

# **A.I.D. RESEARCH & DEVELOPMENT ABSTRACTS**



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## **A.I.D. Research and Development Abstracts**

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## QUESTIONS AND ANSWERS ABOUT ARDA

<b>What is ARDA?</b>	<i>ARDA</i> , "A.I.D. Research and Development Abstracts", is a quarterly abstract journal issued by the Division of Development Information, Center for Development Information and Evaluation, Bureau for Program and Policy Coordination.
<b>What is the goal of ARDA?</b>	The goal of <i>ARDA</i> is to transfer development and technical information to active practitioners in development assistance.
<b>For whom is ARDA published?</b>	<i>ARDA</i> 's target audience is A.I.D. staff world wide and selected key institutions in developing countries. Such institutions are government agencies, universities, libraries, research organizations, and other public and private sector organizations.
<b>What material are abstracted in ARDA?</b>	<i>ARDA</i> 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.
<b>To whom do I address additional questions regarding ARDA?</b>	Please direct all correspondence and requests for further information to: Editor of <i>ARDA</i> PPC/CDIE/DI Agency for International Development Washington, D.C. 20523 U.S.A.

## QUESTIONS ET REPONSES RELATIVES A ARDA

<b>Qu'est-ce qu'ARDA?</b>	<i>ARDA</i> , "A.I.D. Research and Development Abstracts", (Résumés sur la recherche et le développement de l'Agence pour le Développement International), est une revue trimestrielle composée de résumés publiée par la Division de l'Information sur le Développement, Centre d'Information et Dévaluation du Développement, Bureau de Coordination de Programmes et Politiques.
<b>Quel est l'objectif d'ARDA?</b>	Le but d' <i>ARDA</i> est de transmettre des informations techniques sur le développement à ceux qui prêtent assistance au développement.
<b>A qui s'adresse ARDA?</b>	<i>ARDA</i> 's 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.
<b>Que contiennent les résumés d'ARDA?</b>	<i>ARDA</i> 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.
<b>A qui est-ce qu'il faut poser des questions supplémentaires au sujet d'ARDA?</b>	Veillez envoyer toute correspondance et toute demande de plus amples renseignements à: Editor of <i>ARDA</i> PPC/CDIE/DI Agency for International Development Washington, D.C. 20523 U.S.A.

## PREGUNTAS Y RESPUESTAS SOBRE ARDA

<b>¿Qué es ARDA?</b>	<i>ARDA</i> , "A.I.D. Research and Development Abstracts", (Sumarios de Investigación y Desarrollo de A.I.D.) es un revista que sale cuatro veces al año, publicado por la División de Información sobre el Desarrollo, Centro de Información y de Evaluación del Desarrollo, Departamento de Coordinación de Programas y Políticas.
<b>¿Cuál es el objetivo de ARDA?</b>	El objetivo de <i>ARDA</i> es suministrar información técnica y sobre el desarrollo a los participantes activos en las actividades del desarrollo.
<b>¿Para quién se publica ARDA?</b>	<i>ARDA</i> se dirige al personal mundial de A.I.D. y a seleccionadas instituciones claves de los países en desarrollo. Tales instituciones cuentan son agencias de gobierno, universidades, bibliotecas, organizaciones de investigación, y otras organizaciones de los sectores público y privado.
<b>¿Qué contienen los informes de ARDA?</b>	<i>ARDA</i> presenta resúmenes de estudios actuales y menos recientes financiados por A.I.D. relativos a la investigación, informes sobre el estado del arte, análisis de sectores, de evaluaciones especiales, y otros documentos, que en conjunto describen un amplio panorama de experiencias dentro del campo del desarrollo internacional.
<b>¿A quién se dirigen preguntas adicionales sobre ARDA?</b>	Sírvase remitir toda la correspondencia y los pedidos de más información a: Editor of <i>ARDA</i> PPC/CDIE/DI Agency for International Development Washington, D.C. 20523 U.S.A.

## ITEMS OF SPECIAL INTEREST

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This issue of ARDA highlights three recent studies on the changing face of development assistance and the organizational and strategic consequences for A.I.D. These three items, abstracted at the beginning of this issue's General Development section, are: **New challenges, new opportunities : U.S. cooperation for international growth and development in the 1990's** (PN-ABB-413); **Development and the national interest : U.S. economic assistance into the 21st century** (PN-ABB-542); and **Report of the task force on foreign assistance to the Committee on Foreign Affairs, U.S. House of Representatives** (PN-ABB-596).

At the request of A.I.D.'s Office of Energy (S&T/EY), we present a list of recent technical reports deemed of special importance to the Missions. These reports, which may be obtained by using the ordering form in this issue, comprise

- PN-AAZ-768 Report of ESF task force : summary of findings and recommendations
- PN-AAZ-552 Report to Congress – power shortages in developing countries : magnitude, impacts, solutions, and the role of the private sector
- PN-AAZ-727 Report of the Office of Energy, Bureau for Science and Technology, United States Agency for International Development – cane energy utilization symposium, a report from the 2nd Pacific Basin biofuels workshop, volume I : summary
- PN-AAZ-728 Report of the Office of Energy, Bureau for Science and Technology, United States Agency for International Development – cane energy utilization symposium, a report from the 2nd Pacific Basin biofuels workshop, volume II : presented papers
- PN-AAZ-729 Report of the Office of Energy, Bureau for Science and Technology, United States Agency for International Development – potential for private investment in rice residue power generation, Indonesia 1987 : preliminary analysis
- PN-AAZ-740 Energy standards directory for the process industry
- PN-AAZ-769 Project evaluation and implementation : 9365728
- PN-AAZ-893 Assessment of integrated coal gasification, combined cycle technology for India
- PN-ABA-256 Energy in West and Central Africa : issues, problems, and donor activities -- final report
- PN-ABA-332 Trial year program proposal : Nong Yai Sugar Mill, Thailand
- PN-ABB-341 Prefeasibility assessment of the potential of wood waste power systems for the Indonesian wood products industry : phase I report
- PN-ABB-444 Electric power from sugarcane in Costa Rica : a technical and economic analysis
- PN-ABB-532 New directions for A.I.D. renewable energy activities : final report
- PN-ABB-533 Rice residue utilization technology, international market prospects for U.S. industry
- PN-ABB-534 Hashemite Kingdom of Jordan, recommendations for an industrial energy efficiency program : draft final report
- PN-ABB-535 A.I.D. experience with independent power generation
- PN-ABB-536 Options to increase private participation in electric power development in A.I.D. - assisted countries
- PN-ABB-537 Financial model for evaluating proposed private power projects in developing countries
- PN-ABB-538 Summary of the Central American and Caribbean workshop on electric power : role of demand management and policy issues for independent power generation
- PN-ABB-539 Report on roundtable for private participation in the electrical sector of the Dominican Republic
- PN-ABB-540 Electricity and ethanol options in southern Africa

We would also like to announce the reception of a series of self-instructional manuals on diarrheal disease control published by Egypt's Ministry of Health under project 2630137.

- PN-ABB-348 Communication and human behaviour
- PN-ABB-349 Case management of acute diarrhoea in childhood
- PN-ABB-350 Monitoring the progress of diarrheal cases during initial rehydration
- PN-ABB-351 Training and guiding mothers to care for their children with diarrhoea
- PN-ABB-352 Discharging diarrhoeal cases after initial rehydration and following up
- PN-ABB-353 Trainer's manual : general introductory section
- PN-ABB-354 Task based training for physicians

# USER'S GUIDE TO ARDA CITATIONS

Item number	101	PN-AAK-592				
		MF \$3.24/PC \$28.47		Document number		
Title	<b>Soybean seed quality and stand establishment; proceedings</b> 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 Establishment, Colombo, LK, 25-31 Jan 1981) <i>INTSOY series, no. 22, 1982, xiii, 206 p., En</i> Published by University of Illinois at Urbana-Champaign <i>Grant DAN-1406-G-00-10150-00</i> 93105600 AID/ta-C-1294 <i>*International Food Policy Research Institute, 1776 Massachusetts Avenue, NW, Washington, D.C. 20036 USA</i>				Microfiche/ Paper Copy prices	
Author(s)						
Institution(s)						
Meeting						
Supplementary note(s)						Serial title and number, date, pagination, and language
Project number						
Contract/Grant						
Availability note						Publisher

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 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.

Abstract

001

PN-ABB-413

MF \$1.08/PC \$6.63

## **New challenges, new opportunities : U.S. cooperation for international growth and development in the 1990s**

Smuckler, Ralph H.; Berg, Robert J.; Gordon, David F.  
Michigan State University. Center for Advanced Study of International Development

U.S. Agency for International Development (Sponsor)  
(National Conference on Cooperation for International Development : U.S. Policies and Programs for the 1990s, East Lansing, MI, US, 15-17 May 1988)  
Aug 1988, viii, 40p. : charts, En

Economic, political, and environmental changes are increasing global interdependence. This report recommends that A.I.D. respond by shifting from an aid relationship with the Third World to one of cooperation for mutual gain. To reflect this new theme, guidelines are presented for cooperation in the next decade. First, three areas requiring urgent attention are identified: Third World debt, the plight of Africa, and global environmental degradation. The report then focuses on four development objectives that provide the greatest opportunity for mutual gain: (1) improved health systems and population planning, (2) sustainable agricultural systems, (3) environmental conservation, and (4) urban development. Approaches to achieving these objectives are discussed, including strategies for mobilizing diverse energies (i.e., the private sector, nongovernmental organizations, and women) and developing human resources, science and technology, policies, and institutions. The report concludes by suggesting reforms necessary for building a new cooperative U.S.-Third World relationship: maintaining regional balance; adopting a collaborative mode of assistance; restructuring A.I.D., renaming it the Development Cooperation Agency, and strengthening its economic and macropolicy analysis capability; improving coordination in the field and within the U.S. Government, including making the U.S. development agency an important voice in discussions of domestic, non-aid policies with international repercussions; balancing multilateral and bilateral assistance, with an emphasis on areas of U.S. comparative advantage; reforming food aid; and increasing U.S. development financing and separating military from development program funds.

002

PN-ABB-542

MF \$2.16/PC \$20.02

## **Development and the national interest : U.S. economic assistance into the 21st century**

Woods, Alan

U.S. Agency for International Development. Office of the Administrator

17 Feb 1989, 158p. : ill., charts, statistical tables, En

Dramatic changes in the economic environment - both in the United States and abroad - have created the need for new approaches to development assistance. This report examines the current direction of U.S. development policy as it relates to emerging global issues and national interests. Chapter I traces the origins and evolution of U.S. foreign aid efforts, and summarizes the development assistance efforts of A.I.D. and nine other U.S. agencies. Ways in which development assistance has raised developing country economic and social standards are examined in Chapter II. Particular indicators of success include: increased number of students, greater access to schools, expanded labor force, reduced food prices, and improved health. Problem areas are also noted. Chapter III examines the historical interrelationship between economic growth and government policies, emphasizing that less protectionism and price distortion, an open economy, and a favorable investment climate have proved to be beneficial policies for sustained economic growth. Chapter IV describes contributions made by private U.S. voluntary, charitable, religious, and educational organizations, which total more than twice the amount of official U.S. development assistance. The report states that these private efforts, generally limited to the micro level, add idealism to programs that might otherwise be driven strictly by economic and strategic considerations. Chapter V surveys the impact of the U.S. business community and U.S. trade, investment, and economic policy on developing countries. Although driven by profit, U.S. investments create spin-off benefits that are sometimes more significant than those achieved by government-to-government assistance, according to the report. Chapter VI outlines development prospects for the decades ahead in the areas of technology, agriculture, employment, financial markets, population size and structure, standard and cost of living, and international trade. The final section calls for a comprehensive review of U.S. development policy, arguing that the original objective of promoting self-sufficiency has been lost. Several questions are posed regarding the challenges of achieving sustainable development, ensuring the relevance of assistance to development goals, and, most importantly, matching U.S. assistance to U.S. strategic, humanitarian, and economic interests. These questions, it is concluded, need to be answered if the United States is to reshape its currently outdated development aid structures and concepts to meet those challenges.

# GENERAL DEVELOPMENT

003

PN-ABB-596

MF \$1.08/PC \$3.38

## Report of the task force on foreign assistance to the Committee on Foreign Affairs, U.S. House of Representatives

U.S. Congress. House of Representatives. Committee on Foreign Affairs

Feb 1989, vii, 43p. : charts, statistical tables, En

Also referred to as the Hamilton report

Related document: PN-ABB-904

U.S. foreign assistance programs are examined in this report, which presents the conclusions of a Congressional task force formed to help develop a legislative strategy for adapting U.S. development policy to changing world conditions. An overview of the current U.S. program and its organizational structure is presented, followed by a description of program trends. A breakdown of total U.S. assistance by program and region is also provided, along with information on the composition and major recipients of (1) bilateral development aid (primarily agriculture, population, health, and education activities), (2) food aid, (3) economic support funds, and (4) military assistance. The task force concluded that foreign assistance is vital to promoting U.S. foreign policy and domestic interests, but that the program is hamstrung by too many conflicting objectives, legislative conditions, earmarks, and bureaucratic red tape. It recommends replacing the Foreign Assistance Act of 1961, with its numerous and often ambiguous and obsolete amendments, with a new international economic cooperation act, and replacing A.I.D. with a restructured foreign aid implementing agency. Program objectives would be narrowed to the following priorities: economic growth, environmental sustainability, poverty alleviation, and democratic and economic pluralism. The act would also provide for greater flexibility in project implementation, a simpler procurement regime, and an accountability system that focuses on results rather than allocations. It would also mandate improved coordination with other U.S. international economic policies, with other donors, and within country programs; authorize the establishment of cooperative development relationships with advanced developing countries; and require modes of operation that maximize program effectiveness, e.g., by focusing on global problem-solving and adapting the foreign assistance program to the international debt situation. In the area of security assistance, the report recommends: (1) separating grant and concessional military assistance from cash sales authorities; (2) creating a new defense trade and export control act to replace the Arms Export Control Act; (3) establishing one military assistance account; (4) providing more effective accountability; and (5) phasing out military assistance over a five year period as a quid pro quo for base access rights. Reservations on the task force's findings by its Co-Chairman are appended.

004

PN-AAX-209

MF \$1.08/PC \$8.58

## Sustainability of development programs : a compendium of donor experience

U.S. Agency for International Development. Bureau for Program and Policy Coordination. Center for Development Information and Evaluation

Nov 1988, x, 54p. + 2 appendices, En

A.I.D. program evaluation discussion paper, no.24

With only 11% of 212 A.I.D. projects recently evaluated showing good chances to be self-sustaining after the termination of U.S. assistance, the seriousness of the sustainability issue is now being recognized at the highest levels of the Agency. This report consolidates the experience of A.I.D. and 15 other donor agencies to identify the most important factors affecting sustainability. The paper discusses and briefly illustrates the factors affecting sustainability—government policies; management, organization, and local participation; finance; technology; socioculture; environment and ecology; and external political and economic circumstances. Techniques and conditions that favor sustainability are identified, such as realistic goals, adequate project duration, sufficient maintenance and support systems, continuity, and flexibility. In conclusion, the paper examines current donor efforts to ensure consideration of sustainability in project design and implementation. These efforts include intense host country collaboration and the development of monitoring and early warning systems, which can identify impediments to sustainability. An appendix illustrates interrelations among sustainability factors.

005

PN-AAX-210

MF \$2.16/PC \$18.07

## Effectiveness and economic development impact of policy - based cash transfer programs : the case of Costa Rica

Newton, John; Lieberman, Joseph; et al.

U.S. Agency for International Development. Bureau for Program and Policy Coordination. Center for Development Information and Evaluation

Nov 1988, xxii, 65p. + 2 appendices : charts, statistical tables, En

A.I.D. evaluation special study, no.57

In the early 1980's, A.I.D., the World Bank, and the International Monetary Fund (IMF) worked with the Government of Costa Rica to design economic reforms needed to alleviate the country's economic crisis. This report assesses the impact of these reforms and of attendant international assistance, especially A.I.D.'s cash transfer programs. The objectives of cash transfers are explained both in general and in the Costa Rican context. The report first discusses the IMF's lending programs, which emphasize short-term stability, and the World

Bank programs, which have the longer-term objective of promoting export-led growth. A.I.D.'s contribution, consisting of cash transfer and local currency programs, are then analyzed in depth. Cash transfers represent 83% of the USAID/Costa Rica program—totaling \$800 million—since 1982. The reforms and assistance programs have generally had a beneficial impact on the Costa Rican economy. The A.I.D. program was larger than the IMF and World Bank programs combined, but the conditionality provisions and impacts of the three programs are closely related. The report details positive results in the following areas: (1) production and private sector performance, (2) international trade, (3) fiscal performance, (4) financial performance, (5) employment and equity, and (6) agriculture. The only negative aspect of the program noted in the report is the potential for creating economic dependency. The main recommendations address this issue, stating, *inter alia*, that each program should have a short-term performance indicator and termination date. The evaluation resulted in several conclusions of general application. (1) Cash transfer programs should be designed to be phased out. Missions should be able to show that the program creates no dependency and can fully meet its objectives within 5 years, and that individual local currency projects will have full impact and can be discontinued within 3 years. (2) Cash transfer programs should specify Mission administration of both dollar and local currency funds and the permissible level of Mission discretion in using these funds. (3) The decision to implement local currency programs should be made on a case-by-case basis. Although such a component is often very useful, its costs can outweigh its benefits.

006

PN-AAX-211

MF \$2.16/PC \$22.88

## **Sustainability of U.S. - supported health, population, and nutrition programs in Honduras : 1942 - 1986**

Bossert, Thomas; Godiksen, Lois; et al.  
U.S. Agency for International Development. Bureau for Program and Policy Coordination. Center for Development Information and Evaluation  
Dec 1988, xii, 35p. + 9 appendices : statistical tables, En  
A.I.D. evaluation special study, no.58

Adopting a broad sectoral, historical perspective, this study examines the sustainability of U.S.-supported health, population, and nutrition projects in Honduras since 1942. The authors differentiate between "immediate" outputs (e.g., personnel trained) and "replicating" outputs (e.g., schools to train personnel). It was found that once A.I.D. funding stopped, some immediate outputs were sustained with national funds, but that replicating outputs typically were supported by other donors' funds. An analysis of three cases of high degree of sustainability (auxiliary nurse training, rural water supplies, and latrine and pump projects) and three cases of

low degree of sustainability (family planning, malaria eradication, and nutrition projects), revealed the following significant relationships. (1) National commitment to project goals was essential to the sustainability of project outputs and benefits. (2) Cooperative negotiations between A.I.D. and the Ministry of Health with regard to project objectives, design, and implementation contributed to sustainability. Projects viewed as imposed by A.I.D. were not well sustained. (3) Vertically organized projects often generated institutional resentment that jeopardized sustainability, whereas integrated projects tended to be better sustained, though at lower levels of effectiveness. Use of a multi-component matrix organization which combines several vertical components with an integrated managerial and planning structure might lead to higher levels of effectiveness. (4) Projects perceived as effective during the life of the project were more likely to be sustained than those which failed to achieve anticipated outputs. Effectiveness did not, however, guarantee sustainability. (5) Coordination among donors was important for sustainability. No clear relationship was found between sustainability and the size of A.I.D. funding relative to Honduran contributions to the project, national assumption of recurrent salary costs, cost recovery, or the proportion of the national health budget devoted to hospitals (versus primary health care). Similarly, the amount, type, and duration of technical assistance, training, and community participation were not significantly related to sustainability.

