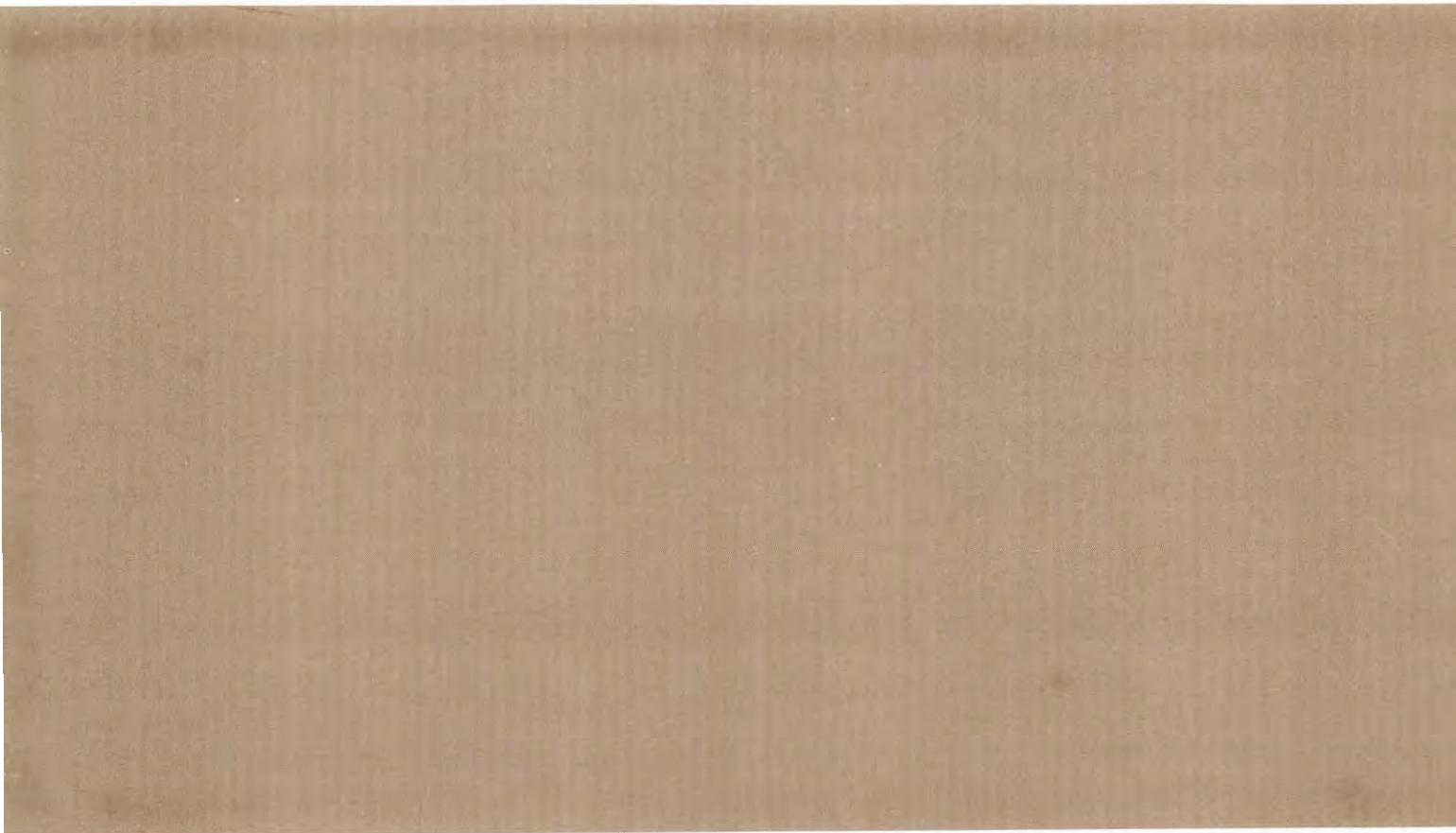


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Volume 7
Number 2
1979

A.I.D. RESEARCH AND DEVELOPMENT ABSTRACTS



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

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Farm Irrigation System Evaluation: A Guide for
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(076), (078)-(081), (260)

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SAMPLE DOCUMENT CITATION AND ABSTRACT

Item Number & Title	<p>[(171) WHEAT X RYE EQUALS TRITICALE Wolff, Tony]</p>	Author(s)
Document Date & Number of Pages	<p>[1976, 15p.]</p>	
Series Note	<p>[CIMMYT (AID/ta-G-1083 GTS)]</p> <p>[(In CIMMYT today, no. 5)]</p>	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 triticales 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 triticales to bunts and loose smut at higher elevations is an advantage for the crop. Its greater resistance to <i>Septoria tritici</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, triticales has outyielded wheat under drought conditions. Experts expect that in fifteen years triticales will be competing seriously with the bread wheats as one of the world's most important food crops.</p>	
Publication Number	<p>[PN-AAD-154</p>	<p>Paper copy \$2.00 Microfiche \$1.00] — Prices</p>

(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.

AGRICULTURAL ECONOMICS

(001) INVIERNO: INNOVATION IN CREDIT AND IN RURAL DEVELOPMENT

Gonzalez-Vega, Claudio

1979, 115p.

AID/DS/AGR/ESP

(In AID/DS/AGR/ESP occasional paper no. 8)

This is an evaluative overview of INVIERNO, an autonomous Nicaraguan institution devoted to rural development. It is based on in-country observations of short duration and stresses INVIERNO's innovative nature. The authors begin by summarizing the conclusions and recommendations of AID's Spring Review on the centrally important issue of farmer credit programs. In this Review, it was agreed that new technologies, along with sound management, are necessary to reverse the poor showing of recent farmer credit programs. There were also stated in the Review a number of basic positions on the questions of the institutional forms farmer credit should take and on farmer credit policies. Within the framework of this discussion, the nature, purpose, structure, and operations of INVIERNO are outlined. INVIERNO is a multi-purpose service organization backed both by the Government of Nicaragua and by AID. It is primarily devoted to improving the standard of living of low income farmers, especially by providing them with multi-purpose credit loans within an integrated technical package. INVIERNO operates at both the regional and local levels, thus ensuring a large target group and close involvement with the real needs of farmers, whose active participation it encouraged. Internally, INVIERNO stresses good management by insisting on quality personnel, thorough planning, internal and external coordination, a system of evaluation, and flexibility. INVIERNO's innovative loan procedures include a census for determining potential beneficiaries and criteria for selecting them, as well as a generally extensive use of computer technology. The study concludes with a quantitative account of INVIERNO's expansion during 1976-1977 and a statement on some issues that may confront it in the future. The study contains a great deal of factual information on INVIERNO for which it provides extensive documentation and a substantive bibliography.

PN-AAG-722

Paper copy \$14.38
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(002) SOUTHEAST ASIAN CORN COMMODITY SYSTEMS; THE THAILAND CORN COMMODITY SYSTEM

Drilon, J.D. SEARCA; Harvard Univ. Business School)
1976, 216p.

Harvard (AID/csd-3153 GTS)

(SEARCA-Harvard Project 928-B)

Describes, in detail, the corn commodity system in Thailand from production through consumption and export. Approximately 90% of the corn produced is exported, and only 4% is used for human consumption. Corn production increased from 25,700 metric tons in 1949 to 2,300,000 metric tons in 1972. Marketing takes place at three levels--rural growers' markets, assembly central markets, and the terminal market in Bangkok for export. Lack of storage facilities is a major marketing problem. Farmer-growers are completely without storage facilities, and must, therefore, sell their crops immediately after harvesting. In Bangkok, there are only three private silo companies, and the demand for silo drying

services during harvest time cannot be met. Transportation to markets is slow and costly due to the poor feeder road system in rural areas. The distance from corn producing areas to the Bangkok market varies from 100 km to 500 km. The use of corn and other products in feed production is described in detail in the report. It also discusses problems of nutrition and food production, drawing special attention to the fact that the average rice diet is adequate in terms of protein intake for adults, but is inadequate for children and pregnant and lactating women. In addition, current University and government agriculture research and agribusiness education programs are described. A bibliography lists 16 references published from 1963 to 1976.

PN-AAG-659

Paper copy \$27.00
Microfiche \$3.00

(003) SOUTHEAST ASIAN CORN COMMODITY SYSTEMS; THE INDONESIAN CORN COMMODITY SYSTEM

Drilon, J.D. SEARCA; Harvard Univ. Business School
1976, 261p.

