri Lanka and Bangladesh are analyzed separately with regard to births during the last 5 years, length of the first birth interval for women married less than 5 years, current use of contraception,

and age at marriage of women married less than 5 years. It is concluded that the relationship between current household structure and fertility is either negligible or very weak. In Sri Lanka, fertility was slightly higher among women in nuclear families than among those in extended families; no differential was found in Bangladesh. The authors suggest, however, that results might be different in societies less dichotomized between persons who live solely in nuclear families or solely in more complex families from the time of marriage. Extensive statistical data are provided.

116

* **PN-AAM-441**
MF \$1.08/PC \$7.41

Evaluation of the Peru national fertility survey 1977–78

Cespedes, Yolanda
World Fertility Survey; International Statistical Institute; U.S. Agency for International Development. Bureau for Science and Technology. Office of Population
Scientific reports, no.33, Nov 1982, 57p. : En
9320547

* *International Statistical Institute, 428 Prinses Beatrixlaan, P.O. Box 950, 2270 AZ Voorburg, Netherlands*

Reliability of the data obtained in the 1977–78 Peru Fertility Survey are herein evaluated.

After illustrating the errors and biases that may affect survey information, the author presents several tests that are used to establish the type and magnitude of errors affecting the reporting of age and marital duration. Nuptiality data are then analyzed with a view to detecting deficiencies in the reporting of marital status (by comparing Survey data with data from the 1961 and 1972 censuses) and age of first marriage (through the application of Cole's Nuptiality Model). Tests, including those developed by Brass and Potter, are then applied to detect errors in pregnancy history data. Finally, the estimation of infant and child mortality by both direct and indirect methods is examined.

Major conclusions are that: the quality of household survey data has not improved since the 1972 census; it is very difficult to obtain information on marital status; estimates of infant and child mortality obtained directly are consistent with those obtained indirectly; and the fertility level and trend obtained in the Survey is consistent with that provided by the PEAL-PECFAL surveys for 1967–68 and by the 1975 EDEN survey. Included are 34 tables, 22 figures, and discussion of the method used to adjust the components of fertility rates.

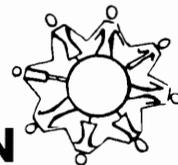
117

* **PN-AAM-806**
MF \$1.08/PC \$5.46

Evaluation of the Indonesian fertility survey 1976

Supraptilah, Bondan
World Fertility Survey; International Statistical Institute; U.S. Agency for International Development. Bureau for Science and Technology. Office of Population
Scientific reports, no.38, Dec 1982, 43p. : En
9320547

* *International Statistical Institute, 428 Prinses Beatrixlaan, P.O. Box 950, 2270 AZ Voorburg, Netherlands*



The reliability of data obtained in the Indonesia Fertility Survey of 1976 is evaluated in this report.

After a presentation of background information on Indonesia's population and the survey's methodology, assessment is made of the survey's data on age reporting and nuptiality, the latter with reference to the individual questionnaire data and their consistency with household survey data, trends in age at first marriage, and nuptiality data gathered in previous surveys. Fertility data are studied to determine both cumulative fertility and age-specific fertility rates by calendar year; cohort and period rates are analyzed in detail, as are indications of omission of births. Finally, data on infant and child mortality are assessed.

It is concluded that the survey data are generally of good quality, but with defects in regard to age reporting, and, to a lesser extent, in the reporting of births occurring over 20 years prior to the survey. Appended are a copy of the events chart used in the individual survey questionnaire and detailed subgroup tables.

118

* PN-AAM-804

MF \$1.08/PC \$7.67

Estimation and presentation of sampling errors

Verma, Vijay

World Fertility Survey; International Statistical Institute; U.S.

Agency for International Development. Bureau for Science and Technology. Office of Population

WFS technical bulletins, no.11, Dec 1982, 59p. : En 9320547

* *International Statistical Institute, 428 Prinses Beatrixlaan, P.O. Box 950, 2270 AZ Voorburg, Netherlands*

It is widely recognized that reports of survey results should include estimates of sampling errors. This technical bulletin, one in a series issued by the World Fertility Survey (WFS), provides systematic and detailed guidelines on computing, presenting, interpreting, and using sampling errors.

Following a brief introduction, Section 2, directed to the general user of survey results, defines sampling error and explains why it is useful to compute sampling errors; it also provides a simple exposition of the interpretation and use of sampling errors, with examples. The remainder of the bulletin is directed specifically to statisticians and others responsible for producing survey reports. Section 3 describes practical methods of computing sampling errors. The context here, as elsewhere, is that of a large single-round survey, such as a WFS survey, with a probability sample and complex design, aimed at producing a variety of descriptive statistics. Section 4 explores patterns of variation in sampling error results in the light of theoretical and empirical considerations, illustrating how information on sampling error may be summarized, and how it can be extrapolated to subclasses, variables, and samples other than those for which actual computations were performed. Finally, Section 5 provides guidelines on presenting sampling error results for different users: general readers; subject matter specialists; and sampling statisticians. (Author abstract, modified).

119

PN-AAK-983

MF \$1.08/PC \$6.11

Knowledge and use of contraception in twenty developing countries

Mamlouk, Maria

Population Reference Bureau, Inc.; U.S. Agency for International Development. Bureau for Science and Technology. Office of Population

Reports on the world fertility survey, no.3, Feb 1982, 44p. : En

9320649

AID/DSPE-C-0024

Patterns of contraceptive knowledge and use among women in 20 countries in North and South America, Africa, and Asia, as measured in the World Fertility Survey (WFS), are examined in this report.

The report begins with a description of WFS data collection techniques and the various contraceptive methods to be studied, including both modern (i.e., the pill, IUD) and traditional methods (i.e., rhythm method, abstinence). Next, the survey results are presented and it is noted that the pill is the best known and most frequently used contraceptive (the IUD is second) and that over 75% of ever-married women in every country studied but one (Nepal) had heard of contraception.

Patterns of contraceptive use are then analyzed in terms of select background variables such as age of exposed women, number of living children, level of education, place of residence, and employment status. It is concluded that both knowledge and use of contraception have been on the rise and should continue to increase in the years to come. Appended are 7 tables and a 33-item bibliography (1956-81); 9 figures and 7 tables are included in the text.

120

PN-AAN-329

MF \$1.08/PC \$1.30

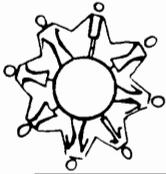
Effects of oral contraception on liver function tests and serum proteins in women with past viral hepatitis

Shaaban, M.M.; Hammad, W.A.; et al.

International Fertility Research Program; U.S. Agency for International Development. Bureau for Science and Technology. Office of Population

Contraception, v.26(1), Jul 1982, p.65-74 : En 9320537

Forty-three women who had had viral hepatitis one or more years ago and 35 healthy women, matched in age and parity, were given an oral contraceptive containing 0.05mg ethinyl estradiol and 0.5mg levonorgestrel for six consecutive months. Liver function tests (serum bilirubin, SGOT, SGPT, and serum alkaline phosphatase) and serum proteins (total, albumin, globulins, ceruloplasmin, haptoglobin, and alpha-1 antitrypsin) were measured before beginning treatment and after three and six months of use. Past hepatitis women experienced increased unconjugated bilirubin, SGOT, SGPT, and alkaline phosphatase levels throughout the six months while the control women showed less pronounced changes during the first three months with tendency to return to normal during the subsequent three months; the group X time of test interactions were significantly different between the two groups. Serum haptoglobin decreased significantly in both groups but the past-hepatitis group showed a more persistent change with



POPULATION

time. Changes also occurred in serum albumin, alpha-1 and beta globulins, and ceruloplasmin but without group effect or group X time interactions. (Author abstract).