007

PN-ABB-020

MF \$1.08/PC \$5.33

## **Effectiveness of private voluntary organizations : Advisory Committee on Voluntary Foreign Aid, 1988 report**

U.S. Agency for International Development. Advisory Committee on Voluntary Foreign Aid  
Sep 1988, 36p. : ill., En

This paper evaluates and offers recommendations for improvement of PVO performance in four areas. Chapter One examines PVO effectiveness in implementing self-sustaining projects. Factors that determine sustainability and characteristics that facilitate/impede this goal are outlined. Chapter Two discusses the unique managerial characteristics of PVO's and distinguishes the strong and weak points of PVO management. The question of whether PVO's are cost-effective development agents is taken up in Chapter Three, with an emphasis on institutional factors that affect PVO capacity for cost-effectiveness. Chapter Four explores the role of PVO's as agents of policy reform. Because direct PVO involvement in this area is relatively new and controversial, opposing viewpoints on the subject are presented. The paper recommends that A.I.D. maintain a neutral position on this issue. Each chapter contains a list of findings and recommendations as well as a brief case study.

# GENERAL DEVELOPMENT

008

PN-ABB-021

MF \$1.08/PC \$2.34

## Opportunities and risks for U.S. private voluntary organizations as agents of LDC policy change

Development Alternatives, Inc.

U.S. Agency for International Development. Advisory

Committee on Voluntary Foreign Aid (Sponsor)

(Meeting of the Advisory Committee for Voluntary

Foreign Aid, Washington, DC, US, 24-25 Jun 1987)

Jun 1987, 17p., En

Given the tremendous impact of host government policies on development projects, private voluntary organizations (PVO's) are becoming more and more involved in policy dialogue. This study examines the potential for successful PVO involvement in establishing national and regional governmental policies, particularly in the areas of food, trade, health, and microenterprise policy. Specific examples of successful PVO involvement in policymaking are discussed, together with the advantages—and potential pitfalls—of engaging host governments in policy dialogue. Specifically, PVO's have not traditionally fostered the data collection and analysis capabilities required in policy analysis, and tend to be isolated from donor and host government bureaucracies. Developing such capabilities may be difficult for PVO's dependent on outside contributions for funding, since any significantly closer relationship with host governments may alienate potential contributors and reduce the relative autonomy which most PVO's enjoy. The study concludes that the decision to move directly into policy intervention poses hard choices to PVO's. Those with significant success in this area tend to be well established in the host country, with recognized technical expertise and effective linkages to relevant sector institutions. Includes references (1980-87).

009

PN-ABB-023

MF \$1.08/PC \$1.82

## Contexts and culture in which PVO's / NGO's manage

Dichter, Thomas W.

Technoserve, Inc.

U.S. Agency for International Development. Advisory

Committee on Voluntary Foreign Aid (Sponsor)

(Meeting of the Advisory Committee on Voluntary

Foreign Aid, Washington, DC, US, 2 Dec 1987)

Dec 1987, 14p., En

The increased demand being placed on private voluntary organizations (PVO's) by A.I.D. and other donors to play a larger role in development assistance has led many PVO's to examine their management practices. This study of PVO "development management" argues that traditional PVO management structures, which were

developed to manage small, local-level projects, are often inappropriate for larger-scale activities. As a result, the tendency within the PVO community has been to develop new "management from below" participatory methods, which are seen as a way of preserving the grassroots nature of PVO's while at the same time putting them on firmer "professional" footing within the development community. The study concludes that while participatory management strategies are valuable, they are not a replacement for "old fashioned" management concepts, such as improving personnel, accounting procedures, and management information systems, and establishing a clear organizational focus - all areas in which many PVO's are deficient. PVO's need to develop stronger fundamental management practices, it is argued, before they can hope to effectively implement more ambitious and transformative management methods in the field. Includes references.

010

PN-ABB-035

MF \$1.08/PC \$11.96

## Building successful financial systems : the role of credit unions in financial sector development

Marion, J. Peter

World Council of Credit Unions

U.S. Agency for International Development. Bureau for

Science and Technology. Office of Rural and

Institutional Development (Sponsor)

(Rural Finance and Financial Sector Development

Workshop, Sep 1987)

Sep 1987, 56p. + 7 appendices : charts, map, statistical tables, En

Credit unions (CU's) are perhaps the most widespread and rapidly growing form of cooperative in the developing world. At the end of 1986, there were nearly 20,000 CU's in developing countries with over \$3 billion in total assets, serving some 7.8 million members. This paper discusses the CU development process, quantifies the movement's major achievements, and describes the key operational and financial characteristics of its role in financial sector development. A summary discussion of the critical development issues facing the CU movement outlines the need to: improve management and leadership skills and member education; build adequate capital; diversify products and price them suitably; improve marketing strategies, as well as self-regulation and external supervision; preserve cooperative ideals; and gain access to central banking systems. The CU development strategy and the major components of its development model, which has proven its effectiveness over the last 130 years, are described in conclusion. Includes numerous tables and charts. (Author abstract, modified)

011

PN-ABB-175

MF \$2.16/PC \$15.86

## Manual for food needs assessment : conceptual framework and software documentation for version 2.0

Cogill, Bruce; Marzilli, Jeffrey; McNabb, Michele  
Pragma Corp.

Energy / Development International

U.S. Agency for International Development. Bureau for Food for Peace and Voluntary Assistance. Office of Program, Policy and Evaluation (Sponsor) Version 2.0 Oct 1988, v, 46p. + 11 appendices : charts, statistical tables, En  
9380702

Food needs assessments are necessary in programming food aid, as well as in forming broader development strategies. This manual describes a food needs assessment methodology based on a food balance sheet approach used by the U.S. Department of Agriculture, the FAO, and many others. Chapter 1 discusses strengths and weaknesses of the methodology, with specific reference to the use of the aggregate food balance sheet. Chapter 2 outlines the conceptual framework and parameters of the methodology. Equations are provided for estimating total consumption requirement, domestic food supply, import requirement, and food deficit or surplus. Chapter 3 provides documentation and equipment requirements for the accompanying software, which is available as a Lotus 1-2-3 template. Installation and loading instructions are presented, as well as a discussion of general software features, such as template modules, menus, printing, graphing, and troubleshooting. Finally, the user is guided through a sample assessment. Appendices include worksheets for a food needs assessment when no computer is available, a data checklist, sample food balance sheets, and crop calendars.

012

PN-ABB-188

MF \$1.08/PC \$3.38

## Information systems design for development projects in Central America

Montealegre, J. Ramiro

Institute of Nutrition of Central America and Panama  
U.S. Agency for International Development. Bureau for Latin America and the Caribbean. Regional Office for Central American Programs (Sponsor)

[1987], 25p. + attachment : charts, En  
5960116

INCAP's methodology for designing a computerized management information system (MIS) for food aid programs in Central America is presented. The methodology aims at creating a MIS which is tailored to a particular implementing institution, and it takes that

institution's human, social, and organizational aspects into account as part of the system development process. The methodology has three stages. Stage 1 consists of problem identification by a Basic Technical Group (BTG) of 5-6 key officers of the institution in question. Stage 2, which is performed by the BTG and a 25-30 person Basic User Group (BUG) comprised of other officers of the institution, consists of three parts: (1) analysis—both organizational and functional—of systems and subsystems within the institution, with the aid of data flow diagrams (in particular, Warnier-Orr diagrams); (2) verification of the analysis along with an assessment of system capacity; and (3) general design of the MIS, based again on the Warnier-Orr diagrams. Stage 3 consists of a detailed MIS design and implementation plan by the BTG and the BUG, a task which can be greatly facilitated by the use of Computer Aided Software Engineering (CASE) products. During the entire process, the personnel of the organization are being trained, contributing to true technology transfer. Use of the methodology, it is noted in conclusion, can shorten the software development process from 7 to 3 months. Includes diagrams.

013

\*PN-ABB-212

MF \$1.08/PC \$1.17

## Food policy, food aid and structural adjustment programmes : the context of agricultural development

Mellor, John W.

International Food Policy Research Institute  
U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

*Food policy*, v.13(1), Feb 1988, p.10-17 : statistical tables, En  
936411114

\* Also available from: *International Food Policy Research Institute, 1776 Massachusetts Ave. NW, Washington, DC 20036 USA*

There are two troubling aspects to structural adjustment programs currently underway in developing countries. First, in the urgency to achieve short-term objectives, adjustment programs often neglect long-term concerns of sustained growth. Second, the immediate impact of adjustments can lead to a deterioration in the income and nutritional status of the poor. This article emphasizes the need for structural adjustment programs that help set the stage for renewed economic growth and are sensitive to the well-being of the poor. It recommends a strategy of agricultural development to return developing countries to their comparative advantage in the production of labor-intensive goods and to encourage overall growth. Furthermore, it argues for the use of food aid to support that strategy and as a means to protect the poor from the hardships inflicted by adjustment programs. (Author abstract)

# GENERAL DEVELOPMENT

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014

PN-ABB-318

MF \$1.08/PC \$6.11

## Final report : accelerating institutional development

Huntington, Richard  
International Science and Technology Institute, Inc.  
U.S. Agency for International Development. Bureau for  
Food for Peace and Voluntary Assistance. Office of  
Private and Voluntary Cooperation (Sponsor)  
Sep 1987, 30p. + 3 annexes, En  
PVO institutional development evaluation series

The role of U.S. private voluntary organizations (PVO's) in fostering and strengthening the development of local, host country PVO's is assessed in this study, which is based on a survey of 12 U.S. PVO's and 28 Third World affiliates or field organizations. The study found that the U.S. PVO's had made a large and successful investment in training local affiliate personnel, but more needs to be done to help affiliates put in place the management and information systems needed for informed decisionmaking. As part of a growing trend to emphasize financial autonomy for local affiliates from the beginning of the institutional development process, significant efforts have been made by PVO's to provide technical assistance in resource mobilization, with the result that even institutions long dependent on A.I.D. or parent PVO support have become largely self-supporting. Accelerating institutional development, it is argued, finally depends on rethinking short- and long-term goals. Through technical assistance in resource mobilization, the period of time local affiliates are financially dependent on PVO support can be shortened, while the period PVO's provide training and technical assistance should be thought of as a cost-effective way of protecting the initial investment and so should continue indefinitely.

015

PN-ABB-429

MF \$2.16/PC \$17.55

## Analysis of institutional sustainability issues in USAID : 1985 - 86 project evaluation reports

Kean, John; Turner, Allen; et al.  
Devres, Inc.  
U.S. Agency for International Development. Bureau for  
Program and Policy Coordination. Center for  
Development Information and Evaluation (Sponsor)  
Mar 1987, ix, 58p. + 6 annexes : statistical tables, En  
9300085  
PDC-0085-I-00-6095-00

Some 212 A.I.D. evaluation reports for FY85 and FY86, 50 of them analyzed in-depth, provided the basis for this study of the sustainability of the institutional components of A.I.D. projects. The study showed that only 11% of the projects received highly positive sustainability ratings, whereas 26% received strongly negative ratings. Sustainability did not seem to be a major factor in project design. Few of the projects included explicit plans to mobilize resources or develop innovative means to cover costs in the long run, and policy problems were often "assumed away" rather than confronted. The chances of achieving sustainability were directly related to the strength of the linkages between key institutional players in a project and the institutions on which they themselves depended. A number of factors militating against sustainability were found, including: (1) lack of strong management and of effective and continuous leadership; (2) inadequate attention to beneficiary participation and to important social attitudes and patterns; (3) the bureaucratic rigidity and financial constraints (often arising out of national economic crisis) of public institutions; (4) non-supportive host country policies; (5) the failure of service institutions to market their services sufficiently; (6) the use of ill-adapted and costly technologies, which were not able to be institutionalized; (7) personnel constraints arising from poor planning, inadequate training resources, and/or weak incentives for recruiting and retaining qualified staff; and (8) overambitious goals relative to resources committed. Another important finding was that only 40% of the 212 evaluation reports examined gave specific attention to sustainability issues, there being no discernible difference in this regard between FY85 and FY86 reports.

016

PN-ABB-479

MF \$1.08/PC \$6.37

## Issues and options for refugee women in developing countries

Taft, Julia Vadala

Refugee Policy Group

U.S. Agency for International Development. Bureau for Program and Policy Coordination. Office of Policy Development and Program Review (Sponsor)

1987, 42p. : ill., En

9300090

While it is commonly recognized that the majority of refugees and refugee heads of household are women, current relief programs rarely reflect a sensitivity to this situation. This study describes the needs of refugee women for physical protection, access to food and non-food items, suitable health care, basic education, skills training, and economic opportunity. The heart of the report consists of an overview of the plight of refugee women in four areas with high concentrations of refugees: (1) Pakistan (Afghan refugees); (2) the Horn of Africa (Ugandan refugees in southern Sudan, Ethiopian refugees in the eastern Sudan and in Somalia, and refugee populations in Port Sudan, Khartoum, and other urban areas in Sudan); (3) Central America (Nicaraguan and Salvadoran refugees in Costa Rica and Honduras, as well as the Miskito, Sumo, and Rama Indian refugees in the latter); and (4) Thailand (Vietnamese, Laotian, and Khmer refugees at Phanat Nikhom, Khao-I-Dang, and in border camps). Examples of initiatives which have helped to promote the self-sufficiency of refugee women are included. A final chapter urges the U.N. High Commissioner for Refugees to adopt a family-oriented philosophy and to develop mechanisms designed to ensure the active participation of family heads (regardless of gender) in resource allocation and decisionmaking. Recommendations are also made for further research on refugee women and for focusing the attention of U.N., donor, and non-governmental agencies on their needs.

017

PN-ABB-483

MF \$3.24/PC \$27.69

## Somalia : an assessment of SWDO, and of the social and economic status of women in the Lower Shebelle

Delancey, Virginia H.; Lindsay, Deborah E.; Spring, Anita Robert R. Nathan Associates, Inc.

U.S. Agency for International Development. Bureau for Africa. Somalia (Sponsor)

25 Jun 1987, xii, 125p. + 8 appendices : ill. charts, statistical tables, En

9311090; 6490129

DAN-1090-C-00-5124-00

A 3-person team assessed women's social and economic status in the Lower Shebelle region of Somalia, along with the efforts of international donors and of the Somali Women's Democratic Organization (SWDO) to better them. The team found that in the agricultural sector, projects often focused only on women's roles in marginal economic activities, rather than their central role in production. This same tendency was found in the commerce and small enterprise sectors, in credit programs, and in technical training. The assessment team suggested three major interventions. The first is to provide technical assistance to help SWDO: (1) focus on broad programs (rather than just projects); (2) serve as a link among all activities directed at women; (3) adopt a more grassroots, participatory structure; (4) improve internal management and informational capabilities; and (5) de-emphasize handicrafts as the prime income generating option for women. The second recommended intervention is to include women farmers in the upcoming A.I.D. Shebelle Water Management Project. The final recommendation is to increase women's access to credit of all types, but especially to the UNDP/FAO inputs credit program at the Commercial and Savings Bank.

018

PN-AAV-465

MF \$1.08/PC \$2.99

## Financial markets development

U.S. Agency for International Development. Bureau for Program and Policy Coordination  
Aug 1988, ii, 18p., En  
A.I.D. policy paper

Effective financial markets are indispensable to sustained, broad-based economic growth. This paper presents A.I.D.'s policy on financial markets development and guidance on related project design. The first major policy component discussed is the preparation by Missions of strategy papers for financial markets development. The second component concerns dialogue with host countries to encourage macroeconomic policies that attract foreign investment, mobilize domestic private savings, rely on market-based allocation of credit, lift legal and tax constraints on financial market development, and promote the development of informal financial markets. The third component is the strengthening of private financial institutions, especially those already in existence, and the fourth is credit. Among the credit issues covered are: the provision of equity and grants by A.I.D., interest rates for private enterprises and other ultimate borrowers, the cost of capital for financial intermediaries, the targeting and guaranteeing of loans, and lending through private voluntary organizations and non-profit entities. The final two components involve (1) financial markets training and standards development, and (2) the development of new financial instruments and institutions. Includes glossary.

019

PN-ABA-929

MF \$2.16/PC \$13.91

## Impact of financial market policies : a review of the literature and the empirical evidence

Deschamps, Jean-Jacques; Grant, William; et al.  
Harvard University. Harvard Institute for International Development  
Development Alternatives, Inc.  
Michigan State University  
U.S. Agency for International Development. Bureau for Science and Technology. Office of Rural and Institutional Development (Sponsor)  
Oct 1988, xii, 80p. + appendix : charts, statistical tables, En  
Employment and enterprise policy analysis discussion paper, no.21  
Also known as: EEPA discussion paper  
9365426  
DAN-5426-C-00-4098-00

A.I.D.'s Employment and Enterprise Policy Analysis (EEPA) Project aims at providing developing country policymakers with a better understanding of the effect of public policies on economic performance and employment, particularly at the enterprise level. This EEPA state-of-the-art report summarizes economic theory and past research relating to the impact of key financial market policies at both the macro (financial markets) and micro (firm) levels. The paper focuses on two policy instruments commonly used to promote enterprise development—credit targeting and interest rate regulation. Both instruments, it is found, have tended to stifle financial sector performance and have failed to expand productive investment at the enterprise level, with a resultant negative impact on income distribution. A concluding section analyzes the extent to which these failures are or are not inherent in the two policy interventions and proposes an agenda for further research. Includes a 6-page bibliography.

020

PN-ABB-132

MF \$1.08/PC \$3.25

## Role of the non-farm activities in the rural economies of the Asia - Pacific region

Liedholm, Carl  
Michigan State University  
U.S. Agency for International Development. Bureau for Science and Technology. Office of Rural and Institutional Development (Sponsor)  
(Conference on Directions and Strategies of Agricultural Development in the Asia - Pacific Region, Taipei, TW, 5-7 Jan 1988)  
Jan 1988, p.131-154 : statistical tables, En  
9365426

Non-farm activities in the Asia-Pacific Region absorb a large quantity of rural labor and provide a major source of rural household income. This paper examines the role of these activities—primarily manufacturing, trading, and services—and their relationship with agriculture. Section I describes the magnitude, anatomy, and growth of the rural non-farm sector, including farm vs. non-farm labor force statistics for 11 countries. Section II examines the prospects for growth in the non-farm economy by focusing on the demand for and supply of rural non-farm goods and services. In Section III, the paper disputes the common view that the rural non-farm sector is wholly dependent on farm activities. Non-farm services that stimulate agricultural growth are identified, including adaptation of equipment to local soil and topography, improving market infrastructure, and increasing food demand. Several policy implications emerge from the review. The paper recommends developing more neutral policies on firm size, integrating non-farm issues into agricultural policies, and developing rural town infrastructure.

021

PN-ABB-330

MF \$1.08/PC \$10.01

**Strategic interventions and the political economy of industrial policy in developing countries**

Biggs, Tyler S.; Levy, Brian

Harvard University. Institute for International Development. Rural Development Studies Development Alternatives, Inc.

Michigan State University

U.S. Agency for International Development. Bureau for Science and Technology. Office of Rural and Institutional Development (Sponsor)

Dec 1988, [57]p. : statistical tables, En

Employment and enterprise policy analysis discussion paper, no.23

Also known as: EEPA discussion paper

9365426

DAN-5426-C-00-4098-00

Given the dependence of successful industrial policies on economic and political conditions, this paper expounds the importance of adapting industrial strategies to local capabilities. The first section focuses on "hard states," i.e., those with strong governments, capable of devising, implementing, and sustaining socially beneficial industrial policies. Following a typology of industrial strategies, the paper analyzes the distinctive features of industrial expansion in South Korea and Taiwan. Examples of successful Korean policy interventions in the shipbuilding, automobile, diesel engine, and television industries are presented, after which the paper examines Taiwan's strategy of "unbalanced growth" and its efforts to sustain endogenous expansion and increase the technical capabilities of small and medium enterprises. The second section explores the possible consequences of adopting industrial strategies suited for hard states in a "softer" political environment (such as the Philippines), i.e., one more vulnerable to socially costly rent-seeking behavior on the part of powerful private interests and/or government officials. Suggestions are made for strategic interventions more suited to soft states, followed by a discussion of industrial policies to overcome initial price distortions.