Harvard (AID/csd-3153 GTS)

(SEARCA-Harvard Project 928-B)

Describes the Indonesian corn commodity system, from production to consumption, in the context of Indonesia's overall agricultural sector. Corn is a supplement to rice in the Indonesian diet and, in a few areas, corn is also a major staple food. In 1972, corn production amounted to 2,269,000 tons compared to 12,337,000 tons of rice. Indonesian corn yield is among the lowest in the world. Average yields during 1963-1972 ranged from 0.92 to 1.04 tons per hectare. The low yield is attributed to the following reasons: (1) continued use of traditional farming practices, (2) poor soil condition in upland areas, (3) inadequate irrigation facilities, (4) very little fertilizer usage, and (5) prevalence of corn downy mildew disease. The lack of credit, marketing, and processing facilities further inhibits expanded corn production. The authors critique the Indonesian industries which supply agricultural inputs for corn production. Data on costs and returns of corn production are provided, along with a description of the transport, distribution, and marketing facilities available for the harvested crop. Patterns of corn consumption and the role of corn in Indonesia's food and nutrition program are described. The final sections of the paper deal with government programs and policies in the agricultural sector including research and extension activities. The paper, while specific to corn, does provide information and statistical tables on the Indonesian agricultural sector as a whole.

PN-AAG-660

Paper copy \$32.63
Microfiche \$3.00

PLANT PRODUCTION

(004) CIMMYT ANNUAL REPORT ON WHEAT IMPROVEMENT, 1975

CIMMYT
1976, 218p.

CIMMYT/(AID/ta-G-1083 GTS)

Summarizes the research on bread and durum wheats, triticale and barley done by the International Maize and Wheat Improvement Center (CIMMYT) in 1975. CIMMYT conducts research at eight sites in Mexico. The government of Mexico released three new bread wheats developed at these sites in 1975. Cocoraque 75 is resistant to leaf rust. Salesmanca 75 is a soft biscuit-type wheat with good rust resistance. Due to a slightly weak crown root, however, it is somewhat susceptible to lodging. Zaragoza 75 is a late maturing one-gene dwarf with red grain, highly resistant to leaf

AGRICULTURE

rust, but susceptible to stripe rust. A higher yielding durum wheat, Mexicali 75, was also released. The number of new primary triticales available has been substantially increased since 1974 when the techniques of embryo culture and colchicine treatments were improved. With the introduction of dwarfing genes and better fertility, yields of the top triticales lines in Mexico are nearly equal to those of wheat checks. The aim of the barley development program is to intercross and combine the desirable characters now present in reasonable agronomic types. Several lines have already been distributed to cooperating countries in the form of yield trials or as screening nurseries. CIMMYT crossing blocks have also been distributed. Testing programs are also conducted in Africa, the Near East, Asia and the Pacific. Research sites include: Algeria, Cyprus, Iraq, Nigeria, Saudi Arabia, South Africa, Tunisia, Turkey, Afghanistan, India and Nepal. A country-by-country report is given on specific research progress.

PN-AAF-279 (1975, 218p)

Paper copy \$27.25

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PN-AAC-815 (1974, 168p.)

Paper copy \$21.00

Microfiche \$2.00

PN-AAE-497 (1973, 122p.)

Paper copy \$15.25

Microfiche \$2.00

(005) IMPROVEMENT OF SOYBEANS FOR TROPICAL AND SUBTROPICAL AREAS; ANNUAL REPORT, 1976/1977

Ill. Univ. College of Agr.
1977, 85p.

Ill. (AID/CM/ta-G-73-49 211(d))

Reviews work done at the University of Illinois as part of an ongoing, AID-funded project on soybean research. The purpose of the project is to establish a United States institutional response capability in researching and developing soybeans as a primary protein and calorie source in developing countries. A major project objective is to improve project-related education, research, and advisory capabilities at the University of Illinois and associated universities. The project also seeks to expand the information management and inter-organizational communication capabilities of the participating institutions. While the report presents research data on soybeans, it emphasizes problems relating to the development of organizational and human resources.

PN-AAG-065(1976/1977, 85p.)

Paper copy \$10.63

Microfiche \$1.00

PN-AAC-964 (1975/1976, 105p.)

Paper copy \$13.13

Microfiche \$2.00

(006) POSTHARVEST FOOD LOSSES IN DEVELOPING COUNTRIES; A BIBLIOGRAPHY

Morris, R.F.; National Research Council. Board on Science and Technology for International Development
1978, 371p.

NAS (CSD-2584 GTS)

Lists over 2,000 bibliographic references to publications on postharvest food losses in developing countries. Includes reported estimates of food losses; discussions of loss factors and vectors; papers describing methods of measuring food loss; procedures for food loss reduction; aspects of training for loss reduction; various information sources; and references about the economics of food conservation. The bibliography focuses on grains (particularly maize, rice and wheat), pulses and legumes, fruits and vegetables, roots and tubers, and fish.

Most entries in English. Partially annotated. Country index and author index included.

PN-AAG-345

Paper copy \$46.38

Microfiche \$4.00

(007) RICE LEAF FOLDER: MASS REARING AND A PROPOSAL FOR SCREENING FOR VARIETAL RESISTANCE

Waldbauer, G.P.; Marciano, A.P.
1979, 18p.

IRRI (AID/ta-G-1074 GTS)

(In IRRI res. paper ser. no. 27)

A method for mass rearing of the rice leaf folder in the greenhouse on potted rice plants is described. Eighty-four hours of labor is sufficient to produce about 15,000 first-instar larvae per week. This should be sufficient to maintain the leaf folder culture and to screen for varietal resistance at least 250 varieties/week. A method is proposed for screening for varietal resistance based on the artificial infestation of rice plants grown in pots in the greenhouse. It involves: infesting the plants with newly hatched first-instar larvae in the greenhouse, scoring the plants for resistance when the larvae are nearly full grown, and estimating their level of resistance by comparing the scores with those of tested susceptible and resistant check varieties.

PN-AAG-695

Paper copy \$2.25

Microfiche \$1.00

(008) RAINFED LOWLAND RICE AS A RESEARCH PRIORITY-AN ECONOMIST'S VIEW

Barker, Randolph; Herdt, R.W.
1979, 51p.

IRRI (AID/ta-G-1074 GTS)

(In IRRI res. paper ser. no. 26)

The impact of modern rice technology has been sporadic among the rainfed rice-growing areas of Asia. Although attention was first focused on the rainfed areas in 1969, and research was started then to develop rice varieties with flood tolerance and drought resistance, research was hampered by inadequate description of the rainfed rice-growing environment.

Climate, soil, water, and topography are bases for describing the rainfed rice-growing environment. The rainfed area is divided into shallow rainfed (5-15 cm) and medium-deep rainfed (16-100 cm), with the medium-deep area further subdivided into intermediate deep (16-50) and semideep (51-100 cm) rainfed. Few modern rice varieties can grow well in the intermediate-deep areas and only traditional tall varieties and floating rices grow where water depths are greater than 50 cm.

Asian governments will tend to emphasize irrigation as a sure way of increasing rice production but the total benefits may be greater from emphasis on research to solve problems of rainfed rice. Increased rice yields in rainfed areas promise important economic and social benefits. The task of bringing those benefits to the rainfed areas, is, however, more formidable than those faced by researchers and extension workers with irrigated rice. The rainfed technology must be developed, then put into the hands of farmers, and there must be incentives to encourage farmers' use of the new technology. There are indications that modest investment in research for rainfed rice to date has paid high dividends.

PN-AAG-696

Paper copy \$6.38

Microfiche \$1.00

(009) BARRIERS TO INCREASED RICE PRODUCTION IN EASTERN INDIA

Barker, Randolph; Pal, T.K.
1979, 24p.

IRRI (AID/ta-G-1074 GTS)

(In IRRI res. paper ser. no. 25)

This paper covers some of the factors limiting an increase in rice production in eastern India, an area where the new rice technology has not been widely adopted. Physical environment, lack of suitable technology, and socioeconomic constraints all appear as important factors explaining the persistent low yields.

Yields can be raised by either improving water control or by developing varieties of rice tolerant of the prevailing floods and droughts. Neither strategy offers a quick solution, but both should be pursued vigorously, which will require the collaboration of biological and social scientists.

PN-AAG-697

Paper copy \$3.00
Microfiche \$1.00

IRRIGATION

(010) AN ANALYSIS OF PERFORMANCE AND COSTS OF IRRIGATION PUMPS UTILIZING MANUAL, ANIMAL AND ENGINE POWER

Balis, J.S.
1968, 7p.