121

PN-AAN-331

MF \$1.08/PC \$.65

Interval sterilizations: a substitute for postpartum procedures, an example from Southeast Brazil

Janowitz, Barbara; Covington, Deborah L.; et al. International Fertility Research Program; U.S. Agency for International Development. Bureau for Science and Technology. Office of Population

Social science and medicine, v.16, 1982, p.1979-1983 : En 9320537

Between December 1979 and February 1980, data were collected on access to postpartum sterilization for all obstetric patients at a large maternity hospital in Campinas, Brazil. Of 827 women wanting no additional children and having knowledge of sterilization, 481 (58%) reported that they wanted to be sterilized. Of these women, 226 (47%) were sterilized postpartum. One year later, a follow-up questionnaire was administered to 155 of the women who had desired sterilization, but had not been sterilized postpartum. Results, presented in this article, show that although almost 75% of these women were still interested in sterilization, only 13% had in fact been sterilized in the interval; 18% had become pregnant.

Lack of easy access to a doctor appeared to deter many women from being sterilized. The questionnaire data show, moreover, that women who were sterilized in the interval were more apt to be well educated and able to pay for their care with their own funds. These findings suggest the need for policies to provide poorer women greater access to both postpartum and interval sterilization. (Author abstract, modified)

122

PN-AAN-332

MF \$1.08/PC \$.52

Sex preference and its effect on family size and child welfare

Williamson, Nancy E. International Fertility Research Program; U.S. Agency for International Development. Bureau for Science and Technology. Office of Population

Draper fund report, no.11, Dec 1982, p.22-25 : En Report no.SP-67 9320537

In many parts of the world, a preference for sons presents a serious obstacle to the goal of reducing population growth. This article examines the extent of son preference in the developing world, governmental responses to it, its effect on fertility rates, and the comparative treatment of male and female children.

Son preference, the author finds, is particularly strong in Arab countries and in South Asia, and fairly mild in Latin America and Southeast Asia. Abuse and neglect of female children are not uncommon. Recognizing the need for population control, policymakers in several countries have recently become concerned about sex preference. The Chinese government has made a particularly strong effort to undermine son preference. Other countries, such as South Korea, are concerned about the problem, but believe that it will disappear with

modernization. And in some countries (e.g., India, Bangladesh), policymakers have not yet dealt directly with the problem. Finally, the author notes that the effects of sex preference on fertility are not always direct, nor are they easily measured. Moreover, family planning workers have found that such deeply rooted attitudes are difficult to change.

123

PN-AAN-856

MF \$2.16/PC \$17.68

New decade of fertility and family planning in Thailand: 1981 contraceptive prevalence survey

Thailand. National Institute of Development Administration; Westinghouse Health Systems, Inc.; U.S. Agency for International Development. Bureau for Development Support. Office of Population 1981, xi, 132p. : En

Results of the 1981 Contraceptive Prevalence Survey of 7,038 ever-married women in Thailand are presented.

After discussion of the Survey's objectives, background, and methodology, results are presented regarding: (1) fertility, in terms of age at marriage, cumulative and current fertility and fertility trends, infant mortality rates, and desire for additional children; (2) patterns of contraceptive knowledge and use, including demographic, socioeconomic, age, urban-rural and regional differentials; (3) contraceptive availability; and (4) infant feeding practices.

Results show that: fertility and infant mortality are apparently declining; knowledge of contraceptive methods is nearly universal, although its quality could be improved; contraception is used by almost 4 out of 5 currently-married women aged 15-44 across the socioeconomic, and increasingly, the geographical spectrum; at least 85% of the respondents desire no more children; the pill is the most popular contraceptive method (one-third of users), although declining in popularity as the use of injectables and especially female sterilization increases; the government's role in supplying contraceptives is significant; and efforts to promote breastfeeding should target the Central region. A discussion of policy implications concludes the report.

Appendices include the survey's sample design, estimation of parameters, and questionnaire and a note on estimation of infant mortality rates; 84 tables and 10 figures are provided.



124

PN-AAL-025
MF \$2.16/PC \$14.04

Haiti: HACHO rural community development

Brinkerhoff, Derick W.; Fotzo, Pascal T.; Ormond, Barbara J.
U.S. Agency for International Development. Bureau for
Program and Policy Coordination. Office of Evaluation
A.I.D. project impact evaluation report, no.49, Nov 1983, xiii,
29p. : En
5210061

The Haitian-American Community Help Organization (HACHO), founded in 1966 to provide health and community services in resource-poor Northwest Haiti, received A.I.D. funding from that date through 1979. The vicissitudes and impacts of HACHO – which soon became a focal point for local residents seeking help as well as for donors seeking a vehicle to provide assistance – are herein reviewed.

HACHO, which began by providing health services in one small town, soon expanded geographically – into other parts of the Northwest – and sectorally – into community organization, road construction, and later, agricultural extension, irrigation, potable water, and handicrafts. The primary impact of the HACHO project lay in its provision of basic services where none existed before. Residents valued its health care, agricultural, and infrastructure programs, a road network constructed by Food for Work teams, and its development of community councils to facilitate service delivery and mobilize local resources and self-help.

However, HACHO was also frequently called upon to coordinate donor response to natural disasters, and even though the project's design in later years tried to emphasize production-oriented programs and local capacity building, HACHO's relief activities tended to skew development efforts toward unsustainable service provision. The community council movement was fraught with contradictory expectations (regarding self-help vs. dependency on external relief), and HACHO itself suffered from serious organizational and managerial weaknesses: a centralized decisionmaking structure with headquarters far away in Port-au-Prince, and an inadequate information system, resulting in lack of guidance, continuity, and evaluation.

Several lessons emerge: the difficulty of achieving development and relief objectives within the same program; the need to clearly understand true costs and benefits in sustainable development activities; the necessity of long-term attention to management improvement, as well as long-term donor support, in developing an indigenous organizational capacity; and the vulnerability of integrated rural development projects to external, macro-level constraints.

125

PN-AAL-028
MF \$1.08/PC \$8.84

Helmand Valley project in Afghanistan

Clapp-Wincek, Cynthia; Baldwin, Emily
U.S. Agency for International Development. Bureau for
Program and Policy Coordination. Office of Evaluation
A.I.D. evaluation special study, no.18, Dec 1983, xiii, 29p. +
2 appendices : En
3060090

The Helmand Valley Development Project in Afghanistan, a complex effort – assisted by 25 A.I.D. and predecessor agency projects (1949–79) – to settle new farmers on desert lands reclaimed by irrigation, is herein reviewed.

Although often accounted a failure, the project did spur impressive growth in agricultural productivity and income. The amount of land under cultivation increased from 77,000 to 145,000 ha, 5,500 new families were settled in the valley, fertilizers and high-yield varieties were brought into widespread use, and double cropping increased dramatically. Average farm income increased by as much as ten times. By 1975, however, inadequate attention to drainage and salinization and failure to adequately train farmers in water management (as more settlers arrived and the project focus shifted from irrigation to integrated rural development) began to slow income increases. Long-time residents dealt with these problems better than did new settlers. Still, even in areas where salinity was severe, income remained well above pre-project levels.

Nonetheless, the increased crop yields were not enough to significantly improve Afghanistan's export situation. Social services (some of which the United States was responsible for) failed to mitigate the negative impacts of severe salinization and waterlogging – impoverishment, illness, and outmigration.

The project taught that: mixing export production and resettlement goals makes achievement of either unlikely; social services must be given high priority and integrated with other activities, but crop production gains must be consolidated before positive social impacts can be sustained; successful nomadic settlement programs must provide strong economic incentives, adequate social services, and effectively communicated agricultural information; and close integration of donor and host country activities and goals is essential. The success of A.I.D. activities in such a project depends on the success of the effort as a whole. Thus, provision must be made from the outset for all essential elements.

Appendices include an analysis of four farm economic surveys conducted in the Valley between 1963 and 1978 and a 41-item bibliography (1955–1980).

126

*** PN-AAM-614**
MF \$1.08/PC \$8.45

Service provision and rural development in India: a study of Miryalguda Taluka

Wanmali, Sudhir
International Food Policy Research Institute
IFPRI research report, no.37, Feb 1983, 62p. : Bibliography
p.59–62, En
936411114
* IFPRI, 1776 Massachusetts Ave., NW, Washington, DC
20036 USA

Current strategies seek to develop rural India indirectly, as the beneficiary of urban and industrial development. To the contrary, this study, based on empirical evidence from a major irrigation project in Miryalguda, a *taluka* (administrative unit) in the State of Andhra Pradesh, advocates promoting rural development directly, by agricultural sector planning and the related provision of public and private sector services.

