

79

**A.I.D.
RESEARCH AND
DEVELOPMENT
ABSTRACTS**

Volume 6
Number 3

January 1979

Bureau for Development Support
Agency for International Development
Washington, D.C. 20523

PLEASE TAKE NOTE:

1. The address for ordering publications from ARDA has changed. The new address is:

A I.D. R&D Report Distribution Center
P.O. Box 7366, Riverdale Station
Hampton, Virginia 23666
U.S.A.

Please send all requests for documents to the above address on one of the order forms found in the back of ARDA. Be sure to include the publication number (PN) for each document you order and the recipient code of your institution.

2. Please send all questions, changes of addresses, requests to be placed on the mailing list, questionnaires, publication acknowledgements, and general correspondence to the Editor of ARDA. The address for the Editor of ARDA is

Editor of ARDA, DS/DIU/DI
Bureau for Development Support
Agency for International Development
Washington, D.C. 20523

3. The format of the recipient code (which appears on the first line of your mailing label) is being changed, along with the code numbers. The new code number will have 16 digits. Please use the complete, new recipient code as it appears on the mailing label when you use the order forms for document copies.
Example: 5572800013002 001

Special topics covered in this issue:

1. Alternative energy sources: 447;
2. Appropriate technology: 361
3. Environment 440,442-445, 448,
4. Integrated rural development: 306-309, 312-314, 361, 388,
5. Integrated rural health care: 407-409, 415, 424,
6. Maternal/child health care: 358, 410, 411, 418-420, 422, 423, 433,
7. Women in development: 360, 436, 437

Special documents in this issue:

1. Volume one of a conference on women and food: 360
2. Pasitam Design Notes 1-9 are available in one document: 364.

QUESTIONS AND ANSWERS ABOUT ARDA

What is ARDA? ARDA, "AID Research and Development Abstracts," is a quarterly abstract journal issued by the Division of Documentation and Information, Office of Development Information and Utilization, Bureau for Development Support. It is published four times a year in the months of January, April, July and October.

What is the goal of ARDA? The goal of ARDA is to transfer development and technical information to active practitioners in development assistance. ARDA announces that AID materials are available by presenting abstracts of current and significant documents.

For whom is ARDA published? ARDA's target audience is AID staff worldwide and selected, key institutions in developing countries.

What materials are abstracted in ARDA? ARDA usually includes only abstracts of materials from AID funded projects through contracts or grants. Other development publications may on occasion be announced, especially those from LDC institutions or from international aid agencies.

Who receives ARDA? All major offices in AID/W and in the field receive ARDA regularly and automatically. Developing country recipients who have completed the "ARDA Questionnaire" signifying their interest in the receipt of ARDA and other information outputs receive ARDA regularly. (USAID Missions are encouraged to ask counterpart institutions to write to the Editor of ARDA for the questionnaire or to send the names and addresses of such institutions to the Editor of ARDA, DS/DIU/DI.)

How can full texts of titles abstracted in ARDA be obtained? A series of order forms are supplied at the back of each issue of ARDA. AID staff should use ORDER FORM D. Each order form must carry the recipient code and the publication number (PN) of titles ordered.

1. The address label of each issue of ARDA carries the recipient code number for the institutional recipient. The full recipient code number of 16 digits should always be used on the order form.
2. Each title in ARDA gives a publication number (PN) just below the abstract. This number should be included with each order for a particular document.

What formats are available for full texts? Copies of documents are available in paper copy or in microfiche. It is strongly encouraged that USAID Missions and developing countries with access to microfiche readers (with a magnification of 24x) should order documents on microfiche. Using microfiche, USAID Missions can build up a substantial collection of AID publications by subject or geographic region on microfiche.

Who may order materials at no cost from ARDA? Staff in AID/W and in USAID Missions may order an unlimited number of materials at no cost in either paper or microfiche by using Order Form D. LDC institutions may order up to five paper copies at no cost (not to exceed 300 pages of text altogether) or an unlimited amount of microfiche.

TABLE OF CONTENTS

	Item Numbers	Page
ABSTRACTS OF R&D PUBLICATIONS BY SUBJECT FIELDS		
AGRICULTURE AND NUTRITION		
AGRICULTURAL EDUCATION AND EXTENSION	(301) - (304)	?
AGRICULTURAL RESEARCH	(305)	1
AGRICULTURAL/RURAL DEVELOPMENT	(306) - (309)	2
AGRICULTURAL ECONOMICS	(310) - (314)	3
AGRICULTURAL MARKETING	(315) - (316)	4
PLANT PRODUCTION (GENERAL)	(317) - (318)	4
PLANT PRODUCTION (SPECIFIC)	(319) - (331)	5
POSTHARVEST FOOD LOSS	(332) - (334)	8
PLANT PROTECTION	(335) - (338)	9
LIVESTOCK	(339) - (341)	9
ANIMAL PROTECTION	(342) - (343)	10
FISHERIES	(344) - (349)	10
SOIL RESOURCES	(350) - (354)	12
FORESTRY	(355)	13
HUMAN NUTRITION	(356) - (361)	13
DEVELOPMENT ASSISTANCE	(362) - (368)	14
ECONOMICS	(369) - (381)	15
EDUCATION	(382) - (388)	19
URBAN DEVELOPMENT AND HOUSING	(389) - (397)	21
COMMUNICATION AND INFORMATION	(398) - (404)	23
HEALTH AND POPULATION	(405) - (428)	25
SOCIAL SCIENCES	(429) - (439)	31
SCIENCE AND TECHNOLOGY	(440) - (449)	33
BIBLIOGRAPHIES	(450) - (452)	36
AUTHOR INDEX		37
INDEX OF ISSUING OFFICES		39
CONTRACT/GRANT INDEX		43
GEOGRAPHIC INDEX		44

SAMPLE DOCUMENT CITATION AND ABSTRACT

Item Number & Title	[171] WHEAT X RYE EQUALS TRITICALE	Author(s)
Document Date & Number of Pages	Wolff, Tony] [1976, 15p.	
Series Note	CIMMYT (AID/ta-G-1083 GTS)] [(In CIMMYT today, no. 5)	Issuing Office & Contract/Grant Number or Symbol
Abstract	<p>Triticale, a new crop bred at CIMMYT, is a cross between wheat and rye. It is the first successful "man-made" cereal grain. It is more than a biological curiosity. For the tropics and subtropics, it offers promise of yields and other characteristics equal to those of wheat, combined with tolerance for drought and poor soil and the resistance to disease typical of rye. The success of tritcal encourages the hope that other such intergeneric "wide crosses" will soon follow. Triticale has demonstrated an adaptation to acidic, low pH soils in several areas of the world. Such conditions exist in Colombia, Ethiopia, Northern India, and Brazil. In each of these countries triticales have shown yield performance superior to wheat. The resistance of triticale to bunts and loose smut at higher elevations is an advantage for the crop. Its greater resistance to <i>Septoria nitici</i> is an added advantage in areas where this disease is prevalent—Brazil, Argentina, Ethiopia, and the Mediterranean region. In Kenya and some other locations, triticale has outyielded wheat under drought conditions. Experts expect that in fifteen years triticale will be competing seriously with the bread wheats as one of the world's most important food crops.</p>	
Publication Number	[PN-AAD-154	Paper copy \$2.00 Microfiche \$1.00] — Prices

(Related titles in a series are frequently listed below the citation.)

When completing order forms at the rear of this issue, be certain to use the Publication Number.

AGRICULTURE AND NUTRITION AGRICULTURE EDUCATION AND EXTENSION

(301) REPORT OF THE FOURTH REGIONAL MEETING ON INTERNATIONAL AGRICULTURAL TRAINING

Eastern Regional Training Conf., Washington, D.C.
1976, 60p.

AID/SER/IT

Reports on the fourth regional meeting on international agricultural training. This meeting was designed to serve the Eastern Region and to summarize the results of the first three meetings. This report presents the papers given and a summary of the discussions. The major discussions were on training needs over the next decade, new directions in agricultural training, key elements in international training programs, and policy and procedural issues in international training. Goals of the training program are to: provide better and more efficient participant programming; provide more short course training overseas which will be practical and job related; assist LDCs in better use of scarce training resources; break ground in new areas of training; and provide training programs in OPEC countries. Effective degree training for agricultural and rural development in the LDCs is dependent on several key elements: careful participant selection, clear definition of training objectives, choice of training site, and an effective management system. The key elements of training which pertain to the university role are appropriate coursework, relevance in research, interdisciplinary opportunities, participant adaptation, and support services. There is a need for a national college of agriculture which will carry on research and educational programs and which will eventually produce the technical personnel to staff the institutions which comprise the national food system. There is a need for more joint research activities and more opportunities for professional interchange, conferences, symposia and workshops, between U.S. and LDC agricultural research personnel.

PN-AAF-042

Paper copy \$7.20
Microfiche \$.93

(302) DEVELOPMENT AND DIFFUSION OF NEW AGRICULTURAL TECHNOLOGY

Dalrymple, D.G.
1977, 64p.

AID/PPC/PDA

The development and diffusion of new technology are critical ingredients for the expansion of agricultural production in LDCs. Improved technology can originate and spread through farmers, industry serving agriculture, and public sponsored research and outreach activities. The effects of these three groups are often intertwined. First comes widespread folk technology, involving the adaptation of seeds, breeds, and practices to new locations. The second stage is an expansion of mechanical technology, developed by both farmers and industrial firms. The third stage involves the development of biochemical technology derived from a growth in scientific understanding. A combination of the three stages may usually be found in one LDC. The components of unproved science and technology are research, education, and extension. A.I.D. has been involved in supporting all three institutional forms. Although the three components compete for resources, they can have a highly complementary-effect when combined in the right balance. The author of this report suggests that there is a need for more coordination of A.I.D.-sponsored research activities, both within the agency and with other sponsoring organizations; that the main educational needs in agriculture must be provided by indigenous institutions; and that a greater effort be made to reach disadvantaged students and to provide a practical perspective to their training. The report recommends more specialists for A.I.D. operations, especially in agricultural education and extension.

PN-AAF-537

Paper copy \$9.24
Microfiche \$.93

(303) AGRICULTURAL ENGINEERING EXPANSION PROGRAM AT EGERTON COLLEGE, NJORO, KENYA

Stringham, G.E.
1978, 94p.

Utah State (AID/afr-C-1140 GTS)

The Kenyan Government and Egerton College requested that the Agricultural Engineering program at the college be expanded and specialized to meet the professional needs of the country. The expansion of the program will be in three major areas: farm power and machinery, soil and water conservation, and water resources development. Recent emphasis in Kenya on rehabilitation of range lands and development of rural water supplies has increased the need for skilled personnel in soil and water conservation and in water resource development. This report serves to fulfill the contractual objectives of: providing the Government of Kenya with consultant services necessary in upgrading and development of curriculum; planning installation; operation and maintenance tenance of water installations; and presenting requirements for staff, training facilities and equipment for the above program. Each new area of concentration will have 30 students per year which means that there will be about 270 students in the department. The expanded program will require at least a 4-fold increase in personnel. There is a lack of adequately trained staff in the country and a need for an intensive expatriate training program for Kenyans. The increase in enrollment and staff will require a corresponding increase in buildings and equipment. With the addition of these facilities and staff the college will be able to produce well trained persons who can begin to fill the void of farm power and machinery, soil and water conservation and water resource specialists which now exists within the country.

PN-AAF-597

Paper copy \$11.28
Microfiche \$.93

(304) FOUR APPROACHES TO RISK AND UNCERTAINTY FOR USE IN FARM MANAGEMENT EXTENSION

Calkins, P.H.
1976, 21p.

AVRDC (AID/ta-G-1260 GTS)

(In Technical bul. no. 3)

Outlines four analytic methods by which farm management researchers can help farmers assess the potential profits and risks involved in adopting new agricultural technologies. While farmers are attracted by the increased income to be derived from the use of a new technology, they often reject the technology because of uncertainty of its success. The report argues that if this general uncertainty can be transformed into a fairly precise assessment of risk, farmers may be willing to try new technologies, thus promoting maximum adoption of improved crop varieties. A curve and graph are presented which correlate the business risk attitudes of various types of farmers (i.e., conservative type, gambler type) with their preferred level of technology, expected income, actual income range, and income variance. Next, four different ways to analyze risk are outlined: a partial budgeting/minimum returns analysis, a marginal/probability analysis, a linear/quadratic analysis, and game theory. Each method is rated for its probable degree of success with the various types of farmers described.

PN-AAG-144

Paper copy \$2.52
Microfiche \$.93

For addresses of issuing offices see the
Index of Issuing Offices at the rear.

AGRICULTURE AND NUTRITION AGRICULTURAL RESEARCH

(305) FINAL REPORT; CGIAR (CONSULTATIVE GROUP ON INTERNATIONAL AGRICULTURAL RESEARCH)

CGIAR
1976, 256p.

AID/TA/AGR

(In CGIAR RevCom 3)

The Consultative Group on International Agricultural Research (CGIAR) was established in 1971 to stimulate and coordinate research for increasing the production of food in less developed countries. In 1975 the CGIAR established a review committee to assess its activities and recommend its future role in promoting research for the development of agriculture in developing countries. This report presents the results of the review committee's work, along with 22 recommendations. These include: The current focus of the CGIAR on research on foods widely consumed in the developing world is appropriate. The CGIAR could assist in analyses of key issues by organizing forums. No major additional financial commitments should be undertaken by CGIAR for the next three years. CGIAR-supported research centers should continue to develop their cooperation with national programs, insofar as this is essential to accomplish their research mandate. All support to center other than that provided through the CGIAR should be classified as extra-core funding. A proposal for such a new project should be forwarded for review by the CGIAR Technical Advisory Committee when there is a question whether the activity lies within the center's mandate or whether it might put undue strain on center management or might have implications for future core support.

PN-AAE-143

Paper copy \$30.72
Microfiche \$2.79

AGRICULTURAL/RURAL DEVELOPMENT

(306) DESIGNING PROJECTS FOR RURAL DEVELOPMENT

Weisel, Peter
1978, 59p.

Dev. Alts. (AID/CM/ta-C-73-41 GTS)

Provides guidelines for data collection, data interpretation, and project design involved in rural development project planning. The handbook, prepared by Development Alternatives, Inc., addresses four basic issues in the design of development projects for small farming communities: the distinction between information needed for project design and that needed for approval, the differences in data requirements depending on the project approach, host country involvement in project design, and the need for a flexible model rather than a blueprint. Chapters explain how to determine the type and amount of data needed for a given project as well as how to collect the data, assemble a design team, and develop the actual design. The handbook concluded with a chronological summary of issues the planner will face during the design process.

PN-AAG-085

Paper copy \$7.08
Microfiche \$.93

(307) AN ANALYSIS OF PROJECT FEASIBILITY AND POTENTIAL IMPACT OF CREDIT AND TECHNICAL ASSISTANCE TO SMALL SCALE RURAL ENTERPRISES IN GUATEMALA

Daines, S.R.; Manoff, R.A.; Roach, William
1978, 153p.

AID/DS/AGR

Contains eight working papers which assess the potential effects of the proposed Guatemalan credit and technical assistance project. The first paper gives a detailed economic analysis of the target sector, considering factors such as size, income, and employment practices. A benefit/cost analysis, the results of which strongly advocate implementation of the project, comprises the second paper. The third paper describes a complete strategy for eventual project evaluation. The next two papers give considerable attention to issues related to credit. The character and extent of credit demand is analyzed, and a credit policy is outlined. A financial analysis is presented in the sixth paper, which features cash flow projections for the first and fifth years of the project, and a budget and interest rate analysis. Problems involved in improving the rural artisan income, and the development of a working definition of Appropriate Technology are discussed in Papers 7 and 8 respectively. Extensive economic and financial assistance tables and an annotated bibliography are also included in the working papers.

PN-AAG-001

Paper copy \$18.36
Microfiche \$1.86

(308) A TOOL FOR INTEGRATED AGRICULTURAL POLICY ANALYSIS IN THE SAHEL

Virginia Research Inst., Inc., Arlington, Va. Maddox, M.M.
1977, 74p.

Va. Res. Inst. (AID/afr-C-1150)

(In Working paper no. 4)

Presents a model for quantifying, programming, and analyzing data on agricultural supply and demand in Senegal. Primarily for demonstration purposes, the model is expected to aid in the development of a more complex version. Cereal consumption in the cities, crop production in the Groundnut Basin and the Senegal River Valley, and government economic policy are examined. In addition to illustrating the process by which a short policy analysis is developed, the report includes detailed information on the model, the computer program, and the programming language and describes a graphic technique for presenting models.

PN-AAF-068

Paper copy \$8.88
Microfiche \$.93

(309) ADAPTIVE FIELD-TESTING FOR RURAL DEVELOPMENT PROJECTS

Olson, C.V.
1978, 78p.

Dev. Alts. (AID/CM/ta-C-73-41 GTS)

Describes the theory and practice of adaptive field testing. When conducted within the context of an ongoing rural development project, this experimentation process tests the appropriateness of individual project components (e.g. technologies, interventions). The handbook was prepared by Development Alternatives, Inc., to help designers, managers, and technicians involved in developing small farms make better policy decisions at relatively low cost. The report points out that other major planning strategies, such as the

Please use the publication number in ordering.
Example: PN-AAB-000

use of a project blueprint or the implementation of classic social experimentation, preclude any responsive project modification based on new information obtained during the project. Adaptive field testing, on the other hand, provides a dynamic, immediate mechanism by which an ongoing project can be adjusted to suit local conditions. In addition to evaluating an intervention (e.g. bridge, dam) and the method of building the intervention, the process can be used to assess project management.

PN-AAG-084

Paper copy \$9.36
Microfiche \$.93

AGRICULTURAL ECONOMICS

(310) LANDLESSNESS AND NEARLANDLESSNESS IN DEVELOPING COUNTRIES

Esman, E.J.; Cornell Univ. Ctr. for Int. Studies, Rural Development Committee
1978, 669p.

Cornell (AID/ta-C-1360)

(Executive summary, 18p.: PN-AAF-417)

There is increasing evidence that the majority of people in rural areas have not benefited from the impressive macroeconomic growth shown by LDCs during the past 25 years. Opportunities real incomes, and quality of life for large numbers, including the majorities in many LDCs, have declined and deteriorated. It is the recognition of these unfavorable trends and of the magnitudes of human suffering involved that have prompted the recent widespread interest in rural poverty. This paper concentrates on the landless and the near-landless as groups which must be reached and benefited by any development strategies that seriously claim to reduce or alleviate rural poverty. This is a first attempt at a systematic and general survey and analysis of the incidence and dimensions of rural poverty conceived in social structural terms and focused specifically on the lowest strata of the rural labor force, the landless and near-landless. The study gives a precise analytical classification of the popular concepts of landless and near-landless. It presents what the best available statistical and monographic data indicate about the incidence and dimensions of these categories by country and region, and it proposes a rough typology of situations to facilitate concrete analysis and program intervention. It also outlines the dynamics of these phenomena and current trends, and it explores the coping mechanisms improvised by the landless and near-landless to insure family survival under harsh conditions. The consequences of various governmental policy and program measures are surveyed. The state of available data is indicated, and needs and priorities for further research are suggested.

PN-AAF-416

Paper copy \$80.28
Microfiche \$6.51

(311) LANDLESSNESS AND NEARLANDLESSNESS IN DEVELOPING COUNTRIES; EXECUTIVE SUMMARY

Esman, E.J.; Cornell Univ. Ctr. for Int. Studies, Rural Development Committee
1978, 18p.

Cornell (AID/ta-C-1360)

(Main work, 669p.: PN-AAF-416)

Presents an executive summary of a project which was an initial exploration of the literature on the landless and near-landless rural

poor. Detailed information appears in the country profiles attached to the regional surveys in the Appendices to the Report. (They also include the sources of data.) In all the countries surveyed the landless and near-landless constitute a majority of the rural labor force. An overview is included of the living conditions, the causes of landlessness and near-landlessness, policies and programs to alleviate rural poverty, and possibilities for the future. It is demonstrated conclusively that the small farmer does not represent the majority of the rural poor. These are the rapidly growing groups who own no land or have too little land to provide for their families. They must deploy the labor of their entire families to eke out livelihoods that condemn them to poverty when they are lucky and to destitution when they are unlucky. It is this diverse group, which is poor, insecure, underemployed, and powerless, who deserve priority attention from researchers, governments, and international agencies committed to helping the poor majority.

PN-AAF-417

Paper copy \$2.16
Microfiche \$.93

(312) RESEARCH ON RURAL FINANCE; A SEMINAR REPORT

Adams, D.W.; Kato, Yuzuru
1978, 12p.

ADC (CSD-2813 GTS)

(In RTN sem. rpt. no. 17)

Despite the increasing policy attention given to problems of rural finance, there is relatively little policy oriented research being done on these issues around the world. There is also little exchange across countries of information among individuals managing credit programs, individuals who make rural finance policies, and researchers. In order to focus more attention on research problems in rural finance and to improve communications among interested researchers, the Agricultural Development Council through its Research and Training Network sponsored a conference on Research in Rural Finance. Twenty-five individuals presented papers and seventeen countries were represented. This paper summarizes the main issues raised in the conference. These issues are: recent changes in rural financial markets; liquidity management at the farm-household level; lender-mobilizer level; performance of rural financial markets; and future research priorities. It is suggested that five lines of research are needed: to expand understanding of how farm households manage their liquidity; how rural financial lenders behave; how the rural poor can be better served by financial markets; how informal credit systems in rural areas work; and the overall performance of rural financial markets. Cross country comparisons of techniques and performance may lead to improvements in policies in a number of countries.

PN-AAF-651

Paper copy \$1.44
Microfiche \$.93

(313) RURAL WAGES, LABOR SUPPLY AND LAND REFORM: A THEORETICAL AND EMPIRICAL ANALYSIS

Rosenweig, M.R.
1977, 60p.

Rand (AID/otr-C-1432 GTS)

(In Yale Economic Growth Ctr. Discussion paper no. 270)

This paper theoretically and empirically covers the effects of a redistribution of land holdings on agricultural wage levels and sex/age wage differentials. Section I shows that there is a spatial distribution of agricultural wages and wage differentials for

AGRICULTURE AND NUTRITION

males, females and children across Indian districts which does not appear consistent with the institutional wage hypothesis or with the assumption that labor is homogenous. Also presented is descriptive data on the labor force characteristics of rural Indian households by land size which indicates that Indian agriculture is neither extremely dualistic nor dichotomous. In Section II, a competitive, three-sector general equilibrium model of a dualistic agricultural labor market with two kinds of labor, consistent with the features of Indian agriculture discussed in Section I, is formulated and the stability and other properties of the equilibrium are described. Section III discusses the necessary and sufficient conditions for a land reform having neutral, positive and negative wage effects. The relationship between the distribution of land and wage rates in monopsonistic labor market is considered. Section V contains an empirical analysis based on the theoretical framework in which the parameters of a six equation simultaneous equations system describing the determination of rural wage rates and labor supply for the three age-sex groups are estimated. The results do not support the institutional or exogenous wage hypotheses; they indicate that rural wages are influenced by shifts in demand and supply within the agricultural sector.

PN-AAF-665

Paper copy \$7.20
Microfiche \$.93

(314) RURAL ENTERPRISES; AN OVERVIEW OF THE ROLE AND POTENTIAL OF RURAL ENTERPRISES TO CONTRIBUTE TO THE EMPLOYMENT AND INCOME OF THE RURAL POOR

Daines, S.R.; Morrow, Felicia; Rodgers, William
1978, 19p.

AID/DS/AGR

Advocates government support of small and medium rural enterprises (SMRE) in developing countries. The report states that, as agricultural output in developing countries increases, SMRE are needed to provide goods and services for the expanding local market. The significant role of these small-scale industries in providing employment, improving income distribution, further stimulating agricultural production, and encouraging the efficient use of capital is delineated. Mechanisms by which governments can support SMRE are also outlined. Operational problems are discussed and specific examples of past efforts are offered. The report includes a bibliography.

PN-AAG-069

Paper copy \$2.28
Microfiche \$.93

AGRICULTURAL MARKETING

(315) THE NATURE OF LIVESTOCK MARKETING AND MEAT CONSUMPTION PER CAPITA IN AFGHANISTAN

Hakimi, M.Y.
1976, 36p.

AID/NE/USAID/Afghanistan

This report discusses the requirements of a successful marketing system, the nature of livestock markets in Afghanistan, the relationship of marketing to production in Afghanistan, the importance of meat animals, and changing marketing methods in Afghanistan. It also includes discussions of the development of the livestock marketing problem in Afghanistan, meat production and consumption in Afghanistan, and the livestock supply areas in Afghanistan in 1346 (1968/1968). While a stockman's profits and losses depend on the market situation it is the least understood phase of the operations. Marketing entails the transfer of

ownership of goods and payment between animal producers and buyers. The major problems of marketing are: how to supply, when to supply, where to supply, and for whom to supply as cheaply and efficiently as possible for the various equalizing and non-equalizing differential earners. The function of livestock marketing is not completed until meat and meat by-products are in the hands of consumers. The most important functions of livestock marketing are cutting the meat animals into the cuts and products for the consumer, locating the products in the hands of demanders at the desired location at the right time, and providing meat in the quality and quantity desired. Thus the marketing of slaughter animals covers all the channels between producers and final consumers of the meat.

PN-AAF-234

Paper copy \$4.32
Microfiche \$.93

(316) KENAF DEMAND IN THAILAND

Blakeslee, Leroy; Petcharatana, Thongchai
1977, 42p.

Iowa State (AID/CM/sa-C-73-19)

Presents the results of a study of the market for Thai kenaf. The study has a twofold purpose; first, it forms part of a larger project conducted by the Thai Department of Agricultural Economics (DAE) to develop a comprehensive picture of the Thai agricultural economy; secondly, the project will be incorporated into DAE's marketing program, where it will be instrumental in analyzing short-term demand, price forecasting, and policies related to individual commodity markets. The report opens with a discussion of production conditions and marketing processes for Thai kenaf. A statistical model of the Thai kenaf market is subsequently developed; variables include yearly domestic consumption of kenaf, exports, amount of year end stocks, and average foreign and domestic prices. Next, problems inherent in the available data are discussed and statistical adjustments are explained. Finally, parameter estimates for the equations developed in the model are presented and the model's applicability to forecasting and analysis is assessed.

PN-AAG-099

Paper copy \$5.04
Microfiche \$.93

PLANT PRODUCTION (GENERAL)

(317) SOURCE OF OUTPUT GROWTH IN ASIAN FOOD GRAINS

Barker, Randolph; Apiraksirikul, Sumalee; Antiporta, Donato
1977, 31p.

IRRI (AID/ta-G-1074 GTS)

(In IRRI paper no. 77-2)

This paper was presented at the Conference on Strategic Factors in Rural Development in East and Southeast Asia, under the sponsorship of the Council of Asian Manpower Studies, held at Pasay City, Philippines, December 1976. Its purpose is threefold: 1) to observe the changes in output, area, and yield of the major food grains - rice, wheat, and corn - over the past two decades in Asia; 2) to measure for rice the contribution of increased fertilizer use and irrigation development of output growth; and 3) to interpret the experience of the past two decades in terms of its significance for sources of output growth in the decade ahead. The analysis is conducted on a national basis for 12 countries in South and Southeast Asia. Taiwan and South Korea are also included in the analysis for comparative purposes. Growth rates are calculated for area, yield, and production during two time periods, 1955-1965

and 1965-1973. This reflects the pre and post high-yielding variety (HYV) situation. Agricultural output can be increased through the expansion of cultivated area or through an increase in the productivity of the existing land area. Prior to 1960, the expansion of the land area was the principal source of output growth in Southeast Asia. The closing in of the land frontier after 1960 has necessitated a shift toward the use of modern-yield-increasing inputs. Significant yield gains were achieved through the introduction of modern fertilizer responsive varieties in the last decade. However, more research will be needed to provide answers to critical questions about the further expansion of modern technology and development of water control. The efficiency with which irrigation and modern inputs are developed and used must be improved or output growth will be slowed down and the cost of food grain will rise.