AID/ASIA/USAID/India

Compares the economic feasibilities and technological capabilities of manual and mechanical irrigation pump units in India. The study concluded that the cost of labor must be reduced by nearly 90% in order to reduce the costs for the manual-powered unit to the costs of the engine-driven unit for water lifting from typical wells. Although the total investment and installation costs for an engine driven unit are the highest, its performance characteristics the greatest and it requires both the lowest per acre investment and operating costs. Also, man-powered pumping units are only adequate in lifting water 5-10 feet from canals, whereas the use of well water requires a mechanical pumping system such as an engine capable of lifting water 40 feet or more, or bullock power adequate in lifting water up to 25 feet. Electrically-driven units, normally considered less expensive than diesel-powered units, were not considered in this study. It was suggested that Farmers owning less than 10 acres should either sell water or share pump costs with other to make their irrigation economically feasible. Thus, economics of scale are found to apply to the problem of pumping irrigation water.

PN-AAG-305

Paper copy \$.88
Microfiche \$1.00

(011) FARM IRRIGATION SYSTEM EVALUATION: A GUIDE FOR MANAGEMENT

Merriam, J.L.; Keller, Jack
1978, 276p.

Utah State (AID/csd-2459 211 (d))

Describes and explains detailed procedures for field evaluation of the performance of several types of sprinkle, surface, and trickle (drip) irrigation systems and of management practices for use by

irrigators, land managers, technicians, and students. Step-by-step instructions are provided for gathering data in the field, and sample studies are presented that demonstrate the entire process. The introduction states and explains the general concepts of uniformity, efficiency, and management that are used in evaluating each system and improving their use. Individual chapters describe procedures for both full and simple evaluations of performance of the various irrigation systems. Most chapters include lists of equipment needed for performing these evaluations, and contain sample forms for recording and organizing field data. Analyses and recommendations for a few actual case studies are also included.

PN-AAG-745

Paper copy \$34.50
Microfiche \$3.00

FISHERIES

(012) MANAGEMENT OF A TROPICAL FISH POT FISHERY FOR MAXIMUM SUSTAINABLE YIELD

Stevenson, D.K.
1977, 23p.

R.I. (AID/csd-2455 211 (d))

Reports research concerning the degree of exploitation of each of ten principal fish species harvested by the pot fishery, operating on the Southwest coast of Puerto Rico. Estimates growth and mortality rates for various species. Applies Beverton-Holt yield model to determine over- or under-exploitation and recommends appropriate management procedures for the fishery. Growth and mortality data, as well as relative yield estimates, were obtained by measuring fish size during three sampling periods, and analyzed according to species, location, and fish pot mesh size for each fishing season. Results distinguished two over-exploited from five under-exploited species on the basis of size.

Several management alternatives, concerning altering fish pot mesh size and regulating pot density in certain areas, are considered. Aims at improving yield without depleting certain species and/or creating problems regarding marketing undersize fish. Includes project summary in Spanish.

PN-AAG-524

Paper copy \$2.88
Microfiche \$1.00

(013) SOCIOCULTURAL ASPECTS OF TECHNOLOGICAL AND INSTITUTIONAL CHANGE AMONG SMALL-SCALE FISHERMEN

Pollnac, R.B.
1978, 32p.

R.I. (AID/csd-2455 211 (d))

(In Anthropology working paper no. 22)

Examines the interrelationships between technology and institutional change and several important aspects of human social adaption to small-scale fishing. Relations between certain social and techno-economic aspects of small-scale fisheries are discussed and a model of these relationships is developed. Also included are examples of how technological and institutional changes impact on social relationships; suggestions concerning the utility of the model for development programs; and a diagram illustrating the relationships between technology and social organization. Lists 50 bibliographical references.

PN-AAG-602

Paper copy \$4.00
Microfiche \$1.00

AGRICULTURE

(014) VARIANCE IN PERCEPTIONS OF FISHING AND FARMING AMONG SMALL-SCALE FISHERMEN IN THE GULF OF NICOYA, COSTA RICA

Pollnac, R.B.
1977, 12p.

R.I. (AID/csd-2455 211 (d))

(In Anthropology working paper no. 20)

Examines the sociocultural correlates of perceptions of farmers and fishermen by small-scale fishermen in the Gulf of Nicoya, Costa Rica. Uses the semantic differential technique to measure subjects' evaluation of the two occupations and correlates the evaluations with the independent variables age, education, years fishing, and area of residence. Contains tables and diagrams illustrating study results.

PN-AAG-603

Paper copy \$1.50
Microfiche \$1.00

(015) SMALL-SCALE FISHERMEN'S PERCEPTIONS OF THE OCCUPATION OF FISHING IN THE GULF OF NICOYA, COSTA RICA

Pollnac, R.B.
1977, 17p.

R.I. (AID/csd-2455 211 (d))

(In Anthropology working paper no. 18)

Examines small-scale fishermen's perceptions of the occupation of fishing in the Gulf of Nicoya, Costa Rica. Based on 125 interviews with open-ended questions concerning what the fishermen liked most and least about their occupation; preferences for son's occupation; and the qualities that make a good fisherman. In addition, information regarding preference for and functions of middlemen was gathered, and correlations between perceptions of the fishing occupation and the independent variables of age, education, years fishing, and area of residence were made.

PN-AAG-604

Paper copy \$2.13
Microfiche \$1.00

(016) INVESTMENT ORIENTATION AMONG SMALL-SCALE FISHERMEN IN THE GULF OF NICOYA, COSTA RICA

Pollnac, R.B.
1977, 32p.

R.I. (AID/csd-2455 211 (d))

(In Anthropology working paper no. 19)

Reports study of 125 small-scale fishermen's investment orientations and their sociocultural correlates in the Gulf of Nicoya, Costa Rica. The interview schedule contained items on investment orientation using a hypothetical situation; selfevaluation of socioeconomic position, perceived socioeconomic progress, optimism and efficacy; material culture such as household amenities and fishing technology; mass media exposure; and income, age and education. Data tables and diagrams are provided.

PN-AAG-605

Paper copy \$4.00
Microfiche \$1.00

(017) INCOME PERIODICITY AND EXPECTATIONS OF GOAL ATTAINMENT AMONG SMALL-SCALE FISHERMEN IN THE GULF OF NICOYA, COSTA RICA

Robbins, M.C.; Pollnac, R.B.; Robbins, L.C.
1978, 38p.

R.I. (AID/csd-2455 211 (d))

(In Anthropology working paper no. 23)

Examines the relationship between objective economic conditions among small-scale fishermen in Costa Rica and their subjective expectations of life-goal attainment, concentrating on income periodicity. Describes the methods used, sample selection and measurement of variables, analytical model, and study results. Includes many tables displaying the results and analysis.

PN-AAG-606

Paper copy \$4.75
Microfiche \$1.00

(018) ARTISAN FISHERY TECHNOLOGY: GHANA. A CASE STUDY OF A WEST AFRICAN FISHERY

Caurie, M.; Okoso-Amaa, K.; Chichester, C.O.; Lee, Tung-ching
1979, 82p.

R.I. (AID/csd-2455 211 (d))

This report is a case study of fish harvesting, handling preparation, and marketing techniques, and, also, fish consumption patterns currently existing in Ghana. The intent of this research was to determine the constraints to increased productivity of the Ghana fishing industry. The authors of this report believe that the Ghana fishing industry is representative of the entire West Africa fishing industry. Thus, research findings presented in this report can be applied to the development of corrective programs for the entire West African region. A major constraint to the Ghana industry is the shortage of credit available to fishermen. A result of this is that few fishermen can afford to purchase better fishing craft or equipment (eg, modern fish detection devices). Deterioration of the fish after netting and during and after processing and marketing is another problem. Only a portion of fishermen and marketers use ice to help preserve the fish; handling of the fish by unclean hands and draining of the fish on the bacteria-rich sands of the shoreline further contaminates the fish harvest. None of the many types of smoking ovens used in Ghana is entirely successful in producing smoked fish of consistent quality. The processing methods for producing salted and dried, unsalted and dried, and fried fish are likewise deficient. Research into refinement of oven design and drying and frying processes is definitely necessary. A test to determine the degree of fish freshness has already been developed and used successfully by the University of Rhode Island contract team. A description of the test is included in this publication. Consumer taste preference and taboos against eating certain species of fish pose the final constraints to the fish industry. Taboos and taste preference vary from locale to locale. The "bad" taste of certain fish could be eliminated through the use of modified processing methods, but such methods will require additional research before being used. Some taboos have already been eliminated through villager education programs. Appended to the Ghana Fishing Industry study is a paper containing both the research data and the data collection methodologies used in the study.