*Workers prepare bananas for export from Guinea.*

022

PN-AAV-466

MF \$1.08/PC \$1.95

## Microenterprise development program guidelines

U.S. Agency for International Development. Bureau for Program and Policy Coordination  
10 Oct 1988, 13p., En  
A.I.D. policy determination, no.17

Assistance to the microenterprise subsector, which embraces a broad spectrum of rural and urban productive activities, many of them labor-intensive, is an important element of A.I.D.'s private enterprise development strategy. Presented here are official policy guidelines for A.I.D.'s microenterprise development program. Individual sections provide information on: (1) program funding for FY's 1988-89; (2) characteristics of program beneficiaries; (3) key areas of policy dialogue; (3) helping microenterprises gain access to the formal financial system; (4) credit activities (including loan size, interest rates to microenterprises and to commercial intermediaries); (5) features of A.I.D.-funded technical assistance and training; and (6) the importance of using local institutional intermediaries, especially those which are privately owned and controlled, as well as criteria for selecting same. An appendix summarizes related A.I.D. policies on financial markets development, cooperative development, private enterprise development, women in development, and private voluntary organizations.

023

PN-ABB-112

MF \$1.08/PC \$12.35

## Final report : an analysis of the potential for collaborative commercial and industrial ventures in the Near East region

Irelan, William T.; Land, Douglas S.; Roy, Delwin A.  
Policy Planning International, Inc.  
Sadat Peace Foundation (Sponsor)  
U.S. Agency for International Development. Bureau for Asia and Near East (Sponsor)  
Aug 1988, 90p., En

What kinds of business ventures might reasonably be expected to develop between Egypt and Israel? This study, based on a literature review, a survey of U.S. companies active in the region, and a field survey of case examples of Egyptian-Israeli commercial relations, answers the question as follows. (1) The rapid privatization of the economies of the region has led to significant cross-border commercial and financial flows unimpeded by political constraints. (2) A surprisingly substantial amount of commerce—much of it private—has developed between Israel and Egypt since Camp David. (3) Egypt is the main beneficiary of existing trade, owing primarily to large government-to-government sales of crude oil to Is-

rael. Excluding oil transfers, the trade balance favors Israel by a wide margin. (4) No joint investment projects have developed to date. (5) The key constraints to expanding bilateral commercial and industrial relations are economic and financial rather than political. Political constraints inhibit but do not prevent the development of business linkages. (6) The principal economic complementarities between the two countries lie in agriculture, tourism, energy (petroleum and natural gas), technical services, and the manufacturing of agro-industrial, textile, chemical, and water use products. (7) Opportunities for developing joint production projects are circumscribed and will likely take many years absent special incentives. The best long-term possibilities lie in manufacturing for third country markets, with selected opportunities for producing jointly for the Egyptian market. (Author abstract, modified)

024

PN-ABB-415

MF \$1.08/PC \$7.67

## Design and management of credit projects for small and medium scale enterprises : guidelines for working with commercial financial institutions

U.S. Agency for International Development. Bureau for Private Enterprise  
Nov 1988, 56p., En

The Private Sector Revolving Fund, established within the Bureau for Private Enterprise in 1983 as a mechanism for channeling capital through intermediate financial institutions to private enterprise projects with strong development pay-offs, has provided a body of experience that can be applied generally to A.I.D. sponsorship of credit projects. This guidebook draws lessons from the Fund to assist Missions in designing and implementing such projects. First, necessary background work is outlined, including economic analysis and development of private sector contacts. Types of assistance (i.e., working capital, term, import, and export credit) and implementing mechanisms are then described, and specific elements of successful and unsuccessful projects are pointed out. Guidelines are presented for choosing and negotiating an agreement with local institutions. The final section discusses implementation, monitoring, and evaluation. While implementation is overwhelmingly the intermediary's responsibility, the guidebook stresses the importance of frequent A.I.D. monitoring and adequate management and impact evaluations. An appendix presents additional resources for private sector credit projects.

025

PN-AAX-205

MF \$1.08/PC \$4.42

## **Agricultural policy analysis and planning : a summary of two recent analyses of A.I.D. supported projects worldwide**

Tilney, John S., Jr.; Riordan, James T.

Abt Associates, Inc.

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

U.S. Agency for International Development. Bureau for Program and Policy Coordination. Center for Development Information and Evaluation (Sponsor)

Aug 1988, viii, 15p. + appendix : statistical tables, En  
A.I.D. evaluation special study, no.55

Earlier ed.: PN-AAV-312

9364084

Over the past 20 years, A.I.D. has funded a broad range of agricultural policy analysis and planning projects worldwide. This paper synthesizes the findings of two recent reviews of such projects - a final report on agricultural planning projects in Latin American and the Caribbean, and an interim report on similar efforts in Africa, Asia, and the Near East. The two studies used the same methodology and thus permit a comparative analysis of the effectiveness and impacts of projects in different areas. The study's major conclusion is that, while the projects sponsored by A.I.D. during the 1970's and early 1980's successfully achieved their primary purpose of improving the analytical capacity of staff in host government institutions, they were less successful in influencing policy and programmatic change. Policy issues were often given insufficient emphasis in project design and were consequently downplayed during project implementation. In order to contribute more directly to policy reform and programmatic change, A.I.D.'s approach to and design of policy analysis and planning projects need to be modified. (1) Better diagnosis is needed of the key problems and policy constraints facing the agricultural sectors in developing countries. (2) Far greater attention should be given to the needs of host country decisionmakers, without whose support and active participation there is little reason to initiate a project. (3) The strategy for targeting agricultural policy analysis and planning assistance to host governments needs to be reexamined. Assistance should be targeted to the government units that decisionmakers rely on for policy analysis, whether these units are located inside or outside the Ministry of Agriculture. More specific recommendations for designing future projects are presented in the last section of this report. It is encouraging to note that some of these recommendations, which are based on the experience of A.I.D. projects implemented in the 1970's and early 1980's, have been incorporated into projects designed in the mid-1980s and are currently being implemented in countries such as Ecuador, Niger, and the Philippines.

Includes 15 lessons learned and a list of the projects examined. (Author abstract, modified)

026

PN-ABA-986

MF \$4.32/PC \$42.90

## **Enhancing agriculture in Africa : a role for U.S. development assistance**

U.S. Congress. Office of Technology Assessment

U.S. Agency for International Development. Bureau for Africa (Sponsor)

Sep 1988, vii, 328p. : ill., charts, maps, statistical tables, En

OTA-F-356

Includes index

Summary: PN-ABA-987

Low-resource agriculture (i.e., farming based primarily though not necessarily exclusively on the use of local resources) is the predominant form of agriculture in sub-Saharan Africa and the major source of food production, employment, and rural income in the region. This report, prepared for the U.S. Congress, closely examines specific technologies that show promise to help low-resource African farmers. Specifically covered are: (1) soil and water management (including small-scale irrigation); (2) cropping practices (intercropping, agroforestry); (3) crop and animal breeding; (4) improved use of animals (mixed farming with small ruminants, animal traction, aquaculture); and (5) technologies to reduce losses to pests and diseases and postharvest losses. The report concludes that low-resource agriculture has sizable potential to contribute to increased African food security, and presents the Congress with a range of options for helping Africans ensure reliable and nutritionally adequate food supplies. Key recommendations are to: (1) strengthen African agricultural research, education, and training; (2) use intermediaries such as the Peace Corps and private voluntary organizations to support local groups; (3) increase the quality of Congressional oversight of A.I.D., while reducing the burdens it imposes; and (4) ensure long-term commitments and stable funding levels.

# AGRICULTURE

027

\*PN-ABB-126

MF \$3.24/PC \$27.43

## International Potato Center : annual report 1988

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

1988, 210p. : ill., charts, maps, statistical tables, En  
Cover title: CIP 1988  
936411107

\* Also available from: *International Potato Center, Apartado 5969, Lima, Peru*

The collaborative bridges established with scientists and institutions within the public and private sectors of both developed and developing countries testify to the strength of the International Potato Center (CIP), according to the Center's 1988 annual report. CIP's new program for sweet potato improvement is described, followed by a summary of ongoing research and regional programs. A map illustrating the relationship of agroecological zones in Peru to CIP's regions worldwide is presented. The bulk of the report details specific research thrusts in (1) collection, maintenance, and utilization of unexploited genetic resources; (2) production and distribution of advanced breeding material; (3) bacterial and fungal disease control; (4) virus and virus-like disease control; (5) integrated pest management; (6) warm and cool climate potato and sweet potato production; (7) postharvest technology; (8) seed technology; and (9) potato and sweet potato in food systems. CIP's training initiatives are also detailed. Included among the appendices are lists of publications, research and consultancy contracts, and special projects.

028

PN-ABB-155

MF \$1.08/PC \$4.16

## Rodent problems in Africa

Fiedler, Lynwood A.  
*Rodent pest management*, 1988, p.35-65 : charts, En  
Prakash, I.  
9364173  
DAN-4173-X-AG-6001-00

Africa is badly in need of cost-effective rodent pest management techniques to increase food production and reduce disease incidence. The problem is severe, and is exacerbated by the passive acceptance by farmers and government officials of rodent damage, as well as the lack of concerted effort by donor agencies. This report documents: (1) the agricultural losses due to the six major rodent pests in Africa (multimammate rat, unstriped grass rat, shaws jird, four-striped grass mouse, marsh cane rat, and roof rat), as well as those caused by

other rodent pests (including squirrels, porcupines, gerbils, jerboas, mole-rats, dormice, springhares, and other rat and mice species); and (2) rodent diseases affecting humans and livestock, including bacterial diseases (plague, salmonellosis, and leptospirosis), rickettsial diseases, viral diseases (especially lassa fever), and parasitic diseases (helminthic and protozoan infections). Until efforts reach the magnitude of those directed against other major African pests, such as locusts and armyworms, or against rodent pests in other parts of the world, rodent damage will continue to be a major problem in Africa. Includes tables of reported national or regional rodent outbreaks in Africa since 1905, a list of all 77 species reported to have caused agricultural damage, a partial list of African rodent-borne diseases affecting human beings, and a 270-item list of references.

029

\*PN-ABB-165

MF \$1.08/PC \$12.35

## Breeding and seed production of Chinese cabbage in the tropics and subtropics

Opena, R.T.; Kuo, C.G.; Yoon, J.Y.  
Asian Vegetable Research and Development Center.  
Tropical Vegetable Information Center  
U.S. Agency for International Development. Bureau for  
Science and Technology. Office of Agriculture  
(Sponsor)  
May 1988, vi, 92p. : ill., charts, En  
AVRDC publication no.88-294  
Technical bulletin / AVRDC, no.17  
936411105

\* Also available from: *Asian Vegetable Research and Development Center, P.O. Box 42, Shanhuia, Tainan 74199, Taiwan, R.O.C.*

Tropical production of Chinese cabbage, one of East Asia's most important vegetables, was infeasible until the Asian Vegetable Research and Development Center (AVRDC) developed heat-tolerant, tropically adaptable cultivars. This bulletin documents AVRDC's research and provides fundamental guidelines for producing Chinese cabbage seeds in the tropics. Background information on the origin, distribution, evolution, and biosystematic relationships of the Chinese cabbage is followed by an overview of its general botany and reproductive biology. Aspects covered include: developmental stages, morphological features, heading, environmental conditions, flowering, silique and seed development, and seed dormancy and germination. The breeding system and natural mechanisms for hybridity are explained, including population structure, self-incompatibility, and male sterility. The paper then identifies goals in Chinese cabbage improvement, followed by examples of research, pollination, and breeding techniques. Finally, procedures for both hybrid and open-pollinated seed production are presented. An appendix outlines procedures for small-scale artificially vernalized seed production of Chinese

cabbage hybrid No. 62, the most widely adapted of the new cultivars. Includes a glossary and a 10-page literature list.

030

\*PN-ABB-168

MF \$1.08/PC \$11.96

**Strengthening the integration of on - farm client - oriented research and experiment station research in national agricultural research systems (NARS) : management lessons from nine country case studies**

Merrill-Sands, Deborah; McAllister, Jean  
International Service for National Agricultural Research  
U.S. Agency for International Development. Bureau for  
Science and Technology. Office of Agriculture  
(Sponsor)

Sep 1988, xxvi, 66p. : charts, En  
OFCOR comparative study, no.1  
936411103

\* Also available from: *International Service for National Agricultural Research, P.O. Box 93375, 2509 AJ, The Hague, Netherlands*

On-farm client-oriented research (OFCOR) and on-station research (OSR) represent complementary functions of the agricultural research process. This study presents the key management lessons for OFCOR-OSR integration deriving from case studies of national agricultural research systems (NARS) in nine countries (Ecuador, Guatemala, Panama, Senegal, Zambia, Zimbabwe, Bangladesh, Indonesia, and Nepal. Experience with OFCOR-OSR integration varied: linking adaptive and applied research was the easiest to achieve, while mutual collaboration for feedback and support was the most difficult. The following factors were found to be essential to integration of OFCOR and OSR: strong scientific leadership; ample opportunities for scientists to interact; building up OFCOR and OSR in tandem rather than separately; designation of someone to be responsible for OFCOR-OSR collaboration; intensive management of the feedback and support functions; and the earmarking of specific resources (i.e., funds and researcher time) for collaborative activities. The analysis also shows that each organizational option for OFCOR entails distinct opportunities and constraints; that research management processes are effective points of intervention for building OFCOR-OSR integration; and that effective division of labor and responsibility for research functions must be built on consensus. On the basis of these lessons, the report presents detailed management guidelines for strengthening OFCOR-OSR integration. Includes references.

031

\*PN-ABB-171

MF \$1.08/PC \$5.07

**Priority - setting mechanisms for national agricultural research systems : present experience and future needs**

Norton, George W.; Pardey, Philip G.  
International Service for National Agricultural Research  
U.S. Agency for International Development. Bureau for  
Science and Technology. Office of Agriculture  
(Sponsor)

Nov 1987, 33p. : statistical tables, En  
ISNAR working paper, no.7  
936411113

\* Also available from: *International Service for National Agricultural Research, P.O. Box 93375, 2509 AJ, The Hague, Netherlands*

Recent trends towards shrinking real research budgets make it incumbent upon national agricultural research systems (NARS) to improve their procedures for setting priorities among competing research programs. This paper discusses key elements that should be included in such improved procedures, with a focus on methods for strategic as opposed to more tactical, project-level decisionmaking. After discussing the context of research priority setting, the report summarizes the main types of research resource allocation methods and then compares recent experiences in four Latin American NARS of two of these methodological types—weighted criteria models (Dominican Republic, Ecuador, and Uruguay) and benefit-cost analysis (Peru). A potential exists, it is concluded, for adapting existing variants of these two types to develop a formalized, flexible procedure for use by NARS managers in setting research priorities. Key elements of such a model are briefly identified. Appendices present simplified hypothetical models of how to use weighted criteria to select commodity priorities and a suitable research area, along with tables describing the results attained when these models were applied to the above-mentioned Latin American countries.

# AGRICULTURE

032

\*PN-ABB-173

MF \$1.08/PC \$10.66

## Trends and prospects for cassava in India

George, P.S.

International Food Policy Research Institute  
U.S. Agency for International Development. Bureau for  
Science and Technology. Office of Agriculture  
(Sponsor)

May 1988, viii, 74p. : charts, statistical tables, En  
Working paper on cassava / International Food Policy  
Research Institute, no.1  
936411114

\* Also available from: *International Food Policy  
Research Institute, 1776 Massachusetts Ave. NW,  
Washington, DC 20036 USA*

The first in a series of case studies assessing future demand for cassava, this paper examines the status of cassava production and use in India and develops supply and demand projections for the years 1990 and 2000. Discussed in turn are: (1) trends in area under cultivation, yield per hectare, and overall production; (2) cassava utilization and prices; (3) potential demand for livestock feed; (4) the effect of new technology on yield; and (5) the substitutability of cassava in production and utilization. It is found that potential demand for cassava in 2000 could be around 10.1 million tons (about 1.3 million tons above supply) if its use in cattle feed is found to be economically feasible. With only limited scope for increasing the area under cassava cultivation, the projected gap between supply and demand can only be bridged technologically, e.g., by increased use of high-yielding varieties. The adoption of cassava as cattle feed will also require farmer incentives to adopt new technologies, the development of suitable processing facilities, and mechanisms to link cultivators and feed manufacturers. Includes a 4-page bibliography.

033

\*PN-ABB-174

MF \$1.08/PC \$5.59

## Summary and recommendations of the international workshop on aflatoxin contamination of groundnut, 6-9 Oct 1987, ICRISAT Center, India

International Crops Research Institute for the Semi-Arid Tropics

U.S. Agency for International Development. Bureau for  
Science and Technology. Office of Agriculture  
(Sponsor)

(International Workshop on Aflatoxin Contamination of  
Groundnut, Patancheru, IN, 6-9 Oct 1987)

1987, 39p., En  
ICR 88-0003  
936411101

\* Also available from: *International Crops Research In-  
stitute for the Semi-Arid Tropics, Patancheru, A.P. 502  
324 India*

Aflatoxins—toxins produced by strains of the fungus *Aspergillus flavus*—are a major contaminant of the cultivated groundnut, which is the most important oilseed in the developing world and a valuable source of human and animal protein. A 1987 workshop brought together agricultural researchers and extensionists from 26 developed and developing countries and from various international and regional institutions to evaluate and assess ongoing research into on-farm and postharvest means to control aflatoxin contamination. These proceedings include brief summaries of the 40 papers presented at the workshop, as well as of four group discussions on particular topics. A major recommendation, and a continuing theme throughout the presentations and discussions, was the need to increase the awareness of the problem of aflatoxin contamination at all levels, from the general public and farmers to policymakers and the representatives of trade and industry. These proceedings were prepared and distributed in recognition of this need.

034

PN-ABB-302

MF \$3.24/PC \$35.88

## Jordan Valley, dynamic transformation : 1973 - 1986

Shepley, Steven C.; Bitoun, Marcel; et al.

Tech International, Inc.  
Louis Berger International, Inc.  
Jordan Valley Authority

U.S. Agency for International Development. Bureau for  
Asia and Near East. Jordan (Sponsor)  
1987, [268]p. : charts, statistical tables, En  
2780266  
ANE-0260-C-00-7054-00

Since 1962 the equivalent of \$773 million has been invested—45% of it by A.I.D.—in the integrated rural development of the Jordan Valley. This paper measures the agricultural and socioeconomic impact of these efforts. An overview of agricultural production rates and trends is presented, followed by an analysis of marketing constraints and resource efficiency. The paper then evaluates various institutions and services, including: (1) regional department planning, (2) agricultural research and extension, (3) education, (4) health care, (5) agricultural credit and input supply, (6) irrigation systems, and (7) pest control. Social indicators are assessed, such as population, migration, employment, income distribution, literacy, per capita income, contraceptive use, and housing conditions. Individual attitudes and expectations are presented through case studies. Finally, the paper describes specific project activities in the land and water, public utilities, and transport sectors, as well as in institu-

tion building, followed by a summary of external financial assistance. The paper concludes that the agricultural and quality of life improvements in the Jordan Valley may be unparalleled in development history.