PN-AAF-011

Paper copy \$3.72
Microfiche \$.93

(318) POLY CULTURE CROPPING SYSTEMS; REVIEW AND ANALYSIS

Kass, D.C.
1978, 72p.

Cornell (AID/ta-C-1441)

(In Cornell Int. Agr. bul., 32)

An analysis of the literature indicates that polyculture, growing two or more useful plants simultaneously in the same area, is generally beneficial. The choice of crops and other environmental variables will determine to a large extent whether the practice is advantageous in specific situations. In terms of withdrawal of nutrients from the soil, economic return, improvement of the nitrogen status of the soil-plant system when one of the crops is a legume, and greater stability of yields over time, the benefits of polyculture are clear. With regard to ease of harvest and other mechanized operations, polyculture offers some problems, but recent research aimed at reducing these difficulties has been surprisingly successful. Certain species and combinations of species appear to perform more successfully in polyculture than do others. Associations of cotton, groundnuts, and maize-legume combinations are commonly used and it is the price relationships of these combinations, rather than the cropping systems themselves, which appear to be the determining factors. The effects of climatic change on polyculture have been well documented primarily with respect to wet and dry seasons in the tropics rather than year to year variability in the same cropping season. The fact that nutritional requirements and phenology of varieties within a single species may vary more than those of different species has been described in the literature on polyculture. Suggestions for further research are summarized in the bulletin.

PN-AAG-025

Paper copy \$8.64
Microfiche \$ 93

PLANT PRODUCTION (SPECIFIC)

(319) GRAIN SORGHUM NURSERY MANAGEMENT HANDBOOK WITH SELECTED PROCEDURES FOR ESTIMATING GRAIN QUALITY AND QUANTITY

Oswalt, D.L.
1974, 57p.

Purdue (CSD-1175 Res)

Considers the significant factors that limit the production of high yields and high quality material in the establishment of a breeding nursery, and provides a guide for planning the work at a sorghum improvement nursery or test site. Areas covered include site selection, plot design, preparation for planting, planting, weed

control, thinning, disease and insect control, note-taking, pollinating, harvesting and drying, threshing, storage, estimates of quality, utilization of findings, and management procedures. When possible, the site should be selected with a uniform soil type, drainage pattern and slope with a known uniform cropping fertilization history. Detailed planting maps with known varieties planted on a regular and definite scheme should be made. Simple equipment capable of spacing rows up to 75 cm apart and uniformly planting seed to a depth of two to four centimeters should be used. Timeliness of planting is essential to maximize rainfall, to obtain optimum germination temperature, to give the desired length of season, to provide some insect control, and to limit undesirable pollen and bird damage. Weeds must be controlled very early to insure uniform and comparable data. Fencing is a requirement in most areas to prevent damage from domestic or wild animals, and bird control measures should be undertaken. Potential sources of insect and disease damage must be studied and available control measures should be identified. A consistent number scoring system must be used for note-taking to make it easy to average replication and computer calculations. Timely harvest is important to reduce bird damage, insect damage, lodging, and weathering damage. Practical application of new breeding stocks, management procedures, production potentials and extension procedures should be developed as a part of research procedures to facilitate the use of research results by producers and consumers.

PN-AAE-766

(320) THE PROSPECTS FOR ASIAN RICE PRODUCTION

Herdt, R.W.; Te, Amanda; Barker, Randolph
1977, 59p.

IRRI (AID/ta-G-1074 GTS)

(In IRRI paper 77-3) (Presented at IRRI Conf., Los Banos, Philippines, 1977)

Assuring adequate food has been a priority objective of the governments of LDCs in Asia and of people concerned about Asia. This paper examines the rice situation in the region and the prospects for its future. It has three parts: the first section discusses the current level of food consumption in the region and the changes that have occurred in that production from 1952 to 1972; the second section examines the sources of growth of rice production; the third section discusses a model used for projecting future growth in rice output and provides some estimates of the investments required in order to support the continued growth of rice production at the required rate. Cereals dominate the consumption patterns in most of the countries represented. Rice contributes an appreciable fraction of total calories, especially in the mainland South Asian countries of Bangladesh, Burma, Thailand, Laos, Cambodia, and Vietnam. While food production has increased from 1.6 to over 5% per year in various countries with substantial increases coming in cereal grains, these increases have been rapid enough to keep up with demand in only a few countries. In the others there has been an increased dependence on imports, reduction of exports or upward pressure on food prices. The reasons for the decline of increase in growth rate of production seem to differ from country to country and may be due to temporary fluctuations rather than long term trends. The highly cyclical nature of irrigation investment is closely correlated with fluctuations in the benefit-cost ratio caused principally by variation in the world rice price used in calculating the benefits. The model discussed in this paper suggests a method to stabilize investment for increasing rice production at a rate sufficient to meet the anticipated demand.

PN-AAF-012

Paper copy \$7.08
Microfiche \$.93

AGRICULTURE AND NUTRITION

(321) CHEMICAL AND BIOLOGICAL METHODS FOR GRAIN AND FORAGE SORGHUM

Guiragossian, V.Y.; Van Scoyoc, S.W.; Axtell, J.D.
1977, 247p.

Purdue (AID/ta-C-1212 Res.)

Presents a compilation of physical and chemical methods for analyzing grain and forage sorghums. The grain sorghum tests are designed to help cereal breeders screen new genotypes of grain to develop high-yield, high-nutrient cultivars for the human diet. The forage tests evaluate the digestability and nutrient value of animal feed sorghums. Twenty-three techniques for grain sorghum and thirty techniques for forage sorghum are described. The document also includes names and addresses of companies from which research supplies were purchased.

PN-AAF-024

Paper copy \$29.64
Microfiche \$2.79

(322) DEVELOPMENT OF IMPROVED, HIGH-YIELDING SORGHUM CULTIVARS: FINAL REPORT

Puerto Rico. Univ. College of Agr.
1977, 38p.

Puerto Rico (AID/ta-C-1087 Res.)

In this project, research was done in sorghum entomology, phytopathology, nematology, and plant breeding and in some cultural practices. Insect pests attacking sorghum in Puerto Rico are: webworms, corn earworms, fall army worms, sugar cane borers, lesser cornstalk borers, corn aphids, chinch bugs, sorghum midguts, and sucking insects such as scales and plant bugs. Birds constitute the most serious problem since they are very destructive and there is no means of control. High tannin sorghums have resistance to birds, but they also have lower digestibility of protein. The most important diseases attacking sorghum in Puerto Rico are Helminthosporium blight, anthracnose, rust, stalk rot, the zonate leaf spot, and the oval leaf spot. Nematodes are very important pests in sorghum production. Resistant sorghum lines have been identified. Data on weed control showed that Metribuzin, Atrazine + Terbutrin, and Atrazine + Propachlor give good control of weeds on sorghum. The main objective of the project was to develop and make high yielding sorghum cultivars available to LDCs improved nutritional value and multiple resistance to prevalent diseases and insects. An auxiliary objective was to develop improved cultural practices for sorghum in the tropic and sub-tropics. The results of all the plantings are included. Forage sorghum hybrids were evaluated at two locations. The best yielders were SX-16, SX-17, Grazer A, Pioneer 988, Pioneer 979, NK318s, and NK 367.

PN-AAF-278

Paper copy \$4.56
Microfiche \$.93

(323) AN EMPIRICAL ASSESSMENT OF ALTERNATE FIELD-LEVEL RICE POST-PRODUCTION SYSTEMS IN NUEA ECIJA, PHILIPPINES

Toquero, Zendida; Maranan, C.; Ebron, L.; Duff, Bart
1976, 37p.

IRRI AID/ta-G-1208 GTS)

(In AE paper no. 76-03)

The empirical study examined the economic and technical characteristics of the rice post-production industry in the Philippines and in other countries of Southeast Asia. With increased field yields resulting from the use of improved varieties and from cash inputs such as fertilizers, pesticides, herbicides, and supplemental irrigation water, the magnitude and importance of

quantitative field losses has also increased. This report summarizes the results of a series of village level trials undertaken in Central Luzon during the period from August 1975 to February 1976. The evidence illustrates the nature of the problem, and the study gives some preliminary findings and lists the difficulties encountered in attempting to measure the impact of alternative technologies on benefits and costs in post-production systems. Five systems involving alternative combinations of technology and management were utilized in the pilot trials. Cost estimates depicting the relative expenses in each system were based on labor, fuel, and fixed investment requirements and were computed for each of the three villages, as well as for an average for all three locations. The total cost of expenditure per ton of paddy in the traditional system was almost twice that of the improved systems. Mechanized threshing and solar drying had the lowest cost at \$10/ton. The findings indicate that improved mechanical technologies have a quantitative and qualitative impact on total output through more timely operation and reduced unit costs.

PN-AAF-488

Paper copy \$4.44
Microfiche \$.93

(324) DEVELOPMENT OF IMPROVED HIGH YIELDING SORGHUM CULTIVARS WITH DISEASE AND INSECT RESISTANCE; ANNUAL REPORT, 1977/1978

(Tex. A&M Univ. Dept. of Plant Sciences)
1978, 142p.

Tex. A&M (AID/ta-C-1384 Res.)

A Project: To identify and catalog factors which improve the capacity of sorghum to resist disease and insect damage and to develop high-yield, high-resistance sorghum varieties for cultivation in temperate and tropical regions.

Duration: March 1, 1977 - February 28, 1978.

Developments: During 1977, research toward developing disease and insect resistant cultivars was expanded and advanced one generation. Major sources of resistance were identified, and elite sources of germoplasm generated in Texas were distributed to associated sorghum projects throughout the world. Several hybrids with outstanding general adaptation and high resistance to disease and insects were developed, and are considered to have excellent potential. A system to summarize and distribute international research data was evolved. The report includes summary trip reports, project-related news releases and public media articles, numerous tables, and a bibliography with abstracts.

PN-AAG-002

Paper copy \$17.04
Microfiche \$1.86

(325) THE ASIAN VEGETABLE RESEARCH AND DEVELOPMENT CENTER MUNGBEAN REPORT, 1976

AVRDC
1977, 77p.

AVRDC (AID/ta-G-1260 GTS)

Describes research conducted during 1976 at the Asian Vegetable Research and Development Center (AVRDC) in Taiwan to develop early-maturing mungbean cultivars with high yields, high protein content, and disease resistance. Such cultivars are needed to alleviate the shortage of nutritionally complete foods in developing countries. The report examines the physiology and nutritional chemistry of various cultivars and presents test results and recommendations regarding nitrogen fixation and the control of parasites and weeds. The economics of mungbean cultivation is also studied. Tables, photographs of parasite forms, and a mungbean accessions index are included in the report.

PN-AAG-019

AGRICULTURE AND NUTRITION

(326) EFFECTS OF FERTILIZING WITH POTASSIUM AND MAGNESIUM IN MAIZE GROWING ON AN OXISOL OF THE FEDERAL DISTRICT OF CERRADOS, BRAZIL
Ritchey, K.D.; Lobato, Edson
1977, 6p.

Cornell (CSD-2490 Res)

(Research on soil fertility under A.I.D. contracts CSD-2806 (N.C. State) and CSD-2490 (Cornell))
(Research on soil fertility under A.I.D. contracts CSD-2806 [N.C. State] and CSD-2490 [Cornell])

A field experiment on maize was carried out on the land of the Agricultural Research Centre of Cerrados (Centro de Pesquisa Agropecuaria dos Cerrados), Brazil. The soil is a dark dystrophic latosol of clayey texture, with 36 ppm of K. Five levels of potassium and four levels of magnesium were used, producing in the first year a significant response to the application of 75 kg of K_2O per ha. The maximum yield of 4890 kg of grain per ha was obtained with 300 kg of K_2O per ha, applied broadcast. The yield corresponding to 75 kg/ha K_2O was 4076 kg/ha, equal to 175% of the yield with no potassium. The financial value of the yield increment was 9.3 times the cost of the potassium chloride used. No significant difference (5% level) was recorded between 150 kg of K_2O per hectare applied broadcast, and the same placed in the planting furrows.

The magnesium level was varied by applying calcareous limestone and dolomitic limestone in different proportions. No significant response to magnesium was obtained in the first year.

After the first maize crop the soil was found to contain 17 ppm of K.

PN-AAG-024

Paper copy \$.72
Microfiche \$.93

(327) PERFORMANCE OF OILSEED SUNFLOWER CULTIVARS IN AN OXISOL IN NORTHWESTERN PUERTO RICO

Lugo-Lopez, M.A.; Badillo-Feliciano, J.; Calduch, L.
1977, 5p.

Cornell (AID/ta-C-1104 Res.)

(In J. of agr. of the Univ. of Puerto Rico, v. 61, no. 2, p. 200-203)

Oil yield potential of five high yielding sunflower cultivars grown under tropical conditions in an Oxisol in northwestern Puerto Rico was evaluated. No significant yield differences were measured with cultivars Sputnik, Peredovik, Hybrid 891, Hybrid 894 and Hybrid 896. In spite of this fact, a fieldwide average of 1616 kg/ha was obtained. Yields of this magnitude are considered rather high for oilseed sunflowers under a tropical environment. The key to successful sunflower production in the deep, well-drained, acid, and relatively infertile soils of the tropics seems to lie in the use of high yielding cultivars coupled with rational fertilization and sound crop and soil management practices.

PN-AAG-027

Paper copy \$.60
Microfiche \$.93

(328) EFFECTS OF SOIL pH AND RELATED ACIDITY FACTORS ON YIELDS OF SWEET POTATOES AND SOYBEANS GROWN ON TYPICAL SOILS OF THE HUMID TROPICS

Perez-Escobar, Raul
1976, 9p.

Cornell (AID/ta-C-1104 res.)

The effects of soil pH and related acidity factors on the yields of sweet potatoes, Miguela var., and soybeans, Jupiter var., were determined on typical and acidity factors on the yield of the sweet potato variety, which was quite tolerant to high soil acidity and exchangeable Al. Yields were similar to those obtained by other researchers who worked with other varieties. Soybeans, although relatively tolerant to high levels of exchangeable Al, were adversely affected when values surpassed 5.5 meq/100 g of soil in a clayey Ultisol. Exchangeable base content was directly related to soybean yield grown on a light textured Oxisol. Yields obtained are considered excellent. Highly significant correlations between soybean leaf N content and yield was found in the clayey Ultisol.

PN-AAG-029

Paper copy \$1.08
Microfiche \$.93

(329) SCREENING CORN FOR AL TOLERANCE USING DIFFERENT Ca AND Mg CONCENTRATIONS

Rhue, R.D.; Grogan, C.O.
1977, 7p.

Cornell (AID/ta-C-1104 Res.)

(In Agronomy j., v. 69, Sept.-Oct., p. 755-760)

Cations such as Ca and Mg can protect roots from the toxic effects of Al. However, little use of this fact has been made in screening for Al tolerance. This study was undertaken to determine the effects of Ca and Mg concentrations in screening solutions on the toxicity of Al in roots of corn inbreds (*Zea Mays* L.). Two-day-old corn seedlings were grown for 12 days in dilute nutrient solutions containing 0.25mM Al. Treatments consisted of Ca or Mg at concentrations of 0.5, 1.0, and 2.0mM. The pH was adjusted to 4.60 initially with no further adjustments. The large solution: root volume ratio resulted in only small pH changes during the 12-day screening. These small pH changes had little or no effect on the toxicity of Al in corn roots. Increasing the concentration of Ca decreased the severity of Al toxicity in roots of corn inbreds. However, there were marked differences among inbred lines in the ability of their roots to grow in these screening solutions at all levels of Ca. For example, roots of the inbred lines W153R and Va17 were susceptible and tolerant, respectively, to Al at all three levels of Ca, whereas A239 showed symptoms of severe Al toxicity at 0.5mM and 1.0mM Ca but produced good root growth at 2.0mM Ca. Thus, a wide range in tolerance to Al was observed in these screening solutions by varying the concentration of Ca. At equal concentrations, Mg was as effective as Ca in protecting corn roots from Al. This technique could be utilized for screening species where a knowledge of the range in tolerance among individual genotypes is desired.

PN-AAG-030

Paper copy \$.84
Microfiche \$.93

For addresses of issuing offices see the
Index of Issuing Offices at the rear.

Please use the publication number in ordering.
Example: PN-AAB-000

AGRICULTURE AND NUTRITION

(330) IMPROVING YIELD AND QUALITY OF BEAN SEED PROTEIN; PROGRESS REPORT JUNE, 1978

Bliss, F.A.; Wis. Univ Dept of Horticulture
1978, 67p.

Wis. (AID/ta-C-1173 Res.)

A Project: To improve quantity and quality of bean seed protein. Developments: Because of the major role of grain legumes in the diets of many people, world-wide improvement in legume availability and digestibility could have considerable impact on nutrition. The project identified strains of common beans which are consistently high in seed protein and confirmed that protein variability is a heritable trait. Researchers established that selection programs should consider crop yield and protein content simultaneously for maximum effectiveness. The project demonstrated the feasibility of cooperative research with other programs. Strains and breeding lines with superior protein characteristics were made available to other programs for tests and evaluation. The report identified problems for future research and development.

PN-AAG-033

Paper copy \$8.04
Microfiche \$.93

(331) FARMERS' VIEWPOINT OF SWEET POTATO PRODUCTION IN TAIWAN

Calkins, P.H.; Huang, S.Y.; Hong, J.F.
1977, 47p.

AVRDC (AID/ta-G-1260 GTS)

(In Technical bul. no. 4)

Examines the current agronomic and economic status of sweet potato production in Taiwan. The study, conducted by the Asian Vegetable Research and Development Center, addresses in particular the dramatic decline in sweet potato planting occurring between 1971 and 1975. The report presents reasons for the decline, and provides a list of the study's special objectives and working hypotheses. The research methodology, which primarily consisted of questionnaire surveys and interviews of random samplings of Taiwanese farmers, is also delineated. The study's results provide information on the effects of season, irrigation availability soil type, and fertilizer on crop yield; economic data comprising production costs and the influence of production inputs; and a summary of farmer attitudes toward the profitability of sweet potato production. Numerous tables and several maps are included.

PN-AAG-138

Paper copy \$5.64
Microfiche \$.93

POSTHARVEST FOOD LOSS

(332) A.I.D. SUPPORTED POST HARVEST FOOD LOSS REDUCTION ACTIVITIES, 1966-1976

Bourne, M.C.; Scarborough, W.E.
1976, 23p.

AID/TA/AGR

Lists A.I.D. funded projects directed towards the reduction of post harvest food losses in developing countries in the period from 1966 to 1976. Projects are classified under the following headings: cereals, grants, regional; cereals, loans, regional; non cereals, grants, regional; non cereals, loans regional; and centrally funded projects. These projects are directed wholly or almost wholly to food loss reduction activities. It includes other projects that

contain a significant component of food loss reduction. Activities that indirectly reduce food losses are not included. An additional section lists those projects already described that give statistics on post harvest food losses. The projects are in Africa, South and Central America, the United Arab Republics, Asia, and Jamaica.
PN-AAF-295

Paper copy \$21.39
Microfiche \$.93

(333) SOUTHEAST ASIA COOPERATIVE POST-HARVEST RESEARCH AND DEVELOPMENT PROGRAMME; TECHNICAL TEAM REPORT NO. 1

Teter, N.C.; Padua, D.B. de; Van Ruiten, Harry; Southeast Asia Cooperative Post-Harvest Research and Development Programme, Laguna, Philippines
1977, 31p.

AID/DS/AGR

The development of grain postharvest technology is being tried through a unique approach. A technical team of experts was pooled to stimulate, to coordinate, and to provide for consultant services on research and development of postharvest technology. Some operational problems are recognized: not all the major assistance agencies interested in postharvest technology joined the team effort; and the team is well funded internally, but it has no funds to use in stimulating research activities in the different countries. The report discusses regional activities such as newsletters, workshops, exchange programs, and a subcommittee on food handling. The countries involved were Indonesia, Malaysia, the Republic of the Philippines, Singapore, and Thailand. The technical problems in southeast Asia are: the low efficiency of commercial mechanical threshers for the wet season's harvest; the design and development of a drying system to match the existing constraints; the bio-physical problem of bulk storage in the humid tropics; and the low efficiency of village mills. The plan of work for 1978 includes a workshop in Bangkok; training courses in Malaysia, Indonesia, and Thailand; a continued consultation service on research and development for facilities and projects; the publication of two Postharvest Quarterly's; the planning of an exchange program for 1978-79; and the publication of technical data and papers.

PN-AAF-485

Paper copy \$3.72
Microfiche \$.93

*

(334) POSTHARVEST FOOD LOSSES IN DEVELOPING COUNTRIES

National Research Council. Board on Science and Technology for Int. Development
1978, 312 p.

NAS (CSD-2584 GTS)

Assesses the feasibility of accurately estimating and devising methods to prevent, the enormous postharvest food losses in developing countries. While the report does review the significant effect of local culture and economy on food loss, it is primarily concerned with the methodology of loss reduction, the technology of primary food processing and storage, the control of food pests, and the physiological deterioration of food. The report's threefold strategy for reducing food loss includes the establishment of effective national committees to plan and implement conservation policies, the institution of conservation education programs at all levels of the postharvest food system, and an increase in basic and applied research activities.

PN-AAG-011

Paper copy \$37.44
Microfiche \$3.72

PLANT PROTECTION

(335) LONG-TERM EFFECTS OF 4-AMINOPYRIDINE EXPOSURE TO BIRDS AND FISH

Schafer, E.W.; Marking, L.L.
1975, 6p.

Interior (PASA (RA)ID 1-67 Res.)

(In J. of wildlife management, v. 39, no. 4, p. 807-811)

A five year study of five species of birds at the Denver Wildlife Research Center and two species of fish at the Fish Control Laboratory, La Crosse, Wisconsin, was undertaken to gather data to show how granivorous birds and freshwater fishes respond to long-term 4-aminopyridine (4AP) exposure. The birds were fed diets of three percent 4AP treated cracked corn diluted with various ratios of untreated corn for seven to thirty five days. Lethal concentrations were determined for doves (316ppm) and coturnix quail (479ppm). Bobwhites and pheasants showed no adverse affects. Starlings treated by gavage daily for twenty-five days with 1.78 mg/kg 4AP showed no intoxication symptoms. Mortality appeared to be the result of acute poisoning rather than cumulative toxicity. In ninety-six hour static tests, channel catfish and bluegill showed increasing sensitivity to 4AP with time. The lethal concentration for bluegills varied from 2.82 to 7.56 mg/liter, depending on temperature and water quality. The lethal concentration for catfish varied from 2.43 mg/liter to 5.80 mg/liter. However, 4AP appears less toxic than many commonly used pesticides.

PN-AAD-699

Paper copy \$.72
Microfiche \$.93

(336) BEHAVIORAL RESPONSE OF QUELEA TO METHIOCARB (MESUROL)

Shumake, S.A.; Gaddis, S.E.; Schafer, E.W.
1976, 6p.

Interior (PASA RA (ID) 1-67 Res.)

(In Proc., Bird Control Sem. 7th Bowling Green, Ohio, 1976, p. 250-254)

Examines the use of methiocarb in controlling crop damage inflicted by small African weaver finches known as Quelea. Quelea are destructive to mullet, grain, rice, and other crops throughout Africa. Experiments with methiocarb at the Denver Wildlife Research Center indicate that it is a highly effective chemical repellent. Methiocarb produces an aversion effect which is quickly associated with treated food material. The addition of taste stimuli may enhance the long-term repellent effects. The document includes a table of mean percent preference and consumption of grains before and after exposure to methiocarb.

PN-AAG-051

Paper copy \$.72
Microfiche \$.93

(337) THE TOXICITY OF FOUR ANTICOAGULANT RODENTICIDES TO RATTUS RATTUS MINDANENSIS MEARN'S

Hoque, M.M.
1973, 36p.

Interior (PASA RA(ID) 1-67 Res.)

(Thesis M.S.—Univ. of the Philippines)

This study sought to determine the acute lethal doses of four anticoagulant rodenticides. The anticoagulants tested were

warfarin 98%, racumin 60%, pival 100%, and diphacinone 100%. The animal subjects were 5 male and 5 female field-collected rats (*R. rattus mindanensis*). The acute oral lethal dose for 50% of males and females was found to be 1.13 and 0.75 mg/kg for diphacinone; 99.49 and 92.60 for pival; 705.00 and 807.10 for warfarin; and 477.00 and 587.00 for tacumin. Diphacinone had the highest acceptance index, followed by pival, warfarin, racumin. There was a decrease in bait consumption beyond 0.01% for diphacinone and 0.025% for the other three rodenticides, but the total amount of chemical consumed increased with increases in concentration of the chemical. There were no differences in the number of days required to obtain 100% mortality. Most of the rats died 4 to 8 days after exposure to the bait.

PN-RAA-593

Paper copy \$4.32
Microfiche \$.93

(338) LABORATORY STUDY ON JUVENILE GROWTH OF THE COMMON RICEFIELD RAT (RATTUS RATTUS MINDANENSIS MEARN'S)

Ferrer, L.S.
1973, 57p.

Interior (PASA RA(ID) 1-67 Res.)

Studies the growth and behavior in the common ricefield rat (*Rattus rattus mindanensis* Mearns). The 87 young rats studied came from 14 litters. All were born in the laboratory, though about half were bred in the field before the mother was captured. The lab-bred group gained weight slightly more rapidly than the field-bred group. Litter size ranged from 3 to 8 and averaged 6.21. Of the 87 young rats, 44 were male, 43 female. Average weight and length at birth was 3.71 grams and 59.53 mm. Weight growth was most rapid from weeks 6 to 11. The females reached sexual maturity in 6 weeks, the males in 8 weeks. After weaning, the young rats consumed an average of 5 grams of food daily. This gradually increased to an average of 12.5 grams per day at 7 to 9 weeks.

PN-RAA-611

Paper copy \$6.84
Microfiche \$.93

LIVESTOCK

(339) USER'S GUIDE FOR THE BEEF CATTLE ENTERPRISE SIMULATION MODEL

Jaske, M.R.

1976, 156p.

Mich. State (CSD-2975 Res.)

(In Computer Library for Agr. Systems Simulation. CLASS doc. no. 11)

(Suppl. to author's diss., 332p.: PN-AAD-088)

This user's guide is written to allow operation of the computer simulation model for a general beef cattle enterprise. The major emphasis of the model is on the land extensive cow/calf form of operation in which the breeding of cows results in the sale of calves. The model assists managers to evaluate and to investigate ways to make decisions in a beef cattle enterprise and the operation of the enterprise through the course of a year. Chapter 1 describes the model and the basis for its operation. Chapter 2 lists and defines all the state and control variables used. Chapter 3 lists the instructions

AGRICULTURE AND NUTRITION

necessary for operating the model. Chapter 4 gives a complete listing of the model's program and the subroutines used in it. Those who want to use these routines at locations other than Michigan State University or with compilers different from the CDC FTN4 should check local consultants for incompatibilities which must be resolved.

PN-AAD-982

Paper copy \$18.72
Microfiche \$1.96

(340) A REVIEW OF USAID PROJECTS IN FOUR MAJOR LIVESTOCK PRODUCING STATES IN NIGERIA, AN ASSESSMENT OF RANGE MANAGEMENT
Bates, J.D.; Howze, Glenn; Abercrombie, F.A.; Van Blake, Henry
1975, 180p.

RTI (AID CM otr-C-73-202)

Assesses current range management activities in four northern States of Nigeria to find if a methodology has emerged that is generally applicable to other areas in Nigeria and to neighboring countries in West Africa — particularly those countries in the Sahel region. This region is characterized by frequent drought, and unless appropriate range management practices can be demonstrated and livestock producers persuaded to adopt those practices, both the delicate ecology of the region and its livestock industry will be done irreparable harm. Three general tasks were assigned to the assessment team. It studied the economic and social feasibility of alternative range management interventions appropriate for Nigeria and other regions of Africa. It examined the tsetse fly clearance operations and development of the cleared areas in terms of the implications for range management practices, land utilization, and animal production. It reviewed the construction, management and utilization of surface and borehole sources of water in relation to the impact of these wells upon land use, livestock grazing, and ecological balance. The major factors considered were the status of livestock herds and production, the human population, and the environment. The assessment team found that clear and definable benefits were attributable to appropriate range management techniques. Findings, and recommendations for specific sites are included.