PN-AAG-674

Paper copy \$10.25
Microfiche \$1.00

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

(019) AN INVESTIGATION INTO THE MICROBIOLOGICAL QUALITY OF FISH IN GUATEMALA AND COSTA RICA

Arias, L.F.; Bonilla, Gonzalo; Chichester, C.O.; Constantinides, S.M.; Cabrera, Sheryl de; Lee, Tung-ching; Nutley, L.J.; Ridelman, J.M.; Leon, Roberto de
1978, 38p.

R.I. (AID/csd-2455 211 (d))

Two preliminary surveys were made on the quality of fish caught by artisan fishers in Costa Rica and Guatemala. The presence of microbiological contamination was tested from point of catch to sale in Costa Rica, and in various retail markets in Guatemala. Observations were made on sanitary conditions in the marketplaces of both countries. Findings from the Costa Rican study indicate abnormally high counts of bacteria, coliform, and Staphylococcus. Since both coliforms and Staphylococci are not part of the normal flora of raw seafood, their presence is considered an indication of contamination from human sources. For short trips, Costa Rican fishers store their catch without ice until they arrive on land. On longer trips, the catch may be iced, but the holding area is usually not clean. After landing on short trips, fishermen mix the fish with ice in boxes where they are stored for about two days before transport to market. During this time, the contents of the boxes become highly contaminated with bacteria. Rough treatment and unsanitary conditions in the transport and display of fish in the marketplace leads to further deterioration. The Guatemalan study tested fish quality, using the aerobic plate count (APC) at 35 degrees C, most probable number (MPN) of faecal coliforms, and a count of *Staphylococcus aureus*. These counts were made for every fish sample, swabs of table and floor surfaces, and ice water and fish drippings. The two public markets examined (Colon and Terminal) generally lack modern equipment such as refrigerators, freezers, electrical saws or stainless steel tables. Results indicate that the tables, floors, and ice in both markets are grossly contaminated. The drip from the piled fish is also heavily contaminated. Ice and drip are the most important factors contributing to high bacterial counts, since both are in contact with the fish and allow cross contamination. In spite of this contamination, at the end of three days, the APC of fish samples were 10 million per square cm or less. The general appearance of the fish was good; no signs of spoilage were evident. A second aspect of the study dealt with fish processed by filleting, freezing, drying, or salting. Samples were collected from five markets. The microbial loads of the products as measured by the APC at 25 degrees C were generally higher than the American Public Health Association (APHA) permitted level; 72 per-per gram. Since the faecal coliforms and *S. aureus* counts also exceeded the APHA limits, mishandling was indicated. Despite statistical anomalies, conclusions can be made on the results of the two studies: 1) more potable water is needed for washing boats, containers, utensils, and all surfaces that come in contact with fish or ice; 2) ice should be of good quality and should not be reused; 3) pressure on caught fish should be reduced by use of flake ice; 4) regulations regarding the handling and distribution of fish and other perishable commodities should be more strongly enforced. Improved fish quality might come about through an intensive campaign by government and universities on the nutritive value of fish, and on its proper handling. Authors recommend a survey of current practices in fish handling and consumer use so that the correct emphasis can be made in later work. Separate references for each study are listed on pages 11 and 20.

PN-AAG-781

Paper copy \$4.75
Microfiche \$1.00

(020) REGIONAL DEVELOPMENT; A REVIEW OF THE STATE-OF-THE-ART

Miller, J.C.
1979, 82p.

AID/DS/RAD (AID/otr-147-79-35)

This is a revision of the author's pioneering 1974 study of the theory and practice of regional economic development with particular attention to the "spatial systems" approach. Increased recent attention to regional planning has been an attempt to meet the problem of developmental inequality between urban and rural regions that results in economic inequality and other social and political ills. A commonly-accepted theoretical model for fruitful regional development is that of an integrated spatial system, that is, a system which is composed of urban centers hierarchically arranged in mutual dependency and within satisfactory distance and travel time for farmers and in which the city forms the basic propeller of regional development and also the link between regional and national economies. In an attempt to implement such a model, two strategies have been tried over the past 25 years. The first has concentrated on developing large urban-industrial centers and has encountered notable problems in establishing criteria for selecting and developing such centers, in attracting industry, and in establishing vertical linkages between industrial centers. Because this approach requires huge outlays of funds and personnel, it is not feasible for most developing countries. An alternative strategy has focused on the regional level and thus on the development of market towns, rural growth centers, and rural service centers. Most experience along these lines, however, has been quite recent and remains unevaluated, as does, therefore, the strategy itself. An opposing view has argued that the dependency model actually promotes underdevelopment. Such an argument, while not conclusive, does point out that appropriate supporting measures, e.g. land reform, are needed if the dependency model is to be effective. An 86-item bibliography is appended.

PN-AAG-690

Paper copy \$10.25
Microfiche \$1.00

(021) AGRIBUSINESS AND RURAL ENTERPRISE PROJECT ANALYSIS MANUAL

Daines, S.R.; Smith, Bryant; Rodgers, William; Mann, Fred
1979, 218p.

AID/DS/AGR

Manual provides AID project personnel with background and project analysis methods for agribusiness and rural enterprise projects. The manual is written for three types of AID personnel, and three corresponding levels of detail are presented. The potential users include (1) AID personnel working directly in design, implementation, or evaluation of agribusiness or rural enterprises projects, (2) regional bureau personnel or mission officials involved in project review, or (3) AID or other development agency personnel with only a peripheral interest in agribusiness and rural enterprise projects. While the manual does not provide a project analyst with the necessary detail at the "cook book" level to teach and guide to successful completion, it does intend to provide the AID project manager with the necessary understanding to write a satisfactory scope of work for project analysis, and the background necessary to monitor contractors engaged in project design, implementation, and evaluation. The term "agribusiness/rural enterprise" is used in this manual to refer to the small and medium scale rural enterprise (SMRE). The manual is divided into three parts. Part I provides an overview of the agribusiness and rural enterprise setting. Various public policies affecting SMRE's are identified. Recommendations are given on how to incorporate appropriate technology into development strategy and how to design interventions which will maximize benefits to and involvement of the poor. Specific types of interventions are also discussed. Part II deals with project analysis techniques including target group identification, enterprise

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

DEVELOPMENT ASSISTANCE

analysis, project feasibility, and cost/benefit analysis. Part III presents different methods of data gathering for project analysis. Methods of implementing, monitoring, and evaluating agribusiness and rural enterprise projects are discussed in Part IV. An extensive bibliography cites related publications ranging from 1961 to 1978. The bibliography, along with thorough explanatory footnotes in the text, refers the user to supplemental sources of information where greater detail is needed.

PN-AAG-797

Paper copy \$27.25
Microfiche \$3.00

(022) PATTERNS IN POTABLE WATER PROJECTS; AN ANALYSIS OF AID'S AUTOMATED DATA

Practical Concepts, Inc., Washington, D.C.
1978, 85p.

PCI (AID/otr-C-1377 GTS)

Examines information in AID's automated data bases concerning portable water projects (1960-1978). Basic project design data for 91 projects (Africa, Asia, Latin America, Near East Bureaus and Centrally Funded) are presented: (1) percent of planned obligations, (2) project status (planned, active, completed or terminated), (3) proportion of projects with start dates 1977 or 1978, (4) size of project in terms of dollar amount of planned obligations, (5) start date, (6) project purpose, and (7) project goal. Summaries of the project patterns for each region also appear. Included also are recommendations for further analysis of this subsector and of other sectors, and a critique of the ability of existing data bases to provide all desired information. Clusters of independent and dependent variables (technical, health, administrative, economic, financial, social, etc.), data sources, and probabilities that data are found in listed source(s) are exhibited. Appendixes provide tables of supplementary analysis, a description of the raw data, enumeration of missing data, and raw data tables.

PN-AAG-346

Paper copy \$10.63
Microfiche \$1.00

(023) PATTERNS IN RURAL ROADS PROJECTS; AN ANALYSIS OF AID'S AUTOMATED DATA

Practical Concepts, Inc., Washington, D.C.
1979, 75p.