035

**\*PN-ABB-311**

**MF \$1.08/PC \$8.45**

## **Brazilian wheat policy : its costs, benefits, and effects on food consumption**

Calegar, Geraldo M.; Schuh, G. Edward  
International Food Policy Research Institute  
U.S. Agency for International Development. Bureau for  
Science and Technology. Office of Agriculture  
(Sponsor)

May 1988, 63p. : charts, statistical tables, En  
Research report / International Food Policy Research  
Institute, no.66  
936411114

\* Also available from: *International Food Policy  
Research Institute, 1776 Massachusetts Ave. NW,  
Washington, DC 20036 USA*

Recent government interventions in Brazil's wheat sector have raised questions about possible negative effects on welfare, resource allocation, and trade. This study analyzes the impact of the Brazilian wheat policy, which aims to promote self-sufficiency and improved income distribution through complete government control of domestic and imported wheat sales and purchases. Part 1 studies production and consumption subsidies from 1966-82 and estimates their aggregate effects on quantities produced, consumed, and imported, as well as the welfare effects on producers, consumers, and society as a whole. Part 2 focuses on subsidy benefits for consumers (by expenditure group) in the metropolitan area of Belo Horizonte and rural areas of Minas Gerais and Espirito Santo states during 1974/75. The study's findings on costs, benefits, and exchange rate effects lead to the conclusion that the government's policy is effective neither in redistributing income nor in combating malnutrition. An appendix presents an alternative consumption policy model which indicates that a target-oriented program, such as food stamps, would be more effective for redistributing income. Includes 29 tables.

036

**PN-ABA-886**

**MF \$1.08/PC \$5.33**

## **Collection, maintenance, and cultivation of azolla**

Lumpkin, Thomas A.

U.S. Agency for International Development. Office of the  
Science Advisor

Symbiotic nitrogen fixation technology, chap.3, 1987,  
p.55-94 : ill., En.

Elkan, Gerald H. Published by Marcel Dekker, Inc.  
9365542

The aquatic fern azolla has a high relative growth rate, as well as a symbiotic relationship with a nitrogen-fixing endophytic cyanobacteria called *Anabaena azollae*, which gives azolla a competitive advantage over other floating hydrophytes in environments, such as rice fields, that are relatively low in available nitrogen. The symbiosis is of interest to agriculturalists since incorporation and decomposition of an azolla crop in a rice field soil can increase the supply of nitrogen to a companion or succeeding rice crop. This study reviews current understanding about azolla and comments on factors constraining its wider use. Individual sections treat: (1) azolla collection (taxonomy, morphology, life cycle, distribution of its species, and the preparation and shipment of germplasm); (2) azolla maintenance (germplasm collections, the need to maintain azolla during off-seasons in nurseries, and the kinds of nurseries used for this purpose), and (3) azolla cultivation (nursery and field multiplication, field cultivation and incorporation into the cropping system, and environmental and management factors). Azolla cultivation on a large scale will require a strong research program and scientific breakthroughs in using spores as planting materials and in developing efficient implements and fertilizer technologies. Includes a 4-page international bibliography.

037

**PN-ABA-902**

**MF \$1.08/PC \$1.17**

## **Environmental requirements for successful Azolla growth**

Lumpkin, Thomas A.

Washington State University. Dept. of Agronomy and  
Soils

U.S. Agency for International Development. Office of the  
Science Advisor (Sponsor)

*Azolla utilization*, [1987], p.90-97, En.

AID/SCI no. 1.A-01

9365542

DAN-5542-G-SS-1087-00

Azolla is an aquatic fern which has potential for expanded use as a green manure for rice. It is traditionally grown under cool, wet conditions, and prefers a placid water surface, temperatures of 20-35 degrees Celsius, a

# AGRICULTURE

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pH of 4-7, water rich in all essential plant nutrients except nitrogen, solution salt content of less than 0.3%, exposure to at least 25% full sunlight, long daylength, and freedom from competitors, insects, and diseases. Efforts to expand its use in the humid tropics have met with limited success and a host of environmental problems. High temperatures and humidity stimulate insects and diseases that attack Azolla. Algal blooms compete for nutrients and cause a change in pH and poor water circulation. Areas dependent on monsoon rains rarely have water for multiplying Azolla before the rice growing season and usually suffer from intermittent droughts, which desiccate intercropped Azolla. Excessive rainfall and typhoons can cause flooding, which can wash away the entire Azolla crop. Water is usually deficient in phosphorus, and applications of phosphate fertilizer and possibly other nutrients such as iron, molybdenum, and potassium are required for the Azolla crop. (Author abstract, modified)

038

PN-ABA-919

MF \$1.08/PC \$4.55

**Final report on grant  
#DPE-5542-G-SS-4016-00 : phosphorus  
deficiency in tropical dry bean production  
— an approach through foliar fertilization**

Lauchli, Andre; Epstein, Emanuel; Lynch, Jonathan  
University of California, Davis. Dept. of Land, Air, and  
Water Resources

U.S. Agency for International Development. Office of the  
Science Advisor (Sponsor)

Jul 1987, [33]p. : charts, statistical tables, En

AID/SCI no. 3.F-16

9365542

DPE-5542-G-SS-4016-00

Foliar fertilization, in which nutrients (in this case phosphorus) are applied directly to plant foliage as sprays, is an attractive alternative to conventional fertilization, especially in the tropics, where the ability of soils to chemically fixate applied phosphorus into forms that are unavailable to plants is a primary constraint to bean (*Phaseolus vulgaris*) production. This study investigated the merit of foliar phosphorus fertilization (applied as commercial grade ammonium polyphosphate) as a way of circumventing soil phosphorus fixation and of increasing the efficiency of phosphorus fertilization. In field studies in Brazil, the optimal concentration and timing of foliar phosphorus application were determined. Results showed that different bean genotypes were differentially sensitive to foliar phosphorus damage. Foliar phosphorus fertilization significantly enhanced vegetative growth of beans grown in the field. In greenhouse studies under controlled fertility conditions, foliar phosphorus fertilization enhanced vegetative growth, particularly in marginal phosphorus conditions, by stimulating leaf area development. The authors conclude that foliar phosphorus fertilization is a promising new technol-

ogy for marginal phosphorus soils of the tropics. (Author abstract, modified)

039

PN-ABB-049

MF \$2.16/PC \$15.34

**New plant biotechnologies and rural  
poverty in the Third World**

Joffe, Steen; Greeley, Martin

Appropriate Technology International

U.S. Agency for International Development. Bureau for  
Science and Technology. Office of Rural and  
Institutional Development (Sponsor)

Oct 1987, 112p. : charts, En

9365428

DAN-5428-A-00-3047-00

New plant biotechnologies (NPBT's) for increasing crop production and quality represent both a threat and an opportunity for Third World agriculture. This paper examines these implications, with particular focus on potential benefits for resource-poor farmers. On the negative side, commercial use of NPBT's may give developed countries an initial advantage by causing contraction of developing country agricultural export markets, although the Third World may gain a comparative advantage in the long term because of its superior bio-resources. Multinational corporations' current monopoly in the NPBT field also threatens Third World agriculture by limiting access to the technologies and by giving research and development priority to developed country concerns, e.g., herbicide tolerance; the multinationals are also unlikely to prioritize food crop research, which would most directly benefit the poor. Nonetheless, there are myriad ways in which NPBT's can substantially raise productivity in areas as technologically backward as the Sahel or the low-lying African tropics. The realization of these benefits, however, depends on the Third World's ability to incorporate NPBT's into national agricultural research programs. The paper concludes by emphasizing that NPBT's can benefit the Third World poor if efforts are made to understand end-user needs and to include poor farmers in agricultural biotechnology planning. Includes a 7-page bibliography.

040

\*PN-ABB-295

MF \$1.08/PC \$4.16

## International Board for Plant Genetic Resources : descriptors for citrus

International Board for Plant Genetic Resources  
U.S. Agency for International Development. Bureau for  
Science and Technology. Office of Agriculture  
(Sponsor)

1988, 27p. : ill., En  
936411111

\* Also available from: *International Board for Plant Genetic Resources, c/o FAO, Via delle Terme di Caracalla, 00100 Rome, Italy*

The descriptor list for citrus presented here follows IBPGR's standard format, which has been designed to facilitate communications on and use of germplasm throughout the international network of plant genetic resources. The list was devised to cover members of the tribe Citreae of the family Rutaceae and sub-family Aurantioideae, which have a type of fruit-bearing, juice-filled vesicle known as a hesperidium. Of about 13 genera involved, the most important are *Citrus* (16 species including 10 cultivated), *Fortunella*, and *Poncirus*. The first 4 categories of descriptor—accession, collection, characterization, and preliminary evaluation—are considered by IBPGR as the minimum for any one accession. Descriptors given in categories 5-10—which cover plant and site characteristics, susceptibility to stress, pests, and disease, and biochemical and genetic data—permit simple encoding of further characterization and evaluation data and serve as examples for creating additional descriptors.

041

PN-ABB-301

MF \$1.08/PC \$6.50

## Green manure and legume covers in the tropics

Yost, Russell; Evans, Dale  
University of Hawaii at Manoa. College of Tropical  
Agriculture and Human Resources  
U.S. Agency for International Development. Bureau for  
Science and Technology. Office of Agriculture  
(Sponsor)

Sep 1988, 44p. : charts, statistical tables, En  
HITAHR research series, no.055  
9310129  
AID/DSAN-G-0100

Green manures and legume covers have received renewed interest as a potential source of biological nitrogen for cereal crops grown in complex tropical farming systems. This report provides an overview of literature describing various legumes and the cropping systems in which they are used in the humid tropics, includ-

ing rice and green manures, plantation crops and legume covers, root crops and green manures, and some upland crops and green manures. Also included are the results of a survey, performed in 1981, on the use of green manures and legume covers. The report concludes that alternative sources of nitrogen are important in tropical farming systems, and that biological nitrogen should be viewed as a complement to fertilizer nitrogen. The appropriate mix of the two, however, is difficult to assess, and more research needs to be performed to (1) develop techniques for measuring the nitrogen contributed by green manures and legume covers; (2) provide viable seeds for legume germplasm evaluation; and (3) establish the characteristics of various candidate green manures and legume covers and their climate and soil requirements. (Author abstract, modified)

042

\*PN-ABB-485

MF \$1.08/PC \$7.78

## How to control sweetpotato weevil : a practical IPM approach

Talekar, N.S.  
Asian Vegetable Research and Development Center  
U.S. Agency for International Development. Bureau for  
Science and Technology. Office of Agriculture  
(Sponsor)

International cooperator's guide, no.AVRDC 88-292  
Mar 1988, 6p. : ill., En  
936411105

\* Also available from: *Asian Vegetable Research and Development Center, P.O. Box 42, Shanhua, Tainan 741, Taiwan*

On the basis of repeated tests on its experimental farm and in farmers' fields, the Asian Vegetable Research and Development Center (AVRDC) has developed an inexpensive, integrated method for controlling the sweet potato's most destructive pest, the sweetpotato weevil (*Cylas formicarius* F.). The steps in this method, which has also proven effective against African sweetpotato weevil (*Cylas puncticollis*), are as follows. (1) Follow rotation. Do not plant sweet potato after sweet potato. If you must, first remove all debris from the field. (2) If possible, do not plant in the vicinity of another sweet potato field where effective control measures are not being practiced. (3) Before planting and throughout the season, control the morning glory (*Ipomoea*), the weevil's chief source, from the vicinity of your field. *Ipomoea* should be uprooted along with its vines and roots and burned. (4) Use weevil-free cuttings to plant new sweet potato. (Technical directions for this step are included). (5) Survey the field for land cracks from a month after transplanting until a week before harvest; fill any cracks found with soil. The bulletin also notes that AVRDC scientists have developed, and will supply interested researchers and extensionists with, a trap for capturing male weevils using a sex pheromone as attractant; instructions for use of the trap are included.

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043

\*PN-ABB-137

MF \$1.08/PC \$2.99

## Potato leafroll virus PLRV

Jayasinghe, Upali  
International Potato Center  
U.S. Agency for International Development. Bureau for  
Science and Technology. Office of Agriculture  
(Sponsor)

1988, 21p. : ill., En  
Technical information bulletin / International Potato  
Center, no.22  
936411107

\* Also available from: International Potato Center, Apartado 5969, Lima, Peru

Potato leafroll virus (PLRV) is one of the most serious threats to potato production, causing crop losses of up to 90%, decreased tuber quality, and complications in plant material exchange. This bulletin provides information to help detect and prevent the virus, beginning with a description of PLRV symptoms typical in *Solanum tuberosum* ssp. *tuberosum*, the most widely grown potato subspecies. The causal agent of PLRV is described, followed by an explanation of the forms of PLRV transmission, including infected tubers, insect vectors, and grafting (for experimental purposes). The bulletin then discusses four methods of detecting PLRV: (1) field observation of symptoms, (2) use of indicator plants, (3) serology using enzyme-linked immunosorbant assay (ELISA), and (4) callose staining. PLRV-infected plants cannot be cured with chemical treatments. Preventive measures available include use of healthy seed tubers, elimination of infection sources, vector control, and development of resistance to PLRV infection or resistance to PLRV multiplication within the plant.

044

PN-ABB-139

MF \$1.08/PC \$2.99

## INIBAP, International Network for the Improvement of Banana and Plantain

International Network for the Improvement of Banana and Plantain  
U.S. Agency for International Development. Bureau for  
Science and Technology. Office of Agriculture  
(Sponsor)

Oct 1987, 24p. : ill., En  
9361406  
DAN-5053-G-SS-7088-00

Bananas and plantains are the staple food of many millions of poor people in developing countries. This bulletin gives background information on the two closely related crops and reports the activities of the International Network for the Improvement of Banana and Plantain (INIBAP), which was established in 1984 by donor countries and organizations. The major challenges of

banana and plantain development are identified, including the needs for location- and variety-specific research, disease and pest control, further exploitation of germplasm, in-vitro culture, breeding of new varieties, nomenclature clarification, and studies of highland bananas for adaptability and response to diseases and pests. INIBAP's commitment to work with ensete, which is closely related to the banana and is a staple crop of Ethiopia, is also noted. INIBAP's unique organizational structure—a small central office, with most research work being done through regional networks in East Africa, West and Central Africa, Latin America and the Caribbean, and Southeast Asia and the Pacific—is then outlined. In conclusion, the bulletin discusses INIBAP's germplasm exchange and information and documentation activities.

045

PN-ABB-290

MF \$4.32/PC \$39.00

## Conservation farming on steep lands

Moldenhauer, W.C.; Hudson, N.W.  
Soil and Water Conservation Society  
U.S. Agency for International Development. Bureau for  
Science and Technology. Office of Agriculture  
(Sponsor)

(Workshop on Soil and Water Conservation on Steep  
Lands, San Juan, PR, 22-27 Mar 1987)  
1988, xiv, 296p. : ill., charts, statistical tables, En  
9364021

Steep lands farming is becoming increasingly important in many developing countries due to rapid population growth and shortages of good arable land. This monograph is a compilation of works by experts from throughout the world on soil and water conservation issues connected with steep lands farming. General principles and approaches to water and soil conservation are presented, including reports on activities by the Food and Agriculture Organization, A.I.D., and the U.S. Department of Agriculture's Soil Conservation Service. Discussions of relevant social and economic issues are followed by reports on specific practices, such as watershed development, controlled-erosion terraces, and the use of elephant grass. Case studies are presented of steep lands conservation projects in Kenya, Jamaica, Malawi, Australia, Taiwan, Peru, Brazil, Indonesia, Honduras, the Dominican Republic, and Cape Verde. One major conclusion from the case studies is that purely scientific approaches to soil conservation which do not consider underlying socioeconomic factors are generally unsuccessful. The final section of the monograph summarizes conclusions drawn at the Conservation on Steep Lands workshop, which focused on developing more effective conservation methods and identifying criteria for successful projects.

046

PN-ABB-293

MF \$1.08/PC \$5.20

**Land erodibility assessment methodology :  
using soil survey data based on *Soil  
Taxonomy***

Manrique, Luis A.

U.S. Agency for International Development. Bureau for  
Science and Technology. Office of Agriculture  
(Sponsor)

Nov 1988, xii, 28p. : charts, statistical tables, En  
9364021

DAN-4021-X-AG-7020-02

Land erodibility assessment in developing countries is often constrained by the lack of a methodology capable of assessing, from limited and often incomplete soils and climatic data, the potential erosion risk of agricultural lands. This book describes a land erodibility assessment methodology (LEAM), which assesses and describes the potential erosion risk of lands in quantitative and operational terms by using information contained in soil surveys based on *Soil Taxonomy* (U.S. Department of Agriculture, Soil Survey Staff, 1975). Assessment of potential erosion risk is based on three land characteristics: slope hazard, rainfall erosivity risk, and intrinsic soil erodibility. Each characteristic is subsequently defined by other land characteristics such as slope steepness and length, soil moisture regime, and particle-size class and mineralogy class. The concluding sections describe tests of LEAM in Hawaii and Mali and the results of these tests. Includes a 2-page bibliography and several technical appendices. (Author abstract, modified)

047

PN-ABB-268

MF \$1.08/PC \$2.73

**Some impacts of remote system  
technology on future fisheries management**

Thorne, Richard E.

University of Washington. Center for Quantitative  
Sciences. School of Fisheries

University of Costa Rica. Center for the Scientific Study  
of the Sea and Limnology

University of Delaware

University of Maryland at College Park. College of  
Agriculture. International Programs

U.S. Agency for International Development. Bureau for  
Science and Technology. Office of Agriculture  
(Sponsor)

May 1987, [18]p. : ill., En

Working paper series / University of Maryland, College  
of Agriculture, no.8

9364146

DAN-4146-G-SS-5071-00

Much of fisheries research and management suffers from inefficient and labor-intensive techniques. One of the highest potentials for increased efficiency is remote system technology. Examples are the application of remote automated hydroacoustic sensing devices and remote operating vehicles (ROV's). Remote hydroacoustic systems are currently used to monitor salmonid escapements, measure downstream salmonid migration past hydroelectric dams, evaluate environmental impacts, and investigate long-term trends in fish abundance and behavior. ROV's, especially with hydroacoustic as well as video sensors, allow for routine assessment of many fish stocks and for study of fish behavior in response to fishing gear. Both of these types of remote technologies are economically accessible. (Author abstract, modified)

# FOOD AND NUTRITION

048

PN-ABA-868

MF \$1.08/PC \$12.61

## To feed the earth : agro-ecology for sustainable development

Dover, Michael J.; Talbot, Lee M.

World Resources Institute

U.S. Agency for International Development. Bureau for Science and Technology. Office of Program (Sponsor)

Jun 1987, vi, 88p., En

9361406

Although aggregate food production is sufficient to feed the world for the foreseeable future, there is growing concern about the sustainability of agricultural systems, especially in developing countries. This paper defines, describes, and argues the importance of, especially for tropical zones, an ecological approach to agriculture that differs profoundly from the industrial approach which has dominated agricultural research and development for decades. The ecological principles that form the basis for sustainable food production are covered in detail, including such concepts as: the distinction between ecosystems that are allowed to evolve undisturbed over time and those that are exploited prematurely; a notion of ecosystem stability based on balanced interactions among species (rather than on the mere presence of biological diversity) and a system's ability to persist in the face of change; and a flexible use of the concept of ecosystem carrying capacity. A discussion of the ecosystem specific to agriculture—the agroecosystem—focuses on polyculture systems (in contrast to the monoculture systems which dominate industrial agriculture); included is a case study of such a system in Mexico and a review of recent agroforestry efforts. Stressing that ecology offers agriculture a set not of easy answers but of difficult questions, the authors outline some emerging agroecological principles: the need to understand the system as a whole, and the importance of maintaining energy efficiency. An analysis of policy issues covers the importance of agroecosystem research, and the need for national agricultural policies and international donors to support the development of ecologically sound agricultural systems. The final section presents an action plan for sustainable agriculture based on maintaining soil quality, ecological efficiency, agroecosystem stability, and diversity. Includes extensive references.