PN-AAF-029

Paper copy \$21.60
Microfiche \$1.86

(341) AN ECONOMIC ANALYSIS OF THE ROLE OF OX-PLOWING AND CATTLE-FEEDING IN THE STRATIFICATION OF WEST AFRICAN LIVESTOCK PRODUCTION

Sleeper, J A
1978, 181p.

Mich. (CSD-2547 211d)

(Thesis M.S.—Maryland)

(Summary, Animal traction and small unit feeding in Central West Africa, 12p.: PN-AAG-035)

Presents results of a literature search to determine whether the current West African practice of bovine traction and a small unit feeding could increase (1) net cash farm incomes, (2) demand for immature traction outlines the economic factors which limit adoption of oxcultivation, recommends measures for mitigating these constraints, and assesses the effect that an increase in bovine traction would have on the demand for immatures from the northern mainland. The study also addresses the profitability and economic future of small unit feeding and evaluates the effect of both bovine traction and small unit feeding on rural supplies of red meat. It is concluded that while ox-cultivation will remain an important element in Central West African crop and livestock

production, more universally effective technologies should also be developed. Numerous tables provide data on related economics, geography, labor-requirements, and yield effects.

PN-AAG-034

Paper copy \$21.72
Microfiche \$1.86

ANIMAL PROTECTION

(342) A TECHNIQUE FOR VISUAL THRESHOLD MEASUREMENT IN VAMPIRE BATS

Shumake, S.A.; Thompson, R.D.; Caudill, C.J.
1976, 3p.

Interior (PASA RA(ID) 1-67 Res.)

(In Physiology & behavior, v. 18, p. 325-327)

This study outlines a behavioral threshold measurement procedure useful for the study of sensory systems in vampire bats. Scholocating bats have considerable visual capabilities. The relatively large visual portion of the brain in vampire bats implies better visual ability than in insectivorous Microchisoptera. Knowledge concerning the visual, olfactory, and sound thresholds of this species could prove useful in determining their methods of prey detection. This report presents visual threshold data for two Desmodae using the outlined procedure. The study indicates that vampire bat and human rod visual sensitivity are quite similar.

PN-AAD-379

Paper copy \$.36
Microfiche \$.93

(343) EFFECTS OF THE ANTICOAGULANT DIPHENADIONE ON SUCKLING CALVES

Elias, D.J.; Thompson, R.D.; Savarie, P.J.
1978, 9p.

Interior (PASA RA(ID)1-67 Res.)

(In. Bul. of Environ. Contam. Toxicol. v. 20, 1978, p. 71-78)

Presents initial results of experiments conducted at the Denver Wildlife Research Center to improve an existing strategy for combating vampire bat parasitism on cattle. The bats, which cause severe damage to herds in South America, are currently controlled by means of the anticoagulant diphenadione, which is administered to cattle and subsequently ingested by the parasitic bats. The project describes the harmful effects of diphenadione on young calves and discusses to what extent supplementary doses of Vitamin K, when administered to the calves, can counteract diphenadione's toxicity to calves without diminishing its effect on bats. Experimental data is included.

PN-AAG-050

Paper copy \$1.08
Microfiche \$.93

FISHERIES

(344) SOCIO-ECONOMIC ASPECTS OF FISHERY OPERATIONS IN THE NAM PONG RESERVOIR, 1970-1971

U.N. Economic Commission for Asia and the Far East
1972, 96p.

AID/RED, Bangkok

Examines the socio-economic changes associated with the natural development of inland fishery as a result of the creation of a manmade lake. The analysis of reservoir management for fishery

purposes encompasses the question of optimum ratio of the number of fishermen per given water surface; this study addresses itself to that question using the Nam Pong experience. The socioeconomic aspects of the fishing operations discussed are: The fishermen's socio-economic background including migration patterns and local government; the economics of the industry itself; marketing of the fresh water fish locally and through retailers; a comparative study of income earned by fishermen, fishmongers, and wholesalers. The survey of 280 sample households bordering the reservoir also determined what problems in the operation were seen by the fishermen to be most significant. Recommended in (1) Planning and supervision of fishing resettlements is control of the number and location of fishermen around future reservoirs to maintain a satisfactory level of fishery earning per family over a long period of time, and planned village layout to ensure a reasonable standard of health and sanitation, (2) securing a fair share of fishery benefit to fishermen is strengthening their bargaining position perhaps via a fish marketing cooperative, and (3) managing the reservoir is control of fishing gear and practices and improvement of fish landing and marketing facilities.

PN-AAB-962

Paper copy \$11.16
Microfiche \$.93

(345) THE BIOSYNTHESIS OF ASTAXANTHIN, XVIII, THE METABOLISM OF THE CAROTENOIDS IN THE PRAWN, PENAEUS JAPONICUS BATE

Tanaka, Yoshito, Matsuguchi, Hidetaka; Katayama, Terushisa; Simpson, K.L.; Chichester, C.O.
1976, 6p.

University of Rhode Island (CSD-2455 211 cd)

(In Bulletin of the Japanese Society of Scientific Fisheries, v. 42, no. 2, p. 197-202)

The biosynthesis of astaxanthin in the prawn was studied further using pure carotenoids and preparations obtained from natural sources. Zeaxanthin, obtained from the Chinese lantern, was fed to the prawn, *Penaeus japonicus* Bate. Astaxanthin was biosynthesized from zeaxanthin, thus indicating the existency of a second pathway to astaxanthin in the prawn. Canthaxanthin and astaxanthin from crab waste were respectively metabolized too and absorbed as body astaxanthin in the prawn. Pigmented preparations from corn gluten, alfalfa, and *Spirulina* (blue-green alga) were found to increase the body astaxanthin to various degrees.

PN-AAC-714

Paper copy \$.72
Microfiche \$.93

(346) JAMAICA FISH CULTURE DEVELOPMENT PROJECT

Moss, D.D.
1975, 26p.

Auburn (AID/ta-BOA-1152 GTS)

Reports the findings of the USAID fisheries consultant on the feasibility of developing an impact program in fish culture and management in Jamaica. The topics included are a description of the government fisheries service, a discussion of operations at Twickenham Park fisheries station and at Falmouth Demonstration Fish Farm, a summary of the food farm program, plans for the Jamaica Industrial Development Corporation, a description of the Jamaica School of Agriculture, and discussions of the technical assistance component, the training component, the commodity component, procedural strategy, and the itinerary of the consultant. An item of high priority is a detailed survey of the country's existing fresh water ponds. Accurate information is

needed on pond size, location, accessibility, presence of noxious aquatic vegetation and fish, existence of drain structure, and water level during the dry season. Information is needed on the possibility of multi purpose use in irrigation of vegetable crops or pasture for livestock and the renovation required to place pond in condition for intensive or extensive fish culture. A survey of this type must be carried out before a rational plan for fish culture development can be designed and implemented.

PN-AAF-066

Paper copy \$3.12
Microfiche \$.93

(347) PROGRESS IN COLOMBIAN FISHERIES DEVELOPMENT, 1976

Phelps, R.P.; Moss, D.D.
1976, 15p.

Auburn (AID/ta-BOA-1152 GTS)

Describes the progress to date and plans for the future concerning the development of fisheries in Colombia. USAID's Fisheries Development Loan aided the development of fish culture stations at Repelon, a site in the Alto Magdalena and at Llanos. Other projects will survey fisheries resources in the Magdalena River basin and in the Llanos. This report discusses technical assistance, estimated costs, contractual arrangements, commodity purchases, and training. The accomplishments at Alto Magdalena and Repelon are described, and the report gives suggestions for the stations at Buga and Llanos. The Auburn University (A.U.) consultants think that technical assistance should be provided in three or four major areas including: an A.U. team leader to establish a country wide fisheries management program, a technical advisor in fisheries biology, a technical advisor in aquaculture, and an aquaculture advisor at Repelon aquaculture center. Short term consultants may be necessary in: fisheries economics and marketing, fish nutrition, fish diseases, induced breeding, hatchery management, fisheries biology, ichthyology and pond construction.

PN-AAF-068

Paper copy \$1.80
Microfiche \$.93

(348) ASPECTS OF THE COLOMBIAN FISHERIES DEVELOPMENT LOAN

Phelps, R.P.; Snow, J.R.; Hughes, David; Moss, D.D.
1975, 23p.

Auburn (CSD-2780 211d)

This Auburn University report on aid to the development of a fisheries program in Colombia discusses four major areas: construction of the Repelon Aquaculture Station, Research Station site selection in the Alto Magdalena, development of an aquacultural research plan, and the establishment of a fisheries training program. Substantial progress has been made on the earth work at Repelon. Construction methods, drainage systems, pond layouts, filters, drain canals, and construction of the fish hatchery building are discussed. The objective of the trip to the Alto Magdalena Area was to evaluate the physical attributes of three potential sites for the construction of a fresh water aquaculture research and fingerling distribution station. Three sites were visited and observations were made of the approximate slope of land, area available for station facilities including ponds and buildings, soil profile, water supply proximity, temperature, alkalinity, physical color, volume of flow, occurrence of large granite outcroppings, description of site in relation to access roads, local municipality, ownership, availability of electricity and telephone and local agriculture practiced. It is suggested that the primary importance

AGRICULTURE AND NUTRITION

in a developing aquaculture research program is the determination of the best species for culture. Researchers must decide whether native or exotic species will best meet the country's needs. It is also important to determine maximum yields. A short term in-country training program should emphasize the present state of Colombian fish culture, the basic biology of fish, aquaculture principles and application, experimental design, analysis of data, water chemistry, fish nutrition and fish diseases.

PN-AAF-077

Paper copy \$2.76
Microfiche \$.93

(349) PROCEEDINGS OF THE FISHERIES RESEARCH PLANNING WORKSHOP

Craib, K.B.; Ketter, W.R.; Fisheries Research Planning Workshop, Denver, Colo., 1977; Resources Development Assoc., Los Altos, Calif.
1978, 128 p.

RDA (AID/afr-C-1135 GTS)

At the request of the Board for International Food and Agricultural Development (BIFAD), A.I.D. commissioned a planning study to identify long range research needs in fisheries and aquaculture. The study is one of three currently being carried out under A.I.D. direction. The study focuses on research activities which will directly contribute to increased food production and which will lead to better income and employment opportunities for poor and disadvantaged people in the developing nations. It is to determine research and development needs, recommend priority areas for funding, and to identify U.S. universities and similar organizations and research institutions in the developing countries that are interested in the best way to formulate and carry out specific fisheries and aquaculture research programs. The fisheries research workshop was to provide an opportunity for participants to learn more about the Title XII program and its implications. This report presents an edited version of the presentations by principal speakers and reports of the working groups along with the concluding question and answer session. The main topic is Title XII and the Collaborative Research Support Program. The different perspectives represented are BIFAD, Joint Research Committee, USAID, University interests, and viewpoints of developing countries. The Fisheries Research Process is also presented. Fisheries priorities developed emphasize artisan fisheries and small boats although even research requiring a large organization, such as in the development of low cost protein, or aquaculture, can involve the small fisherman. That is important, even if it puts a much lower priced product on the local market.

PN-AAF-645

Paper copy \$16.56
Microfiche \$1.86

SOIL RESOURCES

(350) UTILIZATION REVIEW AND EVALUATION; TROPICAL SOILS RESEARCH PROGRAM, CORNELL AND NORTH CAROLINA STATE UNIVERSITIES

Caton, Douglas; Sprague, H.B.; Kelley, Omer
1977, 122p.

AID/TA/AGR

The savannas and forests of Latin America, Africa, and South Asia consist of 1,600 million hectares of land not used for agriculture. In comparison, harvested U.S. land in 1976 consisted of 150 million hectares. The Tropical Soils Research Programs at Cornell and at North Carolina State University have been concerned with teaching and research efforts for developing economic means to make tropical soils fertile enough for agricultural use. This report presents the results of a review conducted to summarize the status of the research and to explore ways to increase the utilization of research findings. Some of the salient findings are: The major

problems preventing crop production in the tropical soils (Oxisols and Ultisols) is that they have very low phosphate and Low Ca, Mg, and K. They also have high Al solubility and high acidity. Why similar soils in Puerto Rico are much more productive is unknown. It is now known that crop species vary greatly in their tolerance to soluble Al and to small amounts of phosphorus but little is known about efficient cropping systems. The roles of grass and legumes in such cropping systems have not been studied. Long-term requirements and effects of varying levels and placements of phosphorus and lime are not known. Water erosion in the soils appears to be universal and severe. The present field locations are suitable for expanding basic knowledge of tropical soils, but an on-the-ground survey needs to be made of the soils information requirements in Africa, Asia, and Central America. Work should also be begun on a revised research utilization program under the network concept.

PN-AAE-057

Paper copy \$14.64
Microfiche \$1.86

(351) SOIL WATER STUDIES ON OXISOLS AND UTISOL OF PUERTO RICO; III.: CAPILLARY CONDUCTIVITY

Wolf, J.M.; Drosdoff, Matthew
1976, 6p.

Cornell (CSD-2490 Res.)

(In J. of agr. of the Univ. of Puerto Rico, v. 60, no. 4, p. 508-512)

Values of capillary conductivity were calculated for the Humatas and Bayamon soils. These were found to be highly water content dependent. Using values of capillary conductivity, it was estimated that 10% of the water required for evapotranspiration might be supplied by upward water movement from the profile below the root zone.

PN-AAG-022

Paper copy \$.72
Microfiche \$.93

(352) SOIL WATER STUDIES ON OXISOLS AND ULTISOLS OF PUERTO RICO; IV.: A COMPARISON OF TECHNIQUES TO DETERMINE WATER RETENTION AT VARIOUS TENSIONS

Wolf, J.M.; Drosdoff, Matthew
1976, 4p.

Cornell (CSD-2490 Res.)

(In J. of agr. of the Univ. of Puerto Rico, v. 60, no. 4, p. 513-515)

An over estimation of soil water storage would be made by employing either disturbed sample techniques at low tensions or undisturbed core samples at high tensions. To avoid this, undisturbed core samples should be used to measure water retention in the wet range (0 to 1 bar) and disturbed samples, to measure water retention in the dry range (1 to 15 bars). It is suggested that soil water release curves be developed by relating field measurements of soil water tension with results from gravimetric sampling.

Pn-AAG-023

Paper copy \$.48
Microfiche \$.93

For addresses of issuing offices see the
Index of Issuing Offices at the rear.

(353) COMPARATIVE RESPONSE OF THREE CROP SPECIES TO LIMING SEVERAL SOILS OF THE SOUTHEASTERN UNITED STATES AND OF PUERTO RICO

Pearson, R.W.; Perez-Escalor, Raul; Abruna, F.; Lund, Z.F., Brenes, E.J.
1977, 23p.

Cornell (AID/ta-C-1104 Res.)

Yield response of three plant species to liming was determined in pot tests using soils typical of the humid upland region of Puerto Rico and of the southeastern United States. Three general response patterns were observed, but they were not clearly related to either crop species or soil category: 1) increasing yield with increasing soil pH to a maximum between 5 and 6, followed by little or no change at higher pH values; 2) no clear response; and 3) increasing yield with increasing pH to a maximum between 5 and 6, followed by a decrease at higher pH values. These results support the concept that satisfactory plant growth can be made on acid soils of tropical regions at somewhat lower pH levels than on soils of temperate regions. They also suggest that liming experience gained in temperate zones could be used with caution for acid soils of tropical regions.

PN-AAG-026

Paper copy \$2.76
Microfiche \$3.93

(354) UTILIZATION OF N FROM CROP RESIDUES IN OXISOLS AND ULTISOLS

Talleyrand, H.; Perez-Escolar, Raul; Lugo-Lopez, M.A.; Scott, T.W.
1977, 7p.

Cornell (AID/ta-C-1104 Res)

(In J. of agr. of the Univ. of Puerto Rico, v. 61, no. 4, p. 450-455)

An attempt was made to evaluate the N supplied by crop residues through crop rotation experiments on Oxisols and Ultisols. Field experiments were conducted on three typical soils following a split-plot design. Main plots were three rotations: soybeans, corn, corn; fallow, corn, corn; and continuous corn. Subplots included two treatments: 0 and 110 kg/ha of fertilizer N. Fair yields of soybeans were obtained while corn yields were good, especially on the Humatas soil (Ultisol), 6240 kg/ha. Substantially higher yields were obtained in the Bayamon (Oxisol) and Humatas soils from the first corn crop following soybeans or corn than when following fallow. Although the second corn crop yield following soybeans was slightly higher than the first, the second corn crop after initial corn and fallow were substantially higher. The effect of applied N at all sites was striking, regardless of the previous crop. There was no apparent relationship between the amount of N returned to the soil and yields of subsequent corn crops.

PN-AAG-028

Paper copy \$.84
Microfiche \$.93

FORESTRY

(355) PAPERS FOR CONFERENCE ON IMPROVED UTILIZATION OF TROPICAL FORESTS

U.S. Forestry Service; Conf. on Improved Utilization of Tropical Forests, Madison, Wis., 1978
1978, 451p.

USDA/FS

This document contains 26 papers submitted at the Conference on Improved Utilization of Tropical Forests. The purpose of the conferences was to familiarize those attending with the most up to

date information about utilization of tropical forests. The major issues discussed are: the resource, environmental concerns, silviculture, harvesting and transportation, wood fiber and reconstituted products research, industrial practices and plans, and investment considerations. Emphasis is on research that the Forest Products Laboratory recently completed but other research conducted worldwide is also included. Some of the papers concern anatomical characteristics of tropical woods, little known woods of the Brazilian Amazon, bleached kraft pulp from mixed hardwoods from Ivory Coast forests, properties of particleboards from Mixtures of Philippines hardwoods, utilization of bleached sulfate tropical hardwood pulp, and problems in process chemical production in developing countries. This report should provide a good background in the problems and promises of improved utilization of the tropical forest.

PN-AAF-653

Paper copy \$54.12
Microfiche \$4.65

HUMAN NUTRITION

(356) NUTRITION AND THE ELDERLY, NEEDS, PROBLEMS, AND PROGRAMS

Wheeler, Rachel
1973, 64p.

AID/TA/N

Explores nutrition requirements, dietary habits, and nutrition programs in the U.S. for the elderly. While calories requirements are less with increasing age, nutritional needs do not change significantly. Various factors however, often make it more difficult for the elderly to obtain adequate diets. Nutrient intakes by the elderly of calories, iron, Vitamin A, and Vitamin C tend to be low. The Food Stamp and the Commodity Distribution Programs are the only large programs which affect the nutritional status of the elderly. While congregate meal services and home delivered meals do exist, they are not yet applied on a large scale. Types of programs, participants, and cost per meal are discussed here, as well as the factors affecting diets, the results of nutritional surveys, diseases linked to nutritional deficiencies, and preventive nutrition. It suggests that nutrition programs should provide food, rather than money, to all elderly persons in a community, regardless of income. Exact data on the number of persons reached by different programs and on costs of various programs is not available because of multiple funding sources. One of the plans awaiting appropriations is for the establishment of a national information service for programs serving the elderly which would make more data available. This report contains an extensive bibliography.

PN-AAE-016

Paper copy \$7.68
Microfiche \$.93

(357) FOOD DEMAND SUPPLY AND NUTRITION PLANNING IMPLICATIONS FOR PAKISTAN

McCarthy, F.D.
1976, 65p.

MIT (AID/nesa-C-1165)

(In INP discussion paper no. 7)

This paper offers a framework for analyzing the effect of various policies on food intake for Pakistan. It allows for the evaluation of the impact of many policies which are currently accepted in principle for both food production and consumption. It also provides a measure of the impact of other policies which might be of future interest, for instance, modification in land tenure. In seeking to improve the welfare of a population the focusing on

DEVELOPMENT ASSISTANCE

economic growth alone can be misleading. This paper seeks to focus on nutrient intake of various classes as a norm of welfare. Various distributional aspects of consumption and some features of the class structure of production are incorporated into the analysis. This permits some evaluation of the direct and distributional impact of a range of policies. The preliminary results suggest that Pakistan should emphasize stimulation of agriculture by increased availability of water, fertilizer, and modernization. Policies should be introduced to improve tenurial arrangements for the poorer members of the agricultural sector and improve some form of food coupon system for the landless poor. The analysis supports the beneficial role of ration shops especially for targeting the urban poor. Indications are that a policy mix of this sort should effect a significant increase in protein-calorie intake within the next five years in Pakistan.

PN-AAF-648

Paper copy \$7.80
Microfiche \$.93

(358) INTERNATIONAL ASSISTANCE FOR MATERNAL AND INFANT NUTRITION IN DEVELOPING COUNTRIES;

National Research Council. Food and Nutrition Board; Conf. on Int Assistance for Maternal and Infant Nutrition in Developing Countries, Washington, D.C., 1978, 20p.

NAS (AID/ta-C-1428)

Presents the consensus of opinion reached at an international conference convened by the National Academy of Sciences in Washington, D.C. in January, 1978. The purpose of this conference was to discuss solutions to the severe nutrition problems faced by mothers and infants in developing countries. Major areas of concern were the declining incidence and duration of breast feeding despite its nutritional advantages, the importance of family health care and community cooperation, and the role of international assistance. The report recommends that assistance agencies continue to provide financial and technical support where appropriate. It also stresses the need to continue research activities and to facilitate the dissemination of data to program planners. Data will encompass three major areas--biomedical programs, cultural settings and practices, and service delivery systems.

PN-AAG-013

Paper copy \$2.40
Microfiche \$.93

(359) AN EXPLORATORY STUDY OF THE FOOD SYSTEM OF LESOTHO; A REPORT TO THE LESOTHO FOOD AND NUTRITION COUNCIL

Slater, C.C.; Dahringer, Lee; Sefali, Michael; Mokhesi, Phallang; Planning Assistance, Inc., New York
1978, 130p.

PA (AID/afr-G-1270)

Develops a detailed characterization of the current food system in Lesotho and presents recommendations for improving food production and utilization. Analyses of food supply and demand are conducted from demographic, economic, and technological perspectives, and the capacity to meet present and future nutritional needs is evaluated. The report concludes that significant nutritional problems exist in Lesotho's overall food system and that comprehensive national nutrition planning accompanied by further research is necessary.

PN-AAG-018

Paper copy \$15.60
Microfiche \$1.86

(360) PROCEEDINGS AND PAPERS OF THE INTERNATIONAL CONFERENCE ON WOMEN AND FOOD: VOLUME I

Int Conf. on Women and Food, Tucson, Ariz., 1978; Consortium for Int. Development
1978, 192p.

AID/WID

Summarizes the results of the International Conference on Women and Food, (January, 1978), and includes texts of papers delivered at the conference. The world's major food/nutrition problems are of special concern to women. Basic food/nutrition needs of all people could be met in the foreseeable future if knowledge available today were properly utilized. A major recommendation of the conference was that the family be made a focal point of efforts to put adequate food within reach of all people. It was also proposed that if basic food/nutrition needs are to be met, developing cultures must take into account the historical role of women in their food production and working systems, and include them as equal partners in the development process.

PN-AAG-053

Paper copy \$23.04
Microfiche \$1.86

(361) THE APPLICATION OF FOOD TECHNOLOGY TO IMPROVE THE NUTRITIONAL STATUS OF RURAL POOR IN DEVELOPING COUNTRIES

Fla. Univ. Inst of Food and Agr. Sciences
1978, 72p.

AID/TA/N

(Prepared by Univ. of Fla. for Office of Nutrition, A I.D., under research agreement 12-17-07-8-2306, administered by U.S. Dept. of Agr., International Development Staff)

Describes a study conducted by AID to identify factors contributing to rural malnutrition in less developed countries, and to propose AID-funded appropriate food technology (AFT) projects to alleviate the problem. The study presents six conclusions pinpointing causes of malnutrition and offers six accompanying recommendations for future AFT project planning. Working definitions of Appropriate Technology, Malnutrition, and Food Technology are provided, and specific Food Technology operations are outlined. The study also considers selection and delivery systems. Tables and an extensive bibliography are appended.

PN-AAG-062

Paper copy \$8.64
Microfiche \$.93

DEVELOPMENT ASSISTANCE

(362) REPORT ON THE DEVELOPMENT ASSISTANCE POLICY CONF., ROSSLYN, VA., 1974;

ACTNOP/AID/PHA/Advisory Committee on Voluntary Foreign Aid
1974, 105p.

AID/PHA

Reports on a development assistance policy conference held in April 1974 in the U.S. The focus of the conference was that the highest priority should be given "to undertakings that directly improve the lives of the poor people of the developing countries we are attempting to assist, and that help them develop their capacities to share in the process of their own development." This report gives

DEVELOPMENT ASSISTANCE

the conference program, a list of the attending numbers, and the major address. It includes a statement on policy directions which discusses the use of private and voluntary organizations to assist A.I.D. in collaborative and cooperative development efforts in food production, rural development, nutrition, population planning and health, and education, focusing on low income people.

PN-AAD-421

Paper copy \$12.60
Microfiche \$1.86

(363) AID USE OF DEVELOPMENT INDICATORS, A PROGRESS REPORT

Practical Concepts, Inc., Washington, D.C.
1974, 19p.

PCI (CSD-3375 GTS)

This study is by-product of a 1972 report entitled "Indicators of Social and Economic Development: Assessment of Practice in the Agency for International Development." This study of objectively verifiable indicators which A.I.D. defines as explicit and specific criteria or measures designed to provide objective assessment of project progress, includes examination of 204 PARs and PROPs. The documents set forth some 494 Goal and Purpose level objectives, for which there are 1,154 indicators. The evaluation process has already brought important benefits to A.I.D.'s program of non-capital assistance. The observed changes in design clarity reflects real progress by virtually all Missions. This PCI study highlights the areas in which increased attention by Mission personnel will accelerate the type of gains already achieved. Two areas deserve greater attention. One is targeting. Defining the expected change that will be achieved by a project is simpler to discuss conceptually than it is to accomplish in practice. Yet it is important to improve in this areas. It may well be necessary to identify the extent of the uncertainty through the use of intermediate measures, or by careful examination of other similar A.I.D. projects. The second area deserving greater attention is that of independent measures. The study indicates continued difficulty in measuring purpose objectives independently of outputs. Missions can improve in this area by more intensive questioning in Mission reviews to further clarify objectives and to focus on what happened because of the outputs.

PN-AAD-561

Paper copy \$2.28
Microfiche \$.93

(364) PASITAM DESIGN NOTES; notes 1-9, 1975/1976

MUCIA
1975-1976, 26p.

MUCIA (CSD-2958 211 (d))

These nine design notes each state a lesson which may be useful to those engaged in planning, managing, or evaluating development efforts and technical assistance projects. Each note describes a technique and discusses its use, presents and explains a useful concept, or reports a functional relationship between an intervention and an outcome. The subjects included in this set of notes are: how administrative arrangements can influence program outcomes; the effect of training programs on work behavior; a management information system model of multi-purpose, multi-method rural development projects; targeting as a tool of program and project design; technology transfer and the gatekeeper function; how uncertainty affects decision making; an agricultural management information system; designing organizations to

increase reliability and minimize error; and Shinyalu: Credit for small businesses. Each note gives citations from other studies, from published literature, or from the reports of development agencies.

PN-AAF-142

Paper copy \$3.12
Microfiche \$.93

(365) AN EVALUATION SCOPE OF WORK FOR P.L. 480 TITLE II COUNTRY PROGRAMS

Nathan (R.R.) Associates, Inc., Washington, D.C.
1978, 39p.