PCI (AID/otr-C-1377 GTS)

Examines 105 rural roads projects by utilizing AID's automated data bases. Roads ranged from simple earthworks projects to multi-year, multi-million dollar, integrated rural development projects. 12 are in the planning stage, 62 are active, and 31 have been completed or terminated. Formal evaluation studies are available for 51 projects. Major findings include Africa and Latin America most active in terms of number of projects; funding greatest in Latin America, roughly equal in Asia and Africa; highest priority on rural roads in Africa; and purposes and goals of rural roads projects, widely varied. Provides regional bureau summaries for Africa, Asia, Latin America, and the Near East including financial and chronological information. Figures and summary data tables appear in the report body while detailed data at the project level is presented in the appendix. These contain project status and size, start date, planned obligation or actual expenditures, problem addressed, goal, purpose, and additional components if an integrated project.

PN-AAG-502

Paper copy \$9.38
Microfiche \$1.00

(024) PATTERNS IN ELECTRIFICATION PROJECTS; AN ANALYSIS OF AID'S AUTOMATED DATA

Practical Concepts, Inc., Washington, D.C.
1978, 36p.

PCI (AID/otr-C-1377 GTS)

Examines 32 rural electrification projects utilizing AID's

automated data bases, of which six are in planning stages, 14 active, and 12 completed or terminated. Evaluation studies are available for six projects. Findings show Asia and Latin America Bureaus most active. While Latin America Bureau finances almost as many projects as Asia Bureau, size is half as great. New project development moving fastest in Asia. Africa Bureau inactive regarding rural electrification. Regional bureaus including Africa, Asia, Latin America, Near East are summarized in terms of financial and chronological information. Figures and summary data tables appear in the report body while detailed data tables at the project level are presented in the appendix. These cover project size and status, start date, planned obligation or actual expenditures, problem addresses, goal, purpose, additional components if integrated project.

PN-AAG-503

Paper copy \$4.50
Microfiche \$1.00

(025) NEW DIRECTIONS RURAL ROADS

Tendler, Judith
1979, 81p.

AID/PPC/E

(In A.I.D. program evaluation discussion paper no. 2)

This program evaluation discussion paper examines rural road projects in the light of the Agency's "New Directions" mandate to improve the lot of the rural poor. Attention is focussed in particular on the relative merits of labor-based vs. equipment-based construction techniques. Although equipment-based techniques are traditional in donor-recipient projects and often prove administratively or financially more attractive to both, labor-based techniques more greatly benefit the poor by generating employment and, as recent IBRD research has shown, by reducing costs. AID should therefore promote labor-based techniques by refraining from actions biased in favor of equipment-based, e.g., financing labor-based projects in agencies already receiving equipment-based funding; including equipment funding in loans to highway and public works departments. It should also seek out institutional environments in recipients where labor-based techniques are more desired, accepted and functional, e.g., by engaging in more decentralized regional development and rural development projects as opposed to projects with highway departments. In this way local energies can better be tapped, more roads actually built, and maintenance better provided for. Attention should also be given to the New Directions significance of alternative road-system patterns, that is, to the balancing of rural and arterial road construction in specific project areas.

PN-AAG-670

Paper copy \$10.13
Microfiche \$1.00

(026) RURAL ELECTRIFICATION: LINKAGES AND JUSTIFICATIONS

Tendler, Judith
1979, 84p.

AID/PPC/E

(In A.I.D. program evaluation discussion paper no. 3)

This program evaluation discussion paper examines the role of infrastructure-intensive rural electrification programs in light of the Agency's "New Directions" mandate to improve the lot of the rural poor. In defending its rural electrification programs in the past, AID has promoted the benefits of the household uses of electricity over those deriving from its employment-generating and public sector uses. This emphasis, which is inconclusive from a New Directions viewpoint, is usually based on a desire to uphold equity for household users. Equity, however, is not necessarily promoted by insistence on identical rates for household and productive uses of electricity. Productive uses actually benefit the poor, e.g., by providing employment, while identical rates benefit the relatively well off who use electricity the most. Non-household

benefits of electricity, e.g., the generation of employment opportunities by use of labor-intensive methods, providing the poor with otherwise inaccessible services (clinics, schools), the mobilization of local production and supply, must be identified and consciously incorporated into project design and into agreements with host countries. For this a special office within AID should be created. Arguments that rural electrification is environmentally and economically sounder than traditional energy sources has little foundation in fact. Likewise, the argument for central station over independent local diesel generation (autogeneration) is too glibly made. The former involves, especially in developing countries, problems of transmission and distribution that result in frequent outages and thus in higher prices and are also very costly initially. Autogeneration obviates these difficulties and makes intelligent, piecemeal and costeffective planning possible. The added administrative burdens it places on AID can be alleviated by channeling such projects through host governments. An 86-item bibliography is appended.

PN-AAG-671

Paper copy \$10.50

Microfiche \$1.00

SOCIAL SCIENCES

(027) EMPLOYMENT-OUTPUT CONFLICTS, FACTOR PRICE DISTORTIONS AND CHOICE OF TECHNIQUE: EMPIRICAL RESULTS FROM SIERRA LEONE

Byerlee, Derek; Eicher, C.K.; Liedholm, Carl; Spencer, D.S.C. 1979, 42p.

Mich. State (AID/ta-C-1328 Res.)

(In African Rural Economy Program working paper no. 26)

Presents empirical evidence from a recently completed comprehensive, micro-level survey of the major economic sectors of Sierra Leone in relation to the debate on the employment output conflict. Evidence was examined from the demand and supply side. Evidence of a favorable demand outlook was found for products of labor-intensive, small, small-scale sectors both through increasing consumer incomes and through import substitution. On the supply side, it was found that distortions in wage rates and interest are largely confined to the large-scale sector. Changes in factor prices, particularly interest rates and tariffs, were found to produce a different mix of optimal technologies, especially in the agricultural and rice processing sectors, where policies to equalize factor prices of large- and small-scale sectors and to remove subsidies on capital intensive techniques resulted in both lower costs of production and increased labor use. In the long run, the evidence from Sierra Leone provides solid empirical support for a development strategy emphasizing small-scale sectors and labor intensive technologies to promote both output and employment. In the short run, however, research indicates that both employment and output could be expanded by correcting the factor price distortions between the large and small-scale sectors.

PN-AAG-668

Paper copy \$5.25

Microfiche \$1.00

(028) DEVELOPMENT ACTIVITIES AND RURAL-URBAN MIGRATION: IS IT POSSIBLE TO KEEP THEM DOWN ON THE FARM?

Rhoda, R.E. 1979, 88p.

AID/DS/UD (AID/otr-147-79-25)

Reviews relevant literature on migration, including theoretical

models and empirical studies, and discusses nine different development activities in rural areas and their impact on rural-to-urban migration. Several tentative generalizations are offered: 1) Land reform probably has a moderate slowing impact in the short run, but long run impact will be mixed; 2) Land rent ceilings and tenancy controls may have a weak positive effect on rural-urban migration in both the short and long run; 3) Land colonization and rural resettlement should have a weak slowing impact on rural-urban migration in the short run; 4) Green revolution probably provides a moderately weak stimulus to ruralurban migration in the short run; the long run impact may be a moderately strong stimulus; 5) Tractors and related forms of mechanization probably result in moderate acceleration of rural-urban migration in both the short and long run; 6) Irrigation projects probably have a moderate slowing impact on rural-urban migration in the short and long run; 7) Increased credit and extension services may have a mixed migration impact in the short run while providing a weak stimulus to rural-urban migration in the long run; and 8) Development of rural enterprises probably provides a strong stimulus for rural to small town migration and slight slowing of rural-big city migration in the short run; the long run impact may be a moderate acceleration of migration to both small and large urban centers. A nine page bibliography is included.

PN-AAG-673

Paper copy \$11.00

Microfiche \$1.00

(029) POPULATION PROFILES FOR THE DISTRICTS OF KENYA

Henin, R.A.; Nairobi Univ. Population Studies and Research Institute 1979, 78p.

AID/AFRICA/USAID/Kenya

Contains population projections for Kenya at the district and province level. Includes data for population totals, population aged 6-12 and, 13-16, labor force population, women in the reproductive ages, and annual births and deaths. Two sets of population projections, low and high, and a technical note explaining procedures for deriving them are reported here.