After an initial evaluation – and rejection – of current urban and industrial models of spatial development and of the modified growth pole hypothesis, the study examines Miryalguda taluka with regard to irrigation, cropping patterns, and demographic and economic factors; identifies the wide-ranging socioeconomic services which were provided by the government in conjunction with the irrigation project, and which in turn led to spectacular growth in the demand for retail and other private sector services; and examines the spatial distribution and spatial impacts of government and private services. Finally,



HUMAN SETTLEMENTS

policy implications for spatial planning of services are discussed.

127

PN-AAL-853

MF \$1.08/PC \$2.34

Botswana experience: a presentation to the 4th A.I.D. shelter workshop

Upchurch, James

Cooperative Housing Foundation; U.S. Agency for International Development. Bureau for Private Enterprise. Office of Housing

(AID Shelter Workshop, 4th, Washington, DC, US, 25 Oct - 19 Nov 1982)

26 Oct 1982, 15p. : En

Botswana provides an important example of how a small, less developed country can respond to an urban housing crisis with excellent policies and good implementation. Because housing problems are solved at the family and neighborhood level, the principles of Botswana's housing program are relevant even to developing countries with much larger urban populations.

This report describes how Botswana, with the help of a housing investment guarantee loan and A.I.D. technical assistance, upgraded its urban squatter areas and provided sufficient new low-income housing to prevent the growth of new squatter areas. The report then demonstrates how Botswana's housing program typifies the five themes of A.I.D.'s 1982 Shelter Workshop: balanced utilization of public and private resources; development of effective institutional and management capacities; squatter upgrading as an alternative to slum clearance; use of an affordable housing design; and the importance of cost recovery to shelter sector self-reliance.



Engendering hope for the future may be the bottom line in housing assistance programs.



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128

PN-AAK-974

MF \$2.16/PC \$23.27

Draft environmental profile on Jamaica

Braatz, Susan M.

U.S. Department of State. National Committee for Man and the Biosphere; U.S. Agency for International Development. Bureau for Science and Technology. Office of Forestry, Environment and Natural Resources

May 1982, vii, 119p. + 8 appendices : En
9311113

RSSA SA/TOA 77-1

Despite its great physical beauty and considerable natural resources, Jamaica is plagued by debilitating economic, demographic, and environmental problems, according to this draft environmental profile.

After a general description of Jamaica's geography, climate, population characteristics, political structure, and economy, discussion is given to the mining industry and the country's limited energy resources. Next, the status of renewable resources, including agricultural land, soils, vegetation, rangeland, forests, water, natural areas and wildlife, is reviewed. A final section on environmental quality notes the serious pollution and eutrophication caused by inadequate disposal of human and industrial wastes in Jamaica's coastal waters, Kingston Harbour in particular, and the inadequacy of water quantity and quality in rural areas. More general problems noted in the report include declining agricultural productivity; high (over 30%) unemployment, especially among rural youth; and increasing overpopulation. Thirteen figures illustrate the text. Appendices include a 193-item (1940-81) bibliography, a summary of Jamaican environmental legislation, and lists of Jamaican forest reserves, forest plantation species, and endangered species.

129

PN-AAN-844

MF \$1.08/PC \$8.97

Country study of Ghana

Gruppe, Henry; Ofosu-Amaah, Waafas

International Institute for Environment and Development; U.S. Department of the Interior. National Park Service; U.S.

Agency for International Development. Bureau for Science and Technology. Office of Forestry, Environment and Natural Resources

Legal regulatory and institutional aspects of environmental and natural resource management in developing countries, Dec 1981, 67p. : En

9311330

AID/DSAN-G-0027

Although Ghana has the policies, laws, and institutions needed to adequately protect its environment, serious water pollution and growing deforestation and soil degradation indicate the need for further action, according to this comprehensive review of environmental management in Ghana.

After a short overview of Ghana's geography, vegetation, and wildlife, major environmental and natural resource problems are identified. The nation's government and legal system are then profiled, and the workings of customary and statutory law described. Environmental and natural resources policy as outlined in the constitution and updated in periodic government statements is briefly reviewed, followed by a detailed examination of institutions responsible for environmental protection, of which the Environmental Protection Council is the most impor-

tant. Recommendations for improving environmental management presented in a final section focus on expanding the mandate and organizational location of the aforesaid Council, streamlining institutions having environmental responsibilities, and updating environmental legislation.

130

PN-AAN-845

MF \$1.08/PC \$8.71

Country study of Venezuela

Cuenya, Beatriz; Hardoy, Jorge E.

International Institute for Environment and Development; U.S.

Department of the Interior. National Park Service; U.S.

Agency for International Development. Bureau for Science and Technology. Office of Forestry, Environment and Natural Resources

Legal regulatory and institutional aspects of environmental and natural resource management in developing countries, May 1981, 64p. : En

9311330

AID/DSAN-G-0027

The legal-regulatory and institutional aspects of environmental and natural resource management in Venezuela are reviewed. After a description of the country's geography, natural resources, demography, economy, and governmental structure, historical patterns of development are analyzed and their accompanying environmental problems noted. Principles underlying environmental policies as well as strategies for implementing them are then detailed. Next, the legal/institutional framework of environmental policy is described, and responsibilities of the Ministry of the Environment and Renewable Natural Resources and other public agencies are outlined. The environmental planning process is explained; sectoral policies and plans for forests, water, noise, and the Caracas urban area are highlighted. The report's conclusions stress that while Venezuela has been a pioneer in establishing comprehensive environmental policies, its numerous and often competing public agencies have not effectively enforced those policies. Appendices include a 4-page bibliography (1972-80) of Venezuelan sources and lists of recent legislation, reserved areas, and pertinent international agreements.

131

PN-AAN-853

MF \$2.16/PC \$13.39

Country study of Malaysia

Gruppe, Henry; Ofosu-Amaah, Waafas

International Institute for Environment and Development; U.S.

Department of the Interior. National Park Service; U.S.

Agency for International Development. Bureau for Science and Technology. Office of Forestry, Environment and Natural Resources

Legal regulatory and institutional aspects of environmental and natural resource management in developing countries, May 1981, 82p. + 7 annexes : En

9311330

AID/DSAN-G-0027

Environmental and natural resource management and policy in Malaysia are reviewed in this report.

After an overview of the country's regions, natural resources, and population groups, its environmental and natural resource problems are considered. These include: deforestation; water, coastal zone, marine, air, and noise pollution; soil



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erosion; and pesticide and fertilizer use. Next, the Government of Malaysia's resource management policy is assessed, followed by an overview of the country's administrative structure and legal system. Succeeding sections examine the environmental functions of government ministries, regulations for the various resource sectors, environmental planning and impact assessment, environmental features of the Strait of Malacca, and the role of nongovernmental organizations in environmental affairs. It is concluded that while much has been done to manage the country's natural resources, new bureaucratic obstacles and policy problems have been created which must now be addressed.

Appended, inter alia, are charts defining the organization of Malaysia's Ministry of Science, Technology, and Evaluation; a simplified government decisionmaking structure; lists of pollution control regulations and sectoral laws; and a 56-item bibliography (1960-81).

132

PN-AAN-846

MF \$1.08/PC \$10.40

Country study of Sudan

Johnson, Brian; Ofosu-Amaah, Waafas
International Institute for Environment and Development; U.S. Department of the Interior. National Park Service; U.S. Agency for International Development. Bureau for Science and Technology. Office of Forestry, Environment and Natural Resources

Legal regulatory and institutional aspects of environmental and natural resource management in developing countries, Jun 1981, 63p. + annexes : En

9311330

AID/DSAN-G-0027

Desertification, the negative health impact of irrigation programs, excessive pesticide and fertilizer use, aquatic weed infestation, wildlife depletion, and degradation of the Red Sea ecology are the major problems besetting Sudan's attempt to manage its vast natural and environmental resources. The legal, regulatory, and institutional aspects of that management effort are the subject of this report.