Nathan (AID/otr-C-1380 GTS)

The materials presented in this report are intended to facilitate the evaluation of policies, operational functions, and effectiveness of P.L. 480 Title II country programs. The evaluation approach provides for the review and assessment of a broad range of program factors without resort to measurement practices for which there is usually no data base. The central material consists of an evaluation scope of work and report outline. Ancillary information includes suggested interview questions and program analysis forms. The materials may be used as they are presented or modified to serve specific needs. The purpose of evaluating Title II country programs is to provide a reasonably comprehensive and uniform assessment of the programs, which will be useful for improving program operations, policy planning, and research purposes. The evaluation is designed to identify achievements as well as problems, to direct attention to program strengths and to areas which need improvement. It will also provide assistance to mission management at various levels, and to voluntary agencies and host government agencies as well.

PN-AAF-644

Paper copy \$4.68
Microfiche \$.93

(366) DISASTER RELIEF; GUATEMALA-EARTHQUAKE, CASE REPORT FEB. 1976

AID/PDC/OFDA
1978, 64p.

AID/PDC/OFDA

Evaluates damage inflicted by the Guatemala earthquake of February 4, 1976. Presents a complete analysis, by nation and by agency, of the types of emergency relief and reconstruction aid contributed. The earthquake was one of the worst natural disasters to strike Central America in modern history. Fully 64 percent of the population was victimized by the earthquake. All major services were crippled. Response to the emergency by other countries and international organizations was immediate and massive. The United States Government, United States voluntary agencies, and private donors contributed more than \$42 million. The international community donated over \$72 million. In addition to emergency relief, large-scale assistance in rehabilitation and construction was offered. Such assistance promises that Guatemala's overall development will not be severely retarded by the national disaster.

PN-AAG-031

Paper copy \$7.68
Microfiche \$.93

For addresses of issuing offices see the
Index of Issuing Offices at the rear.

ECONOMICS

(367) GUATEMALA A.I.D. DISASTER RELIEF PROGRAM; REPORTS ON POST-EARTHQUAKE DISTRIBUTION OF BUILDING MATERIALS

Gersony, Robert; Jackson, Tony; Froman, Jo; Taylor, A.J.
1977, 302p.

AID/PDC/OFDA

Presents two reports on the building material distribution program carried out by AID in Guatemala after the earthquake of February 4, 1976. In the first report, a background review provides information on the emergency itself and on the response by Guatemalan and International institutions.

The evolution of AID's program is subsequently analyzed in terms of the approach AID chose to address specific problems. The program AID developed was based on the approach used by OXFAM/World Neighbors, and stressed participation by the beneficiaries. An alternative approach (which characterizes CARE and Red Cross programs) was rejected by AID because it depended on a highly centralized administration and offered relatively little opportunity for grass roots participation. The reasons for AID's choice of the participatory approach are discussed in detail.

Also included in the first report are an interview with the director of CARE program and a chronological selection of public media articles concerning the disaster and the reconstruction effort. The second report evaluates the success of AID's program, taking into account the target population, materials used, the involvement of cooperatives, and local perceptions of the program. The report provides data on specific projects, materials, and costs.

PN-AAG-032

Paper copy \$36.24
Microfiche \$3.72

(368) U.S. ECONOMIC ASSISTANCE TO EGYPT, A REPORT OF A SPECIAL INTERAGENCY TASK FORCE IN RESPONSE TO SECTION 9 OF THE INTERNATIONAL SECURITY ASSISTANCE ACT OF 1977

Special Interagency Task Force
1978, 68p.

AID/NE/DP

Reviews the U.S. security supporting assistance program for Egypt. The report, prepared in accordance with Section 9 of the International Security Assistance Act of 1977, points out the significant degree to which U.S. political and economic objectives in Egypt are interrelated, and asserts that adequate living standards and tangible economic progress are crucial to maintaining popular support for the Sadat government's peace policies. At the request of the United States Congress, the emphasis of the report is on aid to Egyptian small businesses. Industrial and agricultural needs are also considered. Major issues related to improving the quality of life are outlined, and proposed U.S. assistance projects for FY 1979 are summarized.

PN-AAG-067

Paper copy \$8.16
Microfiche \$.93

ECONOMICS

(369) ECONOMIC SANCTIONS: THE THEORY AND THE EVIDENCE FROM RHODESIA

Porter, R.C.
1977, 23p.

Mich. (CSD-2547 211 (d))

(In Discussion paper no. 68)

The economic sanctions against Rhodesia were intended to stop the movement of products and means of production into and out of

Rhodesia. The theory of economic sanctions hold that sanctions impose hardships on the target country and thereby reduce its willingness to persist in antagonizing the world community. The way in which sanctions cause hardship has many interpretations. This report offers a basic theory of sanctions--aggregate, static, and neo-classical in nature--and presents five alternative views, and it assesses the effectiveness of sanctions against Rhodesia. Concludes that sanctions against Rhodesia have not succeeded for two reasons: trade was only partly cut off, and Rhodesia's economy proved very flexible. Economic sanctions incompletely applied to such a situation are unlikely to impose much hardship beyond a brief transition period.

PN-AAD-395

Paper copy \$2.76
Microfiche \$.93

(370) STRUCTURAL CHANGE, EMPLOYMENT AND INCOME DISTRIBUTION; THE CASE OF KOREA 1960-1970

Kim, Daemo
1978, 42p.

Rice (AID/otr-C-1394 Res.)

(In program of Development Studies. Paper no. 85)

Analyzes changes in the distribution of income in Korea between 1960 and 1970 in terms of changes in the structure of demand, output, and employment. The study is confined to agriculture, mining, and manufacturing - comprising roughly 65% of the work force during the 1960's. The data were analyzed in two steps: first the factors contributing to the change in the output structure were quantitatively identified; then the results of the first step are linked with the changes in patterns of employment and income distribution. Income inequality increased among industrial workers but decreased among farmers; combining the two group on a countrywide basis, inequality increased. Changes in the structures of domestic demand were found to be the most unequalizing factor, and rapid industrialization led to a larger increase in the employment of the relatively higher paid industrial workers than that of farmers. The faster growth of heavy industries using higher paid skilled workers increase the inequality among industrial workers. Export expansion tended to narrow income inequality among industrial workers but increased inequality among all households, while import substitution tended to equalize countrywide distribution.

PN-AAF-002

Paper copy \$5.04
Microfiche \$.93

(371) TECHNOLOGY CHOICE IN THE BRICK AND MEN'S LEATHER SHOE INDUSTRIES IN COLOMBIA

Baily, M.A.
1977, 555p.

Yale (AID/otr-C-1326 Res.)

This paper reports on a project on technology choice in the brick and men's leather shoe industries in Colombia. The project is based on secondary data and on the results of a micro-level field survey of firms in the two industries.

It was found that each industry exhibited a very broad range of different choices of technology actually in use, representing wide variations across firms in the use of major input such as capital and labor. The most important factors in causing the patterns observed were imperfections in the input markets, particularly in the capital market.

Channels of technology information were also examined. Colombian firms were found to obtain technology information through international channels which are costly, restricted in access and reliability, and dependent on historical accident for

their existence. The most important aspect is the limited diffusion of information about variations in technology whose significance is not readily visible (i.e. not appreciated without detailed cost accounting information) such as: minor variations in kline and drying sheds, which affect fuel and drying efficiency in the brick industry; factory organization and cost accounting system in the shoe industry.

PN-AAF-182

Paper copy \$66.60
Microfiche \$5.58

(372) TECHNOLOGY CHOICE IN THE MEN'S LEATHER SHOE AND COTTON SPINNING INDUSTRIES IN BRAZIL; THE RELATIONSHIP BETWEEN SIZE, EFFICIENCY, AND PROFITABILITY

Cardwell, Lucy
1977, 246p.

Yale (AID/otr-C-1326 Res)

This monograph reports on a project in Brazil to study the technological choices made by firms in the men's leather shoe and the cotton spinning industries. The analysis is based upon the results of a survey of firms in the two industries.

The main focus on the monograph is to characterize the size, efficiency and profitability differences across firms. The major conclusions are of several types: The first relates to economies of scale; the second to the degree of inefficiency among existing firms; the third to the relation between size, efficiency and profitability. Within the two industries studied here, there do not appear to be significant economies of scale, except when output is measured as value added. Larger firms have inventory and marketing advantages over small firms.

Very high estimates of X-inefficiency were obtained. In each industry, there is a positive association between degree of efficiency and sales.

Finally, the results do not support a simple relation between size and capital-intensity, on the one hand, and efficiency or profitability on the other. The most profitable shoe firms tend to be of medium size. The most profitable textile firms are large, capital-intensive and efficient.

PN-AAF-183

Paper copy \$29.52
Microfiche \$2.79

(373) MANUFACTURED EXPORTS FROM DEVELOPING COUNTRIES

Morrison, T.K.
1977, 217p.

AID/PPC/PDA

This report discusses the importance of manufactured exports to LDCs in light of recent experience and realistic future prospects which are constrained by both demand and supply factors. During the 1960's there was a significant change in many LDCs from import substitution policies to export promotion policies. While exports in general have been emphasized by development planners, the limitation of primary exports and import substitution have recently led to more emphasis being placed on manufactured exports. The recent experience of LDCs in exporting manufactured exports illustrates the great concentration of this trade by origin, product, and destination. The experience of LDCs with manufactured exports is still recent, but some patterns are discernible. An overview is presented of the various demand constraints facing the manufactured exports of LDCs. Chapter IV is primarily concerned with how the actions of the developed nations affect the manufactured exports of LDCs. The study discusses how a country's endowments with respect to domestic

market size, level of economic development, natural resources, and labor skills influence its ability to export effectively manufactured goods. Chapter VI tells how the level of protection, the valuation of the exchange rate, and export promotion policies can be employed by developing countries to enhance their manufactured export prospects. The relationship between inflation and manufactured export performance is also discussed. Chapter VII provides an empirical testing of the hypothesis put forward in the two previous chapters. The report concludes with an analysis of the residuals of the cross country regressions.

PN-AAF-388

Paper copy \$26.04
Microfiche \$2.79

(374) TRADE POLICIES TOWARD DEVELOPING COUNTRIES; THE MULTILATERAL TRADE NEGOTIATIONS

Perez, L.L.; Benedick, G.R.; Conf. on Multilateral Trade Negotiations, Washington, D.C., 1977; AID/IIAA
1978, 256p.

AID/IIAA

The purpose of the day long conference on the Multilateral Trade Negotiations and developing countries was to stimulate discussion among academic experts, U.S. officials and staff of international organizations on aspects of the trade negotiations of importance to developing countries. This volume contains the papers, comments and discussion at the conference. The papers presented are "Special and Differential Liberalization of Quantitative Restrictions on Imports from Developing Countries", "The Safeguard Negotiations and the Developing Countries", and "The Subsidy and Countervailing Duties Negotiations and the Developing Countries". The first paper considers special and differential treatment measures for exports of developing countries to provide opportunities for improved market-access in developed countries' sectors where QRs constitute an important obstacle to trade. The second paper discusses the international experience with safeguard actions under existing rules and makes a number of recommendations to improve the functioning of the safeguard system. The last paper argues that an accepted element of any new agreement on the use of export subsidies and other promotion schemes should be that equity and international relations considerations justify a differential treatment for export promotion schemes adopted by developing countries. The author suggests a generalized drawback of import duties allows an exporter to compete on the basis of his own productivity only in cases where he exclusively uses import inputs as soon as domestic production of inputs exists behind a tariff wall, that is no longer so. When some inputs are sourced domestically behind tariff than when the competing imports are used. The export subsidy should refund the full increase in cost due to the import protection.

PN-AAF-649

Paper copy \$30.72
Microfiche \$2.79

(375) NEOCLASSICAL THEORY AND THE OPTIMIZING PEASANT; AN ECONOMETRIC ANALYSIS OF MARKET FAMILY LABOR SUPPLY IN A DEVELOPING COUNTRY

Rosenzweig, M.R.
1977, 47p.

Rand (AID/otr-C-1432 GTS)

(In Yale Economic Growth Ctr. Discussion paper no. 271)

Literature concerned with the process of economic development has generally characterized rural labor markets in developing countries as uncompetitive and unemployment of labor is assumed

ECONOMICS

to exist. In this paper a neoclassical framework based on competitive assumptions is utilized to describe market labor supply behavior in two person households in developing countries and is tested on micro data from India. Many characteristics of rural areas developing nations may make the application of the neoclassical labor supply model more appealing than in developed country labor markets. Labor is less heterogeneous, nonpecuniary differences in wage jobs are likely to be fewer, taxation of savings may be ignored, and time worked may be more flexible. As the marginal efficiency role of schooling in agriculture based on labor supply behavior. The empirical results obtained are supportive of the behavioral implications of the neoclassical-competitive mode. Section 2 briefly reviews the model of landless household labor supply in which the husband and wife are earners. A corresponding model for landholding is formulated and the relevant comparative statistics are derived and compared to those of the landless model. Landless and landholding models in which wives devote all their time to household activities are also briefly considered. Data from a rural household survey from India are used to test the set of predictions pertaining to the market labor supply of males and females in landless and landholding households derived from the models. The results were consistent with the hypothesis that schooling, for both male and female members of landholding households, enhances agricultural production efficiency in India and thus tends to reduce the off-farm labor supply of cultivators, but indicate that geographical immobility is a marked characteristic of rural labor markets, particularly for males in landholding households.

PN-AAF-658

Paper copy \$5.64
Microfiche \$.93

(376) ECONOMIC VALUE OF CHILDREN IN INDIA

Sarma, M.T.R.
1977, 41p.

Rand (AID/otr-C-1432 GTS)

(In Yale Economic Growth Ctr. Discussion paper no 272)

This paper examines some economic determinants of fertility in rural India in the belief that knowledge of factors that influence the decisions of parents with regard to the number of children they want to bear and rear is important for appropriate population policy. In recent years, there is greater awareness among economists and policymakers in India that the households' decisions on expenditures or investments in human capital such as education, health, nutrition and children are important in influencing the rate and pattern of economic growth and income distribution. However, very little research work was done in extending the economic analysis to explain fertility behavior in India. The results of an analysis of the determinants of parent demand for children in rural India are presented. There are two primary reasons why the analysis in this paper is restricted to rural households. A brief description of the theoretical framework for the analysis of the data is given, the empirical results are discussed and a summary of land cultivated by the household, and high child mortality rate increase fertility. Wife's education and reduction in child mortality levels will reduce the fertility rate. The results of the limited exercise demonstrate the usefulness of the economic framework for analysis which suggests that parents in rural India, in deciding the number of births they will have, do respond to the advantages and disadvantages of having children.

PN-AAF-659

Paper copy \$4.92
Microfiche \$.93

(377) SCHOOLING, ALLOCATIVE ABILITY AND THE GREEN REVOLUTION

Rosenzweig, M.R.
1977, 44p.

Rand (AID/otr-C-1432 GTS)

Attempts to formulate a rigorous test for the existence of the allocative efficiency effort of schooling by examining empirically the relationships between schooling attainment and the adoption of new grain varieties and schooling investment and technical change within a more general optimizing framework. Within this framework, the cost of allocative activities are taken into account and schooling is allowed to play a number of roles, including signalling, in raising earnings. The results are potentially interesting in providing information of the impact of agricultural development programs on the distribution of rural incomes in the long and short run. A model of a farm household which is subject to a constant flow of new agricultural technology is constructed in which the level of adoptive activity is endogenous and in which the stock of the household's allocative skills can be augmented through schooling investment. The effect of schooling on the degree of dynamic allocative efficiency is decomposed into relationship between schooling and measured allocative efficiency as well as the response of schooling investment to the rate of technical change depend crucially on the relative magnitudes of the individual schooling effects. Results based on household data collected in India during the green revolution period in which households were exposed in different degrees to continuous information about the new technologies are used to draw inferences concerning the productivity of schooling. The final section summarizes the results and inferences are drawn concerning the income-distributional consequences of the interactions between schooling and agricultural technical change.

PN-AAF-660

Paper copy \$5 28
Microfiche \$.93

(378) RECENT POPULATION TRENDS IN LESS DEVELOPED COUNTRIES AND IMPLICATIONS FOR INTERNAL INCOME INEQUALITY

Kuznets, Simon
1977, 72p.

Rand (AID/otr-C-1432 GTS)

(In Yale Economic Growth Ctr. Discussion paper no. 261)

This paper deals with the question: "Given the major population trends observable in recent decades in the economically less developed countries, what can one infer as to the possible effects on long-term levels or changes in them in the internal distribution of income?" Because of the scarcity of relevant data, and of the complex interactions between the population trends and the concurrent structural changes in the economy and society of the countries involved, any answer to the question is speculative. The author begins by stressing that the acceleration in the population growth rate in the LDCs, and their markedly higher rate of natural increase than in the economically developed countries, are recent historical trends. The acceleration and growth excess of population movements in the LDCs were within a relatively short span of about five decades, following centuries of growth at low rates. The second important aspect of these recent trends is that the acceleration was due almost wholly to the decline in the death rates. The discussion suggests the minimum relative magnitudes of the losses represented by deaths of children and younger adults and the large differences in these losses between developed countries and LDCs on the eve of recent major downtrends of the death rates of LDCs. Given the possibility of substantial intra-LDC differences in mortality one can assume that in those earlier decades the burden of economic losses of mortality were much heavier relative

Please use the publication number in ordering.
Example: PN-AAB-000

EDUCATION

to the consumption and income levels of the lower income groups than they were for the upper income economic and social groups. We can also assume that the convergence in death rates and reduction in overall levels, associated with the recent technological breakthroughs in control of death and of public health, meant also reduction in the inequality of the burden of relative losses or mortality at these different economic and social levels

PN-AAF-661

Paper copy \$8.64
Microfiche \$.93

(379) SOURCES OF INCOME VARIATION IN COLOMBIA: PERSONAL AND REGIONAL EFFECTS

Fields, G.S.; Schultz, T.P.
1977, 84p.

Rand (AID/otr-C-1432 GTS)

(In Yale Economic Growth Ctr. Discussion paper no. 262)

The determinants of incomes inequality in Colombia are analyzed. Both personal and regional effects are examined. A sample of 860,000 individuals is used. Men and women are analyzed separately, as are employees and employers. Education, age, region, and rural/urban differences in income are distinguished using a variety of procedures including simple cross tabulations and decompositions of the log variance of income by analysis of variance and by regression techniques. By standard statistical conventions, the four way classification by educational attainment is the most important determinant of the logarithm of monthly income, while the seven age categories are generally somewhat more significant than the six regions. The fourteen parameters used to model these main effects account for a third of the log variance in incomes of employees and a quarter of that of employers. Each year of schooling is on the average associated with about 20% more income for male employees and employers. The restricted specification of a conventional earnings function increases the standard error of estimate by only .1%. Within education and age classes relative dispersions of incomes across regions are larger for the less educated, and for the very young and old. The research reported here should serve as the basis for further analysis of the determinants of inequality and poverty.

PN-AAF-662

Paper copy \$10.08
Microfiche \$.93

(380) SIZE AND AGE STRUCTURE OF FAMILY HOUSEHOLDS, EXPLORATORY COMPARISONS

Kuzents, Simon
1977, 65p.

Rand (AID/otr-C-1432 GTS)

(In Yale Economic Growth Ctr. Discussion paper no. 269)

This analysis deals largely with comparisons of the average size of household, in international cross section for recent years, in intranational comparisons of households between the rural and urban populations, and in comparisons over long time spans for a single country. The aim is to allocate the differences in average size between the contribution of the presence of children and that of the tendency of adults to live jointly or separately. The basis for such an allocation is first presented in a comparison for the U.S. and Taiwan. Such allocations of differences in average size are then illustrated for comparisons among countries of regions at different levels of development; comparisons of rural and urban households within the same country; and those over a long time span within a country. The distinctive characteristics of the much larger proportion of small households, all adult, in the developed regions as compared with those less developed, is explored, again in a comparison between U.S. and Taiwan, using the cross

classifications of households by size and by age of head. The concluding comments return to the wider concept of the family, in an attempt to evaluate the significance of the findings for households in their bearing upon the economic role of the family, widely defined, in countries or regions at different levels of economic development.

PN-AAF-664

Paper copy \$7.80
Microfiche \$.93

(381) LDC INCOME DISTRIBUTION AND PUBLIC POLICY; ANNUAL REPORT, 1977/1978

Princeton Univ. Woodrow Wilson School of Public and Int. Affairs
1978, 27p.

Princeton (AID/otr-C-1432 GTS)

A Project: To help developing countries and donor agencies better understand procedures for designing and implementing social equity improvement programs.

Duration: June 30, 1977 - June 30, 1978.

Developments: Reviews the progress of an ongoing inquiry into the effect of government economic policies on income distribution, specifically in Turkey, Nigeria, and Egypt. The study considers a wide variety of factors, including local politics, historical/ideological influences, education, and unionization. Basic economic contexts such as rural/urban income disparities, taxation rates, and industrial policies are also addressed. The progress report includes a work plan, information on personnel and budget, and a status review of the project papers.

PN-AAG-054

Paper copy \$3.24
Microfiche \$.93

EDUCATION

(382) NON-FORMAL EDUCATION AND THE STRUCTURE OF CULTURE

Axinn, G.H.; Kieffer, W.J.
1973, 48p.

Mich. State (CSD-3279 GTS)

(In Program of studies in non-formal education, discussion paper no. 3)

This discussin paper makes explicit the crucial issues in the theory and practice of non-formal education. It gives a developmental or exploratory approach. The most common approach to an international or to a cross-cultural intervention in education is characterized by the transfer of capital and the transfer of technology. This paper contrasts this type of strategy with a different approach to the intervention into the affairs of another nation, state, or cultural area. The transfer strategy can be viewed as a technical assistance or institution building approach; the contrasting strategy is the exploration and discovery approach. With this approach, instead of assuming that a developed country has something which would be of benefit to the other, it is assumed that the other society already has similar basic institutions. Although the other society is less developed, the function of education is carried on there as well. In the basic exploration and discovery approach, it is assumed that fundamental functions are carried out in all social systems and that each nation has some kind of existing system of these functions. The first step of educational assistance is to analyze the indigenous means which are used for education.

PN-AAC-992

Paper copy \$5.76
Microfiche \$.93

EDUCATION

(383) ECONOMIC STUDIES AND OUT-OF-SCHOOL EDUCATION PROGRAM EVALUATION FOR THE IVORY COAST; FINAL REPORT

Grant, S.R.; Klees, S.J.; Lenglet, Frans; McAnany, E.G.
1978, 125p.

AED (AID/afr-C-1158)

This is the final of 17 reports produced in the two areas of cost analysis/projections and the out-of school television (OSTV) segment of Ivory Coast instructional television broadcasting. In 1971 the Ivory Coast Government began instructional television broadcasts in a program designed to greatly improve the quality and relevance of the educational system, mainly at the primary school level. LDC educational administrators and planners have been eager to learn about costs, impact, effectiveness, benefits and problems related to the harnessing of the mass media for national development purposes. Since 1972, USAID has been involved with evaluation efforts of this project. From 1975 to 1978 an extensive evaluation has been done on systems costs and the organization and impact of rural adult education. This present report is a part of the effort. It is divided into four sections. Chapter One gives an introduction to the OSTV project after its first five years of existence. It describes the main elements of the in-school reform, outlines the progression of OSTV objectives, gives examples of the subject matter covered in broadcasts and demonstrates the range of ministries and development agencies which have co-sponsored programs. Chapter Two presents a "social impact model", based on a series of reports on the OSTV program. The social and educational impact of the program are analyzed for effort, effect, adequacy, efficiency, and process. Chapter Three summarizes each of the economic studies performed under the contract. Cost studies are presented for primary schooling, secondary education and out-of-school education. Chapter Four pursues the analysis of the first chapters to a series of recommendations for action in both the cost and the OSTV fields

PN-AAF-007

Paper copy \$15.00
Microfiche \$1.86

(384) AN ASSESSMENT OF THE RELEVANCE OF EDUCATION IN EL SALVADOR

Harvard Univ. Ctr. for Studies in Education and Development
1977, 441p.

AID/LA/USAID/El Salvador

The El Salvador sector analysis investigated the status and functioning of education and training throughout the nation and was structured around three central themes: (1) the equity, coverage, or outreach of education in El Salvador. (2) the efficiency of schooling and training; and (3) the relevance of education and training in El Salvador. This report focuses on relevance. One of the major activities of this report was the development of a comprehensive design for analyzing educational relevance. Several attempts were made to assess the aspects, facets, and pieces of educational relevance, and this report pulls this work together. The most ambitious undertaking was the development and application of an achievement test in four curricular areas. Volumes of data were collected and analyzed to assess the coverage of Salvadorean education as revealed in the percentage of enrollments of various groups at various levels in the school system. The efficiency with which these enrollments were processed through the system, governed by the flow parameters of drop out, repetition and promotion, and measured by input-output indices and completion ratios, was also assessed. This assessment was matched with cost data and related to structural and organizational features of the system. Four bodies of data form the basis for this report: worker-employer study, high school follow-up study, audience for nonformal educational programs,

and the work force study. There is also partial treatment of a fifth study on student households. The report includes the results of the analysis of the four major data collections and a summary of conclusions. Implications of the study are discussed in the final section.

PN-AAF-419

Paper copy \$52.92
Microfiche \$4.65

(385) TECHNICAL ASSISTANCE TO THE MINISTRY OF EDUCATION AND CULTURE; PROGRESS REPORT, NOV. 1977 - FEB. 1978

Simon, Murray; Acad. for Educational Development, New York
1978, 25p.

AED (AID-S11-91)

(In English and Spanish)

This progress report identifies key problems in program execution and recommends remedial action for the period from November 1977 to February, 1978. The report discusses: the role of the director; activities of the Minister of Education; progress on project goals; program training, planning, evaluation and instruction; financial administration; and final construction plans. A two week training program for directors and supervisors was conducted. Curriculum training of 252 supervisors and teachers in Cochabamba and Santa Cruz was conducted. A curriculum workshop is planned and plans are under way to form a toastmaster training program to develop leadership training. A workshop was held to develop and improve the knowledge of flow of funds to the various geographic areas of Bolivia from La Paz. Plans are underway for a public bid for two textbooks. The text will include teacher guides and pupils workshops. In addition, two other second grade texts in mathematics and social studies will be produced by the printing facility of the Ministry of Education and Culture. Training laboratory plans are under way to train 100 educators in the areas of planning, evaluation, curriculum, supervision, educational technology, and guidance.

PN-AAF-446

Paper copy \$3.00
Microfiche \$ 93

(386) EDUCATION AND HUMAN RESOURCES DEVELOPMENT IN AFRICA; AN ANALYSIS OF CURRENT STATUS AND PROBLEMS

Saunders, W.P.; Hanson, J.W.; Mook, J.L.; Sheffield, J.R.; Yates, E.B.
1976, 72p.

AED (AID/afr-C-1131 GTS)

The mandate of the International Development and Food Assistance Act of 1975 demands a strategy for education and human resources development which places emphasis on providing poor people with the conceptual and technical skills to lead more productive lives, both in economic terms and in the sense of self-fulfillment. Such a strategy must analyze the complex problems of human resources development and pose workable methods for their solution. This report quantifies some of the basic needs of the poor majority and sets some goals toward which programs and projects may be directed; discusses the various learning systems that may be utilized; identifies and evaluates current efforts of African countries and donor communities to address the problem; and presents alternative strategy guidelines for the design of viable education and human resources development programs and projects which are directed toward improving productive skills, increasing mass participation, and inducing self-sustaining economic growth for the countries of Africa. It is suggested that the Bureau for Africa should support programs in the area of

URBAN DEVELOPMENT

education and human resources development which stem from the implications of flexible, self adjusting vector planning. Some of the other suggestions are: capitalizing on indigenous innovations, providing direct assistance to educational activities aimed at groups which currently derive little benefit from the fruits of development, concentrating upon educational direction rather than educational targets, and easing the boundaries between diverse learning opportunities.

PN-AAF-656

Paper copy \$8.64
Microfiche \$.93

(387) HUMAN RESOURCES PLANNING FOR THE YEMEN ARAB REPUBLIC

Roulette, T.G.; Cieutat, V.J.; Acad. for Educational Development
New York
1978, 52p.