PN-AAG-870

Paper copy \$9.75

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(030) RECENT DEMOGRAPHIC TRENDS IN KENYA AND THEIR IMPLICATION FOR ECONOMIC AND SOCIAL DEVELOPMENT

Henin, R.A.; Nairobi Univ. Population Studies and Research Institute 1979, 43p.

AID/AFRICA/USAID/Kenya

Contains discussion, tables, and diagrams regarding demographic data for Kenya. Outlines the relationship between population and development planning. Discusses fertility/mortality levels and trends for Africa and Kenya. Details fertility and mortality trends in Kenya 1962-1972 including variations in marriage patterns and summarizes 1977 findings with regard to fertility/mortality levels and trends (rate of natural increase). Population projections to 1989 and implications of these for some aspects of the country's economic and social development program are included. Appendix contains notes on analytic methodology of the 1977 national demographic survey and projections methodology.

PN-AAG-871

Paper copy \$5.38

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EDUCATION

(031) GUIA PARA LA MEDICION DE RESULTADOS EDUCACIONALES Y SUS USOS; SEM. NO. 1: TIPOS DE MEDICIONES DE RESULTADOS

Mushkin, S.J.; Billings, B.B.; Georgetown Univ. Public Services Laboratory
1975, 39p.

Georgetown (AID/CM/ta-C-73-8 GTS)

Volume 1 of a six-volume set of seminar guidebooks is intended for use as a teaching aid in seminars designed to inform officials and educators about educational outcome measurements so that government planners in developing countries can assess how well their educational systems are functioning. It focuses discussion on types of outcome measurements. Questions covered include; the kinds of individual and social competencies or outcomes being sought through education, the specific measures of educational outcome which may be used to measure the primary effects of education on the individual's learning, knowledge, aptitude, and skills, and how outcome measurements differ from traditional input or process indicators that have guided educational policies in the past. Also examines what is sacrificed to devote more resources to education and to allocate more resources to one educational program rather than another, and what the yardsticks are for assessing criteria to measure outcomes. Notes relating to those and other questions are presented for the discussion leader, along with tables of educational outcomes and schematics of decision processes.

PN-AAD-477 (Spanish, 39p.)

Paper copy \$4.88

Microfiche \$1.00

PN-AAD-471 (English, 31p.)

Paper copy \$3.88

Microfiche \$1.00

(032) GUIA PARA LA MEDICION DE RESULTADOS EDUCACIONALES Y SUS USOS; SEM. NO. 2

UTILIZACION DE LAS MEDICIONES DE RESULTADOS

Mushkin, S.J.; Billings, B.B.; Georgetown Univ. Public Services Laboratory
1975, 45p.

Georgetown (AID/CM/ta-C-73-8 GTS)

Volume 2 of a six-volume set of seminar guidebooks is for use as a teaching aid in seminars designed to aid educational planners in developing countries to provide programs precisely suited to their countries' needs by effectively assessing present needs and programs. This guidebook for Seminar II focuses on the uses of outcome measurements. Questions presented, along with notes for the discussion leader, include the following: If there were perfect measures for individual and social competency, how should those measures be used in planning and implementing educational programs? Are the same outcome indicators useful for a variety of purposes? At what phases of policy analysis does outcome measurement become critical? Why is outcome measurement a critical component in Management by Objectives (MBO)? How many outcome measures be used in educational financing? What are the geographic levels of analysis and assessment? What are the project policy levels? Do multiple outcomes, when used in one of the ways outlined, "overload" the information for the policy analysis, the use of outcomes in evaluation, and the process of management by objectives.

PN-AAD-482 (Spanish, 45p.)

Paper copy \$5.63

Microfiche \$1.00

PN-AAD-472 (English, 34p.)

Paper copy \$4.25

Microfiche \$1.00

(033) GUIA PARA LA MEDICION DE RESULTADOS EDUCACIONALES Y SUS USOS; SEM. NO. 3: DISENO DE MEDICIONES DE RESULTADOS, RENDIMIENTO Y ACTITUDES

Mushkin, S.J.; Billings, B.B.; Georgetown Univ. Public Services Laboratory
1975, 43p.

Georgetown (AID/CM/ta-C-73-8 GTS)

Volume 3 of a six-volume set of seminar guidebooks, which are concerned with informing educational policymakers how educational outcome measures can be employed to assess educational needs and programs, and focuses on the topic of how to obtain information on educational achievements and attitudes as outcomes. Among the questions it presents and discusses are: What data are now available that could be used in measuring educational achievements and attitudes? What new data have to be collected? Are uniform tests useful for educational planning now being given? Are new instruments and methods needed? What has been the experience with test or survey formulation? What has been the experience with adapting existing testing instruments? In what ways does it seem feasible and equitable to use teachers' evaluations to assess educational outcomes? Is there agreement with a measurement specialist who urges that "self-esteem" and "external-internal controls" are especially important noncognitive capacities to be developed through education? Or are attitudes about work-especially manual labor--a more significant outcome for developing countries? Figures presented in the guidebook include a schematic on steps in construction of tests and a table on relative characteristics of standardized tests and teacher evaluation.

PN-AAD-478 (Spanish, 43p.)

Paper copy \$5.38

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PN-AAD-473 (English, 33p.)

Paper copy \$4.13

Microfiche \$1.00

(034) GUIA PARA LA MEDICION DE RESULTADOS EDUCACIONALES Y SUS USOS; SEM. NO. 4: DISENO DE MEDICIONES DE RESULTADOS, ECONOMICOS Y SOCIALES

Mushkin, S.J.; Billings, B.B.; Georgetown Univ. Public Services Laboratory
1975, 57p.

Georgetown (AID/CM/ta-C-73-8 GTS)

Volume 4 of a six-volume set of seminar guidebooks, which are intended for educational policymakers interested in using outcome measurements as a means of assessing educational objectives and programs, is concerned with the topic of how to obtain information on social returns from education. It examines the economic, social, political, and cultural "payoffs" from education. A set of educational outcomes relating to societal objectives of development is presented, followed by questions for discussion: Is the listing sufficiently comprehensive, and is it too vague to provide a basis for selecting criteria-output-oriented objectives or too lengthy to be meaningful for any one educational policy? Other discussion topics include these questions: What are the more effective approaches to gathering data on economic, social, and political outcomes? If modernity is an objective of an educational policy for development, how might this quality be tested for its impact on development? How might increased productivity be measured in rural areas or in selected city employments? Are these differences in earnings between those with specified types of education and those without a reasonable measure of productivity changes and what do earnings comparisons by level of schooling provide as a guide to educational planning? Are approximate rates of return on education a factual basis for educational decisions?

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

What is the relative share of educational resources spent in rural and urban areas? Several related schematics, tables, and graphs are presented.

PN-AAD-480 (Spanish, 61p.)

Paper copy \$7.13

Microfiche \$1.00

PN-AAD-474 (English, 45p.)

Paper copy \$5.63

Microfiche \$1.00

(035) GUIA PARA LA MEDICION DE RESULTADOS EDUCACIONALES Y SUS USOS; SEM. NO. 5: APLICACION DE LAS MEDICIONES DE RESULTADOS
Glaser, Ezra; Georgetown Univ. Public Services Laboratory
1975, 61p.

Georgetown (AID/CM/ta-C-73-8 GTS)

Volume 5 of a six-volume set of seminar guidebooks, each of which focuses on an aspect of educational outcome measurement and uses of such measurement in order to assist educational policymakers in developing countries to assess their needs and programs, is concerned with the topic of applying outcome measures. It is designed to convey to participants an understanding of the potential usefulness of statistical science to the program administrator. The basic theme of the seminar is that there are formidable difficulties in collecting, analyzing, and interpreting data. Thus, formal statistical methodology is needed. Moreover, it is in program accountability and output programming that data interpretations are needed. A correlary theme of the seminar is that administrators can draw on other professions and combine input from two sources: education and statistical science. The guidebook presents and discusses seven generic problems of acquiring, analyzing, and interpreting data for management uses. These concern characterizing and comparing a group of people, objects, or events; measuring the variability assignable to program influences; determining what principles govern collection of data for all types of analyses; and arranging for the economical collection of precise data. It also covers the application of statistical principles to output-oriented management: to management by objectives, output budgeting, cost-effectiveness studies, and benefit-cost studies of educational programs.

PN-AAD-479 (Spanish, 57p.)

Paper copy \$7.63

Microfiche \$1.00

PN-AAD-475 (English, 50p.)