Individual chapters are devoted to governmental structure and the legal system, attitudes towards law, natural resource and environmental policy, and Government of Sudan resource management entities. Major legislative provisions are discussed for 10 major resource sectors. Discussion is also given to international agreements on the use of Nile waters and the increasing involvement of nongovernmental organizations in environmental and natural resources management.

Despite growing governmental concern, sound management continues to be constrained by: (1) a severe lack of intragovernmental coordination; (2) conflicts regarding land use, compounded by a lack of information on the country's natural resources; (3) the power of local authorities, which may be further complicated by the planned decentralization program; and (4) the outdatedness and lack of enforcement of the majority of environmental laws.

Recommendations are made concerning all these issues. A 6-page bibliography (1955-80) is appended.

133

PN-AAL-348

MF \$2.16/PC \$16.77

Comparative advantages and disadvantages of root trainers, dibble tubes, plastic bags and bare-rooting

Benge, Michael D.

U.S. Agency for International Development. Bureau for Science and Technology. Office of Forestry, Environment and Natural Resources

Technical series, no.4, 29 Jun 1982, v.p. : En, Es

Traditional methods of growing tree seedlings are often costly and deleterious to plant growth and survival. This compilation of nine illustrated papers presents new technologies for seedling culture currently undergoing successful trials worldwide.

Nurseries in developing countries commonly use either the bare root process or plastic bags for growing tree seedlings. With these methods, susceptibility of the seedlings to transplant shock is high. Bare root transplants suffer up to 95% mortality as roots break and dry out; bagged seedlings are cumbersome to move and suffer restricted access to water and nutrients, resulting in root die-back, deformity, and mortality.

Modern containerization in the form of root trainers and tubes is suggested by the authors as an alternative root culture method. While initially more costly, over the long term it is advantageous in reducing seedling mortality and transportation difficulties and in producing healthier, faster growing, and longer-lived plants. Not without its drawbacks, containerization will require meeting special needs for water during long-distance transport and for maintenance of various types of fungi essential to root and plant growth. Included is a directory of manufacturers and distributors of containers.

134

* PN-AAN-897

MF \$1.08/PC \$7.41

Calliandra: a versatile small tree for the humid tropics

Mergen, Francois; Hodges, Charles S.; et al.
National Academy of Sciences. National Research Council.

Office of International Affairs. Board on Science and Technology for International Development; U.S. Agency for International Development. Bureau for Asia. Office of Technical Resources; U.S. Agency for International Development. Bureau for Science and Technology. Office of the Science Advisor

Innovations in tropical reforestation, 1983, vii, 37p. + 3 appendices + attachments : En

9365538

DAN-5538-G-SS-1023-00; ASB-0249-SS-00-1026

* *National Academy of Sciences, 2101 Constitution Ave., NW, Washington, DC 20418 USA*

Overexploitation, misuse, and poor management have significantly depleted the world's tropical forests - in some cases to the point of extinction. This report describes Calliandra, a little-known woody shrub native to Central America that has been successfully used in Java for 25 years as a supplementary reforestation species.

After a brief recounting of Java's experience with Calliandra, discussion is given to the plant's characteristics, its production and management, and products and applications. In Java, Calliandra has grown well on steep hillsides and poor soils in a



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wide range of environments – although it is probably suitable only to the humid tropics – and has been free of pests and diseases. Calliandra also helps to improve soil through nitrogen fixation and provides erosion control, shade, and beautification. Most importantly, by providing firewood and fodder, it can reduce destruction of national and commercial forests. Use of Calliandra to supplement traditional reforestation species in villages and remote rural areas is suggested.

Specific areas for further research are recommended and immediate publication of a planting guide based on present knowledge and a newsletter are urged.

135

PN-AAL-394

MF \$3.24/PC \$29.64

Selected tree seed sources in Australia, India, Holland and the United States

Benge, Michael D.

U.S. Agency for International Development. Bureau for Science and Technology. Office of Forestry, Environment and Natural Resources

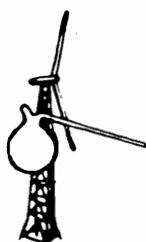
Technical series, no. 1, 1 Jun 1982, v.p. : En

The quality and orientation of a country's reforestation efforts depend on the availability and use of good plant material and seed. This compilation of seed sources, consisting of correspondence and catalogs from Australia, India, Holland, and the United States, was designed to identify experimental and commercial seed for reforestation of problem sites in Haiti.

It is noted that seed performance depends on genetic capability and site characteristics; that tree propagation by vegetative means is useful but not always successful in supplementing seed use; and that seed selection by size and specific gravity, proper seed storage, and use of appropriate fertilizers to promote nitrogen production can increase germination percentages.



Deforestation poses a critical threat to the environment in many developing countries.



136

PN-AAL-027

MF \$2.16/PC \$21.58

Power to the people: rural electrification sector, summary report

Wasserman, Gary; Davenport, Alice

U.S. Agency for International Development. Bureau for Program and Policy Coordination. Office of Evaluation

A.I.D. program evaluation report, no. 11, Dec 1983, ix, 37p. + 6 appendices : En

Results of studies of the impact of rural electrification (RE) programs in Bolivia, Costa Rica, Ecuador, and the Philippines are summarized.

Conclusions are as follows: (1) Programs helped the poor – who valued the programs and comprised a notable percentage of the beneficiaries – to electrify their homes, although their ability to use electricity productively was limited. (2) Public usage was primarily for lighting, e.g., in streets and public squares; further public usage would require explicit linkage of RE to strong, ongoing social service programs. (3) Economic impact was generally proportionate to level of development. Direct impact on agriculture was limited to large and fairly sophisticated operations, although there was a strong indirect impact on farm service industries such as equipment repair and crop processing. Impact on commerce and industry was greatest in relatively developed areas; complementary interventions such as credit and roads would be needed for there to be an impact in less developed rural areas. (4) The success of RE cooperatives depended on political traditions and support of the central government. Decisions on the type of organization (public, private, or cooperative) to manage electrical systems should be made in light of these findings and not in view of social participation, on which cooperatives had little impact. (5) Heavy government subsidies were the most common of the many methods used to achieve financial viability. Rate schedules were generally progressive and seldom reflected the true costs of service to rural areas, rapid expansion to which may actually endanger financial viability. U.S. technical standards may be unsuitable and too costly for low Third World consumption levels.

Policy implications are that A.I.D. should: view RE as part of the energy sector and not as an end in itself; obtain clear notions of all costs and benefits (financial, social, political); in view of shrinking budgets, target interventions to its areas of strength; link programs to other development efforts in poorer areas, while realizing that the poorer the area, the less likely it is that RE will enhance development.

A 4-page bibliography (1965–81) and several substantive annexes are included.

137

PN-AAN-406

MF \$2.16/PC \$21.71

Small-scale hydropower in Africa: workshop proceedings

African Development Bank; Union of Producers, Conveyors, and Distributors of Electrical Energy in Africa; National Rural Electric Cooperative Association; U.S. Agency for International Development. Bureau for Science and Technology. Office of Energy

(Small-Scale Hydropower in Africa, Abidjan, CI, 1–5 Mar 1982)

1982, vi, 180p. : En

9365717

AID/DSAN-CA-0226

A workshop on small-scale hydropower in Africa was held in Abidjan, Ivory Coast, in March 1982 with the purpose of better enabling the developing countries of Africa to identify the ways and means of making practical, economic use of small decentralized hydropower resources. Constituting the proceedings of this workshop, this volume contains 28 papers as well as an introduction and a conclusion.

Included are: (1) three overviews of hydropower development in Africa; (2) five case studies (Ivory Coast, Ecuador, Pakistan, and Zaire); (3) seven papers on technical considerations (e.g., hydrologic, environmental, and geologic factors; data requirements; local manufacture of equipment; electronic load governors); (4) six papers on economic considerations (costs, financing, electricity tariffs, end use, and economic feasibility analysis); and (5) seven papers on institutional considerations (e.g., management operations, introducing hydropower to rural people, and legislative contributions to private sector hydropower development). Also provided is a summary of findings from conference participants' visit to a small hydro site at Aboisso, Ivory Coast.