049

\*PN-ABA-877

MF \$2.16/PC \$20.54

## Potatoes in Central Africa : a study of Burundi, Rwanda and Zaire

Scott, Gregory J.

International Potato Center

U.S. Agency for International Development. Bureau for Science and Technology. Office of Health (Sponsor)

1988, 159p. : ill., charts, maps, statistical tables, En,

Summaries in Fr

936411107

\* Also available from: *International Potato Center, Apartado 5969, Lima, Peru*

The potato is an increasingly important food commodity in the Central African Highlands. This report analyzes the technical and socioeconomic factors contributing to this trend in three countries in that region—Burundi, Rwanda, and Zaire. Based on a review of available literature, personal observations, and informal interviews with potato producers, consumers, traders, and agricultural policymakers, the report presents a brief review of development trends and policies for each country, along with a descriptive analysis of potato production, consumption, and marketing. Results refute the common belief that potatoes are strictly a cash crop. Although peasant growers sell some potatoes, most of the harvest is used for household consumption and for seed. Such findings have important implications for other countries in sub-Saharan Africa, particularly those with highland growing areas. The report concludes with a discussion of policy implications for the three targeted countries as well as for others that currently produce potatoes. Includes tables of data on potato production, consumption, and prices. (Author abstract, modified)

050

PN-ABA-925

MF \$2.16/PC \$19.76

## Final report on heat sterilization and accelerated drying of high moisture rough rice for safe storage

Jindal, V.K.; Reyes, V.G. Jr.

Asian Institute of Technology. Division of Agricultural and Food Engineering

U.S. Agency for International Development. Office of the Science Advisor (Sponsor)

1988, vii, 144p. : charts, statistical tables, En

AID/SCI no. 4.488; AIT research report no.221

9365542

A study was carried out to evaluate the effectiveness of high-temperature conduction heating for sterilizing and drying freshly harvested rough rice (RD-23 variety). Experimental prototype heating units were specifically designed and constructed to provide surface tempera-

tures of 75-200 degrees Celsius. The quality effects of heat treatments on rough rice were investigated in terms of moisture removal, head rice yield, milled rice whiteness, and cooked rice texture. Safe holding periods of heat-treated rough rice samples were evaluated based on accepted criteria of reduction in head rice yield and an increase in the proportion of discolored kernels. Finally, the performance and economic feasibility of the proposed prototype heating and drying units were evaluated. Conduction heat treatments distinctly reduced fungal activity in rough rice as measured by dilution plating and carbon dioxide production. Exposure times for isothermal heating of rough rice were determined for inactivating the fungi to specific levels based on the heating surface temperature. Subsequently, a general procedure which accounted for the heating lags was developed for estimating the heat dosages based on the time-temperature history of the bulk grain in any given heating equipment. In general, conduction heating prevented the spoilage of high-moisture rough rice, leading to its safe temporary storage prior to drying. Also, a comparison of rice drying costs when using the prototype rotary conduction heating systems and conventional heated-air drying systems clearly showed the rice husk-fired rotary dryer to be highly competitive. (Author abstract, modified)

051

PN-ABB-045

MF \$2.16/PC \$17.16

## Range of choice in palm oil processing technologies for Cameroon

Hyman, Eric L.

Appropriate Technology International

U.S. Agency for International Development. Bureau for Science and Technology. Office of Rural and Institutional Development (Sponsor)

27 Jun 1988, viii, 122p. : ill., statistical tables, En 9365428

DAN-5428-A-00-3047-00

Palm oil has a higher yield of oil per unit area than any other oil crop and provides a concentrated source of calories that could help solve the calorie-poor diets widespread among Third World children. It can also reduce the threat of xerophthalmia and has a variety of everyday uses ranging from food processing to soap-making. This report discusses the ecological, agronomic, and industrial factors affecting the economics of palm oil production. It begins by describing the characteristics of palm oil and palm kernel oils, and the cultivation and harvesting of oil palm. The current and projected supply and demand for palm oil on the world market and the domestic market in Cameroon are assessed, along with the implications for international trade, domestic consumption, and prices. Also examined are the prospects for the industry in Cameroon, including large-scale firms, mini-mills, and artisanal producers. The second part of the study describes and

compares the economics of various palm oil production technologies, including the traditional rural method and artisanal-level alternatives such as small-scale expellers, screw-operated batch presses, manual hydraulic presses, and phase separation extractors. Includes 18 tables, 36 figures and an 8-page bibliography. (Author abstract, modified)

052

PN-ABB-192

MF \$1.08/PC \$7.28

## Food availability and consumption indicators

O'Brien-Place, Patricia; Frankenberger, Timothy R.

U.S. Dept. 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 (Sponsor) (Impact Indicators Workshop, Arlington, VA, US, 20 Jun 1988)

Jun 1988, iii, 52p. : charts, statistical tables, En 9311274

Food consumption data can be used for many purposes—to focus agricultural projects on a target population, select project interventions, or monitor and evaluate project efforts, as well as to estimate the effects of a wide range of present and proposed government policies. This report describes and illustrates the two existing strategies for obtaining food consumption data. The first, based on direct indicators of food consumption, aims to collect information on actual food consumed at the household or individual level. Two common methods are outlined: (1) analysis of existing national expenditure, budget, or consumption surveys, and (2) shortened consumption surveys at the project or regional level. The second strategy utilizes indirect food consumption indicators, such as: (1) national food availability, (2) market prices, (3) household food availability (as measured especially by production and storage estimates), and (4) nutritional status. An appendix presents specific methods for incorporating food consumption issues into the design of agricultural projects. Includes 6-page bibliography.

# FOOD AND NUTRITION

053

PN-ABB-202

MF \$2.16/PC \$15.60

## Food intake and human function : a cross - project perspective of the collaborative research support program in Egypt, Kenya and Mexico

Calloway, Doris Howes; Murphy, Suzanne P.; Beaton, George H.

University of California, Berkeley

U.S. Agency for International Development. Bureau for Science and Technology. Office of Nutrition (Sponsor)

Aug 1988, xii, 73p. + 4 appendices : charts, statistical tables, En

9311309; 9310262

DAN-1309-G-SS-1070-00; DAN-0262-G-SS-7079-00

Provided here is a contractor report on the major findings of a 1982-87 collaborative research support program (CRSP) on the functional implications of malnutrition. The CRSP was conducted at three biologically and culturally disparate sites: Kalama, Egypt; Solis Valley, Mexico; and Embu, Kenya. Unlike past studies, which often used body size as a proxy for nutritional status, the CRSP recorded body size and fatness in conjunction with food intake. Also, food intake was measured with sufficient frequency and over enough time to be a valid representation of individual and household intake. The CRSP focused on three key functional outcome measures: morbidity at the individual and household level; cognitive and behavioral performance; and reproductive outcome. Measures were also taken of explanatory and potentially intervening variables such as activity patterns, socioeconomic status, sanitation, rainfall, food prices, etc. Participant households were chosen on the basis of the presence of targeted individuals: a woman in the first trimester of pregnancy; an 18-month-old; or a child of 7 or 8. Major findings were as follows. (1) Food intake differed substantially among the three sites, but energy intake was adequate (except in Kenya where there was a drought) and protein intake easily met international standards at all three sites. The period of food restriction in Kenya provided an unexpected opportunity to examine the hypothesis of metabolic adjustment to chronic food restriction; the hypothesis was not supported. (2) Although birth weights at the three sites were only slightly below those of U.S. infants, stunting began early, at 3-4 months; children later grew at a normal pace, but never caught up to their reference heights. Body size was a consistent indicator of psychological functioning in newborns and toddlers, and was still a marker among older children. Food intake was also specifically related to cognitive development. (3) Diseases of early childhood were frequent and severe in Egypt but far less so Kenya, even though the Egyptian diet was markedly superior, suggesting the influence of such factors as sanitation, parental behavior, and/or health care. It is noteworthy, however, that episodes of

disease nearly doubled during the period of food scarcity in Kenya. (4) Generally, food intake did not increase during pregnancy, and increases during lactation were insufficient for adequate breastmilk production, suggesting that infants as a group may have been food-deprived at all three locations (although the situation is complex in Egypt). Programs everywhere need to emphasize the need for extra food during pregnancy and lactation, and to inform women on breastmilk supplementation.

054

PN-ABB-203

MF \$4.32/PC \$41.99

## Collaborative research support program on food intake and human function - the Management Entity : final report

Calloway, D.; Rosberg, C.; et al.

University of California, Berkeley

U.S. Agency for International Development. Bureau for Science and Technology. Office of Nutrition (Sponsor)

29 Jan 1988, xvi, 318p. : statistical tables, En

9311309

DAN-1309-G-SS-1070-00

The A.I.D. Collaborative Research and Support Program (CRSP) on nutrition examined the relationship between marginal nutrition and human function at three sites, one each in Kenya, Egypt, and Mexico. This report documenting CRSP operations from September, 1981, to January, 1988, reviews and assesses program management but is mainly concerned with the extensive data sets compiled under the CRSP, which are considered by CRSP management among the very best ever produced in similar settings. Included are descriptions of the CRSP's site and participant selection methodologies, and of the development of cross-sectional and longitudinal samples and of country-specific food composition data bases, along with a comparative summary of the data gathered on about 300 households in each country on the core independent and dependent variables: food intake, resting metabolic rate, anthropometry, morbidity and mortality, psychology, reproduction, and social and economic factors. It is noted that budget and time constraints narrowed analysis to the effect of food intake on toddler morbidity, physical growth, and psychological development, as well as on pregnancy outcomes and lactation. The final sections of the report describe data management activities and present preliminary cross-project reviews of findings. Noting the program's failure to produce comprehensive interproject analyses, the report concludes with a plea for new funding that will permit full-scale comparison of the three sites. Includes 96 data tables and 9 figures.

055

PN-ABB-204

MF \$4.32/PC \$45.37

**Collaborative research and support program on food intake and human function – Mexico project : final report**

University of Connecticut. Dept. of Nutritional Sciences  
National Institute of Nutrition  
U.S. Agency for International Development. Bureau for  
Science and Technology. Office of Nutrition (Sponsor)  
15 Nov 1987, xxvii, 342p. : charts, statistical tables, En  
Other reports in this series: PN-ABB-205 (Egypt);  
PN-ABB-207 (Kenya).

9311309

DAN-1309-G-SS-1070-00

The Mexico Collaborative Research and Support Program on Nutrition and Function (Mexico CRSP) studied the relationships between marginal nutrition and biological and social outcomes. Part I of this paper gives socioeconomic and geographic information on the research site—Solis Valley in the rural central highlands—and describes pilot study activities. Part II outlines the methodology used during the 3-year data collection period. Some 1,068 individuals from five target groups—infants (0-6 months), toddlers (18-30 months), schoolchildren (7-9 years), pregnant women and mothers, and adult males—participated in the study. Researchers conducted dietary and anthropometric studies, followed by extensive interviews and observations to assess biological and social functions, such as growth, morbidity, reproductive competence, and psychological and cognitive development. Part III presents statistical analyses of the data collected, while Part IV summarizes the study's results. Analyses (among the study's most intensive) of the effect of nutrient intake on infant and preschooler growth rates showed that marginal malnourishment in Solis—largely related to the low intake of animal foods—stunts child growth. Starting around 3 months of age, stunting becomes severe within the first 6 months, and persists so that weight- and length-for-age deficits are greater by 18 months than during infancy. Although the growth rate between 18 and 30 months parallels that of well-nourished children, no signs of catch-up growth were evident. Schoolchildren were the most growth-stunted of all, averaging between the 10th and the 20th percentile for weight and the 12th percentile for height. Includes 34 figures and 190 tables of detailed data.

056

\*PN-ABB-326

MF \$1.08/PC \$7.41

**World food needs and availabilities, 1988 / 89 : fall**

U.S. Dept. of Agriculture. Economic Research Service.  
International Economics Division  
U.S. Agency for International Development (Sponsor)  
Nov 1988, iv, 48p. : statistical tables, En

\* Also available from: U.S. Dept. of Agriculture.  
Economic Research Service, Box 1608, Rockville, MD  
20850 USA

Food import and food aid needs for the marketing years 1988/89 and 1989/90 are estimated for 55 countries in this report, which also includes completely updated estimates for 17 African and Asian countries for which current crop information is available. The report uses two alternative measures of food needs: the *status quo* assessment (the amount needed to maintain recent levels of food consumption) and the nutrition-based assessment (the amount needed to meet minimum dietary standards). Estimates are also made of the maximum amount of food aid which can be absorbed by a country's infrastructure. The report estimates a *status quo* cereal shortfall of 17.5 million tons for 1988/89 (8.6 million below 1987/88). When adjusted for stock levels, however, *status quo* needs are 959,000 tons more than the 1987/88 assessment. Nutrition-based needs are 33.8 million tons (down 6.4 million from 1987/88), but when stock adjustments are considered, these needs are 39 million. Maximum absorbable capacity is 37 million. In sub-Saharan Africa, East Africa had the greatest deficit, primarily due to flooding and civil disturbance in Sudan. In Asia, a strong recovery from drought-produced shortfalls in 1987/88 in Indian agriculture is expected, but floods have caused a sharp increase in food needs in Bangladesh.

# FOOD AND NUTRITION

057

PN-ABB-362

MF \$2.16/PC \$13.78

## Malnutrition : opportunities and challenges for A.I.D.

McGuire, Judith S.

Resources for the Future. National Center for Food and Agricultural Policy

U.S. Agency for International Development. Bureau for Food for Peace and Voluntary Assistance (Sponsor)

U.S. Agency for International Development. Bureau for Program and Policy Coordination (Sponsor)

Nov 1988, iii, 36p. + 3 appendices : charts, maps, statistical tables, En

The persistence of malnutrition in the Third World despite two decades of foreign aid and major advances in both food production and economic growth presents A.I.D. with a unique challenge, according to this report. After a review of development and nutrition indicators,

the report discusses the causes of malnutrition, grouping them under three headings: household access to food; intrahousehold food allocation; and health environment (i.e., services and behavior). Next, A.I.D.'s nutrition policy, staff, budget, and program focus are examined, and the history of A.I.D.'s nutrition efforts reviewed. Four interventions are designated as having proven effective over the short and medium terms: (1) nutrition diagnostics and monitoring, (2) breastfeeding promotion, (3) growth promotion, and (4) nutrition social marketing. The paper concludes that A.I.D. has in place the necessary policy framework to combat malnutrition, but trained staff have been siphoned off and the budget is being inefficiently allocated to small and ineffective efforts. To revitalize its nutrition effort, A.I.D. must communicate nutrition priorities to the field, increase staff and funding, and implement a program monitoring system. Appendices provide A.I.D.'s policy statements on nutrition from 1973 to the present, details on the Agency's nutrition budget, and additional statistical data.



*An agricultural production specialist (left, in helmet) explains the operation of a simple palm oil pressing machine to a town chief in Liberia.*

058

PN-ABA-295

MF \$1.08/PC \$5.85

### Contingency plan for emergency management of dengue and dengue hemorrhagic fever outbreaks in the Dominican Republic

Tonn, Robert J.; Waterman, Stephen H.  
 Medical Service Consultants, Inc.  
 U.S. Agency for International Development. Bureau for Science and Technology. Office of Health (Sponsor)  
 Jun 1988, 41p., En  
 Report no.AR-091  
 Spanish ed.: PN-ABA-296  
 9365948  
 DPE-5948-C-00-5044-00

Consultants from A.I.D.'s Vector Biology Control Project helped USAID/Santo Domingo have developed a contingency plan for emergency control of dengue outbreaks in the Dominican Republic. Dengue fever, an acute febrile illness caused by four serotypes of the mosquito-borne dengue virus, is endemic in the Caribbean region. Dengue epidemics have occurred in the Caribbean with increasing frequency over the past 25 years and sporadic cases of dengue hemorrhagic fever/dengue shock syndrome (DHF/DSS), a severe form of the disease, have been documented in several countries in the region. During an epidemic in Cuba in 1981, more than 100,000 people suffering from DHF/DSS were hospitalized over a five-month period. Dengue surveillance, which has begun recently in the Dominican Republic, indicates considerable dengue transmission and the circulation of at least three dengue serotypes. This circulation of multiple serotypes, combined with the presence of large populations of *Aedes aegypti*, a mosquito that transmits dengue, pose a serious threat of continued outbreaks and the emergence of DHF/DSS in the Dominican Republic. The contingency plan describes the medical emergency requirements and reviews the surveillance, inventory and procurement of supplies, community education efforts, and other activities necessary for emergency control of dengue outbreaks. (Author abstract, modified)

059

PN-ABB-475

MF \$1.08/PC \$8.58

### Feasibility of using community based malaria control in West Timor, Indonesia

Lacey, Lawrence A.; Warren, McWilson  
 Medical Service Consultants, Inc.  
 U.S. Dept. of Health and Human Services. Public Health Service. Centers for Disease Control  
 U.S. Agency for International Development. Bureau for Science and Technology. Office of Health (Sponsor)  
 15 Dec 1988, i, 62p., En  
 Report no.AR-055  
 9365948  
 DPE-5948-C-00-5044-00

A tour of the community-based health delivery systems in place in rural West Timor, Indonesia, indicated a high potential for using these systems for surveillance and control of malaria. Village volunteers are already active in a variety of health services through village-based clinics, which are under the supervision of regional health clinics. This report outlines a detailed protocol for a pilot study to investigate the feasibility of using village volunteers to record and treat clinical malaria cases. The study would include nine villages, all of them associated with a regional clinic. Village orientation to malaria and its treatment and volunteer training would be implemented through the regional clinic doctor. A parallel study conducted at each of the regional clinics in the area would consist in examining blood films from fever cases, from fever cases with chills, and from control groups (no fever) to determine the correlation between clinical symptoms and slide positivity. A third protocol has been designed to test the efficacy of bed nets for the control of malaria. Three villages are proposed for protection with permethrin-impregnated bed nets. The protected villages and three control villages will use the community-based surveillance and treatment mentioned above, and will also use night-biting catches as an entomological assessment method to determine the efficacy of the bed nets. (Author abstract, modified)

060

PN-ABB-002

MF \$1.08/PC \$8.06

## What makes hygiene education successful : experience from Togo, Sri Lanka, and Yemen and its relevance for project design

Pillsbury, Barbara; Yacoob, May; Bourne, Peter  
Camp Dresser and McKee, Inc.

U.S. Agency for International Development. Bureau for  
Science and Technology. Office of Health (Sponsor)

Sep 1988, vii, 64p., En

WASH technical report, no.55 WASH activity no.369  
9365942

DPE-5942-C-00-4085-00

As the Water and Sanitation for Health Project (WASH) moves into its third phase, a review of activities and lessons learned is being performed in order to develop

guidelines for future project design and implementation. This report presents case studies of water supply and sanitation projects in Togo, Sri Lanka, and North Yemen and identifies factors which contributed to the apparent success of their health/hygiene education activities. These factors are grouped into four major categories: (1) those essential at the planning stage; (2) administration and logistics; (3) groundwork; and (4) community involvement. Within this framework, fourteen specific elements were found to be related to success. These include: the critical role of influential individuals' belief in the viability and effectiveness of health education; the need to be innovative, flexible, and responsive to local situations; and the presence of adequate infrastructure and financial commitments. Community involvement in design, implementation, and evaluation, the need for baseline studies, and appropriate training of community and project personnel also were cited as success-related factors. Appendices provide supporting materials for use in developing a hygiene education program.