AED (AID/afr-C-1131 GTS)

Analyzes the status of human resources development in the Yemen Arab Republic (YAR) and proposes the establishment of a Human Resource Planning Function (HRPF) to coordinate further government policy making on the issue. The report reviews the YAR's existing five-year plan for personnel development and terms the plan a "directional" but ultimately inadequate remedy for Yemen's critical shortage of trained manpower. The report next outlines short- and long-term goals of the proposed HRPF and discusses general issues to be resolved in designing it—local vs. foreign training, foreign language training, types of training programs, and identification, selection, and placement of trainees. This overview is followed by sections which present specific recommendations and guidelines for the HRPF. These cover such areas as position requirements, workload distribution, program continuity, organizational development, and foreign experts. Detailed criteria for a work plan are enumerated. The report includes a bibliography of works consulted in preparing the report, and diagrams which illustrate the organization of the HRPF.

PN-AAG-021

Paper copy \$6.24
Microfiche \$.93

(388) EVALUATION IN RURAL COMMUNITY EDUCATION; THE STATE-OF-THE-ART

Pinnock, T.J.; Befecadu, Joseph; Hume, Elaine; Ghartey-Tagoe, A.F.
1978, 180p.

Tuskegee (AID/ta-C-1315 Res.)

Reviews and synthesizes literature on methodologies for evaluating rural community education programs. The study constitutes the first phase of a project entitled "Development and Testing Methodologies and Instruments for Evaluating Community Education Programs". This project will assess characteristics of specific communities and education programs in order to determine the optimum program for a given community. This particular report, which will be revised during the course of the project, is in three sections. The first section is an extensive overview of four major topics: the concept of community education, the history and examples of community education in the U.S., background and approaches to community education in LDCs and concepts and methodologies of evaluation. The second section provides case studies of community education in LDCs. In the last section, a composite of program evaluation variables and indicators is extracted from the literature, thus developing a data bank for use in future stages of the report. An extensive bibliography is appended.

PN-AAG-151

Paper copies \$21.60
Microfiche \$1.86

(389) URBAN BUILDING AND INCOME DISTRIBUTION IN COLOMBIA; SOME RELEVANT ASPECTS'

Berry, Albert; Soligo, Ronald
1978, 44p.

Rice (AID/otr-C-1394 Res.)

(In Program of Development Studies. Paper no. 84)

In 1972 Colombia instituted a policy of increasing the construction of urban housing as a major element in its employment and income distribution strategy. This paper examines the theoretical basis for the belief that urban residential construction would have the effect of increasing employment and income for low income workers. Short-run effects when construction activity is highest is compared with longer-run effects when construction activity and employment levels would be lower. Other investment strategies are considered which may generate lower employment in the short run but would sustain the level for a longer period of time. The production of housing services is relatively more capital-intensive than the production of many other goods and services. Subject to some qualifications, an emphasis on construction of new houses results in a trade-off of more employment and greater equity today for less employment and equity in the future. In the housing program in Colombia, value added in building construction grew rapidly during the period of 1972-74 when the new financial system designed to encourage construction was instituted. Real wages continued to decline, but could be a wage adjustment lag to accelerating inflation. Urban employment in the construction sector increased rapidly with a substantial share of the new jobs apparently filled by the previously unemployed.

PN-AAF-001

Paper copy \$5.28
Microfiche \$.93

(390) REPORT TO USAID EL SALVADOR ON STATUS OF MUNICIPAL DEVELOPMENT IN EL SALVADOR

McKee, T.A.

1978, 30p.

AID/LA/USAID/El Salvador

This overview of municipal development in El Salvador discusses Salvadorean municipality and municipal system, municipal support services, and government commitment to rural municipal development. It is suggested that much could be done to assist the municipalities with their major administrative difficulties in such areas as tax collection. The office of Municipal Assistance has a small professional staff and limited working capacity. It should focus its efforts on a small group of selected municipalities and establish a solid, saleable record of assistance. The Treasury serves 10% of the municipalities of El Salvador and needs to improve its coverage or be replaced by a more development oriented organization. A true municipal credit function would promote its credit to as many municipalities as possible, tie its loans to needed changes in recipient municipality administrative practices, vary interest rates depending on project type and relate its lending program to municipal development tactics established by El Salvador. The organization should be an integral part of the administrative entity charged with carrying out the totality of municipal development including training and technical assistance. The Government of El Salvador has a permanent commitment to provide the municipalities enough funds to keep them alive but has not made the next step of showing them how to do it for themselves. Neither has the government begun to view the municipalities as a partner in the development of the country.

URBAN DEVELOPMENT

Steps need to be undertaken now to expose the central government and the municipal governments to the concepts and practice of local government participation in the development of their countries.

PN-AAF-445

Paper copy \$3.60
Microfiche \$3.93

(391) MAURITIUS SHELTER SECTOR ASSESSMENT

Dawson, Marilyn; Slingsby, Ernest; Merrill, R.N.; Padco, Inc., Washington, D.C.

1978, 153p.

Padco (AID/otr-C-1627)

(Appendices, 100p.: PN-AAF-617)

This Shelter Sector Assessment is an overview of the total Mauritian housing sector which describes the components of the shelter sector and the dimensions of the shelter problem. The major areas presented are an overview and dimensions of the shelter problem, characteristics of the population, programs and institutions, shelter delivery systems, and prospects and analyses. Numerous tables, maps, and figures show populations, construction rates, distributions, budgets, and other pertinent data. The chapter on prospects and analyses undertakes an in depth analysis of existing programs, institutions and the construction sector. This analysis leads to a series of recommendations by the team as to how present programs and institutions can be revised and adapted to better meet the shelter needs of the total population. Particular attention is given to cyclone Gervaise victims and of low income families in general. The findings and recommendations of the team are summarized under three main headings: reducing construction standards; increasing institutional capacity; and increasing construction sector efficiency. Some of the recommendations are to: reduce standards in the present program from completed units being built to core units which are still cyclone proof; reduce infrastructure standards and increase densities such that projects can become economically feasible; design comprehensive projects to combine core units with completed middle income houses; and channel housing improvement to low income families in general. This assessment attempts to describe the existing shelter sector in Mauritius and to identify and analyze possible shelter packages which would contribute to the resolution of shelter problems in general. The options recommended are considered realistic in order to maximize the use of available human and financial resources, both formal and informal, in meeting existing and future housing needs.

PN-AAF-616

Paper copy \$18.36
Microfiche \$1.86

(392) MAURITIUS SHELTER SECTOR ASSESSMENT: APPENDIX VOLUME

Dawson, Marilyn; Slingsby, Ernest; Merrill, R.N.; Padco, Inc., Washington, D.C.

1978, 101p.

Padco (AID/otr-C-1627)

(Main work, 150p.: PN-AAF-616)

This is the appendix volume to the Mauritius Shelter Sector Assessment. The main volume describes the components of the shelter sector and the dimensions of the shelter problem. The papers in the appendix cover the economic situation, population characteristics, environmental conditions, building materials supply, contractors, public utilities and infrastructure, roofing

systems resistant to cyclone force winds, informal sector interviews and supplementary tables and persons interviewed. Numerous tables illustrate projected population, GNP, interest rates, exports and imports, etc. Figures show typical wind flow pattern and surface pressures, anchoring roof framing, purlins tied to rafters, metal strap anchorage, house plans, and other roofing systems.

PN-AAF-617

Paper copy \$12.12
Microfiche \$1.86

(393) MALAWI SHELTER SECTOR ASSESSMENT

Shono, E.W.; Canino, E.M.; Calderone, Rosalie; Nathan (R.R.) Associates, Inc., Washington, D.C.

1978, 155p.

Nathan (AID/otr-C-1633)

Analyzes Malawi's shelter sector, focusing on existing problems and financial constraints. The shortage of owner-occupied housing units in urban areas is the most serious problem. To remedy this situation, an innovative and successful site-and-service scheme, featuring self-help construction of traditional structures, has been developed! Technical assistance is being provided for training in this type of construction. Other recommendations to improve housing include the establishment of a Housing Finance Corporation to provide credit guarantees and mortgages for low income families, provision by the Government of low-cost permanent pre-built housing, and modification of Government housing subsidies. The document includes general background on Malawi, describing geographic, economic, governmental, and population characteristics.

PN-AAG-016

Paper copy \$18.60
Microfiche \$1.86

(394) URBAN LAND USE IN EGYPT

Joint Land Policy Team in Egypt; Egypt, Ministry of Housing and Reconstruction.

1977, 112p.

AID/SER/H

(Appendix, 143p.: PN-AAG-047)

Describes the present use of urban land in Egypt and presents a comprehensive policy for planning future urban development. The preface, a concise summary of the findings and recommendations of the Joint Land Policy Team, reviews the reasons for Egypt's current residential land shortage and briefly outlines recommendations for reform policies. Part One, the "Background to Policy Formation", presents an expanded assessment of current land trends and includes urban growth statistics, information on the economics of housing, and a description of existing development and housing programs. In Part Two, the "New Policy Framework", various aspects of future programs are considered, including planning processes, taxation, the establishment and financing of a Land Development Agency, and institutional development in the Ministry of Housing and Reconstruction.

PN-AAG-046

Paper copy \$13.44
Microfiche \$1.86

For addresses of issuing offices see the
Index of Issuing Offices at the rear.

Please use the publication number in ordering.
Example: PN-AAB-000

COMMUNICATION AND INFORMATION COMMUNICATION AND INFORMATION

(395) URBAN LAND USE IN EGYPT; APPENDIX

Joint Land Policy Team in Egypt; Egypt. Ministry of Housing and Reconstruction
1977, 143p.

AID/SER/H

(Main work, 112p.: PN-AAG-046)

This appendix presents materials prepared to accompany the main text of the Joint Land Policy Team report. It serves as a background paper in which the following topics are covered in great detail: Population and the National Pattern of Urban Growth; Rights to Land in Egypt; Land Use in Cairo; Rent Control; Real Property Taxation; Land Prices and Land Speculation; The Land Development Process: Planning, Subdivision, and Building Regulations; An Evaluation of the Proposed 1977 Housing Program; Professional Postgraduate Training; and Incomes and Housing Expenditures.

PN-AAG-047

Paper copy \$17.16

Microfiche \$1.86

(396) HOUSING FINANCE IN EGYPT

Joint Housing Team for Finance in Egypt; Egypt. Ministry of Housing and Reconstruction
1977, 98p.

AID/SER/H

Contains the report of the Joint Housing Team for Finance, which operated in Cairo during February 1977. The study is one component of a three-part housing action study. In Egypt, and particularly in Cairo, a strong, unsatisfied demand for housing exists. Housing needs are most acute among young families and low income families. Low-income families also suffer disproportionately under present housing finance arrangements. The Housing Team recommended that several changes be made in the structure and operating procedures of the Credit Foncier and that assured financing exist for "economic" housing through the National Housing Fund and for "moderate" and "middle-income" housing through the Credit Foncier. Based on the team's findings, the Government of Egypt made changes in interest rates and withholding taxes, and changes in the Credit Foncier. Report includes Appendices with tables

PN-AAG-048

Paper copy \$11.76

Microfiche \$.93

(397) HOUSING AND COMMUNITY UPGRADING FOR LOW-INCOME EGYPTIANS

Joint Housing and Community Upgrading Team in Egypt; Egypt. Ministry of Housing and Reconstruction
1977, 180p.

AID/SER/H

Identifies potential locations and project components for proposed low-income housing demonstration projects to be built in Greater Cairo, Alexandria, and Minia. In addition to a brief summary of purposes and recommendations, the report features two principal sections. In the first, an extensive overview of major factors relevant to planning is presented through a background update. This encompasses social and economic conditions in low-income families, information on utilities, an historical perspective of Cairo's current severe housing shortage, and the problems and processes involved in construction. In the remaining major section, the proposed demonstration projects' components--neighborhoods, health care, employment, programs for women, and credit--are discussed, and specific project locations are described.

PN-AAG-049

Paper copy \$21.60

Microfiche \$1.86

(398) ORGANIZING AN INTERNATIONAL INFORMATION NETWORK IN EDUCATION; PROCESS AND PROBLEMS

Pritchard, Roger
1977, 38p.

Calif.--Berkley (AID/CM/ta-G-73-17 21d)

(Prepared for UNESCO Sym. on Future Programmes of Information and Communication in Educational Policy and Planning, Paris, 1977)

Delineates the process and problems of setting up a network in educational policy and planning. Networking is a process of moving information "whose time has come." The need for an effective distribution mechanism is created by (1) a great degree of isolation among specialists--both geographically and as a result of the division of labor and (2) a tendency for information flow to be inconsistent. Network development in the education field up to the present has been concerned with end-result systems, e.g., publications, papers, proceedings, findings, etc. Prior to the end result publication stage there exists a whole series of stages, from conception to pre-publication completion. Information about these stages is rarely, if ever, disseminated. These are the stages focused upon in this network model. UNESCO is in a unique position to develop such an approach to networking in an international context. No single national institution, nation, or block of nations can compete with a multilateral organization, simply because of partisan considerations. Major sections of this report include: Network Context and Network Properties; Process and Problems of Setting Up a Network; and Lines of Development of Networking by UNESCO.

PN-AAF-102

Paper copy \$4.56

Microfiche \$.93

(399) A LOW-COST DATA COMMUNICATIONS SYSTEM FOR THE CGIAR; A REPORT ON FEASIBILITY WITH A PRELIMINARY DESIGN

CRC Systems, Inc., Vienna, Va.
1978, 80p.

CRC (AID/ta-C-1471)

The technical feasibility of using international dial-up telephone circuits to transmit data between a central switching center and International Agricultural Research Centers located in LDCs is studied and established. The administrative viability and cost effectiveness of such a system are considered. Local requirements and conditions are set as the basic factor and then placed in the context of a world-wide system for administrative and scientific information transfers among research centers. Logical expansion capabilities to provide access to computer-based scientific research systems are analyzed. A preliminary design, including specific implementation and planning consideration, is recommended. The data transmission tests that were conducted show the practicality of using regular dial-up voice telephone lines for electronic mail transmission at medium to high speeds. From a cost benefit point of view, it is imperative that other nodes besides the International Agricultural Research Centers be included on the system. This cannot be done immediately because of logistical, operational, and coordination considerations. This service will be cost effective, even when the less tangible scientific utilization potential is not included. It is recommended that the system be procured on a leased-service basis from a qualified engineering renewal/extension options so that budgetary and administrative planning can be firmed up ahead of successive implementation phases.

PN-AAF-348

Paper copy \$9.60

Microfiche \$.93

COMMUNICATION AND INFORMATION

(400) COMMUNICATION AND TECHNOLOGY COMMUNICATION AND TECHNOLOGY TRANSFER; FINAL REPORT

Spaulding, I.A.
1977, 78p.

R.I. (CSD-2455 211 (d))

This report deals with self concepts of innovation adopters and non-adopters among artisan fishermen in two locations on the Gulf of Nicoya, Costa Rica. This study was undertaken to find out if they have characteristics with potential for use in: describing predisposition to change and adopt innovations; predicting adoption of innovations; and improving communication to facilitate the adoption of innovations. The two areas studies are located on the Gulf of Nicoya which opens into the Pacific Ocean on the western coast of Costa Rica. Barrio el Carmen is a waterfront neighborhood community. Costa de Pajoros is a village area and is more remote being accessible only by water and by unimproved roads. Adopters are classified as fishermen who had adopted and were continuing to use a simple record keeping system and book introduced earlier in the year. Non-adopters were fishermen who had not adopted the record keeping system and book. Evidence indicates that adoption of the innovation is associated with a predominance of expectations in self concepts; non-adoption is associated with a variety of self concept structures. Imagery and evaluations were the other self concept components considered. Personal qualities associated predominately with the adoption of this innovation were those of being orderly and keeping control of one's activities.

PN-AAF-482

Paper copy \$9.36
Microfiche \$.93

(401) IDENTITY AS A NEGLECTED FACTOR IN MESSAGE DESIGN RELEVANT TO COMMUNICATION FOR TECHNOLOGY TRANSFER; STATE OF THE ARTS PAPER

Spaulding, I.A.
1976, 41p.

R.I.

(Rev. 1977) (CSD-2455 211 (d))

Recently, the common view of communication is that it is a linear process entailing mechanistic relationships among a message, a sender of the message, the channels used, and the receiver of the message. There is recognition that at this time there is no adequate conceptualization to achieve the task of describing communication and change without resorting to use of sequential conceptual stages. This paper explores the research problem, the conceptual approach used here, the significance of identity for communication and change, implications for message content and structure and the state of the art. This research should produce evidence which might be used in two ways: (1) use of identity concepts in messages throughout a program of communication designed to effect change from one phase to another in the adoption transition and (2) use of identity characteristics of potential adopters as indicative of their relative readiness to adopt a given innovation. Progress toward these uses can be made because of the current transition in conceptual orientation to communication and technology transfer.

PN-AAF-484

Paper copy \$4.92
Microfiche \$.93

For addresses of issuing offices see the
Index of Issuing Offices at the rear.

(402) ACCESS TO SOURCES OF INFORMATION ON AGRICULTURAL DEVELOPMENT IN THE SAHEL

Walsh, Gretchen
1976, 31p.

Mich. State

(In African Rural Economy Program Working paper no. 17)
(Presented at African Studies Assn. Annual Mtg., Boston, 1976)

The primary mission of the African Rural Economy Program is to further comparative analysis of the development process in Africa with emphasis on both micro and macro level research on the rural economy. This paper addresses itself to an investigation of basic need of all who undertake research for development: information. Information includes basic raw data, research reports, results of basic research; and background knowledge which allows the development planner to tailor recommendations to the particular social, cultural and economic reality. The report discusses where to find the information: abstract journals, access to data bases, indexing services, libraries, bulletins, national bibliographies, and research centers. A list of addresses of selected research stations and centers in West Africa appears in Appendix II. Other appendices are: illustration of computer literature searches; and bibliographies.

PN-AAF-491

Paper copy \$3.72
Microfiche \$.93

(403) INFORMATION AND COMMUNICATIONS IN THE SAHELIAN DEVELOPMENT STRATEGY

Matthews, D.G.
1978, 40p.

BLK (AID/afr-C-1199 GTS)

This report contains an analysis of the problems, constraints and recommendations relevant to improving the dissemination of development information within the Sahel and its subsequent impact on disseminating the information of Sahelian development objectives abroad. One of the primary missions was to explore ways of involving the mass communications media in the work of the Club du Sahel and in making this work known to the people of the Sahel generally. Recommendations include: develop and provide specialist assistance to prevent further duplication of effort and cost with maximum impact on the region as a whole; initiate action-oriented programs in related information and mass media training through conferences, seminars, meetings, and workshop planning and implementation in coordination; assist in the recruitment of public information specialists to begin work on information dissemination programs in reaching their respective constituencies which include both the urban and rural poor in the Sahel; recognize and utilize the capacities of the growing Sahelian membership of the African Council of Communication Education. It is also suggested that a conference, seminary, or workshop program be developed with action-oriented objectives specifically designed to involve more Sahelian women in information dissemination and mass media for development in the region.

PN-AAF-650

Paper copy \$4.80
Microfiche \$.93

(404) AN APPLICATION OF A COMPUTERIZED INFORMATION-STORAGE AND RETRIEVAL SYSTEM FOR DEVELOPMENT PLANNING

Forbes, T.R.
1978, 28p.

Cornell (CSD-2834 211 (d))

An efficient, computerized means of storing and retrieving soil resource information is presented. The Integrated Scientific

HEALTH AND POPULATION

Information System (ISIS) is currently distributed and used by UNESCO. ISIS permits input of both alphanumeric and numeric information by batch or on-line, interactive modes. The stored information is kept in addressed master files which may also be indexed by selected keywords. The retrieved information can be displayed on remote terminals or formatted as indexes or catalogs on high-speed printers. Once installed these programs can be used for the storage and retrieval of almost any kind of information. This system could be helpful in the organization and evaluation of many kinds of development data. Several hundred soil survey reports were characterized by the extraction and storage of relevant data on checklists specially compiled for the purpose. Information from the checklist was then input into the ISIS system for storage and retrieval. ISIS could be particularly useful to development funding agencies such as USAID and World Bank which have large amounts of materials on completed projects. The system would allow follow-up or evaluation studies to be completed easily on finished projects. The success or failure of project approaches or strategies could be more easily evaluated. It would also help avoid repetition or overlap of studies in a given geographic area. The system could also be used to compile relevant reference documents. Several versions of ISIS is in existence. The gross characteristics are similar and resemble those described in this paper.

PN-AAF-652

Paper copy \$3.36
Microfiche \$.93

HEALTH AND POPULATION

(405) SYNCRISIS, THE DYNAMICS OF HEALTH:

21. JORDAN

Gallivan, J.F.
1977, 74p.

HEW/PHS/OIH

This paper describes and analyzes health conditions and the impact of those conditions on the socioeconomic development. Among the topics discussed are the general setting, demographics, causes of death and illness, health sector infrastructure, curative resources, and prevention. Almost 70% of Jordan's population is comprised of children under 15 and women of reproductive age. Gastroenteric and respiratory infections, preventable infectious diseases of childhood and conditions associated with childbirth exact heavy mortality and morbidity tolls from these population groups. Health care is delivered through an uncoordinated multiplicity of providers. Development of a technical capacity in health planning is essential to progress in this area. Water is one of Jordan's scarcest resources. Eighty percent of the country is steppe and desert and water distribution systems in the populated parts of the country are inadequate. Improved standards of living over the past few decades have improved the general nutritional status of children. However, 20% of children admitted to public hospitals recently were suffering from malnutrition. Contributory factors include early weaning to unhygienic cow's milk; prolonged breast milk feeding with little or no supplementation; lack of health and nutrition knowledge; unsafe water sources; and poor sanitation facilities. The Government does not have a focal point for nutrition concerns at this time. The initial access points to health care for the poor majority are the 82 urban and 250 rural clinics. There is a tremendous potential for the effecting of improvements in the country's health status at this level of the health care system. Activities might include simple curative services, health education, simple case-finding, maternal and child health outreach, environmental sanitation work and vital statistics reporting.

PN-AAF-006

Paper copy \$8.88
Microfiche \$.93

(406) CONCENTRATION OF FLUORIDE IN WATER SUPPLIES FROM AREAS AROUND LAKE KIVU, RWANDA: A PRELIMINARY STUDY

Simmons, B.D.; Menaker, Lew; Taylor, R.E.; Navia, J.M.
1977, 12p.

DHI (AID/afr-G-1163 GTS)

(In Ala. J. of Medical Sciences, v. 14, no. 1)

The high incidence of fluorosis among the people living in the area around Lake Kivu, Rwanda, and living on the islands in Lake Kivu led to this study of the water supplies for the villages. The individuals in these areas also showed evidence of malnutrition. A possible relationship between the severity of fluorosis and the degree of malnutrition was noted. Bone samples of domesticated animals were examined to determine the amount of incorporation of fluoride from the water supply into the bone. It was concluded that only one water site had a satisfactory level of fluoride and should be selectively used for drinking purposes. Recent studies using a rat model pointed to increased fluoride uptake in the protein malnourished rat combined with a decreased protection against dental decay when compared to adequately fed controls. It is suggested that mottling is not caused by the actual amounts of fluoride deposited in the mature enamel, but is caused by an increase in the amount of fluoride ion present during enamel formation. This could account for the severity of the fluorosis noted in the teeth of the subjects studied around Lake Kivu since these groups rarely move from their home sites and consume the high levels of fluoride throughout their lives. The optimum fluoride level for community water supplies varies in relation to the temperature of the area. Temperature has a direct bearing on the amount of liquid consumed.

PN-AAF-294

Paper copy \$1.44
Microfiche \$.93

(407) INTEGRATED RURAL HEALTH SERVICES IN SILIANA AND SIDI BOU ZID PROVINCES, TUNISIA; DESIGN STUDY II

Family Health Care, Inc., Washington, D.C.
1977, 225p.

FHC (AID/afr-C-1138 GTS)

At the request of the Government of Tunisia and USAID/Tunis, a Family Health Care team and an architectural consultant went to Tunisia in June 1977 to assist with the development of a rural health services project. This report is an enlargement upon the information, ideas and project rationale developed and agreed on during the team's visit. It reflects many formal and informal meetings and working sessions with the Tunisian counterparts who will be responsible for coordinating and directing the proposed project in Siliana and Sidi Bou Zid. The scope of Family Health Care's work involved the following areas: functional program description for all facilities that are to be renovated or newly constructed with AID loan assistance; preliminary job definition of front line workers and supervisory workers; programmatic siting criteria for facilities referenced above and the initial specification of actual sites. The architectural consultant worked in two parallel areas: functional design and preliminary architectural rendering or schematics of facilities and realistic current and projected future construction cost estimates for facilities. The report includes the project and issues in overview, planning assumptions, a discussion of integrated preventive and curative health services by location of service, manpower and training, operating cost implications, and new recommendations for mobile seminar, staffing options, foreign donor coordination, regional facilities, operating costs, and vehicles. The Appendices include a

HEALTH AND POPULATION

bibliography, maps and population data, draft outlines for the project, equipment lists, socioeconomic data, and program design and project recommendations.

PN-AAF-353

(408) RURAL HEALTH SERVICE DELIVERY PILOT PROJECT AT MONTERO, BOLIVIA; FINAL REPORT

Westinghouse Health Systems, Columbia, Md.

1976, 21p.

Westinghouse (AID/afr-C-1145 GTS)

This is a summary, of the Montero Rural Health Project, developed from a 26 day working visit of a health planner to La Paz, Bolivia. The report comments on site selection, community resources, activity planning, training programs, scopes of work, and potential barriers. The communities selected by the rural health out-reach team as the sites for implementation of the project were: Antofagasta, San Ignacio, Puesto Fernandez, and La Porfia/Aroma. The health planner reviewed these selections, evaluated the criteria used for the selection, and was to recommend site changes if needed. It is recommended that an attempt be made to develop an approach to the community organizations that will be consistent among all the project communities, thus serving as a model for repetition nationwide. Within the health sector, a model program should be established to train sanitary technicians in maintenance skills. There is a need for knowledge or assistance in maintaining and repairing community sanitary property and facilities, such as wells, pumps, and latrines. This could serve as a model program to meet a need found throughout Bolivia. The planner also assisted the Project staff in completing the first quarterly plan of activities and advised the staff on the organization and timing of the training, work scopes and information system programs.

PN-AAF-420

Paper copy \$2.52

Microfiche \$ 93

(409) SENEGAL RURAL HEALTH SERVICES DEVELOPMENT PROJECT; FINAL REPORT

Westinghouse Health Systems, Columbia, Md.

1976, 37p.

Westinghouse (AID/afr-C-1145 GTS)

At the request of A.I.D.'s Africa Bureau, Westinghouse Health Systems provided the services of two technicians to assist in the preparation of a project paper on the rural health services development project in Sine-Saloum. A health education planner worked with the Reconnaissance Geographique and with the Ministry of Health in the development of training programs and courses for the training of sanitarians and Peace Corps volunteers. A health economist made a review of the general economic development trends in Senegal and studied the costs/benefits of the project, including an analysis of rural health expenditures. This report discusses the national health expenditures and financing, health in the fourth plan, national health manpower, health manpower in the Sine-Saloum, pharmacies, drugs, and supplies, and regional health expenditures in Sine-Siloum. The health plan's goals are: to give priority to rural over urban areas; to favor medicine for the masses over medicine for the individual; to emphasize preventive rather than curative medicine; to give priority to health education; and to develop a network of integrated services. The network would be capable of supporting massive attacks against transmissible diseases and of providing the population with a basic health system which meets their essential needs.

PN-AAF-421

Paper copy \$4.44

Microfiche \$ 93

(410) MATERNAL AND CHILD HEALTH CENTERS, OPERATIONAL PROGRAM

Organization for Rehabilitation through Training, Geneva, Switzerland

1977, 117p.