138

PN-AAN-742

MF \$7.56/PC \$84.24

US-ASEAN seminar on energy technology: biomass, coal, solar/wind, energy planning

Hertzmark, Donald I.

Lembaga Ilmu Pengetahuan Indonesia; Asia Institute of Technology. Renewable Energy Resources Information Center

(US-ASEAN Seminar on Energy Technology: Biomass, Coal, Solar/Wind, Energy Planning, Bandung, ID, 7–18 Jun 1982)

Nov 1982, vi, 641p. : En

A.I.D. co-sponsored a seminar in Indonesia in June 1982 to explore possibilities for collaboration with members of the Association of South East Asian Nations (ASEAN) in the fields of coal, solar, wind, and biomass energy technologies and energy planning and management. Proceedings of the seminar are herein presented.

Five national energy status reports are first presented (Thailand, Singapore, Philippines, Malaysia, Indonesia). Twelve papers on biomass technology follow, including a state-of-the-art paper and a summary report which recommends research (on energy plantations, thermo-chemical combustion, pyrolysis, gasification, and bioconversion) and information dissemination. Five papers on coal energy include an overview of coal conversion processes and research/development (R&D) in lignite energy conversion. Fourteen papers on solar and wind



energy are followed by eight general reports on such topics as energy planning in developing countries, planning and programming alternative energy R&D, a systems approach to nonconventional energy problems, and an overview of energy resources. A final paper by the ASEAN Energy Planning Group outlines needs (better data, improved modeling, and net pricing regimes) and recommendations for analysis and implementation of energy programs. References follow many of the papers.

139

PN-AAM-863

MF \$3.24/PC \$27.56

Appropriate technology for alternative energy sources in fisheries

May, Robert C.; Smith, Ian R.; Thomson, David B.
Asian Development Bank; International Center for Living Aquatic Resources Management
(ADB-ICLARM Workshop on Appropriate Technology for Alternative Energy Sources in Fisheries, Manila, PH, 21-26 Feb 1981)
ICLARM conference proceedings, no.8, 1982, ix, 205p. + 3 appendices : En

The use of technologies based on alternative energy sources could help small fishing communities in Asia and the Pacific reduce their dependence on fossil fuels, generate employment at low capital costs, and avoid damage to aquatic environments. To help disseminate recent research and development data in this field, a workshop on appropriate technology for alternative energy sources in fisheries, proceedings of which are herein presented, was held in Manila, Philippines in February 1981.

Eighteen resource and participant papers, some in abstract form, are presented, according to the following topic areas: fishing vessels, engines, and fuels; solar energy; wind energy; organic fuels; postharvest technology; and integrated systems. The discussions on each major topic are summarized at the end of each section. Statements on capture fisheries, aquaculture, and postharvest activities which were generated by working groups and adopted at the Workshop's final session conclude the document.

140

PN-AAN-766

MF \$2.16/PC \$21.71

Energy policy project: petroleum and natural gas in Egypt

Choucri, Nazli; Shafei, M.Z.; et al.
Cairo University; Massachusetts Institute of Technology.
Technology Adaptation Program; U.S. Agency for International Development. Bureau for Near East. Egypt
TAP report, no.83-11, Jun 1983, v.p. : En
2630061
263-0061-C-00-1001-00

Egypt's Energy Policy Project was designed to provide a comprehensive view of the roles of petroleum and natural gas in the Egyptian economy. The major elements and conclusions of research conducted under the project are summarized herein.

Part I provides background information on the supply of and demand for petroleum and natural gas in Egypt and on recent changes in the structure of the Egyptian economy. In Part II,

uses of energy in Egypt are detailed in terms of industrial uses and overall macroeconomic flows; policy issues are briefly addressed.

Egyptian petroleum resources are examined in Part III, which presents the results of geological surveys of four petroliferous provinces as well as forecasts from a dynamic simulation model of the Egyptian petroleum industry; the model incorporates supply, demand, finance, and policy variables and can be disaggregated by region or actor (oil companies or the Government). In Part IV the best uses of natural gas in Egypt and the prices that should be charged for these uses are identified, while Part V presents a macroeconomic analysis of the likely effects of a rise in domestic petroleum prices. Finally, specific analyses yet to be undertaken are outlined.

141

PN-AAN-875

MF \$1.08/PC \$9.36

Energy project: petroleum and natural gas in Egypt; linear programming analysis of the use of natural gas in Egypt

Woodruff, David S.
Cairo University; Massachusetts Institute of Technology.
Technology Adaptation Program; U.S. Agency for International Development

TAP report, no.83-5, Nov 1982, 65p. + references : En
2630061
263-0061-C-00-1001-00

Natural gas use in Egypt, although still in its infancy, has risen rapidly during the past few years and even larger increases are expected. The extent to which natural gas usage can improve Egypt's foreign exchange position by allowing greater exports of oil is herein examined.

A linear programming model is used to identify shadow prices for natural gas production and transportation costs and for the world market costs of other fuels. The model thus determines the minimum foreign exchange costs needed to operate the Egyptian natural gas industry and other Egyptian sectors that have the option of using natural gas (the fertilizer, electric power generation, Helwan iron and steel, cement, and residential and commercial sectors). Only existing production facilities are considered. Results show that the most important application for natural gas is in the manufacture of cement; use in iron and steel production is indicated when electricity demand is low or coal prices are high.

A 17-item bibliography (1972-1982) is appended.

142

*** PN-AAN-953**

MF \$2.16/PC \$15.60

Alcohol fuels: options for developing countries

National Academy of Sciences. National Research Council.
Office of International Affairs. Board on Science and Technology for International Development
1983, vii, 109p. : En
9365538

DAN-5538-G-SS-1023-00

* National Academy of Sciences, 2101 Constitution Ave., NW, Washington, DC 20418 USA

A number of countries are pioneering the large-scale use of alcohol fuels. This report summarizes information on alcohol



ENERGY

fuel technologies for planners, investors, and technical assistance agencies in developing countries. Although the information is primarily aimed at the nontechnical reader, it does contain some details of the technologies; numerous references are included for those who wish more specialized information.

The report explores the sources, production, and use of alcohol fuels and the production of ethanol and methanol. In addition, it looks at the social, economic, and environmental

implications of using alcohol fuels, presenting both positive and negative factors. Information is included on various tropical crops and their conversion to alcohols through both traditional and novel processes. After an assessment of the feasibility of substituting methanol and ethanol either completely or in substantial part for all types of liquid fuels currently derived from petroleum, recommendations are offered. (Author abstract, modified)



Constantly diminishing fuelwood supplies in the developing world highlight the need for alternative energy sources.

143

PN-AAL-017
MF \$2.16/PC \$14.95

U.S. aid to education in Paraguay: the rural education development project

Nicholson, Ronald L.; Miles, Henry L.; et al.
U.S. Agency for International Development. Bureau for Program and Policy Coordination. Office of Evaluation
A.I.D. project impact evaluation report, no.46, Jun 1983, xi, 19p. + 6 appendices : En
5260095

The impact of an A.I.D. project (1970-76) to improve the availability and efficiency of rural education in Paraguay is assessed.

As a result of the project, a much better educational program is available to many more students and is delivered by a system and a staff responsive to change. Although fewer rural primary schools were built than targeted (32 of 120) due to rising costs, they have greatly improved rural students' access to formal education, afforded students more time to help with farmwork, and reduced seasonal dropout and transportation costs. The project also revised primary and secondary school curricula, introduced a textbook production and distribution system, and shifted administrative responsibility from the Ministry of Education (MOE) to two Regional Education Centers. These Centers, which have conveniently been located in rural areas, have provided preservice and inservice teacher training, demonstrated use of the new curricula, helped diffuse reforms in formal education, and have become effectively decentralized units of administration.

On the other hand, the reforms have been limited in both scope and implementation. The new curricula are in use in only 10% of schools nationwide (although in all AID-built schools) and improving achievement scores and retention/promotion rates have annoyed teachers - who are very poorly paid - by imposing greater workloads at no extra pay. Unfortunately, the MOE's budget is so inadequate that even necessary instructional materials are in short supply. This continual underbudgeting threatens to unravel the project's achievements.