*Oral rehydration therapy has emerged as the cornerstone of international efforts to combat the effects of nearly 1 billion diarrheal episodes per year in third world children under 5.*

061

PN-ABB-264

MF \$1.08/PC \$4.94

**Approach to the reconciliation of demographic survey data from the Philippines**

Pullum, Thomas W.  
International Science and Technology Institute, Inc.  
U.S. Agency for International Development. Bureau for  
Science and Technology. Office of Population  
(Sponsor)

29 Sep 1988, vii, 29p. : charts, statistical tables, En  
Report no.87-147-076

Population technical assistance project occasional  
papers, no.2

9363024

DPE-3024-Z-00-7079-00

Puzzling inconsistencies found in recent demographic surveys in the Philippines in regard to the relation of the crude birth rate and the total contraceptive prevalence rate are analyzed and reconciled. The analytical methods employed—which consist mainly in checking for correspondences—are presented in detail in the hope that they might prove useful in other settings. Key conclusions are as follows. (1) The consistency of the two most recent surveys (1983 and 1986) shows that the apparent decline in fertility and increase in contraceptive prevalence in the early 1980's was genuine. (2) The published rise in the crude birth rate from 1975 to 1980 was probably due to the mix of data sources, in particular the use of fertility rates from the surveys and age distributions from the 1970, 1975, and 1980 censuses. (3) The apparent fluctuations in contraceptive prevalence have been due to the inclusion of methods such as withdrawal and abstinence which are not promoted by the national population program, are non-verifiable, and are sensitive to varying interviewing practices. In the future, the total fertility rate rather than the crude birth rate should be the primary index of fertility and, together with the prevalence of program methods (rather than all methods), should be used for setting targets and monitoring change.

062

\*PN-ABB-355

MF \$2.16/PC \$16.12

**HOMES : a household model for economic and social studies – reference guide for household projections, version 1.0**

Mason, Andrew  
East - West Center. East - West Population Institute  
U.S. Agency for International Development. Bureau for  
Science and Technology. Office of Population  
(Sponsor)

Aug 1987, x, 114p. : charts, statistical tables, En  
Papers of the East - West Population Institute, no.106  
9320649

\* Also available from: East - West Population Institute,  
East - West Center, 1777 East - West Rd., Honolulu, HI  
96848 USA. \$3 per copy

An increasing body of research points to the importance of household data in analyzing social and economic behavior. This paper is a reference guide for the use of HOMES, a demographic model and computer package developed to project the number and demographic characteristics of households. HOMES employs a unique methodology to determine the entire household membership in a fashion consistent with underlying mortality and fertility trends. To illustrate the range of information available from HOMES, a summary of its application to South Korea is provided. A detailed discussion of the principles that underlie the computer model is presented, using census and survey data from Thailand, Indonesia, the Philippines, Taiwan, Malaysia, and South Korea. A technical description of HOMES includes instructions for calculating the number of households, children of a household head, grandchildren of a household head, surviving parents of a household head, other household members, and offspring weights. Procedures for running HOMES on a mainframe computer and sample output are also provided. Includes figures, exhibits, and 24 tables.

063

PN-ABB-182

MF \$1.08/PC \$12.74

## Periodic abstinence in developing countries : update and policy options

Hermann, Carol B.; Williamson, Nancy E.; et al.

Family Health International

Westinghouse Co. Institute for Resource Development, Inc.

U.S. Agency for International Development. Bureau for Science and Technology. Office of Population (Sponsor)

Jun 1986, viii, 94p. : charts, statistical tables, En 9363000

Only a few developing countries include natural family planning (NFP) in their family planning programs. This paper aims to help policymakers decide whether and/or how to promote these methods by providing information on their efficacy and prevalence. The various periodic abstinence methods—calendar rhythm, cervical mucus, basal body temperatures, and sympto-thermal—are examined, followed by a general discussion of program options and policy considerations. Several questions are addressed concerning the safety and difficulty of practicing periodic abstinence and its effects on male-female relationships. Tables and figures are used to present demographic data on users of periodic abstinence methods and results of surveys to determine their effectiveness. Countries surveyed include Sri Lanka, South Korea, Peru, Mexico, the Philippines, and Brazil. An appendix reviews periodic abstinence programs in eight countries—Mauritius, Sri Lanka, the Philippines, India, Kenya, Peru, Mexico, and South Korea—as a way of examining family planning practices and services in the context of national religious, demographic, and geographic characteristics. A select list of NFP agencies and organizations worldwide is included.

064

PN-ABB-554

MF \$1.08/PC \$5.20

## Glossary of natural family planning terms

Rodriguez-Garcia, Rosalia; Stevenson, Wilma; et al.  
Institute for International Studies in Family Planning  
Georgetown University

U.S. Agency for International Development. Bureau for Science and Technology. Office of Population (Sponsor) First ed.

Aug 1988, ix, 30p. : ill., En

9363040

DPE-3040-A-00-5064-00

Developed for use by individuals in the Third World who are interested in natural family planning (NFP) methods and who have at least a primary education, this glossary provides concise definitions of the terms most commonly used in NFP. A total of 180 terms, briefly described, are grouped under ten major sections: (1) topics specific to NFP, including the various NFP methods; (2) family planning in general; (3) general aspects of human reproduction; (4) female reproductive anatomy; (5) female reproductive physiology; (6) male reproductive anatomy; (7) male and female reproductive hormones; (8) disorders of the female reproductive system; (9) aspects of the sex act; and (10) NFP program evaluation. Includes an index, figures, and references.

065

PN-AAX-213

MF \$1.08/PC \$7.15

## **A.I.D.'s experience with rural development : project - specific factors affecting performance**

Binnendijk, Annette

U.S. Agency for International Development. Bureau for Program and Policy Coordination. Center for Development Information and Evaluation (Seminar on Rural Development : Lessons from Experience, Paris, FR, 18-19 Feb 1988)

Jan 1989, vi, [47]p., En

A.I.D. evaluation special study, no.60

In recent years A.I.D. has responded to the unpredictable, complex, and long-term nature of rural development by experimenting with alternative approaches. This report draws general lessons from these experiments. Discussion focuses on economically productive rather than social service activities and is restricted to factors within a donor agency's or project management's control, although methods of influencing external factors are also considered. The paper is organized according to four key project-related issues. (1) Project organization and management issues are examined, beginning with an assessment of various types of implementing organizations (i.e., government agencies, semiautonomous agencies, and private organizations). General recommendations are presented for effectively engaging beneficiaries in management decisions, a key aspect of successful project performance and sustainability. Management strategies are examined for addressing internal and external problems, enhancing indigenous institutional capacity, and improving financial viability. (2) Discussed next are the two main technological issues affecting rural development projects: (a) the acquisition and adoption of appropriate agronomic technical packages, and (b) the choice of appropriate rural infrastructure technologies. (3) The paper then evaluates recently developed project design techniques, focusing on the factors of flexibility, size, lifespan, complexity, and integration. (4) A final section examines project monitoring and evaluation processes, which have also been revised recently to suit the realities of rural development. The report concludes by emphasizing that rural development strategies are rarely universally applicable—the key to success is the appropriateness of project approach to local contextual conditions.

066

PN-AAX-214

MF \$1.08/PC \$4.29

## **Rural development : lessons from experience — highlights of the seminar proceedings**

Binnendijk, Annette

U.S. Agency for International Development. Bureau for Program and Policy Coordination. Center for Development Information and Evaluation (Seminar on Rural Development : Lessons from Experience, Paris, FR, 18-19 Feb 1988)

Jan 1989, vi, 19p. + appendix, En

A.I.D. program evaluation discussion paper, no.25

Proceedings are summarized of a special seminar held in February 1988 to promote donor exchange of evaluation experiences relating to rural development (RD). Participants agreed that despite setbacks, the basic objective of RD—improving the lives of the rural poor—is still worthy of donor commitment. The following are among the lessons drawn from what emerged as a commonality of experience. (1) RD strategies should be in tune with individual country conditions and should be integrated into a coherent macroeconomic policy. (2) Activities should focus on generating cash flows, making economic returns possible, and increasing productivity. (3) Project designs should be flexible enough to permit adjustment during implementation and should encompass a phased "learning" process, which implies a donor commitment of 15-20 years. (4) Project organization and implementation schemes should be as simple as possible. (5) More use should be made of non-governmental organizations and the private sector, and higher priority should be given to strengthening local institutional and human resources. (6) Potential beneficiaries should be involved early on in the project identification process. (7) RD projects should support rather than take over the development efforts of the local community. Some of these lessons imply a need for major changes in donor agencies (e.g., a national focus requires greater in-house analytical ability), as well as for greater staff continuity and more decentralized decisionmaking. They also suggest the need to seriously consider difficult, unpopular actions such as longer-term financing of recurrent project costs and "untying" aid in order to allow competitive procurement of equipment appropriate to country conditions.

# HUMAN SETTLEMENTS AND SHELTER

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067

PN-ABB-303

MF \$1.08/PC \$4.81

## Shelter and jobs : cooperative neighborhood improvement and job program for Central America

Cooperative Housing Foundation  
U.S. Agency for International Development. Bureau for Latin America and the Caribbean. Office of Development Resources (Sponsor)  
Apr 1988, iv, 28p. + attachment : ill., En  
5970012; 9120005

In 1985, the Cooperative Housing Foundation (CHF) received a grant from A.I.D. for a program to upgrade squatter settlements and rural villages in Central America by providing credit for home improvements, home construction, and community services, and by creating jobs in small businesses related to construction. This paper reviews project activities and accomplishments in the six participating countries—Guatemala, El Salvador, Honduras, Costa Rica, Panama, and Belize. To date, CHF has made loans to 13 national organizations and 5 community organizations. In turn, the national organizations have made loans to 61 community organizations. All of these organizations receive technical assistance and training from CHF. In addition, 16 institutional support grants are helping to strengthen local private sector organizations. The project is achieving its objectives. Thousands of people in the region have already benefited from the project's credit and employment-generating efforts, as well as from new community services such as potable water systems, electricity, and sidewalks. Further, loan payments have begun and are expected to grow substantially by 1989. CHF will recycle these funds through local groups to extend the project's benefits to additional low-income families. An appendix summarizes total loans, grants, and local inputs.

068

PN-ABB-425

MF \$1.08/PC \$7.93

## Urbanization in the developing countries : interim report to Congress

U.S. Agency for International Development  
1988, v, 50p. : charts, statistical tables, En

Over the next 35 years, rapid urbanization in developing countries will cause major economic and population changes. This paper outlines five principal trends, including rapid increases in: (1) the rate of urban population growth; (2) absolute urban population growth—by early in the next century, urban populations will outstrip rural populations in developing countries for the first time in history; (3) labor force growth and predominance of young workers; (4) urban poverty; and (5) the size and number of large cities. The paper then discusses

problems accompanying rapid urbanization, such as inadequate employment and productive capacity, weak rural-urban linkages, worsened living conditions for low- and middle-income families, and strains on municipal and physical infrastructure and on the environment. Positive economic consequences of rapid urbanization are also analyzed, including the development of infrastructure to support small and medium enterprises, the association between urbanization and lowered fertility, and the capacity of cities to promote agricultural production and trade. It is concluded that A.I.D.'s urban program is not designed to cope effectively with the full range of urban development problems. Includes analyses of A.I.D. and other donors' urban programs.

069

PN-ABB-147

MF \$2.16/PC \$18.59

## Housing quality model : a user's manual

Turner, Margery Austin  
Urban Institute  
U.S. Agency for International Development. Bureau for Private Enterprise. Office of Housing and Urban Programs (Sponsor)  
Nov 1987, v.p. : statistical tables, En  
U.I. project 3713  
PDC-0000-I-00-6168-00

To assist the A.I.D. Office of Housing and Urban Programs in analyzing the impacts of alternative housing policies, the Housing Quality Model (HQM), a microcomputer simulation package, was developed. This manual describes the HQM, which is written in TURBO-Pascal for PC's and PC-compatibles. Potential users are familiarized with the HQM through a technical overview covering basic input requirements, assumptions, and simulation methods. Second, a description of tables produced by the HQM is provided, followed by a definition of the HQM's data requirements, which are quite extensive. Next, data sources are identified, and worksheets for recording data items for subsequent entry are provided. Operation of the HQM is then explained through step-by-step instructions for entering and modifying HQM data files, and for running the HQM when input files are complete. Suggestions on file management conventions are also offered. Finally, the structure of the HQM computer programs is outlined for those wishing to directly examine the code or to make modifications. Includes worksheets and charts. (Author abstract, modified)

070

PN-ABB-553

MF \$1.08/PC \$5.07

## Evolution in donor policies for the shelter sector : lessons learned and a case study of Ghana

Merrill, Sally Roe  
Abt Associates, Inc.  
U.S. Agency for International Development. Bureau for  
Africa. Regional Housing and Urban Development  
Office (Sponsor)  
Sep 1988, 37p. : charts, En  
PDC-0000-I-00-6187-00

Rapid urbanization and harsh economic conditions have had a disastrous impact on the public housing policies of many developing nations. This paper examines how international donors have responded to the need for more effective housing policies. The current

context for housing sector lending in sub-Saharan Africa is described, and statistics are presented on the decline in housing investment during the past 15 years. Lessons learned from public housing and sites and services projects are then discussed, and the possible roles of the public and private sectors are considered, with special attention to the provision of serviced land, a major problem area in many developing countries. Finally, the paper reviews recent policy reforms in Ghana as an example of shelter policy evolution. The Ghanaian reforms encourage private sector participation and channel public funds away from direct housing provision and toward the delivery of serviced land and support of the private housing sector. Major international donors are assisting in the evolution of these policy reforms as well as providing capital investment funds for urban and shelter sector programs.



*Food for Work at work in a self-help housing project in Chile.*

# ENVIRONMENT AND NATURAL RESOURCES

071

PN-ABB-193

MF \$1.08/PC \$7.41

## Indicators for assessing changes in natural resources in developing countries

McCracken, Ralph J.

U.S. Agency for International Development (Sponsor)  
(Impact Indicators Workshop, Arlington, VA, US, 20 Jun 1988)

[1988], 50p. + attachment, En

The sustainability of the natural resource base is being seriously threatened in many developing countries by local efforts to meet basic needs for food, fiber, and fuelwood. This paper suggests eight illustrative indicators for assessing the impact of A.I.D. agricultural and forestry projects on natural resources: (1) soil productivity maintenance, (2) land use and management, (3) vegetative cover and plant health, (4) agroforestry and fuelwood supply, (5) rangeland conditions and trends, (6) water supply, (7) environmental quality, and (8) accelerated general degradation processes. The sources of data required for the use of each of these indicators are listed and briefly described, and more details on each of the data sources are presented in Appendix I. Additional appendices cover (1) procedures, data items, and costs for natural resource inventories in the United States; (2) Geographic Information Systems (GIS) with digitized map information; (3) costs of soil surveys, digitized maps, and GIS's; (4) estimated costs for remote sensing of natural resources; and (5) a U.S. Department of Agriculture water erosion prediction project being developed to replace the universal soil loss equation. Includes a 5-page bibliography.

072

PN-ABB-244

MF \$1.08/PC \$9.62

## Natural resource management in the Fouta Djallon watershed, Guinea : a pre-feasibility study conducted for the U.S. Agency for International Development

Heermans, John; Williams, Paula J.

World Resources Institute. International Institute for Environment and Development -- North America  
U.S. Agency for International Development. Bureau for Science and Technology. Office of Forestry, Environment and Natural Resources (Sponsor)

Sep 1988, [52]p. + 5 appendices : maps, En  
9365517

DAN-5517-A-00-2066-00

Erosion has long been a concern in the Fouta Djallon area of central Guinea, which contains the headwaters of several major rivers. This pre-feasibility study assesses a proposed multi-donor project to develop watershed management in the region. Background information is

provided, followed by an outline of the project's organizational structure. Participating donors will include U.N. agencies, the European Economic Community, the French, Italian, Canadian, and West German governments, USAID/G, U.S. and Guinean universities, and private organizations. Ecological and socioeconomic characteristics of the two proposed watershed sites—Diafore and Koundou—are described, as well as residents' perceptions of environmental and social changes. Technical and socioeconomic issues, such as erosion, land tenure, and declining rainfall and soil fertility, are analyzed in terms of probable project impact. Institutional issues concerning the project (i.e., USAID/G and Guinean policies, budget, and staffing) are examined. The overall finding is that the proposed project is not only feasible but highly, even urgently, desirable. General recommendations for an integrated management approach and specific intervention plans are presented in conclusion.

073

PN-ABB-267

MF \$4.32/PC \$39.26

## Guatemala medfly environmental impact analysis

Consortium for International Crop Protection

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

U.S. Agency for International Development. Bureau for Latin America and the Caribbean. Guatemala (Sponsor)

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

Jul 1988, xxxv, 272p. : maps, statistical tables, En  
5200000; 9364142

DAN-4142-C-00-5122-00; 520-0000-G-00-8135-00

By 1982, MOSCAMED, a cooperative program among the governments of Mexico, Guatemala, and the United States, had eradicated the Mediterranean fruit fly (medfly) from Mexico. This document assesses the program and its environmental impact in Guatemala, the current focus of MOSCAMED activities. Two basic control strategies are employed—the release of sterile medflies to mate with wild populations, and aerial or ground applications of a malathion bait spray (MBS). While data often proved inconclusive, the study found that more than half of the MOSCAMED activities with adverse or potentially adverse environmental impacts were related to MBS. Malathion use has been linked, for example, to the destruction of honey bees (and possibly the crops they pollinate) and of beneficial arthropod species, and to phytotoxicity in native plants that grow with or near sprayed crops. MBS has also been found to pose significant health risks to MOSCAMED workers, though not to the general public. Further, there is significant public opposition to MBS, especially to aerial spraying. The

# ENVIRONMENT AND NATURAL RESOURCES

study suggests ways to mitigate MOSCAMED's adverse impacts, and a final section compares the current program with three alternative courses of action: (1) using MOSCAMED techniques to create a stable barrier zone to prevent the spread of the medfly north of Guatemala, (2) management of the medfly by nonchemical means, and (3) simple termination of the MOSCAMED program with no replacement. Includes glossary and bibliography.

074

\*PN-ABB-292

MF \$3.24/PC \$27.82

## Coastal environmental profile of Brunei Darussalam : resource assessment and management issues

Thia-Eng, Chua; Ming, Chou Loke; et al.  
Brunei Darussalam. Ministry of Development. Fisheries Dept.

International Center for Living Aquatic Resources Management

Association of Southeast Asian Nations  
U.S. Agency for International Development. Bureau for Asia and Near East (Sponsor)

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture  
1987, xviii, 193p. : maps, statistical tables, En

ICLARM technical reports, no.18

ICLARM contribution no.411

4980286; 9311050

\* Also available from: *International Center for Living Aquatic Resources Management, P.O. Box 1501, Makati, Metro Manila, Philippines*

The high development potential of Brunei Darussalam's coastal resources, along with the government's declared interest in economic diversification, call for an integrated, multisectoral development strategy which will prevent degradation or overexploitation of coastal ecosystems. This environmental profile is presented as a first step in the development of such a strategy. Considered in turn are: (1) the physical environment of Brunei Darussalam's coastal areas in terms of geography, drainage, soils, seedbed configuration, climate, the hydrological characteristics of coastal waters, the estuarine environment, and the features of Seresa Bay; (2) the coastal resources themselves (mangroves, coral reefs, algae, seagrasses, beaches, artificial habitats, and mineral resources); (3) the characteristics of the coastal area population in terms of demography, tradition and culture, employment, health, and education; (4) land use, development, and tenure; (5) coastal area economic activities in capture fisheries, aquaculture, agriculture, forestry, tourism and recreation, and industry; (6) sources of pollution, baseline studies of its extent, and pollution criteria and institutional capabilities; (7) public and private organizations involved in coastal resource management; and (8)

coastal resource management issues and the steps taken so far to develop a resource management plan. Includes 60 tables, 55 figures, and a list of references.