ORT (AID/CM/pha-C-73-9)

Increasing efforts are being made in LDCs to create health services that meet the needs of the local population. Special importance is given to helping rural areas, where 80% of the population lives; but the provision of appropriate services for the millions of city dwellers living in marginal conditions remains problematical. Poor communities are subject to rapid changes and fluctuations, presenting complex social problems. This description of the Maternal and Child Health Center program in Kinshasa, Zaire, was prepared with the intention of answering the questions of observers and visitors and of explaining the pragmatic methods that are applied. Kinshasa has over two million people and presents all the characteristics of a large tropical city. The sanitation services and public transport are often overburdened and under equipped. The hospital services are overcrowded. The Maternal and Child Health program was envisaged in a spirit of seeking practical solutions and of furthering decentralization of the ambulatory and maternity services which encumber the central hospitals. It is meant to be a pilot demonstration and training project in maternal and child health care. The report discusses the conception and development of the centers, the centers at Kinshasa, the under-five clinic, the prenatal clinic, the maternity services, the desired births clinic, training of the nursing personnel, and the auxiliary services: pharmacy, laboratory, and sterilization.

PN-AAF-493

Paper copy \$14.04

Microfiche \$1.96

(411) GUIDELINES FOR TASK-SPECIFIC CURRICULUM DEVELOPMENT FOR MATERNAL AND CHILD HEALTH CARE TRAINING

Organization for Rehabilitation through Training, Geneva, Switzerland

1977, 83p.

ORT (AID/CM/pha-C-73-9)

The purpose of these guidelines for health workers is to share with those who are concerned with training for Maternal and Child Health care the experience in developing job-specific training derived from the program in Kinshasa, Zaire. In order to keep the content of the training course relevant to the job and in order to accomplish training within a relatively short period of time, a task-specific method was applied to define curriculum objectives and content. Effective training for comprehensive MCH care demands approaches which differ from those conventionally used for health training. Particular efforts are required to: combine curative and preventive measures; work in a team context; give services in a sympathetic way; place major emphasis on education and motivation; and provide a family and community orientation. These guidelines attempt to review briefly how the task oriented curriculum was developed. Section I discusses tasks and shows how they can be analyzed. Other sections show how step by step task descriptions were used to determine curriculum objectives and how these objectives are used to elaborate the curriculum content. An illustration is given of a convenient approach to organizing the curriculum into units. An example is presented of lesson programs which arrange the curriculum for an under five and prenatal training program into a week long course for level I and a two week course for level II nurses. This is an approach for elaborating a job relevant curriculum. Adaptation will be required to make sure that local approaches, needs and possibilities are taken into account in transferring them to other situations.

PN-AAF-494

Paper copy \$9.96

Microfiche \$ 93

HEALTH AND POPULATION

(412) HEALTH SECTOR ASSESSMENTS; COMPARATIVE SUMMARY REPORT: BOLIVIA, DOMINICAN REPUBLIC, NICARAGUA

Westinghouse Health Systems, Columbia, Md.
1978, 189p.

Westinghouse (AID/afr-C-1145 GTS)

Summarizes on-site evaluations of the Health Sector Assessment (HSA) process in Bolivia, Dominican Republic and Nicaragua. The HSA process was first used in Colombia in 1972 and then in Bolivia and the Dominican Republic in 1973-74. The basic objectives of this program were: to provide A.I.D. and other donors with a program planning document to guide grants and loans in the health sector; to improve the quality of health planning in the host country; to produce a document to be used as the basis for a comprehensive national health plan and strategy by the host country; to stimulate and institutionalize changes in the health care system sector-wide; to upgrade the skills of planners and administrators in the health sector and to stimulate and improve coordination within the health sector generally and among A.I.D., host country governments, other donors, and private sectors in the host country. While the HSA process has been fundamentally productive, it has inherent limitations because of conflicting multiple-objectives, priorities and mandates. Existing HSAs may be usefully adapted to take greater cognizance of host country differences. Four models are presented, drawn from a spectrum of program planning possibilities. It is recommended that more attention be devoted to planning the choice of model or the model variant before starting the HSA. In addition to the comparative summary report, which contains the recommendations, a descriptive report has been prepared for each country visited.

PN-AAF-579

Paper copy \$22.68
Microfiche \$1.86

Decentralization has placed a major burden, in terms of the planning and operation of health services, on the district medical officer. Rising costs of health services are a major concern.

PN-AAF-646

Paper copy \$10.92
Microfiche \$.93

(414) ASIA BUREAU MALARIA STRATEGY STUDY

Am. Public Health Assn., Washington, D.C.
1977, 199p.

ALPHA (AID/ta-BOA-1070 GTS)

Failure to respond to the challenge of resurgent malaria in many countries will have a serious adverse impact on almost all other A.I.D. efforts. Assistance to antimalaria efforts should now be directed to soundly conceive programs of malaria control. The essence of malaria control is that all operations must be specifically designed, area by area, to maintain the incidence of malaria below the level of public health importance, rather than to create and maintain a complete interruption in the transmission of all malaria. Five components to A.I.D.'s malaria strategy are recommended: properly planned and evaluated malaria control programs; a mechanism to bring these programs to the attention of potential donors; establishment of an international training center for control of malaria and other vectorborne diseases for training of professionals, expanded support of a research effort; and continued participation in regularly recurring international expert appraisal of malaria control programs. The report also examines anti-malaria strategies and their results, justification and criteria for A.I.D. support, mobilization of financial assistance, organization for malaria control; malaria control techniques, training requirements, and research needs and priorities.

PN-AAF-647

Paper copy \$23.88
Microfiche \$2.79

(413) HEALTH SECTOR OF TANZANIA, CONSULTANT REPORT

Lewis, C.E.
1976, 91p.

AID/AFR/DR/HN

This report on health in Tanzania discusses national policies impacting on the health sector, the health problems, the health care delivery system, access to health services, self reliance, quality of care, and recommendations. The government has made considerable investment in staffing the health care system with non-physician practitioners. The quality of education being provided is excellent. The curriculum structure may be somewhat inefficient to the extent that it is patterned after that of a school of medicine rather than specifically designed to meet the training requirements for such practitioners. The number of practitioners providing direct patient care that will be produced in the next five years will significantly improve access to care, however, the burden of recurrent expenditures will also be increased. The lack of current plans for the development of a support system for these practitioners suggests that their proficiency will decrease, and that the quality of the services they provide will decline over time. Even though these practitioners are dealing with a limited number of clinical problems, the lack of incentives for continued learning, the absence of adequate supervision, and deficits in the maintenance of the facilities and resources necessary for practice, constitute major threats to the maintenance of an acceptable level of quality of care. The decentralization of governmental functions has created problems related to the coordination of central government functions with those at the district and regional levels. In examining the organization chart for health services in Tanzania, the lines of authority and responsibility are not clear.

(415) MANAGEMENT OF RURAL HEALTH SERVICES, GHANA; ANNUAL REPORT, 1977

Kaiser Found. Int., Oakland, Calif.
1978, 56p.

KFI (AID/afr-C-1116)

This report of the Management of Rural Health Services in Ghana reviews the project status, accomplishments for the past years, issues and problems to be resolved and future directions. The sections discuss achievements as against plan of work, special events, management training, participant training, constraints to achievement, project costs, and future directions. During 1977 the National Health Planning Unit of the Ministry of Health in Ghana made considerable strides in institutionalizing a planning and budgeting process in the Ministry and in developing a plan to provide broad coverage, primary health care to the country. Most of the targets of the Unit's Plan of Work were met and additional tasks were undertaken. Eight Ghanaians were sent to the U.S. for graduate training in disciplines related to health planning and management of health services. The Unit's plan of work is divided into five functional areas; these include policy formulation and four subsystems are: health assessment, program evaluation and health care system design; human resources; finance, budget and control; and delivery of health care services. Specific functions, supported by tasks to be accomplished, are specified for each area.

PN-AAF-657

Paper copy \$6.72
Microfiche \$.93

HEALTH AND POPULATION

(416) SYNCRISIS, THE DYNAMICS OF HEALTH:

23. SYRIAN ARAB REPUBLIC

Weissman, Juliana
1977, 168p.

HEW/PHS/OIH

This report is part of the Syncrisis series, which consists of country profiles describing and analyzing health conditions in particular countries and the impact of those conditions of the country's socioeconomic development. The primary purpose of these studies is to provide a concise and up-to-date introduction to the health situation in a country. National health policy in Syria relates improvements in health status to changes in the rate of overall economic and social development. Health programs receive a low priority in the formulation of the National Development Plans. A large private sector now delivers three quarters of all health services. The lack of a well developed planning capability within the Ministry of Health has served to weaken the position of the Ministry in the competition for limited government funds. The absence of a coherent national health policy is evident in the largely uncoordinated efforts of the private and public sector organizations which make up the Syrian health system. The physical and human resources of the health sector are concentrated in the urban areas in the western part of the country. A major reallocation of health facilities and personnel will be necessary if the rapidly growing population of the Euphrates River basin is to be adequately served. While the health education system is directed primarily to the training of physicians, the development of health facilities has favored the construction of hospitals. The resultant shortage of preventive care facilities and paraprofessional medical personnel has caused the development of a high cost health services delivery system which concentrates primarily on creative care. A major change in health policy and program development at the national level will be required if Syria is to avoid the problems of maintaining a costly and unnecessary system of sophisticated but underutilized health facilities.

PN-AAF-666

Paper copy \$20.16
Microfiche \$1.86

(417) SYNCRISIS, THE DYNAMICS OF HEALTH:

20. JAMAICA

Furnia, A.H.
1976, 164p.

HEW/PHS/OIH

This document is part of the Syncrisis series, which consists of country profiles, describing and analyzing health conditions in particular countries and the relationship of those conditions to the country's socioeconomic development. The primary purpose of these studies is to provide a concise and up to date introduction to the health situation in a country. This report on Jamaica examines: the policies, problems, and issues of the Jamaican Health Environment; health risks; health services and the delivery of health care; health manpower resources; population and family health; environmental inadequacies and problems; financing; and the Jamaican health environment, problems and prospects. In some aspects, the Jamaican health environment resembles more nearly that of a developed industrial state rather than an LDC. This seems especially true of diseases associated with the cardiovascular and cerebrovascular systems as well as malignant neoplasms and pulmonary infections. However, Jamaicans, especially children under five years of age, continue to be threatened by and infected with typhoid, tuberculosis, diphtheria, whooping cough, tetanus and malnutrition. The health environment, while showing the heaviest mortality from industrial, degenerative diseases, is nevertheless, vitally affected by other factors no longer common to western, industrialized states. These

factors are long-term and derive from sociological-cultural-economic aspects of the Jamaican society rather than from degenerative or communicable diseases, although the latter are enhanced thereby.

PN-AAF-667

Paper copy \$19.68
Microfiche \$1.86

(418) RESULTS OF THE INTER-AMERICAN INVESTIGATIONS OF MORTALITY RELATING TO REPRODUCTION

Puffer, R.R.; Serrano, C.V.
1976, 14p.

PAHO (CSD-1431 Res.)

(In Bul. of PAHO, v. 10, no. 2, p. 131-142)

According to the findings of the Inter-American Investigation of Mortality in Childhood, maternal age and parity have a direct relationship to the health and survival of the infant. Data suggests that babies born close in succession are at greater risk of dying. The child's future is increasingly threatened as the mother's age tends towards the extremes of the childbearing years. Immaturity, or low birthweight, and malnutrition emerged as the two major underlying or associated causes of death in Latin American projects of the Inter-American Investigation of Mortality in Childhood. Despite the marked variations in the data available from the different areas, there appeared to be some correlations between these two indicators of deficits in growth and development. Mortality due to immaturity was especially high for babies of young mothers, with increases occurring as the birth order rose. Not only are the risks greater for mothers having low weight babies when they are young but they increase even more with the second, third, and fourth products when the birth intervals become shorter. Maternal age, birth order, and birth weight are factors that must be considered in combination in the programming of protective health measures. Specific recommendations are made for future studies in greater depth taking into account these multiple factors in Latin America.

PN-AAF-688

Paper copy \$1.68
Microfiche \$.93

(419) PATTERNS OF INFANT AND EARLY CHILDHOOD MORTALITY IN THE CALIFORNIA PROJECT OF A COLLABORATIVE INTER-AMERICAN STUDY

Wallace, H.M.; Goldstein, Hyman; Eisner, Victor; Oglesby, A.C.
1975, 9p.

PAHO (CSD-1431 Res.)

(In Bul. of PAHO, v. 9, no. 1, p. 32-38)

The California Project of the Inter-American Investigation of Mortality in Childhood was carried out in San Francisco and three surrounding counties. The study found infant death rates of 18.5 per 1,000 live births in San Francisco and 17.2 per 1,000 live births in the three counties. Mortality in the neonatal period accounted for two-thirds of these deaths. Low birth weight played a key role in neonatal mortality particularly during the first day of life. The study found the 77.7% of the neonatal fatalities and 85.6% of those dying in the first day of life weighed 2,500 grams or less at birth. Mortality was also very high among infants of mothers under 20 and over 34 years of age. The vast majority of babies born to young mothers who die the first day had very low birth weights. This demonstrates a clear need for special measures capable of reducing the health risks faced by both young mothers and their children.

The authors recommend various specific measures that should be taken and present data obtained by the California Project on other aspects of mortality among infants and preschool children 1-4 years of age.

PN-AAF-669

Paper copy \$1.08
Microfiche \$ 93

(420) BREAST FEEDING IN LATIN AMERICA PROJECTS

Puffer, R.R.
1977, 14p.

PAHO (CSD-1431 Res.)

(Prepared for Int. Conf. on Human Lactation, N.Y. Acad. of Sciences, 1977)

The Inter-American Investigation of Mortality in Childhood uncovered the problem of limited breast feeding in many areas of Latin America. Studies have indicated that the age of weaning is a time of high morbidity and mortality from diarrheal disease with high death rates in the second year of life. This study shows a more serious situation in many areas with excessive mortality from diarrheal disease and nutritional deficiency in the first few months of life. Death rates from immaturity as an underlying or associated cause were higher than in developed countries. In several projects the condition of infants at birth often appears to be unfavorable for survival and needs to be considered in approaching the problem of breast feeding in these societies. Promotion of breast feeding should be combined with other activities in maternal and child health programs. New programs underway in Brazil are presented. The subjects briefly referred to are breast feeding in infancy, mortality from immaturity and nutritional deficiency, birthweights and birth intervals.

PN-AAF-670

Paper copy \$1.68
Microfiche \$.93

(421) INTER-AMERICAN INVESTIGATION OF MORTALITY IN CHILDHOOD; REPORT OF HOUSEHOLD SAMPLE

Pan Am. Health Organization
1976, 33p

PAHO (CSD-1431 Res.)

The Inter-American Investigation of Mortality in Childhood carried out in 15 locations in the Americas between 1968 and 1972 was planned to explore in depth the causes of excessive mortality in infancy and early childhood. It emphasized the study of the interrelationships of multiple causes of death and the associated environmental and biologic factors. Special attention was to be directed to the study of nutritional deficiencies and their impact on survival of young children. The investigation had two principal parts. One was the investigation over a two year period of deaths of children under 5 years of age from the project areas. The second part of the study was a household survey in each project based on a probability sample of households. Its purpose was to provide information on the population in the areas in which the childhood deaths had occurred which would serve as a basis for determining death ratios associated with specific factors. Data were collected on housing characteristics, household composition, occupation and vital events in the twelve months preceding interviews. Additional data were gathered on parents' education and occupation, on the pregnancy histories of the mothers, on medical attention during pregnancy and at delivery, on the weight of the children at birth and at interview, on practices of breast feeding and

introduction of other foods, and on immunization and medical care provided. The analyses presented in this paper concern these household surveys and the comparison of living children in the SAMPLE with the DEATHS will respect to selected environmental or other factors which may influence the risk of death.

PN-AAF-672

Paper copy \$3.96
Microfiche \$.93

(422) INTER-AMERICAN INVESTIGATION OF MORTALITY IN CHILDHOOD IN 15 PROJECTS; SELECTED RESULTS

Puffer, R.R.
1975, 24p.

PAHO (CSD- 1431 Res.)

(Prepared for Primeras Jornadas Peruanas sobre la Salud del Nino, Trujillo, Peru, 1975)

This paper discusses selected results of the Inter-American Investigation of Mortality in Childhood. The findings of the study of multiple causes and factors involved indicated many fields for actions and for additional research. Also pertinent findings in the earlier investigation of mortality of adults should be utilized in planning for healthy societies. The most important underlying problem is the provision of satisfactory foods for health, in terms of quality and quantity. Prevention of immaturity, nutritional deficiency and coronary heart disease is much more realistic than treatment in terms of resources throughout the world. An awareness must be created of the relation of foods consumed to health. This publication gives nine fields in which recommendations are given in detail: registration of births and deaths; modernization of systems of registration; analyses of multiple causes of death for understanding of epidemiology of disease; studies of outcome of deliveries in hospitals; studies directed to the determination of the risks and methods of prevention of low and deficient birth weights, planning of food supplies for healthy children; maximum utilization of the results of the research programs; incorporation of methods, procedures and findings in programs of medical education as well as in teaching, and continued development of community centered research as a joint endeavor of universities and health services.

PN-AAF-673

Paper copy \$2.88
Microfiche \$ 93

(423) GROWTH CURVES AND NUTRITIONAL STATUS OF CHILDREN IN SELECTED STUDY AREAS OF LATIN AMERICA

York, Marjorie
1976, 65p.

PAHO (CSD-1431 Res.)

The overall objective of the Inter-American Investigation of Mortality in Childhood was to establish death rates for infancy and childhood that would be as accurate and comparable as possible, taking into account biological as well as nutritional, sociological and environmental factors. One major factor on which information was desired for the living children was nutritional status. This paper presents an analysis of the growth and nutritional status of children in 21 areas of the 13 projects in Latin America. It describes the selection of the study areas, sampling, measurement procedures, population, classification of nutritional status, urban and rural differences, and comparisons. Weights were obtained on 18,708 children or 96% of those identified in the household sample survey. In most projects the median weights of

HEALTH AND POPULATION

the children are generally at or above the Harvard standard growth curves during the first 6 months of life. By 9 months of age the weights have begun to fall away from the standard and during the next four years at least 75% of the children have weights below standard. In relation to their respective standards the female growth curve for each project is generally below that of the curve for males. The weights of the children in the suburban and rural areas were generally lower than those in the corresponding urban areas. Generally a greater percentage of females than males was classified as malnourished. In most areas the prevalence of malnutrition increased with age. This report includes numerous illustrative tables.

PN-AAF-674

Paper copy \$7.80
Microfiche \$9.93

(424) FAMILY HEALTH CARE; A RURAL HEALTH CARE DELIVERY SYSTEM

Blumhagen, R.V.; Blumhagen, Jeanne; Medical Assistance Programs, Inc., Wheaton, Ill.
1974, 106p.

MAP (AID/NESA-554)

(Final report with summary of experience and recommendations for a health care delivery system)

Discusses the work of the Medical Assistance Programs Team in Afghanistan. Problems of health care delivery in Afghanistan involve large population, difficult terrain, lack of money, and low doctor/patient ratio. Malnutrition, lack of knowledge, and isolation also present obstacles. The report describes the Hazarajat Project, its hospital, health centers, and family health program training of volunteers. Goals, priorities, and organization of Rural Health Service in Afghanistan are set forth. The document includes a bibliography, and Instructions to Interviewers

PN-AAG-038

Paper copy \$12.72
Microfiche \$1.86

(425) PROCEEDINGS: WORKSHOP—CONFERENCE ON POPULATION, FAMILY PLANNING, AND DEVELOPMENT IN NEPAL

Workshop—Conf. on Population, Family Planning, and Development in Nepal, Berkeley, Calif., 1975; Calif Univ, Berkeley. School of Public Health
1975, 353p.

Calif. — Berkeley (AID/pha-C-1051)

Contains texts of papers and reports of discussions from the Workshop-Conference on Population, Family Planning, and Development in Nepal held at the University of California, Berkeley, in August 1975. Papers were delivered on such topics as population policy in Nepal, experimental family planning programs, educational policy, trade problems, and effectiveness of health aids. Group discussions were held on population planning. Document includes a list of participants, the conference schedule, and photographs of the sessions.

PN-AAF-055

Paper copy \$42.36
Microfiche \$3.72

(426) SOCIO-ECONOMIC ANALYSIS OF IMPACT OF WATER PROJECTS ON SCHISTOSOMIASIS; PRELIMINARY REPORT

Rosenfield, P.L.; Gestrin, P.J.
1978, 105p.

Resources (AID/ta-C-1465 Res.)

Describes the progress made on socio-economic study to analyze and control the incidence of schistosomiasis, a parasitic disease transmitted by snails. The project seeks to help decision makers safeguard against the increased danger of schistosomiasis caused by large-scale water projects. In this report, a previously developed transmission model is refined, using data from the WHO/Tanzania schistosomiasis pilot control project. Modifications include refining the incidence rate equation to include egg counts and human water contact, and designing a mechanism to account for population movement. The study provides numerous figures and tables, information on data processing methods, calculation procedures for the terms in the model, criteria for choosing terms, and a suggested statistical system for schistosomiasis control projects.

PN-AAG-056

Paper copy \$12.60
Microfiche \$1.83

(427) SOCIO-ECONOMIC ANALYSIS OF IMPACT OF WATER PROJECTS ON SCHISTOSOMIASIS: RESULTS OF COST-EFFECTIVE ANALYSIS

Rosenfield, P.L.; Gestrin, P.J.
1978, 22p

Resources (AID/ta-C-1465 Res.)

Compares the cost-effectiveness of three strategies for controlling the incidence of schistosomiasis, a parasitic disease transmitted by snails. The analysis was prepared from data obtained in a socioeconomic study of schistosomiasis conducted by A.I.D. in Tanzania, and utilizes the transmission model specified in that study's preliminary report. The effectiveness of the strategies (mollusciciding, chemotherapy, and mollusciciding plus chemotherapy) is rated in terms of case years of infection prevented. For each approach, costs are calculated and a cost per case year of infection prevented is developed. It is pointed out that this study does not address the possibility of controlling water supplies to limit human contact with snail habitats. Future research on such strategies is recommended. The report includes tables comparing results of the three control methods; chronologies of control activities are appended.

PN-AAG-057

Paper copy \$2.64
Microfiche \$9.93

(428) MANPOWER AND PRIMARY HEALTH CARE; GUIDELINES FOR IMPROVING/EXPANDING HEALTH SERVICE COVERAGE IN DEVELOPING COUNTRIES

Smith, R.A.; Hawaii. Univ. School of Medicine.
1978, 200p.

HEW/PHS/OIH (OIH/RSSA 13-74 GTS)

Presents a methodology to establish improved and expanded health services in developing countries. The conventional health care delivery in highly industrialized societies is characterized by high cost, large facilities, an orientation to episodic illness, and reliance on sophisticated technology. This system is neither appropriate nor transportable to most developing countries. This book presents guidelines for developing primary health care

Please use the publication number in ordering.
Example: PN-AAB-000

programs based on a new category of intermediate-level health care professionals--the medex, or doctor extender. Implementation of the program, training of paraprofessionals, and operation and evaluation of health delivery services are considered in the development of the program. The book contains a glossary of terms.

PN-AAG-076

Paper copy \$24.00
Microfiche \$2.79

SOCIAL SCIENCES

(429) ETHNIC SOCIO-ECONOMIC REDISTRIBUTION: SRI LANKA, MALAYSIA, TRINIDAD AND TOBAGO; AND ISRAEL

Grove, D J.; West, Pat
1978, 101p.

Rice (AID/otr-C-1394 Res.)

(In Program of Development Studies, Paper)

Examines the extent of ethnic redistribution in four LDCs Malaysia, Sri Lanka, Trinidad and Tobago, and Israel - which have all implemented governmental policies designed to equalize ethnic distribution. The degree to which ethnic development has tended to converge and diverge at the inter- and intra-group levels has important policy ramifications for multi-ethnic societies trying to reduce socio-economic disparities between groups. This study concentrates on the major ethnic groups comprising over 90% of the population in each of the four countries. They are divided by ethnicity, religion or language, or a combination thereof. Socioeconomic variables included income, education, occupation and quality of life indicators (life expectancy and infant mortality rates). The results of the study show only limited support for the thesis that ethnic inequalities are widening. Although there is no linear relationship between economic development and ethnic redistribution, as one moves up the development ladder, the movement towards greater ethnic equality increases. The direction of redistribution often depended on whether focus was on the inter- or intra-ethnic level. For example, in Sri Lanka the income distribution within each ethnic had become less skewed over a twenty year period, although at the inter-ethnic level the opposite trend emerged. The distributional trends discussed in this paper suggest that redistributive policies must focus on both inter- and intra-ethnic levels. The time lag between creating greater educational and occupational opportunities for certain minorities needs further examination. Evidence suggests that it is not really a question of the level of economic development that determines the size and pattern of ethnic distribution, but that government policies determine the speed and direction of redistribution.

PN-AAF-003

Paper copy \$12.12
Microfiche \$1.86

(430) DATA RELIABILITY IN CROSS-NATIONAL RESEARCH; A TEST EMPLOYING BLACK AFRICA COUNTRY EXPERTS

Hill, K.Q.; Von der Mehden, F.R.
1978, 33p.

Rice (AID/otr-C-1394 Res.)

(In Program of Development Studies, Paper no. 83)

This paper reports the results of an analysis of data reliability for a number of Black African nations based upon the judgmental assessments of political scientist nation specialists. In almost every

area, the modal response category was either 10 or 20% error, and the bulk of all responses fell into these categories taken together. Scholars executing single nation studies would be most concerned about such error margins, since the reliability of single data points is critical in such research. For many aggregate cross-national analyses, however, this may not be a very damaging average error level. Of more concern is the character of some specific kinds of data for some specific nations. Data on population and on agricultural and general development policy were more subject to error and manipulation than that of other areas. Likewise, some nations were indicated to have especially weak data overall. Information drawn from these areas or nations should be treated with caution. The strengths and weaknesses of the "expert judges" approach for evaluating data quality are discussed and suggestions are made for future uses. Additional refinements in future studies might include questions about specific data estimates, queries regarding the accuracy of data for several different time points, and the estimation of both the extent and direction of errors, to discern whether the overall error for a sample of nations would be random or systematic.

PN-AAF-004

Paper copy \$3.96
Microfiche \$.93

(431) AREA EXPERTS' IMAGES OF AFRICAN NATIONS; A TEST OF A REPUTATIONAL MEASUREMENT APPROACH

Von der Mehden, F.R.; Hill, K.Q.
1978, 33p

Rice (AID/otr-C-1394 Res.)

(In Program of Development Studies, Paper no. 86)

Summarizes a test of a judgmental measurement strategy proposed as a partial solution to some problems of cross-national data. Existing cross-national data are considered somewhat limited in their scope and often uncertain in their reliability. It has been suggested that these data might be supplemented by having a sample of African-area experts code 39 African nations on several scales tapping attributes central to comparative political analysis and especially relevant to democratic theory. Expert agreement was good on highly familiar items such as regime type and role of the military. However, on more abstract scales and for more "exotic" nations, both dissensus and nonresponse increased considerably. There are several specific theory and measurement problems which must be confronted to adapt the judgmental measurement approach satisfactorily. The major difficulty is that of nonresponse. Another problem area is the specification of individual scales and the meaning of individual scale positions. At the same time, even in this preliminary test, the results allow a useful general characterization of regime types, role of the military, democratic development, corruption, and other political traits in Africa.

PN-AAF-005

Paper copy \$3.96
Microfiche \$.93

(432) A CONDITIONAL LOGIT MODEL OF INTERNAL MIGRATION; VENEZUELAN LIFETIME MIGRATION WITHIN EDUCATIONAL STRATA

Schultz, T.P.
1977, 71p.