The project taught several lessons: (1) Provision by local communities of land, labor, and continued maintenance excellently demonstrates the impact of local citizenry on educational reform. (2) Despite the skills provided by over 20 years of A.I.D. assistance, it was a new and committed Minister of Education who provided the political catalyst needed to make the project work. (3) Realistic and effective national budget allocations are needed to ensure sustained educational reform. In a word, responsibility for expanding and refining the program now rests with the Government of Paraguay.

144

PN-AAL-034
MF \$2.16/PC \$23.40

A.I.D. and education: a sector report on lessons learned

Warren, Marion K.
U.S. Agency for International Development. Bureau for Program and Policy Coordination. Center for Development Information and Evaluation
A.I.D. program evaluation report, no.12, Jan 1984, xi, 34p. + annexes : En

Findings from impact evaluations of 12 A.I.D. education projects are herein reviewed and summarized. The projects (four each in Asia and Latin America, two each in Africa and the

Near East) included such activities as establishing institutions and institutional processes, curriculum reform, distance teaching, vocational and nonformal adult education, teacher training, and building/equipping educational facilities.

The following lessons were drawn: (1) Since the lasting effects of an education project are only apparent over time, A.I.D. should be prepared to make long-term commitments. (2) A.I.D. efforts have significantly helped to increase and equalize access to education. (3) A.I.D. training of professionals and support of educational institutions have been successful, especially when supported by career advancement and salary incentives. (4) Careful prefeasibility studies and serious collaborative planning are essential to projects that introduce new teaching methods and curricula in remote areas. (5) To ensure continuity, A.I.D. must not only introduce cost-effective reforms, but also determine how recurrent costs are apportioned, whether the costs are reasonable, and what will motivate continued payment of maintenance expenses. (6) A project must fit into the wider economic context, respond to work force needs, and advance economic growth. (7) Project success depends on good rapport among host country officials, institutions, and key A.I.D. personnel, and on careful consideration during the design phase of host country policy and of institutional, socioeconomic, and cultural constraints.

Future research needs are to: undertake a more comprehensive study of A.I.D.'s education interventions and a more representative study of A.I.D.'s nonformal education efforts; balance the need to expand access to education with the need to maintain its quality; determine whether the generally poor results of job-oriented education projects are representative; and assess the indirect impact of A.I.D. projects on established institutions and programs.

Appended are data sheets for the 12 projects and proceedings of a 2/82 A.I.D. conference on the above findings.

145

PN-AAN-972
MF \$1.08/PC \$9.23

Determinants of schooling attainment and enrollment rates in the Philippines

King, Elizabeth M.; Lillard, Lee A.
Rand Corp.; U.S. Agency for International Development
RAND note, no.N-1962-AID, Apr 1983, xiii, 60p. : En
AID/OTR-G-1822

General schooling levels in the Philippines have risen sharply during the past two decades, with women catching up with, and possibly overtaking, men. To identify factors influencing schooling attainment and differences in schooling among families and between the sexes, a model of family allocations was estimated, using cross-section data on a randomly chosen sample of 1,903 families in the Bicol region.

Results show that while there is little difference in schooling attainment between the sexes at the elementary level, a gap appears and widens at higher schooling levels. Sibling order, mother's education, and the family's farming activities are important determinants of sex-related differences in schooling. Differences in schooling attainment among families are mainly attributable to parents' educational level, the presence of an elementary school within a short distance, and landownership, all of which exert a positive influence. In rural areas, agricultural activities affect schooling negatively; redesigning curricula to make them more relevant to farmers could encourage high school enrollment, as would improvements in agricultural technology. A 26-item bibliography (1972-83) is appended.



EDUCATION

146

PN-AAP-639
MF \$1.08/PC \$3.51

Evaluation of selected films for management training in the Arab world

Makharita, Ragaa
National Association of Schools of Public Affairs and Administration; U.S. Agency for International Development. Bureau for Development Support. Office of Rural Development and Development Administration
Oct 1980, 23p. : En
AID/DSAN-CA-0180

The appropriateness and usefulness of 21 Western-produced instructional films used to advance management training in the Arab world are assessed in this report. With some exceptions, the films selected deal with two subjects: supervision and communication.

Each film is examined with regard to content (suitability and relevance to Arab managers); the particular action or problem dealt with (replicability in an Arab managerial setting); cultural factors (credibility and acceptability to Arab viewers); training methodology (relevance and impact on trainers); and language and comprehension (understandability to an Arab audience with limited English language proficiency). Of the 21 films, 13 are judged appropriate for an Arab audience. The report concludes that marginal adaptations to existing films, rather

than their total acceptance or rejection, is often the wisest course to follow and that films treating other management training subjects should also be evaluated.

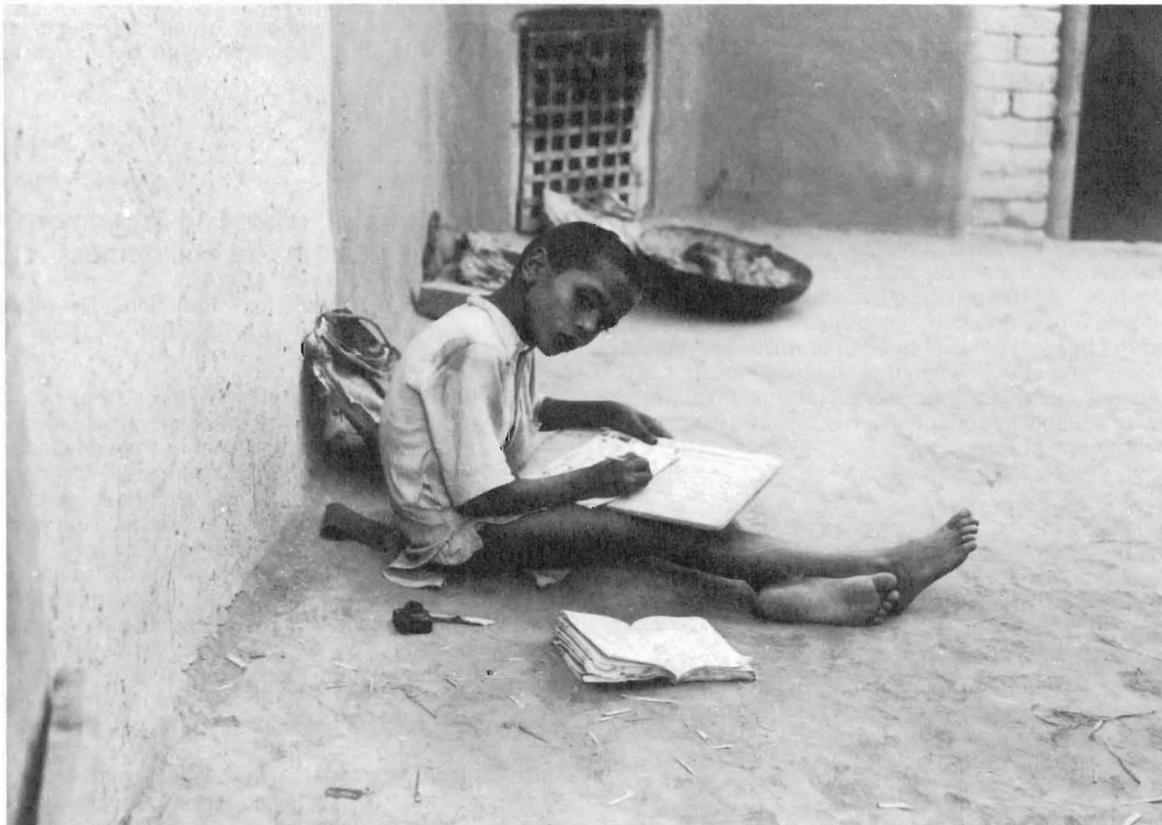
147

PN-AAP-640
MF \$2.16/PC \$13.26

Public administration training institutions in Francophonic Africa: an inventory

National Association of Schools of Public Affairs and Administration; U.S. Agency for International Development. Bureau for Science and Technology. Office of Rural Development and Development Administration
Sep 1980, iii, 106p. : En

Presented here is an inventory of 75 public administration and management training institutions in Francophonic Africa, including law schools (which, in Francophonic Africa as in metropolitan France, constitute the major institution for training civil servants). The background, purpose, duration of studies, and program content of each institution is briefly described. Due to the paucity of information available in the United States, data were obtained primarily from specialized sources overseas, including the African Center for Training and Research in Development Administration in Tangier and the Institut International d'Administration Publique and the Agence de Cooperation Culturelle et Technique in Paris, as well as from individual training institutions. Regional and international institutions are included in the inventory.