075

PN-ABB-363

MF \$1.08/PC \$5.33

## Watershed management in Haiti : the STAB experience

Pierce, Thomas H.

Development Alternatives, Inc.

Tropical Research and Development, Inc.

Earth Satellite Corp.

Social Consultants International

U.S. Agency for International Development. Bureau for

Science and Technology. Office of Rural and

Institutional Development (Sponsor)

Oct 1988, v, 35p. : charts, maps, En

9365438

DHR-5438-C-00-6054-00

With over 160 separate activities being implemented, watershed management (WM) has become a key strategy in the attempt to slow the widespread degradation of Haiti's environment. This document presents the results of a project to establish within the Ministry of Agriculture, Natural Resource, and Development (MARNDR) a Technical Secretariat for Watershed Management (STAB) to coordinate these interventions and develop a comprehensive national strategy for controlling environmental degradation. The report details both the formation of STAB and its specific accomplishments, which included, inter alia: (1) performing a comprehensive survey of current WM projects; (2) engaging in project monitoring and evaluation activities; (3) collecting and disseminating information gained from WM projects; and (4) resolving policy conflicts between projects and developing a national WM strategy. STAB's success in these varied activities can be traced in part to its strong institutional support within the MARNDR and to its ability to establish an independent means of communication with donors (through its Committee of Reflection, which consisted of key donor officials). As a result, STAB was able to work closely with the donor community and was more sensitive to institutional issues facing donors than would have otherwise been possible. Also, since STAB had no day-to-day project management duties, it was able to effectively concentrate on longer-term policy formation. Includes references (1981-87).

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076

\*PN-ABB-421

MF \$4.32/PC \$44.98

## Ecological development in the humid tropics : guidelines for planners

Lugo, Ariel E., ed.; Clark, John R., ed.; Child, R. Dennis, ed.

U.S. Dept. of the Interior. National Park Service  
Winrock International Institute for Agricultural  
Development

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

1987, ix, 362p. : charts, En Includes bibliographies  
9311209

\* Also available from: Winrock International Institute for  
Agricultural Development, Rt. 3, Morrilton, AR 72110 USA

Population growth and the depletion of natural resources are placing tremendous pressures on the ecosystems of humid tropical forests and wetlands. This

monograph provides specific guidelines for the design, management, and evaluation of programs aimed at preventing environmental degradation in these areas. Section I provides an overview of sustainable ecological development, including a discussion of the interplay between environmental, economic, and social factors. Section II analyzes the concept of integrated planning and management and its application in optimizing and sustaining resource use across development sectors. Section III discusses the impacts of such activities as land settlement/development and physical infrastructure development on the humid tropical environment. The bulk of the study is presented in Section IV, which details guidelines for conservation project planners and managers. Specific topics include: the role of protected areas in regional development; tropical forest management; minimizing the adverse impacts of harvesting; developing sustainable plantation forestry; agroforestry and mixed farming systems; grazing systems and livestock; and freshwater fisheries and aquaculture.



*Environmental balance is maintained by the use of fungicides on coffee plants grown on the Arabica plantation in Bafoussam, Cameroon.*

077

PN-AAX-212

MF \$1.08/PC \$12.09

## Agroforestry projects for small farmers : a project manager's reference

Chew, Siew Tuan

U.S. Agency for International Development. Bureau for Program and Policy Coordination. Center for Development Information and Evaluation  
Jan 1989, xiv, 42p. + 5 appendices, En  
A.I.D. evaluation special study, no.59

Between 1977 and 1987, A.I.D. funded 43 bilateral, research, and community projects in agroforestry, projects whose primary objective was to encourage farmers to grow trees using species and techniques (e.g., contour hedgerows, intercropping) that can protect and sustain topsoil, increase crop or livestock production, and, in most cases, provide wood and other products to augment income. This study reviews A.I.D.'s agroforestry experience and identifies major issues to be addressed in designing and implementing future projects. The issues are discussed under six categories. (1) The selection of tree species and techniques must be based on technical, economic, and sociocultural criteria. Trees must be adaptable to agroclimatic and farming conditions, and the project must take into consideration the purpose of the planting (e.g., whether trees are grown for subsistence needs, as a cash crop, or both), as well as farmers' risks, benefits, costs, and customary beliefs and preferences. (2) Tree growing must work within—or seek to change—government policies and traditional land tenure arrangements. (3) Key institutional issues include the capacity of line ministries to meet technical and extension requirements, and the support that can be provided by the private sector. A major lesson is that project designers and implementing agencies must train and supervise farmers and extensionists in site selection, planting techniques, spacing requirements, care of young trees, pruning methods and schedules, and the harvesting and use of tree products. Close coordination among all parties is urged, as is encouragement of farmer participation. (4) Some evidence suggests that traditional incentives such as free seeds may not be effective. Recent projects have experimented with alternative incentives, e.g., helping to secure land or tree tenure or funding small community projects. (5) Information gaps concerning past forestry projects underscore the need to fully fund data collection, monitoring, and evaluation. (6) Crosscutting issues include the possibility of implementing projects in phases over 7 years or more; the importance of broad, programmatic approaches to improving and sustaining land use; and the importance of donor coordination. Descriptions of A.I.D. agroforestry projects and 13 pages of references are appended.

078

PN-ABA-898

MF \$2.16/PC \$14.56

## Contribution of forestry to economic development, with special reference to employment and income in developing countries : an annotated bibliography

Basu, Rathin; Johnson, Thomas G.

Southeastern Center for Forest Economics Research  
North Carolina State University. School of Forest Resources

Duke University. School of Forestry and Environmental Studies

U.S. Dept. of Agriculture. Forestry Support Program

U.S. Dept. of Agriculture. Office of International Cooperation and Development. Forest Service.  
Southeastern Forest Experiment Station

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

Jan 1988, 103p., En

FPEI working paper series, no.31

Cover date: June 1987

9365519

The role of industrial forestry in promoting rural employment and income generation is the focus of this annotated bibliography, which cites 82 papers, most dating from the period 1970-86. The annotations, which have been recorded in a computerized data base to promote wide access, note the economic, environmental, policy, and administrative issues treated in the papers. Author, country, and keyword indexes are included, along with a sampling of the articles rejected from the bibliography. The literature reviewed, it is noted in the preface, suggests that forestry offers an extraordinary opportunity for rural economic development in developing countries, especially by providing an opportunity to use otherwise erodable, low-valued land to create valuable products for rural use. Forestry can also help to diversify rural economies, create employment opportunities for part-time farmers, provide incentives against rural-urban migration, and produce needed foreign exchange. However, a striking feature of the literature is its failure to quantify specific impacts on the economies of developing countries. The overall view of the articles cited herein—that forestry has the potential to create hundreds of millions of jobs—should, according to the preface, be viewed with extreme caution.

079

PN-ABA-899

MF \$2.16/PC \$25.35

## Guide to investment and trade in the forest products sectors of Southeast Asia : Indonesia, Malaysia, and the Philippines

Krutilla, Kerry

Southeastern Center for Forest Economics Research  
North Carolina State University. School of Forest Resources

Duke University. School of Forestry and Environmental Studies

U.S. Dept. of Agriculture. Forestry Support Program

U.S. Dept. of Agriculture. Office of International Cooperation and Development. Forest Service.

Southeastern Forest Experiment Station  
U.S. Agency for International Development. Bureau for Science and Technology. Office of Forestry, Environment and Natural Resources (Sponsor)

Jan 1988, 189p., En

FPEI working paper series, no.32

9365519

Declining timber resources, an increase in value-added wood-based processing, new export markets, and a growing stress on joint ventures have been key factors in the rapid evolution since 1975 of Southeast Asia's forest products industry. This report profiles the industry and its prospects in the three major hardwood-producing countries in the region (Indonesia, the Philippines, and Malaysia), each of which differs with respect to stage of wood industry development and investment climate. The countries' forest management policies, timber resources, and the status of their wood-based processing industries are reviewed first (these issues are analyzed separately for West and East Malaysia), followed by an overview of the business environment in each country, the latter covering policies toward foreign investment (including the increasingly important investments from other less developed countries), investment licensing and regulation, taxation, exporting/importing regulations, and policies governing currency and capital controls. Next, other issues affecting the marketing and trade of forest products in the region—product quality and standards, shipping and transportation services, trade barriers, customs regulations, and export financing—are analyzed and recommendations for improving them are made. Includes a 5-page list of references and a short annotated bibliography.

080

PN-ABA-941

MF \$1.08/PC \$5.72

## Ecological approach to on - farm experimentation

Huxley, Peter A.; Mead, Roger

International Council for Research in Agroforestry  
U.S. Agency for International Development. Bureau for Science and Technology. Office of Forestry, Environment and Natural Resources (Sponsor)

May 1988, 34p. + appendix : ill., En

ICRAF working paper, no.52

9365547

DHR-5547-A-00-6041-00

In response to increased demand for *in situ* bio-physical data on agroforestry systems and components, this paper discusses two methodologies for collecting such data. Presented first are practical guidelines for using a grid transect method to collect information on single, established multipurpose trees. Methods are outlined for studying multipurpose tree growth, phenology, production characteristics, and compatibility with other plants. Second, a new approach is proposed for adapting experimental techniques originally designed for on-station experimentation to on-farm situations. The approach involves random samples of natural conditions on-farm for ecological treatments, with added manipulations for interference treatments. Finally, this ecological approach is compared with conventional research designs. The author claims that the experimental approach is perceived as more relevant by farmers, encouraging greater farmer participation. Includes 11 figures.

081

PN-ABB-228

MF \$3.24/PC \$36.01

**Multipurpose tree species for small - farm use : proceedings of an international workshop held November 2-5, 1987 in Pattaya, Thailand**

Withington, Dale; MacDicken, Kenneth G.; et al.

Winrock International Institute for Agricultural Development

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

U.S. Agency for International Development. Bureau for Asia and Near East. Office of Technical Resources (Sponsor)

U.S. Agency for International Development. Bureau for Science and Technology. Office of Rural and Institutional Development (Sponsor)

(International Workshop on Multipurpose Tree Species for Small - Farm Use, Pattaya, TH, 2-5 Nov 1987)

1988, 282p. : ill., charts, statistical tables, En  
9365547

Intensified use of multi-purpose tree species (MPTS) on small farms holds promise for counteracting the ominous problem of deforestation in developing countries. As part of an effort to expand knowledge of MPTS, an international workshop attended by 40 participants from eight Asian nations was held in Thailand in 1987 to describe what is known about MPTS use on small farms in Asia, identify knowledge gaps and constraints to improving production and use of MPTS on small farms, and produce a strategy for future research efforts. A total of 27 papers were presented at six sessions dealing, respectively, with: (1) small farm use of MPTS (7 papers); (2) the role of Eucalyptus on small farms (3 papers); (3) nitrogen fixing trees as MPTS for small farms (6 papers); (4) fruit trees and other woody perennials (5 papers); (5) socioeconomic considerations for MPTS research (5 papers); and (6) research strategies to fill information gaps (1 paper). These proceedings present the full text of the papers, along with brief summaries of each of six sessions and the texts of 10 poster presentations. Includes charts, illustrations, and references.

082

PN-ABB-230

MF \$1.08/PC \$6.11

**Feasibility study on small - farm production of gums, resins, exudates, and other non-wood products**

Hanover, James W.

Winrock International Institute for Agricultural Development

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

U.S. Agency for International Development. Bureau for Science and Technology. Office of Rural and Institutional Development (Sponsor)

U.S. Agency for International Development. Bureau for Asia and Near East. Office of Technical Resources (Sponsor)

Aug 1988, 47p., En

Multipurpose tree species network research series paper, no.4

9365547

LAC-5547-C-00-5124-00

An output of A.I.D.'s Forestry/Fuelwood Research and Development Project, this study documents the feasibility of deriving non-wood products from multipurpose tree species in Asia. Emphasis is put on gums, resins, and exudates, along with certain extractives, oils, dyes, pesticides, and specialty chemicals; products mainly used for medicine, food, or fodder are given less attention. An initial section lists the various non-wood commodities derivable from multipurpose tree species, while the second section presents, largely in tabular form, the regional availability of these products from eleven priority species (*Acacia auriculiformis*, *A. mangium*, *A. nilotica*, *Azadirachta indica*, *Dalbergia sissoo*, *Eucalyptus camaldunensis*, *Leucaena leucocephala*, *Melia azedarach*, *Prosopis cineraria*, *P. juliflora*, and *Robinia pseudo-acacia*), as well as from 100 additional species and from various specialty trees. A concluding section argues that the vast number of multipurpose species present in Asia, together with technological advances, world demand for tree products, and concern for tropical forests, indicate an enormous potential for increasing the derivation of chemical products. General and specific recommendations are made to help realize that potential. Includes 6-page bibliography.

083

PN-ABB-294

MF \$1.08/PC \$7.80

## **Collaborative research on farm and village forestry : report of a workshop held April 23-25, 1988 in Kathmandu, Nepal**

Winrock International Institute for Agricultural Development

U.S. Agency for International Development. Bureau for Science and Technology. Office of Rural and Institutional Development (Sponsor)

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

U.S. Agency for International Development. Bureau for Asia and Near East. Office of Technical Resources (Sponsor)

(Workshop on Collaborative Research on Farm and Village Forestry, Kathmandu, NP, 23-25 Apr 1988)

1988, iv, 55p., En

9365547

LAC-5547-C-00-5124-00

Despite its valuable contribution to farm and village forestry programs, social forestry research in Asia often falls short of its potential. In April 1988, an international workshop of social scientists and foresters was held in Nepal to establish a common agenda, explore the potential for a standardized research methodology, and develop proposals for collaborative research. The workshop, proceedings of which are presented here, included nine papers on social forestry research being conducted in Nepal, Pakistan, Bangladesh, Indonesia, Thailand, the Philippines, and Costa Rica. Eight priority research issues were identified: (1) existing and potential tree/farm forestry/land use systems; (2) market, labor, and unemployment factors; (3) gender and age issues; (4) popular participation; (5) property and tenurial arrangements; (6) population dynamics; (7) landlessness, social stratification, and class issues; and (8) program/project evaluation and social forestry extension. The participants agreed on the desirability of standardized data collection and analysis methods and a common minimum data set, and scheduled post-workshop meetings to draft a proposal, a copy of which is appended, for a regional research program for social forestry.

084

PN-ABB-308

MF \$1.08/PC \$5.98

## **Forest degradation in Nepal : institutional context and policy alternatives**

Wallace, Michael B.

Winrock International Institute for Agricultural Development

Nepal. Ministry of Agriculture (Sponsor)

U.S. Agency for International Development. Bureau for Asia and Near East. Nepal (Sponsor)

Mar 1988, [41]p., En

Research report series / Winrock International Institute for Agricultural Development, no.6

367014403; 3670149

Social institutions—customs, property rights, and, more recently, formal laws and government agencies—help to balance the demand and supply of forest commodities in Nepal. These institutions have changed as the population has grown, forest resources have become depleted, and the role of foreign aid has expanded. This report presents an economic analysis of forest degradation in Nepal within an institutional context. It assesses the prospects for improving the management of forest resources and increasing the production of fodder and fuelwood by returning control of local forests to villages through the community forestry program promoted by the Government of Nepal since 1977. On the basis of an evaluation of policy alternatives, suggestions are made for increased attention to private incentives for tree planting and local management of the existing forest resource. Although Nepal's forest is likely to deteriorate further before it improves, the success of some projects and the efforts of some villagers provide hope that the forest can recover. The future of the forest depends on the design and implementation of policies and programs which recognize that villagers' perceptions are the key to rural development, and which encourage individuals and communities to act in their own long-term self-interest for everyone's benefit. (Author abstract, modified)

085

\*PN-ABB-568

MF \$1.08/PC \$9.75

## Consequences of deforestation for women's time allocation, agricultural production, and nutrition in hill areas of Nepal

Kumar, Shubh; Hotchkiss, David  
 International Food Policy Research Institute  
 U.S. Agency for International Development. Bureau for  
 Asia and Near East. Nepal (Sponsor)  
 U.S. Agency for International Development. Bureau for  
 Science and Technology. Office of Agriculture  
 (Sponsor)

Oct 1988, 72p. : charts, statistical tables, En  
 Research report / International Food Policy Research  
 Institute, no.69

936411114

\* Also available from: International Food Policy  
 Research Institute, 1776 Massachusetts Ave. NW,  
 Washington, DC 20036 USA

From the late 1960's to the early 1980's, forests in the hill areas of Nepal were reduced by an estimated 50%. This report examines the effects of deforestation on time allocation, agricultural output, food consumption, and nutrition on the basis of a 1982/83 survey of 120 households in three hill districts of western Nepal—Gorkha, Tanahun, and Syangja. The report focuses on women's time allocation, due to their roles as both farm laborers and primary collectors of fuel and other forest products (i.e., leaf fodder and grass). Where deforestation was high, the time allocated to collect fuelwood was estimated to have increased by 45%. This trend contributed to reductions in agricultural output by shifting labor time away from agriculture. Diet composition, calorie intake, and nutrition status were also found to be linked to deforestation, and in the long run water availability could be affected as well. The report concludes that current policies, based on reforestation efforts and out-migration, are inadequate. Strategies for increasing alternative sources of income and agricultural productivity (e.g., through the use of improved technologies and the promotion of rural market infrastructure) also need to be considered.



Refugees in an A.I.D.-funded reforestation project in Sudan prepare a nursery site for quick growing leucaena trees.

086

PN-ABB-225

MF \$1.08/PC \$4.16

## Perspective on energy activities in Africa : final report

deLucia and Associates, Inc.

U.S. Agency for International Development. Bureau for Africa. Office of Technical Resources (Sponsor)

U.S. Agency for International Development. Bureau for Science and Technology. Office of Energy (Sponsor)

Oct 1988, [29]p., En

6980424

PDC-5730-I-00-6110-00

The extent and complexity of Africa's energy problems argue strongly for a variety of development assistance interventions in the sector. This study proposes three types of interventions for consideration by A.I.D.'s Africa Bureau. The first would support the creation/development of private enterprises that would promote less costly, more efficient, and more reliable end-use energy utilization. Specific examples include firms that provide energy conservation, mechanical, and electrical services and equipment; small engine maintenance and repair services; and manufacturers of efficient stoves. The second intervention—to supply electrical power to market towns—is already a focus of discussion within the Africa Bureau; the constraints and benefits of such an activity are analyzed, followed by outlines for a proposed feasibility study and pilot projects. The third intervention concerns improving the production and delivery of electricity and of modern (petroleum, coal, gas) and traditional fuels. Recommendations are presented for improving the fuel marketing and power systems. Includes bibliography.

087

PN-ABB-444

MF \$2.16/PC \$19.11

## Electric power from sugarcane in Costa Rica : a technical and economic analysis

Tugwell, Franklin; Gowen, Marcia; et al.

TEM Associates, Inc.

U.S. Tennessee Valley Authority

U.S. Agency for International Development. Bureau for Science and Technology. Office of Energy (Sponsor)

Jul 1988, ix, 56p. + 6 attachments : charts, statistical tables, En

Report no.88-18

9365709

DHR-5709-C-00-8009-00; BST-5709-R-TV-2181-00

A team of specialists visited Costa Rica in May 1988 to analyze the potential for production and sale of electricity by the sugarcane industry. Focusing on three sugar mills, the team made technical projections at four levels of investment, ranging from the simple sale of surplus power to the installation of new turbogenerator systems.