Rand (AID/otr-C-1432 GTS)

(In Yale Economic Growth Ctr. Discussion paper no. 266)

The conditional logit framework is used to describe how the mutually exclusive and exhaustive probabilities of locational choice, including not migrating, depend on a set of conditioning

SOCIAL SCIENCES

variables. Aggregate data from a Venezuelan census are used to estimate this model for males within four educational strata. The logit model estimated by conventional linear procedure fits the 400 cell contingency table better than the double log-probability function associated with the gravity model. Interregional wage differences are relatively larger among less educated, who are also the groups that migrate least frequently. More educated men appear more responsive to destination wages and less deterred by distance. Rapid regional population growth also influences migration, by deterring entry. Only men with a secondary or higher education notably avoided destinations where unemployment was high. Thus, the Harris-Todaro model of migration and development which assumes urban unemployment governs migration is not consistent with the behavior of the majority of the labor force in Venezuela which has relatively little schooling. In this paper, the characteristics of logit framework are discussed and adapted to test several economic hypotheses pertaining to migration. Tabulations of migration data for Venezuela are presented and then these aggregate data are used to estimate and compare the explanatory power of the logit and conventional gravity model of migration. Section II reviews some salient issues in migration research and their policy content.

PN-AAF-663

Paper copy \$8 52
Microfiche \$ 93

(433) SOCIAL AND ECONOMIC CHARACTERISTICS OF MOTHERS

Sande, Innis
1976, 13p.

PAHO (CSD-1431 Res.)

The chief objective of the Inter-American Investigation of Mortality in Childhood was the exploration of the causes of excessive mortality in infancy and early childhood in the Americas. Data were collected in fifteen projects in Latin America, California, and Quebec. These areas were selected to provide a wide range of geographic and social conditions. The investigation had two parts: a retrospective study of deaths of children under five years of age and the sample of living children. This paper analyzes some of the social and economic characteristics of the mothers of the children under five years of age included in DEATH and SAMPLE groups. Data are examined on education, marital status, employment, age of mothers and age at termination of first pregnancy. Not all the data on mothers and their pregnancy histories were judged to be of good quality. The determination of acceptability was based on comments of the interviewer and on the apparent consistency and completeness of the information in the record. Only records of mothers were retained which were judged to be complete and reliable. The percentage retained ranged from 70 to 94 per cent for SAMPLE mothers and from 70 to 100 per cent for DEATH mothers. Some of the conclusions of the study are: SAMPLE mothers have achieved a higher level of education than mothers of DEATHS; SAMPLE mothers are older than mothers of DEATHS; the group of SAMPLE mothers contains more married mothers; greater proportions of DEATH mothers are employed; and the age of termination of first pregnancy is related to the current age of the mother and is fairly similar for DEATH and SAMPLE mothers: the age of termination of first pregnancy appears to be higher for better educated mothers than for those with less education.

PN-AAF-671

Paper copy \$1.56
Microfiche \$ 93

(434) BELIEFS, BEHAVIOR AND PERCEPTIONS OF PARTICIPANTS IN A PHILIPPINE NUTRITION PROGRAM

Jansen, W.H.
1978, 48p.

AID/ASIA/USAID/Philippines

Presents the results of a study begun in 1977 to develop a sociocultural characterization of participants in the Targeted Maternal and Child Health (TMCH) program. This program is part of an effort to reduce the incidence of malnutrition in the Philippines. The report, which supplements a more general document to be used by AID in reviewing additional requests for financial assistance, analyses the results of a detailed survey of 303 informants from six different provinces. Data cover such topics as religious preference, family, educational attainment, and employment. Statistics on age, number of children and children's weight are also provided. The majority of questions address the participants' attitude toward the TMCH program--their reason for joining, the popularity of TMCH food commodities, the usefulness of TMCH nutritional advice, and their assessment of the improvement in their children's health after joining TMCH. The study notes that, while the program was readily accepted, participants did not in general feel that their children had been suffering from malnutrition. A copy of the survey questionnaire is appended to the report.

PN-AAG-063

Paper copy \$5.76
Microfiche \$ 93

(435) SOCIO-CULTURAL FACTORS AFFECTING MALARIA CONTROL PROGRAMS IN SRI LANKA

Jansen, W.H.
1978, 37p.

AID/ASIA/USAID/Philippines

(Presented at Int. Cong. of Anthropological and Ethnological Sciences, 10th, New Delhu, 1978)

Discusses the impact of local beliefs and practices on current efforts to control malaria in Sri Lanka. The introduction briefly reviews the incidence of malaria in Sri Lanka, and describes the nature and effectiveness of control strategies since the inception of the first formal control program in 1946. Transmitted by the anopheles mosquito, malaria continues to be a major health problem, the eradication of which depends on local cooperation in disease detection and insecticide spraying programs. The body of the report addresses the effect that local beliefs regarding disease causation and cure have on such programs. Sri Lankan theories of disease are delineated; these involve the imbalance of bodily forces, the influence of malicious demons, astrological factors, and the western notion of germ-based causation. Sri Lankan curative practices, essentially a combination of herbal medicines, intervention by supernatural specialists, and western style public health services, are detailed. Finally, social customs and taboos which interfere with the crucial insecticide spraying program are presented.

PN-AAG-064

Paper copy \$4.44
Microfiche \$ 93

For addresses of issuing offices see the
Index of Issuing Offices at the rear.

Please use the publication number in ordering.
Example: PN-AAB-000

SCIENCE AND TECHNOLOGY

(436) WOMEN AND THE DEVELOPMENT PROCESS IN AFGHANISTAN

Hunte, P.A.
1978, 128p.

Hunte (AID/ne-C-1487)

Analyzes women's participation in the development process in Afghanistan, and illustrates how to foster their expanded roles in future socio-economic growth. Discussion of the diverse lifestyles of women in Afghanistan and of the constraints which confront them in a conservative Muslim society is presented. The report begins by examining statistical data which relates to Afghan females and includes such topics as basic population parameters, formal education, and economic activity. The second section contains a series of four anthropological profiles of Afghan women in the capital city of Kabul, provincial urban centers, village communities, and nomadic settings. Following these profiles is a review of programs which effect women and a discussion of improvements in women's status since the revolution of April 27, 1978. The report concludes with a series of recommendations aimed at increasing Afghan women's participation in their nation's socio-economic development.

PN-AAG-070

Paper copy \$15.36
Microfiche \$1.86

(437) PROGRESS TOWARD AN AID DATA BASE ON WOMEN IN DEVELOPMENT

Biocentric, Inc., St. Paul, Minn.
1977, 44p.

AID/WID

Evaluates the progress toward establishing a data base on the economic role of women in countries that receive AID funds. The development of a quantitative data base is essential to the planning and management of AID's women in development program. The document defines the two types of data systems required: (1) a system of socio-economic indicators to provide statistics on participation of women in important aspects of national life; and (2) detailed sociological and anthropological descriptive information on position and status of women in particular region or cultural sub-section of the country. A detailed analysis of socio-economic indicators and their roles in these data systems is presented. The report discusses the collection of country-specific AID studies. Information retrieval systems currently under development, country-specific micro-data sets, and the World Bank household questionnaire are also described.

PN-AAG-072

Paper copy \$5.28
Microfiche \$0.93

(438) THE RETURN OF THE PROFESSIONAL; THE VALUE OF HIS EDUCATION ABROAD

Glaser, W.A.
1978, 22p.

Columbia (CSD-2524 GTS)

Summarizes results of the first surveys in an ongoing project to evaluate the usefulness of sending professionals from less developed countries (LDC) to be educated abroad. The survey respondents, natives of India, Brazil, Colombia, Argentina, and Greece, had studied or were studying in the U.S. and France. The survey focuses on the availability of appropriate employment in the LDC for the returning professional, the willingness of employers in the LDC to benefit from skills introduced by the

returnee, and returnee attitudes toward the LDC's seniority system. The survey also addresses the extent to which the personal benefits of returning home are offset by the lack of professional benefits (i.e., research facilities, libraries) in the LDC. The study recommends that employers in the LDC should maintain close communication with students abroad to insure that their education remains relevant.

PN-AAG-149

Paper copy \$2.64
Microfiche \$0.93

(439) THE BRAIN DRAIN; WHAT WE KNOW AND WHAT WE NEED TO KNOW

Glaser, W.A.
1978, 15p.

Columbia (CSD-2524 GTS)

Studies the tendency of professionals, particularly those educated in foreign institutions, to emigrate from less developed countries (LDCs). The so-called "brain drain" is researched and evaluated through large-scale questionnaire surveys. Major factors in the decision to emigrate include income considerations, quality and number of jobs, the opportunity to make contributions to one's profession, and the welfare of one's children. In addition, many of the emigres are members of minority groups in their home countries and wish to avoid discrimination there. The study also points out that many professionals from LDCs do not stay in the foreign country permanently, and return home after acquiring valuable work experience. Varying immigration policies in host countries are outlined, and the type of professional most likely to emigrate permanently from the LDC is profiled.

PN-AAG-150

Paper copy \$1.80
Microfiche \$0.93

SCIENCE AND TECHNOLOGY

(440) ENVIRONMENTAL ASSESSMENT OF THE RAMBUKKAN OYA DEVELOPMENT PROJECT

Weatherly, W.P.; Arnold, J.H.
1977, 82p.

AID/ASIA/TR/SDP

This report is the result of a collaborative effort between the consultants and officials of the Department of Irrigation to fulfill the intent of USAID Regulation 161) "...to strengthen the indigenous capabilities of LDCs to appreciate and evaluate the potential environmental effects of proposed development projects..." and 2) "...to ensure that the environmental consequences of proposed AID-financed activities are identified by AID and the host country...". Environmental concerns are defined in terms of specific project activities and affected environmental systems. Methods used to make assessments of the significance of environmental impact are discussed. Recommendations are made for project changes, future study, and program development aimed at both impact mitigation and the development of local capacity for analysis and impact evaluation. The Rambukkan Oya Development Project involves development of intensive, year-round irrigated agriculture in an area of 12,700 acres which will be supplied with water stored in three reservoir tanks. Two types of environmental change are involved. The first is the physical change associated with construction of works such as tanks, irrigation ways and roadways, as well as with land use changes such as land clearing and agricultural development. The second type of change is the continuing input of the resident human

SCIENCE AND TECHNOLOGY

population. This input varies with changes in the environment and altered socioeconomic conditions. Adverse impacts on public health, soils and agricultural practices, water, flora and fauna, energy, stream flows, and agricultural runoff are considered. Recommendations emphasize the interrelationships between regional environmental systems, different regional land uses, and the proposed project area land use.

PN-AAF-010

Paper copy \$9.84
Microfiche \$ 93

(441) ENVIRONMENTAL ASSESSMENT (OF THE) RURAL ELECTRIFICATION PROGRAM, PAKISTAN

Traxler, V.L.
1978, 22p.

AID/ASIA/USAID/Pakistan

Examines both direct and secondary benefits of the proposed A.I.D.-assisted ten year rural electrification program in Pakistan. The various sections of this report discuss the project purpose, design and output, characteristics of the environment, environmental impacts of the project, adverse impacts, alternatives to the proposed project, the relationship between short-term use and long-term productivity, and irreversible and irretrievable commitments of resources. Based on the discussion of environmental impacts and their respective mitigation measures, the environmental impacts of the proposed project are considered acceptable. Electrified areas are not expected to suffer negative impact as these areas are capable of sustaining increased development based on their suitability criteria. Areas selected to be electrified under the program are those with agricultural and agroindustrial potential, availability of power from grid stations, high population density and the availability of rural infrastructure such as roads. These areas are not likely to be habitats for ecosystems on which the project would have a negative impact. Seismic factors will be considered in systems design in areas of pronounced seismic activity.

PN-AAF-013

Paper copy \$2.64
Microfiche \$.93

(442) ENVIRONMENTAL ASSESSMENT (OF THE) RURAL CLEAN WATER PROGRAM, PAKISTAN

Traxler, V.L.
1978, 21p.

AID/ASIA/USAID/Pakistan

Examines both direct and secondary benefits of the proposed A.I.D.-assisted nine-year rural clean water program in Pakistan. By their nature, rural water supply programs have a positive impact on the human environment. This environmental assessment seeks to identify appropriate protection and mitigation measures for negative impacts so that these may be incorporated into the program design. Local experts were consulted for discussion of potential environmental impacts of the proposed project and mitigation measures that should be taken. The environmental costs of the proposed program are considered to be minimal. Lack of protection of water supplies during the monsoon season is a potential adverse impact which cannot be mitigated. The program is not expected to generate significant negative impacts, and it is expected to produce the positive impacts of increased health and sanitation benefits.

PN-AAF-014

Paper copy \$2.52
Microfiche \$ 93

(443) ENVIRONMENTAL ASSESSMENT OF THE RURAL ELECTRIFICATION PROJECT, PHILIPPINES

(Luken, R.A.; Inter-Agency Committee for Ecological Studies,
Manila, Philippines
1978, 83p.

AID/ASIA/USAID/Philippines

This paper identifies both the construction and operational phases of the project and of the environmental factors which might potentially be affected by it, predict the quantitative and spatial dimensions of impacts on environmental factors, and evaluate the adverse environmental effects associated with the project. The Rural Electrification Project is a line of credit to be used by the National Electrification Administration (NEA) of the Philippines to finance imports of electrical distribution equipment and materials. These materials will be used to continue implementation of a nation-wide rural electrification program. The distribution activities include 69 KV transmission lines, 13.8 KV backbone systems and 7.3 KV lateral and secondary connections. It was concluded that the potential for adverse environmental impacts from construction and operation and maintenance of the rural electrification projects are minimal. Some potential does exist, however, for adverse impacts from the activities stimulated by the availability of electricity--such as large-scale industry and irrigated agriculture. Large-scale industries, if unregulated, may discharge significant quantities of air- and water-borne residuals. Intensified agricultural activity associated with electric pump irrigation systems will result in an increase run-off of persistent pesticides. Therefore it is recommended that industries be required to install pollution control equipment before providing electric service and that an information campaign be developed to inform farmers participating in electric pump irrigation about the adverse effects of certain types of pesticides.

PN-AAF-016

Paper copy \$9.96
Microfiche \$.93

(444) ENVIRONMENTAL ASSESSMENT OF THE SMALL FARMER SYSTEMS PROJECT, PHILIPPINES

(Luken, R.A.; Inter-Agency Committee for Ecological Studies,
Manila, Philippines
1978, 84p.

AID/ASIA/USAID/Philippines

The Small-Scale Irrigation Project (SSI) is designed to increase the small farmer's income by the creation of irrigation systems and the development of farmer's organizations. Plans include the conversion of 190,000 hectares of agricultural land from single to double cropping from 1978 to 1982. Based on available data, field observations and the implementation of mitigation measures, it is concluded that there is no potential major adverse environmental impact warranting curtailment of the problem. It is recommended that a training program be instituted in the use and proper application of appropriated pesticides in order to limit potential adverse ecological effects from that source. In areas endemic for schistosomiasis, a control program for snails should be developed and additional emphasis placed on good water management practices. A limited program of monitoring is recommended to document changes in pesticide use and their effects and in public health parameters.

PN-AAF-017

Paper copy \$10.08
Microfiche \$.93

For addresses of issuing offices see the
Index of Issuing Offices at the rear.

(445) RECOMMENDATIONS ON PROCEDURES FOR ENVIRONMENTAL ASSESSMENT OF MALARIA CONTROL PROGRAMS WITH SPECIAL REFERENCE TO PAKISTAN

Hays, C.W.; Berry, Leonard; Ford, R.B.
1978, 194p.

AID/ASIA/TR

Evaluates the possibility of a single environmental assessment (EA) to anticipate the potential environmental impact of many Malaria control programs. If a universal EA can be prepared for all Malaria programs, much time can be saved and funds currently set to assess environmental impacts could be expended directly on control activities. In the course of this evaluation, much of the basic Malaria literature was reviewed and specialists were consulted in Washington, the Center for Disease Control in Atlanta, and other places. Several documents related to Malaria projects and the EA of the Sri Lanka Malaria control project were studied. Three conceptual principles are basic to the development of A I D. environmental policy with respect to Malaria programs: environmental uniqueness; transferability of information about selected environmental impacts; and monitoring as a means to achieve project continuity and feedback. The main body of the report describes the Malaria control project in Pakistan, the applicability of the Sri Lanka EA for the Pakistan project and also presents a series of recommendations for future environmental policy.

PN-AAF-018

Paper copy \$23.28
Microfiche \$1.86

(446) REPORT OF A WORKSHOP ON R & D MANAGEMENT, LEMBANG AND TUGU, INDONESIA, 1976

Indonesian Inst. of Sciences, Jakarta; Denver Research Inst., Denver, Colo.
1977, 173p.

Denver Research Inst. (AID/asia-C-1205)

The objective of this cooperative workshop was to increase the effectiveness of the management of R & D activities in Indonesia through a management training workshop for the senior management of Indonesian R & D agencies, centers, and institutions. The program was divided into two parts. The first examined scientific and technological policy issues in a less developed economy environment. The second covered institutional management issues. Several different techniques were employed, including: case study, participatory lectures and discussions, role playing to develop management judgement, analyses of research institute programs and problems, and group and individual exercises and problem solving sessions. It was concluded that this and similar workshops will help pave the way for successful execution of cross sectoral projects and programs. The broad representation assisted in the creation of informal but effective inter-institutional and interagency linkages. It also had the advantage of acquainting the participants with a broad spectrum of approaches to and constraints on institutional management within Indonesia and of introducing many persons in Indonesian management to approaches applied in other countries

PN-AAF-418

Paper copy \$20.76
Microfiche \$1.86

(447) PYROLYTIC CONVERSION OF AGRICULTURAL AND FORESTRY WASTES TO ALTERNATE ENERGY SOURCES IN INDONESIA: A FEASIBILITY STUDY

Tatom, J.W.; Harahap, Filino; Chiang, T.I.; Apandi, R.M.; Ga. Inst. of Technology. Engineering Experiment Station
1977, 55p.

Ga. IT (AID/asia-C-1203)

Presents the results of a short feasibility study of the application to pyrolytic conversion techniques to agricultural and forestry wastes in Indonesia. The principal circumstance that led to the study is the severe firewood cutting of the forests, especially in Java, which has resulted in damage to soil, water, and mangrove resources, with the resulting need for an alternate source of fuel for cooking. Agricultural and forestry wastes appears as a possible fuel source, but in their initial form are largely unusable for the purpose. Through the use of pyrolysis these wastes can be converted into cleanburning char and oil which can be easily stored and transported and a gas which can be used on site. The study involved; and investigation of the production of agricultural and forestry wastes in Indonesia; an evaluation of the market for the char, oil, and gas which are products of the pyrolytic conversion process; the development of a preliminary pyrolytic conversion system design; and an approximate economic evaluation of the system. Seventeen million tons of wastes are produced in Indonesia each year, with rice hulls comprising a third of the total and sawmill, coconut, logging rubber, oil palm wastes and bagasse comprising the remainder. It is estimated that about 1.5 million tons of charcoal and .9 million tons of pyrolytic oils could be produced. This represents something like 15% of the total 1974 Indonesian energy consumption. The preliminary design study has produced three different appropriate technology one-ton-per-day systems using rice hulls as the fuel and for use at typical rice mills. The need for a follow-up demonstration program is discussed and a program plan devised.

PN-AAF-654

Paper copy \$6.36
Microfiche \$9.3

(448) WORKSHOPS AND TECHNIQUES OF ENVIRONMENTAL INVESTIGATION; FINAL REPORT OF TWO TRAINING WORKSHOPS

Clark Univ. Program for Int. Development
1978, 134p.

Clark (AID/otr-C-1551)

(Workshops held Feb.-March, 1978 and May-June, 1978)

Presents a preliminary evaluation of two environmental impact workshops conducted by the Program for International Development at Clark University during the spring of 1978. The purpose of the workshops was to devise methods by which AID personnel who provide technical assistance could incorporate environmental considerations into project planning. The report opens with a summary of workshop events, a general evaluation of attitudes toward workshop procedures, and post-conference responses from the field. Four regional case studies were conducted, one of which, dealing with a West African insect problem, is outlined in detail. Group discussions also generated recommendations regarding the impact of development projects on health, and the environmental significance of resettlement schemes and road construction. The report concludes with guidelines for preparing AID project Initial Environmental Examinations which will facilitate environmental impact assessment.

PN-AAG-010

Paper copy \$16.08
Microfiche \$1.86

Please use the publication number in ordering.
Example: PN-AAB-000

BIBLIOGRAPHIES

(449) A MULTIDISCIPLINARY TEAM APPROACH TO PREPARING THE NATIONAL PAPER FOR THE 1979 UN CONFERENCE ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT (UNCSTD); HOST COUNTRY, AFGHANISTAN

Cornell Univ. College of Engineering
1978, 13p.

Cornell (AID/DS/otr-G-0001)

Describes the preparation of the Afghan National Paper for the 1979 UN Conference on Science and Technology (UNCSTD). The UN Conference Secretariat requested that each UN country prepare a National Paper. A multidisciplinary team comprised of experts in agriculture and engineering from Cornell University worked on the Afghan paper. The team, working in Afghanistan itself, was assisted by the Afghan nationals. The multidisciplinary effort was productive and provided a catalyst for the creation of a National Council for Science and Technology for Development in Afghanistan and the organization of a National Seminar on Science and Technology for Development. Work was completed on August 1, 1978.

PN-AAG-052

Paper copy \$1.56
Microfiche \$.93

BIBLIOGRAPHIES

(450) THE INTERNATIONAL BIBLIOGRAPHY OF RICE RESEARCH; 1976 SUPPLEMENT

Zamora, Milagros; IRRI
1976, 479p.

IRRI (AID/ta-G-1074 GTS)

This bibliography includes 4,712 citations and is a continuation of the International Bibliography of Rice Research 1951-1960 and the 1961-1975 Supplements. In addition to references published in 1976, it contains those publications from 1970 to 1975 which were not included in the respective supplements. The publications cited (papers and journal articles on current rice research) are all available from the International Rice Research Library and Documentation Center, and most are in English. A list of available translations is included. The arrangement is classified, and both author and key work indexes are provided.

PN-AAG-071

Paper copy \$57.48
Microfiche \$4.65

(451) THE LEGUME/RHIZOBIUM SYMBIOSIS IN TROPICAL AGRICULTURE; A SELECTIVE BIBLIOGRAPHY WITH ANNOTATIONS

Bose, John
1978, 198p.

Hawaii (AID/ta-C-1207 Res.)

This bibliography of articles on legume/rhizobium symbiosis research was primarily compiled from computer and manual searches conducted for the University of Hawaii's NIFTAL project. The listing consists of 1181 articles which appeared in specialized journals from 1971 through mid-1978. The citations are arranged by subject; 826 are annotated. Subjects include: inoculation, nitrogen fixation, nodulation, rhizobium characteristics, and the effect of temperature and climate on growth rate and yield.

PN-AAG-136

Paper copy \$23.76
Microfiche \$2.79

(452) CHICKPEA BIBLIOGRAPHY, 1930-1974

Singh, K.B.; Van der Maesen, L.J.G.
1977, 128p.

ICRISAT (AID/ta-G-1073 GTS)

This bibliography provides a worldwide listing of research literature on the chickpea, an increasingly important grain legume. The 3146 titles comprise research for the years 1930-1974 as well as all traceable earlier literature. The research listed covers 22 languages; all titles are presented in the English translation only. The citations are prefaced with a complete list of the periodical abbreviations used in the bibliography, along with the language and country of publication. Citations are classified by general field (i.e., taxonomy, physiology, genetics). A more complete subject index is also provided, as are author and geographic indexes.

PN-AAG-139

Paper copy \$15.36
Microfiche \$1.86

For addresses of issuing offices see the
Index of Issuing Offices at the rear.

Please use the publication number in ordering.
Example: PN-AAB-000

AUTHOR INDEX

Name	Item number(s) in this issue	Name	Item number(s) in this issue
Abercrombie, F.A.	(340)	Ebron, L.	(323)
Abruna, F.	(353)	Egypt. Ministry of Housing and Reconstruction	(394),(395), (396),(397)
Acad. for Educational Development, New York	(385), (387)	Eisner, Victor	(419)
Adams, D.W.	(312)	Elias, D.J.	(343)
AID/HIAA	(374)	Esman, E.J.	(310),(311)
AID/PDC/OFDA	(366)	Family Health Care, Inc., Washington, D.C.	(407)
AID/PHA Advisory Committee on Voluntary Foreign Aid	(362)	Ferrer, L.S.	(338)
Am Public Health Assn., Washington, D C	(414)	Fields, G.S.	(379)
Antiporta, Donato	(317)	Fisheries Research Planning Workshop, Denver, Colo., 1977	(349)
Apandi, R.M.	(447)	Florida Univ. Inst. of Food and Agr Sciences	(361)
Apiraksirikul, Sumalee	(317)	Forbes, T.R.	(404)
Arnold, J.H.	(440)	Ford, R.B.	(445)
AVRDC	(325)	Froman, Jo.	(367)
Axinn, G.H.	(382)	Furnia, A.H.	(417)
Axtell, J D	(321)	Gaddis, S.E.	(336)
Badillo-Feliciano, J.	(327)	Gallivan, J F	(405)
Baily, M.A	(371)	Georgia Inst of Technology. Engineering Experiment Station	(447)
Barker, Randolph	(317), (320)	Gersony, Robert	(367)
Bates, J.D.	(340)	Gestrin, P.J.	(426),(427)
Befecadu, Joseph	(388)	Ghartey-Tagoe, A.F.	(388)
Benedick, G.R.	(374)	Glaser, W.A.	(438),(439)
Berry, Albert	(389)	Goldstein, Hyman	(419)
Berry, Leonard	(445)	Grant, S.R.	(383)
Brocentrick, Inc., St. Paul, Minn	(437)	Grogan, C.O.	(329)
Blakeslee, Leroy	(316)	Grove, D J.	(429)
Bliss, F A	(330)	Guiragossian, V Y.	(321)
Blumhagen, Jeanne	(424)	Hakimi, M.Y	(315)
Blumhagen, R.V	(424)	Hanson, J.W.	(386)
Bose, John	(451)	Harahap, Filino	(447)
Bourne, M.C	(332)	Harvard Univ Ctr. for Studies in Education and Development	(384)
Brenes, E.J	(353)	Hawaii Univ. School of Medicine	(428)
Calderone, Rosalie	(393)	Hays, C W	(445)
Calduchi, L	(327)	Herd, R.W	(320)
Calkins, P H	(304), (331)	Hill, K Q.	(430),(431)
Canino, E M	(393)	Hong, J.F.	(331)
Cardwell, Lucy	(372)	Hoque, M.M.	(337)
Caton, Douglas	(350)	Howze, Glenn	(340)
Caudill, C.J	(342)	Huang, S.Y.	(331)
CGIAR	(305)	Hughes, David	(348)
Chiang, T I	(447)	Hume, Elaine	(388)
Chichester, C O	(345)	Hunte, P.A.	(436)
Cieutat, V.J.	(387)	Indonesia Inst. of Sciences, Jakarta	(446)
Clark Univ. Program for Int. Development	(448)	Inter-Agency Committee for Ecological Studies, Manila, Philippines	(443),(444)
Conf. on Improved Utilization of Tropical Forests, Madison, Wis, 1978	(355)	Int. Conf on Women and Food, Tucson, Ariz., 1978	(360)
Conf. on Multilateral Trade Negotiations, Washington, D C, 1977	(374)	IRRI	(450)
Consortium for Int. Development	(360)	Jackson, Tony	(367)
Cornell Univ. College of Engineering	(449)	Jansen, W.H	(435)
Cornell Univ. Ctr for Int Studies	(310),(311)	Jaske, M.R.	(339)
Craib, K B.	(349)	Joint Housing and Community Upgrading Team in Egypt	(397)
CRC Systems, Inc., Vienna, Va.	(399)	Joint Housing Team for Finance in Egypt	(396)
Dahringer, Lee	(359)	Joint Land Policy Team in Egypt	(394),(395)
Daines, S R.	(307),(314)	Kaiser Foundation, Int., Oakland, Calif.	(415)
Dalrymple, D.G.	(302)	Kass, D C	(318)
Dawson, Marilyn	(391),(392)		
Denver Research Inst., Denver, Colo.	(446)		
De Padua, D.B.	(333)		
Drosdoff, Matthew	(351),(352)		
Duff, Bart.	(323)		
Eastern Regional Training Conf., Washington, D.C.	(301)		