Children such as this Indian village boy must be adequately nourished if they are to benefit from A.I.D.'s education efforts.



148

* PN-AAM-800
MF \$2.16/PC \$18.98

Proceedings: panel discussion on science and technology planning and forecasting for Indonesia: special emphasis on manpower development

National Academy of Sciences. National Research Council. Office of International Affairs; U.S. Agency for International Development. Bureau for Asia. Indonesia (Panel Discussions on Science and Technology Planning and Forecasting for Indonesia: Special Emphasis on Manpower Development, Jakarta, IN, 8-10 Nov 1982) 1983, vii, 143p. : En 4970266
AID-497-79-100-23
* National Academy of Sciences, 2101 Constitution Ave., NW, Washington, DC 20418 USA

To achieve the levels of scientific and technical manpower needed to ensure its continued economic growth, Indonesia must increase significantly its output of trained personnel and the quality of their training within severe time and resource constraints. These problems and needs were the subject of a conference of Indonesian and U.S. experts held in Jakarta in November 1982, the proceedings of which are herein presented.

Included are technical working group reports on biotechnology and agro-industry, water and environment, industrial development and microelectronics, and marine science and underwater technology, and summaries of two plenary sessions. The first is on the problems of collecting data on the educational system and rate-of-return analysis of educational investments and the second on various cross-cutting topics such as government policies and institutional needs, manpower planning, and institutional linkage. A summary of recommendations made in the course of the conference is provided. Appended are reports discussing institutional policymaking and manpower development in science and technology; background materials provided to the working group on biotechnology and agro-industry are also present.

149

* PN-AAN-840
MF \$5.40/PC \$58.24

Bibliography of appropriate technology information for developing countries: selected abstracts from the NTIS data file

U.S. Department of Commerce. National Technical Information Service; U.S. Agency for International Development. Bureau for Latin America and the Caribbean. Office of Development Resources; U.S. Agency for International Development. Bureau for Science and Technology. Office of Development Information and Utilization
4th ed. Jan 1983, xi, 440 : En Report no. PB83-113852 9311114; 5980572
CZ/LAR-0572-1-1977
* NTIS, 5285 Port Royal Rd., Springfield, Virginia 22161 USA

This bibliography is the fourth revision of the National Technical Information Service's (NTIS) selection of scientific and technical information reports that may be helpful in the transfer of useful technology to developing countries. Approximately 3,000 citations with abstracts are presented, more than 1,000 of which were not listed in previous editions. The citations cover the following general types of technologies as they apply to a variety of fields (e.g. agriculture, industry, health, education, energy): small-scale, labor-intensive, and low-cost technologies; alternative technologies; useful social and management technologies; and selected modern technologies adapted to local needs and environments. Provided are a subject/geographic index, a corporate author index, a foreign language index listing French and Spanish reports, and an index of industry profiles and industrial plant reports. Ordering information is included.

150

PN-AAP-261
MF \$2.16/PC \$21.06

Non-electrical machinery industry in Egypt

Hones, Leonard R.
Egypt. General Authority for Investment and Free Zones; U.S. Agency for International Development. Bureau for Near East. Egypt
Sectoral survey, no. 4, 1982, xviii, 131p. + appendices : En 2630112

Demand for non-electrical machinery is outstripping domestic supply in Egypt. This report provides a survey of the situation, as well as of the industrial infrastructure, for nine such products produced or imported by Egypt - small farm tractors, industrial material handling equipment, traditional and industrial power-driven hand tools, industrial woodworking machinery, air compressors, blowers and suction fans, fluid pumps, and refrigeration equipment (mainly for the food industry but also for household use) - and identifies, where possible, specific opportunities for joint ventures between U.S. businesses and Egyptian public and private firms.

It is noted that in regard to these products, all of which have potential for export to other Middle Eastern countries, Egyptian firms stand most in need of contemporary product design, along with help in establishing and managing manufacturing facilities and in controlling production lines. A total of 16 tables and 15 figures illustrate the text, which includes a sector overview. Of the 15 appendices, 10 detail Egyptian imports of non-electrical machinery for 1979.

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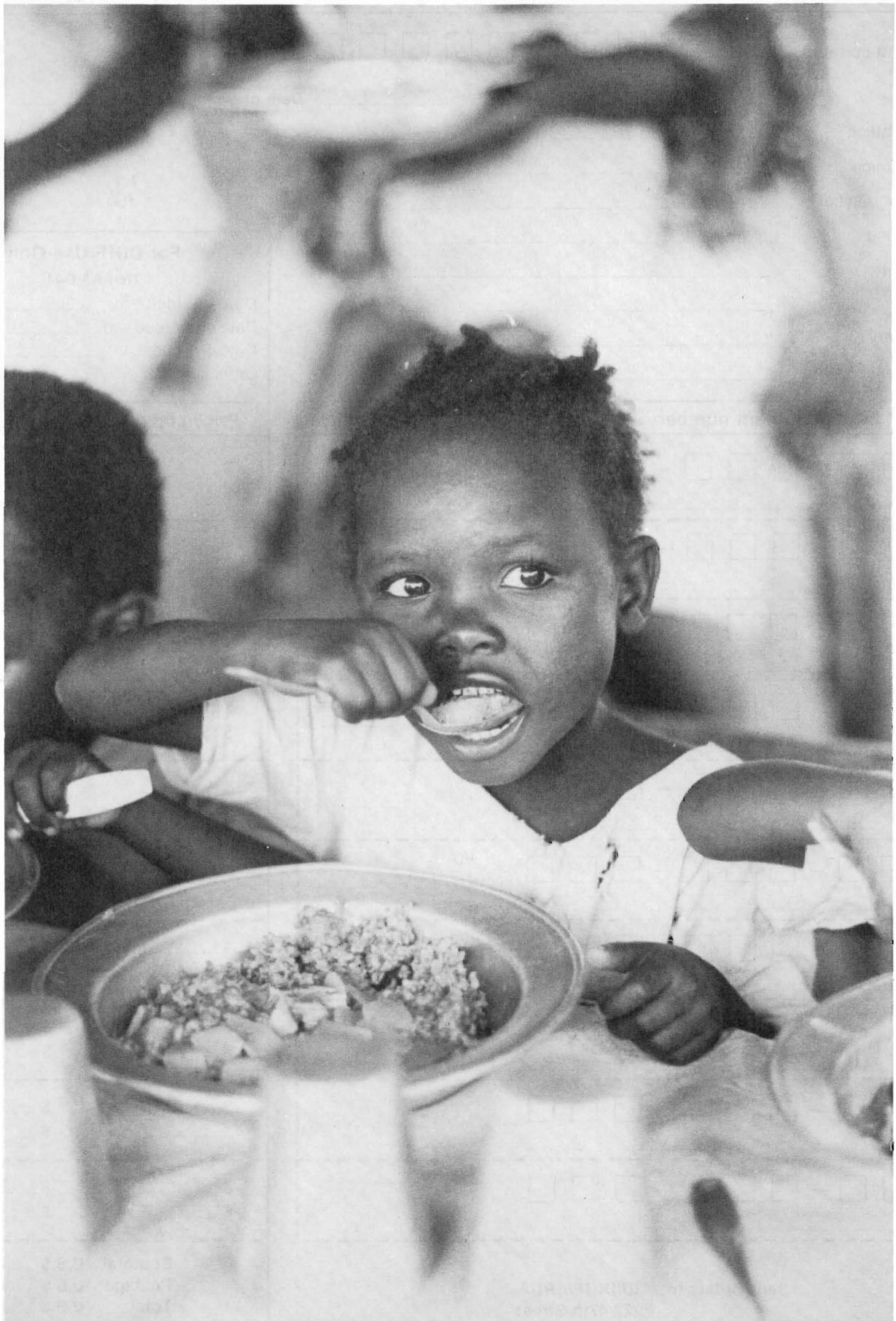
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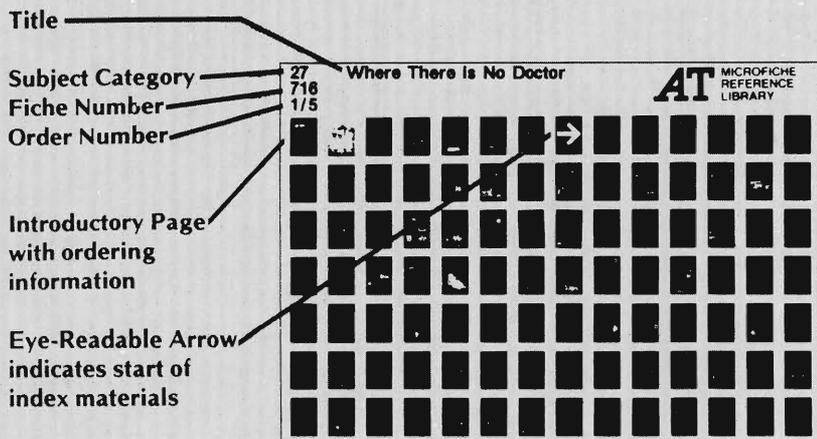
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The nutritional status of a population is most clearly seen in the nutritional status of its children.