Paper copy \$6.25

Microfiche \$1.00

(036) GUIA PARA LA MEDICION DE RESULTADOS EDUCACIONALES Y SUS USOS; SEM. NO. 6: CONSECUENCIAS DE LA INFORMACION OBTENIDA Y PASOS PARA SU APLICACION PRACTICA

Mushkin, S.J.; Billings, B.B.; Georgetown Univ. Public Services Laboratory
1975, 34p.

Georgetown (AID/CM/ta-C-73-8 GTS)

Volume 6 of a six-volume set of seminar guidebooks, which are designed to provide educational policymakers in developing countries with an understanding of how to use outcome measurement techniques in assessing educational needs and programs, addresses the topic of feedback consequences and steps toward implementation. Some discussion questions presented, with notes for the discussion leader, are: Can a list be made of ways in which outcome measurements have an impact on education? What teacher training activity can be undertaken to facilitate analysis and assessment of educational programs and projects? How are teachers using outcome measures to improve their teaching? what are the administrative uses of outcome measurements? What impact do outcome measures have on families and student? How are educational outcome measurements

implemented? What agencies or units should be responsible for measurement? How can the necessary interagency cooperation be achieved? What processes of outcome measurement should be designed to facilitate access of nonformally educated persons to formal educational channels? The guidebook contains schematics or tabular figures on the following topics: interaction of correlates and educational outcomes; components of teacher training for use of outcome measurements; use of outcomes as a teaching aid; administrative uses of outcome measurements; and steps in implementation of outcome measurement.

PN-AAD-481 (Spanish 34p.)

Paper copy \$4.25

Microfiche \$1.00

PN-AAD-476 (English, 28p.)

Paper copy \$3.50

Microfiche \$1.00

(037) TECHNOLOGIE DE L'EDUCATION ET LES PAYS EN VOIE DE DEVELOPPEMENT, UN MANUAL

Acad. for Educational Development
1971, 243p.

AED (CSD-2506 GTS)

This handbook presents ideas about educational development, technology, change, and the improvement of learning in developing countries in a descriptive fashion, covering theory, planning and case studies. The purpose of this handbook is to present certain ideas about educational improvement and change that could help meet educational problems that are critical everywhere. All countries are confronted by a crisis in education, and the facets of education where problems are felt are enrollment, costs, teachers, management, curricula and teaching methods. This handbook attempts to show that technological innovation can have a beneficial impact on education. It examines the essential steps in planning an educational technology system, the components of educational technology, such technology is being used, and technology's promised and limitations. Case studies are presented from El Salvador, Niger, American Samoa, Mexico, Colombia, and Singapore. It also includes sources for further information on existing projects; on international and regional organizations equipped to give advice, materials, and aid; and on selected sources of equipment and programs. An extensive bibliography is included.

PN-AAD-563 (French, 243p.)

Paper copy \$30.38

Microfiche \$3.00

PN-AAD-562 (English, 185p.)

Paper copy \$23.13

Microfiche \$2.00

(038) SELECTED AND ANNOTATED BIBLIOGRAPHY ON FINANCING EDUCATION

Gould, E.S.; Neuringer, Adele; Zymelman, Manuel
1973, 48p.

Harvard (CSD-3322 GTS)

Materials dealing directly or indirectly with the financing of education were reviewed for this bibliography intended for the student of educational finance. Only studies after 1960 dealing with the acquisition and distribution of funds in education are included. The more than two hundred citations are organized in five parts: Educational Finance from an Historical Perspective; Educational Finance in the United States; Educational Finance in Other Countries; Educational Finance-Developing Country Studies; and bibliographies dealing directly or indirectly with Educational Finance. Each citation is followed by a one or two sentence annotation for information about content.

PN-AAD-589

Paper copy \$6.00

Microfiche \$1.00

SCIENCE AND TECHNOLOGY

(039) APPROPRIATE TECHNOLOGY FOR RENEWABLE UTILIZATION; FINAL REPORT

Morgan, R.P.; Icerman, L.J.; VITA
1979, 504p.

Wash. Univ.--St. Louis (AID/DSAN-C-0061)

This final report defines U.S. initiatives in the area of appropriate, low-cost technology for renewable resource utilization which might be supported by the U.S. in connection with preparation for the 1979 U.N. Conference on Science and Technology for Development (UNCSTD). The five major technologies examined include: wind energy; improved cookstoves; solar drying; rice bran processing; and the use of materials and products from natural fibers and agricultural and timber wastes. The examination of wind energy utilization discusses basic windmill designs and efforts to develop low-cost, village-level windmills. Discussion of cookstoves covers high- and low-mass designs, performance characteristics, fuels, firewood production, and cookbook dissemination efforts. Analysis of solar drying discusses solar grain drying, solar crop drying, solar timber drying, and cost-technology trade-offs for solar timber drying. Also discussed are system concepts for processing rice bran and non-waste plant fiber materials. Study objectives also included identification of the potential roles of U.S. universities, research institutions, private industry, voluntary organization, and appropriate technology groups in contributing to those initiatives, as well as identification of mechanisms for coupling U.S. resources to developing country institutions. Initiatives which the U.S. might support include needs analysis, information dissemination programs, extension efforts, and research development, design, testing, and evaluation efforts. In addition, initiatives are outlined in village-level agri-industries and renewable energy resources which integrate elements of selected topical areas. The Appendix includes reports of VITA-CDT Experts Panels which were assembled to examine three of the topical areas, and a compilation of organizations involved in appropriate technology for renewable resource utilization. Each topical unit includes a bibliography of recent and international documents.

PN-AAG-665

Paper copy \$63.00
Microfiche \$6.00

(040) SELECTED APPROPRIATE TECHNOLOGIES FOR DEVELOPING COUNTRIES; ABSTRACTS FROM THE NTIS DATA FILES

Volunteers in Technical Assistance (VITA), Mt. Rainer, MD
1979, 205p.

NTIS (PA/C2/LAR-0572-1-77)

This bibliography is an edited search of "appropriate technology" citations from the NTIS Bibliographic Data File. Over 1000 citations with abstracts are included. Appropriate technology is defined as small-scale, employment-generating, and energy conserving technologies relevant to the needs and resources of developing countries. Also, the concept implies a humanistic approach to problem solving and considers "soft technologies," such as education, health care delivery, and community development. Citations and abstracts are in English. Documents listed are available for sale from NTIS in paper copy or in microfiche (This document is also available from NTIS, document number PB-294-160).

PN-AAG-667

Paper copy \$25.63
Microfiche \$3.00

(041) THE ECONOMICS OF RENEWABLE ENERGY SYSTEMS FOR DEVELOPING COUNTRIES

French, David
1979, 73p.

AID/DS/ST (AID/afr-C-1393)

In many parts of the Third World, projects are being developed to test such renewable energy systems as solar pumps, biogas plants, and solar cell arrays to power pumps and grinders. This report outlines the benefit-cost techniques which allow systems to be evaluated from the standpoint of individual buyers (financial analysis) and the society as a whole (economic analysis). Special attention is given to problems of particular importance in reviewing energy systems: local measurement of costs and benefits, determination of investors' discount rates, shadow-pricing, allowances for social costs, and so on.

Detailed benefit-cost analyses are provided for three representative systems:

- a 40-hp solar thermal irrigation pump near Bakel, Senegal;
- a family-scale Indian biogas plant;
- a 5.5 kw solar cell irrigation pump on the borders of Lake Chad.

Neither the solar thermal pump nor the family-scale biogas plant appears to be profitable in either financial or economic terms under any plausible sets of assumptions. The solar cell pump has positive net benefits by economic (if not financial) measures, but is unlikely to be competitive with diesel power for another decade.

Given these findings, organizations concerned with the poor might well give renewed attention to meeting basic energy needs through less sophisticated systems: village woodlots, improved wood stoves, hand or pedal pumps and grinders, hydraulic ram pumps, etc.

PN-AAG-864

Paper copy \$9.13
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CONFERENCE PROCEEDINGS

(042) DESERTIFICATION: PROCESS, PROBLEMS, PERSPECTIVES; PAPERS PRESENTED DURING A 14 WEEK SEMINAR SERIES

Paylore, Patricia; Haney, R.A. Ariz. Univ. Office of Arid Land Studies
1976, 129p.