AUTHOR INDEX

Name	Item number(s) in this issue	Name	Item number(s) in this issue
Katayama, Teruhisa	(345)	Southeast Asia Cooperative Post-Harvest Research and Development Programme, Laguna, Philippines	(333)
Kelley, Omer	(350)	Spaulding, I.A.	(400),(401)
Ketler, W.R.	(349)	Special Interagency Task Force	(368)
Kieffer, W.J.	(382)	Stoecker, A.L.	(309)
Kim, Daemo	(370)	Stringham, G.E.	(303)
Klees, S.J.	(383)		
Kyznets, Simon	(378),(380)	Tatom, J.W.	(447)
		Tallyrand, H.	(354)
Lenglet, Frans	(383)	Tanaka, Yoshito	(345)
Lewis, C.E.	(413)	Taylor, A.J.	(367)
Lobato, Edson	(326)	Taylor, R.E.	(406)
Lugo-Lopez, M.A.	(327),(354)	Te, Amanda	(320)
Luken, R.A.	(443),(444)	Teter, N.C.	(333)
Lund, Z.F.	(353)	Texas A&M Univ. Dept. of Plant Sciences	(324)
		Thompson, R.D.	(342),(343)
Resources Development Assoc., Los Altos, Calif.	(349)	Toquero, Zaida	(323)
Rhue, R.D.	(329)	Traxler, V.L.	(441),(442)
Ritchey, K.D.	(326)		
Roach, William	(307)	U.N. Economic Commission for Asia and the Far East	(344)
Rodgers, William	(314)	U.S. Forestry Service	(355)
Rosenfield, P.L.	(426),(427)	Univ. of California, Berkeley School of Public Health	(425)
Rosenzweig, M.R.	(313),(375)		
	(377)	Van Blake, Henry	(340)
Roulette, T.G.	(387)	Van der Maesen, L.J.G.	(452)
		Van Ruiten, Harry	(353)
Sande, Innis	(433)	Van Scoyoc, S.W.	(321)
Sarma, M.T.R.	(376)	Von der Mehden, F.R.	(430),(431)
Saunders, W.P.	(386)	Virginia Research Inst., Inc., Arlington, Va.	(308)
Savarie, P.J.	(343)		
Scarsborough, W.E.	(332)	Wallace, H.M.	(419)
Schafer, E.W.	(335),(336)	Walsh, Gretchen	(402)
Schultz, T.P.	(379),(432)	Weatherly, W.P.	(440)
Scott, T.W.	(354)	Weisel, Peter	(306)
Sefali, Michael	(359)	Weissman, Juliana	(41)
Serrano, C.V.	(418)	West, Pat	(429)
Sheffield, J.R.	(386)	Westinghouse Health Systems, Columbia, Md	(408),(409)
Shono, E.W.	(393)		(412)
Shumake, S.A.	(336),(342)	Wheeler, Rachel	(356)
Simmons, B.D.	(406)	Wisconsin Univ Dept of Horticulture	(330)
Simon, Murray	(385)	Wolf, J.M.	(351),(352)
Simpson, K.L.	(345)	Workshop Conf. on Population, Family Planning, and Development in Nepal, Berkeley, Calif., 1975.	(425)
Singh, K.B.	(452)		
Slater, C.C.	(359)	Yates, E.B.	(386)
Sleeper, J.A.	(341)	York, Marjorie	(423)
Slingsby, Ernest	(391),(392)		
Smith, R.A.	(428)	Zamora, Milagros	(450)
Snow, J.R.	(348)		
Soligo, Ronald	(389)		

INDEX OF ISSUING OFFICES

Name and Address Of Issuing Unit & Contract/Grant Number	Item numbers(s) in this issue	Name and Address Of Issuing Unit & Contract/Grant Number	Item numbers(s) in this issue
ADC	(312)	AID/NE/DP	(368)
Agricultural Development Center 630 Fifth Avenue New York, New York 10020 (CSD-2813 GTS)		Office of Development Planning Bureau for Near East Agency for International Development Washington, D.C. 20523	
AED.....	(383),(385) (386),(387)	AID/NE/USAID/Afghanistan	(315)
Academy for Educational Development 1414 22nd Street, N.W. Washington, D.C. 20037 (AID-511-91) (AID/afr-C-1131 GTS) (AID/afr-C-1158)		USAID/Afghanistan Agency for International Development Washington, D.C. 20523	
AID/AFR/DR/HN	(413)	AID/PDC/OFDA	(366),(367)
Health/Nutrition Division Office of Development Resources Bureau for Africa Agency for International Development Washington, D.C. 20523		Bureau for Private and Development Cooperation Office of U.S. Foreign Disaster Assistance Agency for International Development Washington, D.C. 20523	
AID/ASIA/TR.....	(445)	AID/PHA	(362)
Office of Technical Resources Bureau for Asia Agency for International Development Washington, D.C. 20523		Bureau for Population and Humanitarian Assistance Agency for International Development Washington, D.C. 20523	
AID/ASIA/TR/SDP	(440)	AID/PPC/PDA	(302),(373)
Special Development Problems Division Office of Technical Resources Bureau for Asia Agency for International Development Washington, D.C. 20523		Office of Policy Development and Analysis Bureau for Program and Policy Coordination Agency for International Development Washington, D.C. 20523	
AID/ASIA/USAID/Pakistan.....	(441),(442)	AID/RED/Bangkok	(344)
USAID/Pakistan Agency for International Development Washington, D.C. 20523		Regional Economic Development Office USAID/Thailand Agency for International Development Washington, D.C. 20523	
AID/ASIA/USAID/Philippines	(434),(435) (443),(444)	AID/SER/H	(394),(395) (396),(397)
USAID/Philippines Agency for International Development Washington, D.C. 20523		Office of Housing Bureau for Program and Management Agency for International Development Washington, D.C. 20523	
AID/DS/AFR	(307),(314) (333)	AID/SER/IT	(301)
Office of Agriculture Bureau for Development Support Agency for International Development Washington, D.C. 20523		Office of International Training Bureau for Program and Management Agency for International Development Washington, D.C. 20523	
AID/IIAA	(374)	AID/TA/AGR	(305),(332) (350)
Bureau of Intragovernmental and International Affairs Agency for International Development Washington, D.C. 20523		Office of Agriculture Bureau for Development Support Agency for International Development Washington, D.C. 20523	
AID/LA/USAID/EI Salvador	(384),(390)	AID/TA/N	(356),(361)
USAID/EI Salvador Agency for International Development Washington, D.C. 20523		Office of Nutrition Bureau for Development Support Agency for International Development Washington, D.C. 20523	

INDEX OF ISSUING OFFICES

Name and Address Of Issuing Unit & Contract/Grant Number	Item numbers(s) in this issue	Name and Address Of Issuing Unit & Contract/Grant Number	Item numbers(s) in this issue
AID/WID	(360),(437)	Cornell ..	(318),(326),
Office of Women in Development		Department of Agronomy	(327),(328),
Agency for International Development		Cornell University	(329),(351),
Washington, D C 20523		Ithaca, New York 14853	(352),(353),
		(AID/ta-C-1104 Res)	(354),(404)
		(AID/ta-C-1441)	
		(CSD-2490 Res)	
		(CSD-2834 211d)	
APHA	(414)	CRC	(399)
American Public Health Association		CRC Systems, Inc.	
1015 18th Street, N W		Vienna, Virginia 22180	
Washington, D C 20036		(AID/ta-C-1471)	
(AID/ta-BOA-1070 GTS)		Denver Research Inst	(446)
Auburn ..	(346),(347)	Denver Research Institute	
International Center for Aquaculture	(348)	2199 South University Boulevard	
Agricultural Experimental Station		Denver, Colorado	
Auburn University		(AID/asia-C-1205)	
Auburn, Alabama 36830		Dev Alts ..	(306),(309)
(AID/ta/BOA-1152 GTS)		Development Alternatives, Inc.	
(CSD-2780 211d)		1823 Jefferson Place, N W	
AVRDC	(304),(325)	Washington, D C 20036	
Asian Vegetable Research and	(331)	(AID/CM/ta-C-73-41 GTS)	
Development Center		DHI ..	(406)
P.O Box 42, Shanhou, Tainan 741		Dental Health International	
Taiwan		847 South Milledge Avenue	
(AID/ta-G-1260)		Athens, Georgia 30601	
BLK	(403)	(AID/afr-G-1163 GTS)	
BLK Group, Inc.		FHC	(407)
1730 M Street, N.W.		Family Health Care	
Washington, D C 20036		1910 K Street, N W	
(AID/afr-C-1199 GTS)		Washington, D.C 20006	
Calif --Berkeley ..	(398)	(AID/afr-C-1138 GTS)	
School of Education		Ga IT	(447)
University of California at Berkeley		Economic Development Laboratory	
Berkeley, California 94720		Engineering Experiment Station	
(AID/CM/ta-G-73-17 211d)		Georgia Institute of Technology	
Calif -- Berkeley ..	(425)	Atlanta, Georgia 30332	
School of Public Health		(AID/asia-C-1203)	
University of California at Berkeley		Hawaii	(451)
Berkeley, California 94720		Department of Agronomy and Soil Sciences	
(AID/pha-C-1051)		College of Tropical Agriculture	
Clark	(448)	University of Hawaii	
Program for International Development		Honolulu, Hawaii 96822	
Clark University		(AID/ta-C-1207 Res)	
Worcester, Massachusetts 01610		HEW/PHS/OIH	(405),(416)
(AID/otr-C-1551)		U S Public Health Service	(417)
Columbia	(438),(439)	Office of International Health	
Bureau of Applied Social Research		Rockville, Maryland 20857	
Columbia, University		(RSSA HEW 1-74 GTS)	
New York, New York 10027		(OIH/RSSA 13-74 GTS)	
(CSD-2524 GTS)		Cornell ..	(449)
Cornell ..	(449)	College of Engineering	
College of Engineering		Cornell University	
Cornell University		Ithaca, New York 14853	
(AID/DS/otr-G-0001)			

INDEX OF ISSUING OFFICES

Name and Address Of Issuing Unit & Contract/Grant Number	Item numbers(s) in this issue	Name and Address Of Issuing Unit & Contract/Grant Number	Item numbers(s) in this issue
ICRISAT International Crops Research Institute for the Semiarid Tropics 1-11-256 Begempet Hyderabad, 500016, A P , India (AID/ta-G-1073 GTS)	(452)	Mich State Department of Agriculture Economics Michigan State University East Lansing, Michigan 48824 (CSD-2975 Res)	(339)
Interior Denver Wildlife Service Fish and Wildlife Service U S Department of the Interior Denver, Colorado 80225 (PASA(RA)ID 1-67 Res)	(335),(336) (337),(338), (342),(343)	MIT Center for International Studies Massachusetts Institute of Technology Cambridge, Massachusetts 02139 (AID/nesa-C-1165)	(357)
Iowa State Center for Agriculture and Rural Development Iowa State University Ames, Iowa 50011 (AID/CM/sa-C-73-19)	(316)	PADCO PADCO, Inc. 1834 Jefferson Place Washington, D.c. 20036 (AID/otr-C-1627)	(391),(392)
IRR International Rice Research Institute P O Box 583 Manila, Philippines (AID/ta-C-1074 GTS) (AID/ta-G-1208 GTS)	(317),(320), (323),(450)	PCI..... Practical Concepts, Inc 1730 Rhode Island Avenue, N.W Washington, D C. 20036 (CSD-3375 GTS)	(363)
KFI Kaiser Foundation International 300 Lakeside Drive Oakland, California 94666 (AID/afr-C-1116)	(415)	Princeton Woodrow Wilson School of Public and International Affairs Princeton University Princeton, New Jersey 08540 (AID/otr-C-1492 GTS)	(381)
MAP Medical Assistance Programs, Inc Box 50 Wheaton, Illinois 60187 (AID/NESA-554)	(424)	Puerto Rico College of Agricultural Science University of Puerto Rico Mayaguez, Puerto Rico 00708 (AID/ta-C-1087 Res.)	(322)
Mich. Center for Research in Economic Development University of Michigan Ann Arbor, Michigan 48108 (CSD-2547 211d)	(341),(369)	Purdue Department of Agronomy Purdue University Lafayette, Indiana 47907 (CSD-1175 Res) (AID/ta-C-1212 Res)	(319),(321)
Mich State African Rural Economy Program Department of Agricultural Economics Michigan State University East Lansing, Michigan 48824 (AID/afr-C-1261 GTS)	(402)	RAND Rand Corporation 1700 Main Street Santa Monica, California 90406 (AID/otr-C-1432 GTS)	(313),(375), (376),(377), (378),(378), (379),(380), (432)
Mich State College of Education Michigan State University East Lansing, Michigan 48824 (CSD-3279 GTS)	(382)	RDA Resources Development Associates P O Box 239 Los Altos, California 94022 (AID/afr-C-1135 GTS)	(349)
		Resources Resources for the Future, Inc 1755 Massachusetts Avenue, N W Washington, D C 20036 (AID/ta-C-1465 Res)	(426),(427)

INDEX OF ISSUING OFFICES

Name and Address Of Issuing Unit & Contract/Grant Number	Item numbers(s) in this issue	Name and Address Of Issuing Unit & Contract/Grant Number	Item numbers(s) in this issue
R I..... International Center for Marine Resources Development University of Rhode Island Kingston, Rhode Island 02881 (CSD-2455 211d)	(400),(401)	Utah State..... Utah State University UMC 35 Logan, Utah 84322 (AID/afr-C-1140 GTS)	(303)
Rice..... Program of Development Studies Rice University, P.O. Box 1892 Houston, Texas 77001 (AID/otr-C-1394 Res)	(370),(389), (429),(430), (431)	Va Res Inst Virginia Research Institute, Inc 1001 North Highland Street Arlington, Virginia 22201 (AID/afr-C-1150)	(308)
RIT..... Research Triangle Institute Research Triangle Park, North Carolina 27709 (AID/CM/otr-C-73-202)	(340)	Westinghouse Westinghouse Health Systems American City Building Columbia, Maryland 21044 (AID/afr-C-1145 GTS)	(408),(409), (412)
Tex. A&M Department of Plant Sciences Texas A&M University College Station, Texas 77843 (AID/ta-C-1384)	(324)	Wis..... Department of Horticulture University of Wisconsin Madison, Wisconsin 53706 (AID/ta-C-1173 Res)	(330)
Tuskegee Human Resources Development Center Tuskegee Institute Tuskegee, Alabama 36088 (AID/ta-C-1315 Res)	(388)	Yale..... Economic Growth Center Yale University Box 1987, Yale Station New Haven, Connecticut 06520 (AID/otr-C-1326)	(371),(372)
USDA/FA Forest Products Laboratory U.S. Forestry Service Madison, Wisconsin 53705 (PASA TA (AG) 03-75 Res.)	(355)		

CONTRACT/GRANT INDEX

AID/DS/otr-G-0001	(449)	AID/ta-G-1208 GTS.....	(323)
PASA (RA)ID 1-67 Res.....	(335)-(338),(342),(343)	AID/ta-C-1212 Res.....	(321)
RSSA HEW 1-74 GTS	(405),(416),(417)	AID/ta-G-1260 GTS.....	(304),(325),(331)
PASA TA (AG) 03-75 Res.	(355)		
OIH/RSSA 13-74 GTS	(428)	AID/afr-C-1261 GTS	(402)
		AID/afr-G-1270	(359)
AID/CM/pha-C-73-9	(410),(411)	AID/ta-C-1315 Res.....	(388)
AID/CM/ta-G-73-17 211(d)	(398)	AID/otr-C-1326 Res.	(371),(372)
AID/CM/sa-C-73-19	(316)	AID/ta-C-1360	(310),(311)
AID/CM/ta-C-73-41 GTS.....	(306),(309)	AID/otr-C-1380 GTS	(365)
AID/CM/otr-C-73-202	(340)	AID/ta-C-1384 Res.....	(324)
		AID/otr-C-1394 Res	(370),(389),(429)-(431)
AID-511-91.....	(385)		
AID/NESA-554	(424)	AID/ta-C-1428	(358)
		CSD-1431 RES	(418)-(423),(433)
AID/pha-C-1051	(425)	AID/otr-C-1432 GTS	(313),(375)-(380),(432)
AID/ta-BOA-1070 GTS	(414)	AID/ta-C-1441	(318)
AID/ta-G-1073 GTS.....	(452)	AID/ta-C-1465 Res.....	(426),(427)
AID/ta-C-1074 GTS.....	(317),(320),(450)	AID/ta-C-1471	(399)
AID/ta-C-1087 Res.....	(322)	AID/ne-C-1487	(436)
		AID/otr-C-1492 GTS	(381)
AID/ta-C-1104	(327)-(329),(353),(354)		
AID/afr-C-1116	(415)	AID/otr-C-1551	(448)
AID/afr-C-1131 GTS	(386),(387)	AID/otr-C-1627	(391),(392)
AID/afr-C-1135 GTS	(349)	AID/otr-C-1633	(393)
AID/afr-C-1138 GTS	(407)		
AID/afr-C-1140 GTS	(303)	CSD-2455 211(d)	(400),(401)
AID/afr-C-1145 GTS	(408),(409),(412)	CSD-2490 Res.	(326),(351),(352)
AID/afr-C-1150	(308)	CSD-2524 GTS	(438),(439)
AID/ta/BOA-1152 GTS	(346),(347)	CSD-2547 211(d)	(341),(369)
AID/afr-C-1158	(383)	CSD-2584 GTS	(334)
AID/afr-G-1163 GTS.....	(406)	CSD-2780 211(d)	(348)
AID/nesa-C-1165	(357)	CSD-2813 GTS	(312)
AID/ta-C-1173 Res	(330)	CSD-2834 211(d)	(404)
CSD-1175 Res	(319)	CSD-2958 211(d)	(364)
AID/afr-C-1199 GTS	(403)	CSD-2975 Res.	(339)
AID/asia-C-1203	(447)	CSD-3279 GTS	(382)
AID/asia-C-1205	(446)	CSD-3375 GTS	(363)
AID/ta-C-1207 Res	(451)		

GEOGRAPHICAL INDEX

Afghanistan	(315),(424),(436),(449)	Malaysia	(429)
Africa	(386),(430),(431)	Malawi	(393)
Asia	(317),(320),(414)	Mauritius	(391),(392)
Bolivia	(385),(408),(412)	Nepal	(425)
Brazil	(326),(372)	Nicaragua	(412)
Columbia	(347),(348),(371),(379)	Nigeria	(340)
Costa Rica	(389)	Pakistan	(357),(441),(442),(445)
Costa Rica	(400)	Philippines	(323),(434),(443),(444)
Dominican Republic	(412)	Puerto Rico	(322),(327),(328),(351), (352),(353),(354)
Egypt.....	(368),(394),(395),(396)	Rhodesia	(369)
El Salvador	(384),(390)	Rwanda	(406)
Ghana	(415)	Sahel Countries	(308),(402),(403)
Guatemala	(307),(366),(367)	Senegal	(308),(409)
India	(375),(376)	Southeast Asia	(333)
Indonesia	(446),(447)	Sri Lanka	(429),(435),(440)
Israel.....	(429)	Syrian Arab Republic	(416)
Ivory Coast	(383)	Taiwan	(331)
Jamaica	(346),(417)	Tanzania	(413),(426),(427)
Jordan	(405)	Thailand.....	(316),(344)
Kenya	(303)	Tobago	(429)
Korea	(370)	Trinidad	(429)
Latin America	(412),(418),(420),(421), (422),(423),(433)	Tunisia	(407)
Lesotho	(359)	Venezuela	(432)
		West Africa	(308),(341),(402),(403)
		Yemen Arab Republic	(347)
		Zaire	(410),(411)

HOW TO OBTAIN COPIES OF RESEARCH AND DEVELOPMENT REPORTS

INSTITUTIONS IN DEVELOPING COUNTRIES—COPIES FROM AUTHORS

Researchers who desire copies of papers described in this quarterly are encouraged, in accordance with the usual tradition in the scientific community, to send requests directly to authors. Within the title of each publication abstracted the issuing office is shown in abbreviated form. The name and address of these units are then given in full in the Index of Issuing Offices at the rear. Requests for copies of publications from the author should be mailed to the appropriate institutions' addresses.

INSTITUTIONS IN DEVELOPING COUNTRIES—COPIES AT NO COST

The Agency for International Development invites universities, research centers, and government offices in developing countries to order, at no cost, *five paper copies* of research reports abstracted in this quarterly. The total number of pages contained in these five reports should not exceed 300 pages. For example, you are able to order, at no cost, five reports of approximately 60 pages each, or any combination of reports whose page count accumulates to 300 pages. Please use Order Form A, in the back of this quarterly.

Institutions having microfiche viewing equipment are invited to order, at no cost, *one microfiche copy* of each report which is abstracted in this quarterly. See notes in "procedures for ordering" for technical data on microfiche. Please use Order Form B, in the back of this quarterly.

ALL OTHER INSTITUTIONS

To purchase paper or microfiche copies of research and development reports please use Order Form C, in the back of this quarterly. Payment in US dollars must accompany order, written to the account of AID R & D Report Distribution Center.

Please note that the Order Form C permits an individual to order a copy of a report to be mailed to another address.

AGENCY FOR INTERNATIONAL DEVELOPMENT PERSONNEL

AID/W and USAID personnel may order free paper or microfiche copies of research and development reports which are abstracted in this quarterly. A.I.D. personnel will order via Order Form D within this quarterly or may obtain additional order forms from SER/MO/PAV, Distribution Branch, Room B-927, N.S.

A.I.D. personnel may desire to submit additional addresses of institutions or individuals in developing countries to be added to our mailing list for distribution of this quarterly of abstracts. We do not include individual names in the mailing list. Therefore, if you prefer that an individual receive the quarterly please give us his title and complete address of his institution.

PROCEDURES FOR ORDERING COPIES OF REPORTS

GENERAL INSTRUCTIONS

Use only the order forms found in this issue:

INSTITUTIONS AND INDIVIDUALS IN DEVELOPING COUNTRIES	
Use FORM A for free paper copies	See directions on page 49 specifying the number of free copies authorized to each recipient.
Use FORM B for free microfiche copies	
Use FORM C for purchase of copies (copies over and above the authorized number of free copies)	Payment must accompany these orders, made to the order of AID R & D Report Distribution Center
ALL OTHER INSTITUTIONS AND INDIVIDUALS, EXCLUDING A.I.D. PERSONNEL AND VOLUNTARY AGENCY STAFF COLLABORATING WITH A.I.D.	
Use FORM C for purchase of paper and/or microfiche copies.	Payment must accompany these orders on FORM C, made to the order of AID R&D Report Distribution Center.
A.I.D PERSONNEL AND VOLUNTARY AGENCY STAFF COLLABORATING WITH A.I.D.	
Use FORM D which is clearly headed FOR USE BY AID EMPLOYEES ONLY.	

Reports will be mailed to you by airmail. It is recommended that you send your orders to the AID R & D Report Distribution Center (see address below) also by airmail.

Orders *must* contain the RECIPIENT CODE NUMBER as shown in the following illustration, and the report's PUBLICATION NUMBER (PN), also identified in the illustration. The Distribution Center *cannot* respond to orders which do not have these numbers.

ILLUSTRATIONS:

Recipient Code Number

The recipient code No. is the first line of numbers in the address block printed on the back of this quarterly, just above the name of the addressee.

Example

53865100113002 001
South Asia Studies Centre
University of Rajasthan
Jaipur, India

Report's Publication Number

This number appears at the end of each abstract

Example

PN-AAA-345

MICROFICHE — TECHNICAL DATA

Microfiche cards, diazo negative are 4 x 6 inches, using a 98 frame grid at 24x-reduction, as recommended by the U.S. National Microfilm Association.

OUR ADDRESSES

General correspondence, and requests concerning the mailing list:

Editor of ARDA
DS/DIU/DI
Bureau for Development Support
Agency for International Development
Washington, D.C. 20523 U.S.A.

Orders for copies of reports:

AID R & D Report Distribution Center
P.O. Box 7366 Riverdale Station
Hampton, Virginia 23666 U.S.A.

Special No Cost
Paper Copy Order Form
For Authorized ARDA Recipients

A

Instructions:

You are authorized to receive five free paper copies quarterly of ARDA research reports, if the first eight digits in the recipient code on your address label ends in "001." (See page 49). Example:

557280013002 001
Project Planner
Cellophii Resources Corporation
180 Salcedo St.
Makati Rizal, Philippines 3117

This *Order Form* must be used in ordering your no cost paper copy. No cost paper copies can be ordered only by using this order form. Please use 1 order form for each report ordered.

- 1) **Publication number** — the publication number appears at the end of each abstract. (e.g. PN-AAA-498)
- 2) **Author** — Last name and initials for given name(s)
- 3) **Title** — First 3 to 5 words of title.
- 4) **Your recipient code number** — the first line of numbers on your address label. No orders can be filled without your recipient code number.
- 5) **Date ordered.**
- 6) **Name & title** — Name and title of person ordering.
- 7) **Institution.**
- 8) **Address.**
- 9) **City.**
- 10) **Country.**
- 11) **Air Mail order to:**

**AID R & D Report Distribution Center
P.O Box 7366, Riverdale Station
Hampton, Virginia 23666 U.S.A.**

Special No Cost Paper Copy Order Form

TN-AAA-023

Please send me a copy of the following AID Research Report at no cost.

A

(1) Publication Number PN- _____ (2) Author _____
(3) Title _____
(4) Your Recipient Code No. _____ (5) Order Date _____
(Must be included)
(6) Name & Title _____
(7) Name of Institution _____
(8) Address _____
(9) City _____
(10) Country _____

Air Mail order to: **AID R&D Report Distribution Center, P.O. Box 7366, Riverdale Station Hampton, Virginia 23666 U.S.A.**

Special No Cost Paper Copy Order Form

TN-AAA-023

Please send me a copy of the following AID Research Report at no cost:

A

(1) Publication Number PN- _____ (2) Author _____
(3) Title _____
(4) Your Recipient Code No. _____ (5) Order Date _____
(Must be included)
(6) Name & Title _____
(7) Name of Institution _____
(8) Address _____
(9) City _____
(10) Country _____

Air Mail order to: **AID R&D Report Distribution Center, P.O. Box 7366, Riverdale Station Hampton, Virginia 23666 U.S.A.**

Special No Cost Paper Copy Order Form

TN-AAA-023

Please send me a copy of the following AID Research Report at no cost:

A

(1) Publication Number PN- _____ (2) Author _____

(3) Title _____

(4) Your Recipient Code No. _____ (5) Order Date _____
(Must be included)

(6) Name & Title _____

(7) Name of Institution _____

(8) Address _____

(9) City _____

(10) Country _____

Air Mail order to: AID R&D Report Distribution Center,
P.O. Box 7366, Riverdale Station Hampton, Virginia 23666 U.S.A.

Special No Cost Paper Copy Order Form

TN-AAA-023

Please send me a copy of the following AID Research Report at no cost.

A

(1) Publication Number PN- _____ (2) Author _____

(3) Title _____

(4) Your Recipient Code No. _____ (5) Order Date _____
(Must be included)

(6) Name & Title _____

(7) Name of Institution _____

(8) Address _____

(9) City _____

(10) Country _____

Air Mail order to: AID R&D Report Distribution Center,
P.O. Box 7366, Riverdale Station Hampton, Virginia 23666 U.S.A.

Special No Cost Paper Copy Order Form

TN-AAA-023

Please send me a copy of the following AID Research Report at no cost:

A

(1) Publication Number PN- _____ (2) Author _____

(3) Title _____

(4) Your Recipient Code No. _____ (5) Order Date _____
(Must be included)

(6) Name & Title _____

(7) Name of Institution _____

(8) Address _____

(9) City _____

(10) Country _____

Air Mail order to: AID R&D Report Distribution Center,
P.O. Box 7366, Riverdale Station Hampton, Virginia 23666 U.S.A.