retails for \$400. However, we are offering it to purchasers of the microfiche set at a special rate of \$250.

film is immune to damage from humidity and fungus, and has a scratch-resistant epoxy coating.



Size and Portability

The A.T. Microfiche Reference Library system is designed for full portability and requires a minimum amount of storage space. The entire system, including more than 1500 microfiche, the Cube microfiche reader, and the paper index materials, weighs 22 lbs. (10 kg). The microfiche are packed in a rugged plastic file box designed specifically for this system. Both the reader and the microfiche file box have built-in carrying handles, and can be easily transported on foot or by bicycle, motorcycle, bus, car, or any other mode of transportation. The small physical size and light

weight of this collection make it possible to send it by air freight to any major city in the world for \$75-150.

Ease of Use

Several features of VIA's microfiche set make it particularly easy to use. The top strip, or "header," of each sheet of film lists the title of the book on that sheet, along with indexing numbers for easy location of the microfiche within the set. The index and table of contents of each book on film are indicated with "eye-readable" arrows, making them easy to find. Within their storage container, the microfiche are organized into topic categories which are separated by index cards according to the chapters in the **Sourcebook**.

Additional Reference Materials

The acquisition of a microfiche reader will open up a large range of additional low-cost reference material on microfiche that can be ordered on a title-by-title basis. The best sources of these materials are noted in the **Index and Supplementary Reviews**.

Index

A complete and easily read paper-copy index is important for access to a large microfiche collection, so that the person using it is assured of finding relatively easily what he/she is looking for. The VIA set is directly linked to the **Appropriate Technology Sourcebook, Volumes One and Two** and to the new separate paper-copy **Index and Supplementary Reviews**, which together serve as the indexing documents. The reviews in these books are well suited to browsing, so that the user can get a good feel for the contents of the microfiche library, and can identify particular titles containing the information he/she needs before actually using the microfiche.

Durability

Climate will not affect the use of this system. The silver-base films sometimes used in microfiche production do not hold up well in the tropics or in dusty conditions; however, we have used a much more durable type of film called "diaz," which provides excellent image quality and has a proven durability of 10-20 years with heavy use in any climate. Diaz



Field operation with a car battery.

New Publications

In addition to the hundreds of publications reviewed in the **Sourcebook** which are included in this set, we have added more than 100 new titles, such as the Eindhoven Institute of Technology's **A Woodstove Compendium** (one of 15 new publications on stoves), World Neighbor's **Two Ears of Corn: A Guide to People Centered Agricultural Improvement**, IDRC's **Rural Water Supply in China**, and SKAT's **Appropriate Building Materials**, as well as others by groups such as VITA, ITDG, OXFAM, Peace Corps, and UNICEF. We have also added an entirely new 35-book section focusing on disaster relief. Out-of-print materials include the Jamaican Agricultural Society's comprehensive **The Farmer's Guide** and the USDA's **Small Earth Dams**.

Reviews of every new publication, along with a 5000-entry index to the entire microfiche set, are provided in the **Index and Supplementary Reviews**.

The System Package

We are offering the following package:

1) 1500 diazo microfiche 4" x 6" sheets, reproducing 872 titles (112,000+ pages of reference materials);

2) A portable microfiche file box, with index dividers, to house the microfiche;

3) (Optional) A Cube II dual-lens (24x/42x magnification) portable microfiche reader with screen cover, patch cords for 12-volt operation, spare lamp (500- to 1000-hour life), and a one-year warranty from the manufacturer;

4) Paper copies of the **Appropriate Technology Sourcebook, Volumes One and Two** and the **Index and Supplementary Reviews**.

The price of the system is \$825 with the Cube microfiche reader, or \$575 without the reader. Shipping is extra—see chart below for airfreight charges.

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Send orders to: **The Appropriate Technology Project, Volunteers in Asia, PO Box 4543, Stanford, California 94305 USA**

(Continued from inside front cover)

Africa's Food Crisis

Africa is the focus of several reports announced in this issue. In sub-Saharan Africa, average per capita food supply has declined 20% in the past 20 years, even as per capita food supply elsewhere in the world has increased slightly. As a result of this drastic decline, coupled with the recent drought, some 9 million Africans are suffering from severe malnutrition. An overview of the African food crisis (item 083) discusses political and economic constraints to increased food production in the region, and suggests strategies for reducing hunger and developing a reliable surplus of food. Eastern Africa is the focus of two papers — an annotated bibliography on the interrelationships among food production, energy use, and population growth (item 090) and a compilation of background papers on the same topic, accompanied by a set of recommendations for action (item 089). Contingency planning for famines and acute food shortages such as those occurring in Africa today is addressed in an International Food Policy Research Institute report (item 100).

Maternal Child Nutrition

The nutritional status of a population is most clearly seen in the nutritional status of its children. Cited in this issue are annotated bibliographies on maternal and infant nutrition in Bangladesh (item 095) and Pakistan (item 092). Related papers describe a workshop on developing nutrition education materials in Tunisia (item 102); analyze scientific knowledge of maternal/infant nutrition and feeding practices in developing countries (item 094), with an eye toward developing health interventions; and

provide results of a study in Northeastern Brazil (item 093), showing that never-breastfed children are 1.6 times as likely as breastfed children to die in infancy.

Nutrition Research

Because malnutrition is a complex, many-faceted phenomenon, quantification of a population's nutritional status is by no means an exact science. The problem of quantification is reviewed in a study (item 101) which proposes a behavioral measure of malnutrition — the economic threshold at which food is purchased for quality rather than quantity. Two other studies identify socioeconomic determinants of malnutrition in Sri Lanka and El Salvador (items 097 and 096, respectively). In addition, a series of papers on nutrition surveillance techniques is announced on the Items of Special Interest page in this issue.

The Challenge

The United States has a key role to play in helping developing countries overcome malnutrition. While food assistance and direct nutrition interventions are vital elements in A.I.D.'s overall nutrition strategy, lasting improvements in nutrition are most likely to result from development programs in agriculture and in other economic sectors — especially rural development and health. As the A.I.D. policy paper points out, a conscious effort to target the nutritionally at risk in these programs is required, for unless the health, life expectancy, and vitality of Third World dwellers are improved, the true objectives of development are not achieved.

PHOTO CREDITS: *A.I.D.* pp. 4, 7, 40, 43, 46, and 48, and the back of p. 57. CIMMYT p. 24.

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