For each level, capital costs, electricity production and sales, and fuel options were estimated. Associated risks were assessed through sensitivity analyses to demonstrate the possible impacts of varying interest rates, fuel costs, and electricity sales prices. The team concluded that production and sale of electricity for the national grid could be an excellent investment opportunity for the sugar industry and would provide important economic benefits, including creation of additional jobs in rural areas, diversification of the sugar industry, and (in the short term) displacement of the need for imported fuels. Further, selected mills could begin electricity sales soon enough to help the national electric utility handle the recent surge in demand. Identified risks included availability and cost of supplemental fuels in off-seasons, and decisions by public authorities on matters such as loan rates, import duties, and prices. Includes several technical appendices.

088

PN-ABB-532

MF \$1.08/PC \$7.67

## New directions for A.I.D. renewable energy activities : final report

Institute of Energy Analysis. Oak Ridge Associated Universities

Martin Marietta Energy Systems, Inc. Oak Ridge National Laboratory

University of California, Berkeley. Lawrence Berkeley Laboratory

U.S. Agency for International Development. Bureau for Science and Technology. Office of Energy (Sponsor)

Feb 1988, iv, 65p., En

Report no.88-01

9365730

Prepared in response to the A.I.D. Administrator's call for a reassessment of the Agency's experience with renewable energy (RE), this report describes the current climate for RE in light of lower world oil prices, declining fuelwood resources, and the present commercial status of various RE technologies. General lessons learned in developing and applying RE technology are also described, as well as priority applications and the appropriate role of the private sector. A concluding section proposes new directions for A.I.D.'s RE activities. The report shows that while RE technologies have not had the far-reaching impact on rural development many had hoped for, specific technologies, a number of which are now becoming commercially viable in developing countries, have demonstrated their value. A major conclusion of the reassessment is that A.I.D. should shift away from its past approach, which was often technology-driven and highly dependent on government selection, and emphasize private sector development and assistance programs to stimulate market-driven applications of RE sources. Includes tables, figures, three brief case studies, and a 3-page bibliography. (Author abstract, modified)

089

PN-ABB-536

MF \$2.16/PC \$15.60

### Options to increase private participation in electric power development in A.I.D. - assisted countries

U.S. Agency for International Development. Bureau for Science and Technology. Office of Energy  
23 Dec 1987, v, 56p. + 4 annexes : charts, statistical tables, En

Report no.88-15  
9365728

Private sector power initiatives in the Third World, while increasingly attractive, are frequently discouraged by institutional and policy barriers and political, technical, and financial risks. This report outlines four specific objectives A.I.D. should pursue to promote private power efforts and the options available under each of them. (1) To improve the policy and institutional climate for private investment, A.I.D. could develop country-specific private power promotion strategies. (2) Several options exist for facilitating actual project development. A.I.D. could: develop a private-power data base, increase the number of definitional missions to countries having favorable policies, create a pool of consultants to assist in private-power contract negotiation, and/or develop programs utilizing a variety of strategies, e.g., investment promotion, feasibility studies, technology assessment, and financial support (through direct loans, loan guarantees, equity funding, or combined grants and export credit on behalf of U.S. energy companies). (3) A.I.D. could create a private-power training program for government officials, state utility officials, and businesspeople. (4) A Special Task Force could be established to coordinate and target U.S. efforts in the area of private power. The task force could help to integrate relevant U.S. trade and aid policies and to focus U.S. resources on a few countries where the policy climate is favorable and specific projects are already underway.

090

PN-ABB-540

MF \$1.08/PC \$10.40

### Electricity and ethanol options in southern Africa

Steingass, Henry; Wentzel, Kendrick; et al.  
U.S. International Development Cooperation Agency.  
Trade and Development Program

U.S. Agency for International Development. Bureau for Science and Technology. Office of Energy (Sponsor)  
Sep 1988, viii, 39p. + 5 appendices : statistical tables, En  
Report no.88-21  
9365709

BST-5709-R-TV-2181-00

A joint U.S. Trade and Development Program/A.I.D. team visited five southern African nations to identify potential project opportunities in electricity and ethanol development in the sugarcane industry. Major findings of the study, herein presented, include the following. (1) In Mauritius, which already produces nearly 60% of its energy from bagasse-fired generation of power and steam in the sugarcane industry, potential exists for two new bagasse/coal cogeneration stations of about 15 MW each and for a 30 MW coal station, together with participation in electric grid and transmission system upgrade efforts. (2) In Swaziland, opportunities exist for improved power generation in the sugar and woodpulp industries and for using U.S. engineering services, distillation columns, and other system components in the proposed production of ethanol from molasses, as well as possible cogeneration at three sugar factories. (3) In Zimbabwe, potential projects include distillation columns for an existing ethanol plant, a dam on the Odzi River, and studies of various cane-related projects. (4) In Malawi, projects could support two planned hydroelectric plants on the Shire River, along with cost-benefit studies of ethanol expansion. (5) In Zambia, there are opportunities for supplying consulting services to ZESCO's (the electric utility) computerized energy management system. Although the five nations historically have relied on South Africa and Britain for technology and services, pursuit of these project opportunities could result in some \$720 million in U.S. exports. U.S. competitiveness in southern Africa is analyzed in an appendix.

# EDUCATION

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091

**\*PN-ABB-209**

MF \$1.08/PC \$2.21

## **Educational policy and labour productivity : an output accounting exercise**

Knight, J.B.; Sabot, R.H.

International Food Policy Research Institute

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

*Economic journal*, v.97(385), Mar 1987, p.199-214 : statistical tables, En

936411114

\* Also available from: *International Food Policy Research Institute*, 1776 Massachusetts Ave. NW, Washington, DC 20036 USA

Output accounting is a somewhat simplistic method of calculating the relation of educational endowment to worker productivity and per capita income. In an effort to minimize the well-known drawbacks of this method, the present study examines a "natural experiment" in Kenya and Tanzania, countries which are alike in their demand for educated labor, but differ in their educational policies, particularly in the emphasis put on secondary education. After briefly describing the study's setting and its data (two strictly comparable microeconomic data sets), the paper presents estimates of a recursive model of cognitive and reasoning skill acquisition and earnings determination which enables analysis to better isolate the effects of education. Examined next is the degree to which the divergent educational policies of the two countries have generated measurable differences in the quality of education provided. A method is then developed for estimating the effect of education on the cognitive skills of workers and on their earnings and productivity. Policy simulation exercises show the effect in one country of adopting the other's policies relating to the quantity and quality of education, thereby permitting an estimate of the contribution of educational policy to worker productivity. Two significant findings for both countries are the positive effect of secondary education on cognitive skills and the positive effect of the latter on earnings.

092

**PN-ABB-252**

MF \$7.56/PC \$82.68

## **Nepal : education and human resources sector assessment**

Florida State University

Howard University

Institute for International Research, Inc.

State University of New York at Albany

Nepal. Ministry of Education and Culture (Sponsor)

U.S. Agency for International Development. Bureau for Science and Technology. Office of Education (Sponsor)

May 1988, v.p. : statistical tables, En

9365823

DPE-5823-C-00-4013-00

This assessment of Nepal's education sector was produced to help the Government of Nepal (GON) meet its commitment of providing basic education for all by the year 2000. The report surveys eight education subsectors—economics and financing, administration, primary and secondary education, teacher education, technical and vocational training, nonformal education, and external sector assistance—and provides action recommendations pertinent to these subsectors under five headings: better administration and management, expanded access to and quality of primary education, broadened funding base, and enhanced post-primary and employment opportunities. Among these are recommendations to: (1) develop a detailed implementation plan for the entire sector; (2) assess current staff capabilities at all levels and provide in-country training for management and administrative staff; (3) expand access to primary education to underserved groups, especially girls, partly by improving teacher allocation and establishing new schools; (4) refine the present curriculum, improve instructional materials, and coordinate teacher education with curriculum; (5) reallocate GON resources more efficiently and rely more on the community to support schools; (6) provide post-primary school vocational training and expand adult education; and (7) facilitate secondary school expansion and maintain secondary school standards. Several recommendations focus on the financing of primary education. Includes subsector-specific bibliographies.

093

PN-ABB-657

MF \$2.16/PC \$13.52

**Educational policy analysis training workshop : exercise manual**

Milton, Sande; Cobbe, James H.; et al.  
 Florida State University  
 Howard University  
 Institute for International Research, Inc.  
 State University of New York at Albany  
 U.S. Agency for International Development. Bureau for  
 Science and Technology. Office of Education  
 (Sponsor)  
 (Educational Policy Analysis Training Workshop,  
 Jan 1988, 127p. : charts, statistical tables, En  
 Companion doc.: PN-ABB-660  
 9365823  
 DPE-5823-C-00-4013-00

Training in quick response analysis of educational policy issues typical of developing countries is the subject of this manual, which is directed primarily toward civil servants in education. The first section covers group decisionmaking techniques such as brainstorming, "buzz sessions," and reaching a consensus. The bulk of the manual consists of nine sets of exercises framed around a case study dealing with the question of improving the "quality" of primary school teachers in a particular developing country. These exercises guide analysts through the following steps: (1) understanding the problem, (2) planning the analysis, (3) describing the current situation, (4) restating the problem, (5) generating and narrowing alternatives, (6) analyzing costs, (7) analyzing consequences, (8) ranking alternatives, and (9) preparing the final report. When all the exercises are complete, the product will be a written solution to the case study. Guidelines are also presented for preparing a persuasive oral report that is understandable by busy policymakers not fully familiar with quantitative techniques. A companion volume (PN-ABB-660) presents an unstructured case study aimed at providing experience in the analytical skills learned in the exercises.



*Third grade children eager to learn.*

# TECHNOLOGY, INDUSTRY, AND COMMUNICATION

094

PN-AAX-208

MF \$1.08/PC \$5.72

## Getting the message : the communication for young people project

Kincaid, D. Lawrence; Elias, Jose Ruben Jara; et al.  
U.S. Agency for International Development. Bureau for Program and Policy Coordination. Center for Development Information and Evaluation  
Oct 1988, ix, 28p. + appendix : charts, En  
A.I.D. evaluation special study, no.56  
9363004

A.I.D.'s Communication for Young People Project in Latin America, which used two popular songs to promote sexual responsibility among teenagers and urge them to postpone sex until they were more mature, was a resounding success by any standard. The songs, sung by young vocalists Tatiana and Johnny, reached the top of the popularity charts in every country and—along with discussion about them—received about 1 million hours of air time, as well as substantial favorable publicity in the press. Both qualitative and quantitative research demonstrated that the songs' messages were appropriate for and understood by teenagers. The youngest teenagers were particularly receptive to the idea of postponing sex—an achievement that cannot be overstated, since it is this segment that is the least informed about sexuality and at the greatest risk of unwanted pregnancies. It was also found that younger teenagers and those who could readily recall the songs considered sexual relations less important to their self-concept than did older teenagers and those who could recall the songs either not at all or only after prompting. Older teenagers, especially males, were not as receptive to the idea of postponing sex, but they agreed that people should be mature before engaging in sexual activity. The project was less successful in channeling young people to family planning (FP) counseling or services. Teenagers felt that teachers and schools should be the main source of information on sex, though most Latin American schools provide only general information in these areas. Many teenagers had discussed the songs with their mothers or girl friends, however. What made the project successful was its commercial viability. Media executives responded very well to the songs because they could make money while promoting a valuable social cause. The teenage audience emphatically endorsed the project's entertainment approach through their purchase of the record and their many phone calls and letters to radio stations, the record company, and FP centers. Because the social message was conveyed not via a lecture, but in an attractive, modern format by appealing, credible role models and had immediate relevance to the audience's lives, it reached and was remembered by millions of young people throughout Latin America. Appendices include lyrics of the two songs. (Author abstract, modified)

095

PN-ABB-052

MF \$1.08/PC \$6.37

## Impact of economic policies on technological choice and development in Tanzania industry

Wangwe, S.M.; Bagachwa, M.S.D.  
Appropriate Technology International  
U.S. Agency for International Development. Bureau for Science and Technology. Office of Rural and Institutional Development (Sponsor)  
Jun 1988, 47p., En  
9365428  
DAN-5428-A-00-3047-00

The impact of macropolicies on technology choice and development in Tanzanian industry are examined. This paper briefly reviews developments in the level and structure of Tanzanian industry over the past three decades, describes the evolution of national policy objectives, both in general and for industry in particular, and then examines factors influencing technology choice and assesses the impact of macropolicies on these factors. Some key conclusions are as follows. (1) Implementation of Tanzania's long-term basic industrial strategy has been distorted by a worsening balance of payments position and consequent overdependence on foreign financing. (2) A shortage of skilled managerial and technical personnel has led Tanzanian industry to opt for joint ventures and turnkey projects, especially given the absence of government policies encouraging local participation in investment and implementation decisions. (3) Monetary and trade policies have in general favored the development of large, public sector firms that utilize capital-intensive technologies. (4) Government restrictions on laying off of workers during production declines have also promoted capital-intensive technology. (5) Both small and large firms are urban biased, highly dependent on foreign finance, and capital- and import-intensive. The scant demand for small rural industries reflects the stagnation of the country's agricultural sector.

096

PN-ABB-059

MF \$1.08/PC \$7.54

## Impact of macro-policies on technology choice, development and employment : a Nigerian case study

Chuta, Enyinna

Appropriate Technology International

U.S. Agency for International Development. Bureau for Science and Technology. Office of Rural and Institutional Development (Sponsor)

Mar 1988, 54p. : statistical tables, En 9365428

DAN-5428-A-00-3047-00

Intended as a contribution to the reexamination of science and technology policies by Third World countries, this study examines the impact of macro-policies on technology choice, technology development, and employment in Nigeria. An initial review of the various sectors of the Nigerian economy reveals a potential for increasing industrial output, productivity, and employment. Section two presents the results of a survey of the technological characteristics of equipment-using companies in Gongola State as an indication of the extent to which macropolicies are expected to affect technology choice and use. Section three examines the actual effect of macropolicies on technology choice, development, and employment through more in-depth, empirical surveys of technology-users in Gongola State and major technology-producers throughout Nigeria. Special attention is given to assessing the impact of Nigeria's Structural Adjustment Program (SAP - 1986-88), which emphasizes self-reliance. A final section discusses political economy issues as they relate to technological transformation. It is concluded that existing macropolicies, especially the SAP, can help achieve self-reliant technological development provided certain inconsistencies—e.g., the ambiguity of trade liberalization initiatives, and the lack of specific technology choice criteria—are resolved.

097

PN-ABB-060

MF \$1.08/PC \$1.69

## Identification of appropriate technologies for rural development

Hyman, Eric L.

Appropriate Technology International

U.S. Agency for International Development. Bureau for Science and Technology. Office of Rural and Institutional Development (Sponsor)

*Impact assessment bulletin*, v.5(3), 1987, p.35-55, En 9365428

DAN-5428-A-00-3047-00

The appropriateness of a technology, according to this study, depends on how it is used, what it is used to produce, and who gains and who loses as a result of the production and consumption decisions. Appropriate technology projects typically differ from conventional technology projects in their reliance on small-scale equipment and processes (often locally made), and different amounts, kinds, and sources of raw materials. The paper enumerates the key factors which need to be considered by private enterprises or designers of a development project in choosing technologies. These factors include scale of equipment and processes, cost savings, generation of profits, socioeconomic impacts and distribution of benefits, and environmental impacts. A final section stresses the importance for technology transfer of: a thorough *ex ante* assessment of a given technology's likely impacts; preliminary field testing of the technology; a sound dissemination strategy; market incentives; and *ex post* analyses of lessons pertinent to technology replication. (Author abstract, modified)

098

PN-ABB-146

MF \$2.16/PC \$13.52

## Potential for privatizing telecommunications systems in Africa : the cases of Cameroon, Cote D'Ivoire, Kenya and Senegal

Hotvedt, Alfred; Thomas, Peter A.; Akisik, Sinan A.

Center for Privatization

U.S. Agency for International Development. Bureau for Private Enterprise (Sponsor)

Sep 1987, iv, 97p., En

Center project / Center for Privatization, no.24 9400008

Poor telecommunications systems in many African countries continue to be a major impediment to attracting private sector business and investment. The premise of this report is that these problems could be remedied by privatizing the telecommunications sector. To aid in developing a strategy for privatizing African telecommunications, the paper analyzes the current systems of four countries—Cameroon, the Ivory Coast, Kenya, and Senegal. For each nation, the survey team considered the legal and regulatory environment surrounding telecommunications, the distribution and composition of current systems, and institutional and/or legal impediments to privatization. To illustrate the wide variety of privatization forms, patterns of telecommunications' ownership and operation in countries around the world are described. Also considered are U.S. interests in and capabilities of providing, maintaining, and investing in African telecommunications. From this survey, a telecommunications privatization checklist was developed to aid in preliminary assessments of privatization prospects. A recurring problem in the cases considered was the lack of comprehensive national telecom-

# TECHNOLOGY, INDUSTRY, AND COMMUNICATION

munications planning, resulting in overregulation, legal impediments, and resistance from management and labor in responding to market needs.

099

**\*PN-ABB-499**

MF \$5.40/PC \$62.01

## **Cutting edge technologies and microcomputer applications for developing countries : report of an ad hoc panel on the use of microcomputers for developing countries**

National Board for Scientific and Technological Research  
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 Agriculture (Sponsor)

U.S. Agency for International Development. Office of the Science Advisor (Sponsor)

(Conference on the Use of Microcomputers in Developing Countries, PT, 1988)

1988, 489p. : charts, En

Westview special studies in science, technology, and public policy

9365538

DAN-5538-G-SS-1023-00

*\* Also available from: Westview Press, 5500 Central Ave., Boulder, CO 80301 USA*

Few question the potential of microcomputer technology to transform international development efforts, but the precise scope of this influence is at best difficult to establish. This book, representing the proceedings of a joint U.S.-Portuguese conference on the subject, assesses the opportunities offered by advanced microcomputer hardware and software and shows how these technologies relate to resource assessment, resource utilization, and communication in developing countries. Several papers are offered on each of the following topics: (1) microcomputer and artificial intelligence technologies (including computer networks, computer aided design, applied expert systems, and the use of computers in image processing); (2) applications of this technology in resource assessment (e.g., for census and survey data, geographic information systems, disease control, etc.); (3) the industrial application of microcomputers in resource utilization (e.g., applications in industrial automation, power system design, water resources engineering, etc.); and (4) telecommunications applications (including automated translation, educational software, and telephone technologies). The book concludes that given the enormous potential of microcomputer technologies, donors need to provide timely and ef-

fective assistance to developing countries in their use; six specific recommendations are made. Includes illustrations.

100

**PN-ABB-529**

MF \$1.08/PC \$10.40

## **Science and technology for development : prospects entering the twenty - first century - a symposium in commemoration of the twenty - fifth anniversary of the U.S. Agency for International Development**

National Academy of Sciences. National Research Council. Office of International Affairs. Board on Science and Technology for International Development (Sponsor)

U.S. Agency for International Development (Sponsor)  
(Symposium in Commemoration of the Twenty-fifth Anniversary of the U.S. Agency for International Development, Washington, DC, US, 22-23 Jun 1987)

1988, 79p. : ill., charts, En

Published by National Academy Press

On the occasion of A.I.D.'s 25th anniversary, a public symposium was held in Washington, D.C., to assess the contributions of science and technology in selected areas of Third World development and to focus attention on prospects for the decades to come. This report on the symposium has two main sections. The first reviews the vast contributions made by science and technology over the past quarter century in the social, agricultural, health, and population sciences. The second and longer section examines advances in, and the development potential of, specific "cutting edge" technologies in the fields of biotechnology, biological diversity, information sciences and communications, space science and remote sensing, materials science, and manufacturing. A concluding section argues strongly for the ability of science and technology to keep pace with human change and to create the expanded resources needed for human survival.

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