Ariz. (AID/ta-G-1111 211 (d))

Contains a series of twelve papers which were presented during a continuing program of seminars addressing the process of desertification between November, 1975 and April, 1976, at the University of Arizona. Desertification is defined as the process of environmental change characterized by increasing aridity and intensification of distinct geomorphological processes, desiccation and increasing salinity of soils, and a manifest degradation of vegetative cover. The first seven papers discuss the process of desertification from the viewpoint of the generalist, and address the problems of reversing desertification, consequences of desertification, effects of atmospheric dust and surface albedo on desertification, ecology of desertification, effects of desertification on land degradation and water resources, and the interrelationship between vegetation, erosion, and stream flows. The following four papers present case studies illustrating some of the theses advanced by the generalists. Case studies include the Papago county of Arizona, the Sierra Pinacate of Sonora, Mexico, the salinity problem in Australia, and range management in southeastern Oregon. The final paper presents a recapitulation of the preceding eleven papers, and of the seminars in general.

PN-AAC-604

Paper copy \$16.13
Microfiche \$2.00

CONFERENCE PROCEEDINGS

(043) PROCEEDINGS OF INTERNATIONAL SYMPOSIUM ON RAINFED AGRICULTURE IN SEMI-ARID REGIONS, RIVERSIDE, CALIFORNIA, 1977

1977, 713p.

Calif.--Riverside (AID/ta-G-1141 211 (d))

Contains 30 papers and other proceedings of a symposium on dryland agricultural systems. The papers are organized according to historical, geographical, and socio-cultural aspects; fundamentals of dryland farming; semiarid tropic regions; fundamentals of dryland farming; semiarid Mediterranean regions including crop and livestock systems; dryland farming practices: semi-arid tropics; dryland farming practices: Mediterranean regions; and marketing, distribution, and policy. Two sets of papers address specific topics: Title XII and agricultural development; effects of water deficits on certain crops; parasite problems; crop rotation; and integration of crop and livestock husbandry. Numerous tables and diagrams are provided.

PN-AAG-338 Available in microfiche only: \$8.00

(044) PROCEEDINGS OF THE FIFTH CONFERENCE ON HOUSING IN AFRICA, MONROVIA, LIBERIA, 1978

Authority of Liberia, Monrovia

1978, 222p.

AID/DS/H

Housing experts representing 23 African countries met with representatives of the World Bank, United Nations, African Development Bank, Department of Housing and Urban Development, AID, and the US League of Savings Institutions in an AID-sponsored conference to discuss shelter problems in Africa. The conference was held in Monrovia, Liberia from May 7-12, 1978, in order to bring together knowledgeable housing personnel in a discussion of both regional and country-specific problems. Ten papers (reproduced herein) were presented in workshops which addressed issues of shelter policy in the allocation of national resources, home construction and financing, human resource mobilization, housing cost recovery, self-help home construction, strategies in neighborhood upgrading, sites and services projects, and a number of special topics. Workshops were interspersed with plenary working session, which aided in building cooperative links between countries experiencing similar shelter problems. The texts of these sessions are included in this report. A list of participants is provided. Countries represented at this conference were: Botswana, Burundi, Cameroon, Chad, Congo, Egypt, Ghana, the Ivory Coast, Kenya, Lesotho, Liberia, Malawi, Mali, Mauritius, Morocco, Niger, Nigeria, Senegal, Tanzania, Togo, Tunisia, Zaire, and Zambia.

PN-AAG-675 (English, 222p.)

Paper copy \$27.75

Microfiche \$3.00

PN-AAG-676 (French, 241p.)

Paper copy \$30.13

Microfiche \$3.00

(045) RAINFED LOWLAND RICE: SELECTED PAPERS FROM THE 1978 INTERNATIONAL RICE RESEARCH CONFERENCE

IRRI

1979, 348p.

IRRI (AID/ta-G-1494)

This publication from the 1978 International Rice Research Conference focuses on rainfed lowland rice systems, which comprise nearly half the world's rice-growing areas. Remaining areas are irrigated systems, those where water exceeds 1 m in depth, and upland areas where water is not usually impounded. This report reproduces selected papers on such topics as: varietal improvement, crop management, cropping patterns, and

socioeconomic aspects of rainfed lowland rice production. One group of papers concentrates on rainfed lowland rice production in Bangladesh, Burma, India, Indonesia, the Philippines, and Thailand. Future research is recommended in the areas of crop improvement, drought tolerance, intermediate stature and suitable seeding height, submergence tolerance; photoperiod sensitivity, early maturity, adverse soils tolerance, and crop and pest management. On-farm research, which allows more definite characterization of the in-situ parameters of rice production, will help to accelerate the development of appropriate component technology. Preliminary findings are given from the first International Rainfed Lowland Rice Observational Nursery, which began in 1978 following discussions among conference participants. The report summarizes results from 17 tests conducted in nine Asian and Latin American countries (Burma, the Philippines, Thailand, Vietnam, Bangladesh, India, Nepal, Columbia, and Costa Rica), for the purpose of developing improved crop varieties suitable to lowland rainfed settings. Data is presented on rice varieties rated good for tolerance to drought, submergence, blast, bacterial leaf blight, tungro virus, and whitebacked planthopper.

PN-AAG-701

Available in microfiche only: \$4.00

(046) PROCEEDINGS OF THE CONFERENCE ON THE ECONOMIC CONSEQUENCES OF THE NEW RICE TECHNOLOGY, IRRI, 1976

IRRI

1978, 402p.

IRRI (AID/ta-G-1494)

This document contains the published proceedings of a conference held at the International Rice Research Institute (IRRI) in December, 1976. 26 papers are presented on various economic and social factors involved with improved rice production technologies. Papers are organized into two categories: research and discussion. IRRI economists prepared resource papers based on accumulated empirical research findings during the past ten years. Selected conference participants specializing in the socioeconomic impacts of new rice technologies then prepared written responses to the resource papers, either refuting or supporting the papers' conclusions. Papers are presented in six subject areas: output and supply, farm income structure, labor and mechanization, fertilizer and water, social benefits, and policy. Despite the complexity of the conference subject, a number of general consensus points were reached: 1) Substantial scientific research efforts are required to sustain a reasonable rate of technology change in the future; 2) The study of some minimal cross-sectional variation in economic and physical attributes of the environment is necessary to understand effects on output potential; 3) Mechanization tends to displace family labor, and the introduction of modern varieties tends to absorb more hired labor; 4) The trade-off between higher expected value of modern varietal outputs and the higher level of risk associated with their use is a determining factor in farmer acceptance of the new technologies; 5) Mutual interaction between growth, technology, and institutional change is highly important in the development of improved technologies. Recommendations for future research include: 1) a study of the generation of output growth with the advent of new technologies; 2) comparative research on output, employment, and distributional results for different rice environments in a given region or country; 3) the role of national science research in promoting technology development; 4) the relationship between small variations in output quality and additional technological flexibility gained; 5) an analysis of the relative impact of mini and maxi irrigation infrastructure, holding expenditures constant, in different areas of the same country, or across countries; 6) a study of the quantitative importance of population growth and mechanization in agricultural development. A list of conference participants is included at the end of the document.

PN-AAG-709

Available in microfiche only: \$5.00

CONFERENCE PROCEEDINGS

(047) PROCEEDINGS OF THE WORKSHOP ON THE ECOLOGY AND CONTROL OF ECTOPARASITES ON BOVINES IN LATIN AMERICA

CIAT, CALI, COLOMBIA, 1975
Thompson, K.C.;
1978, 186p.

CIAT (AID/ta-G-1090 GTS)

Contains 18 papers and several discussion summaries from a workshop on cattle ectoparasites of economic importance in Latin America. Topics include tick species distribution; planning and research for tick control programs; screwworm eradication measures; control of *Dermatobia* *Hermatophagus* *Diptera* as disease vectors; pesticides and other control measures for livestock pests; and contributions of basic science to entomological needs of Latin America. The discussion summaries attempt to determine the principal obstacles to pest control and suggest research priorities. Diagrams and tables are provided.

PN-AAG-846

Paper copy \$23.25
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(048) PROCEEDINGS OF THE SYMPOSIUM ON THE ENVIRONMENTAL CONSEQUENCES OF FIRE AND FUEL MANAGEMENT IN MEDITERRANEAN ECOSYSTEMS, PALO ALTO, CALIF., 1977

Mooney, H. A.; Conrad, C.E.; Sym. on the Environmental Consequences of Fire and Fuel Management in Mediterranean Ecosystems, Palo Alto, Calif., 1977
1977, 504p.

USDA/FS

Contains 60 papers from a symposium on the dynamics of fire-type ecosystems of Mediterranean regions and the development and assessment of management policies. The papers cover the following topics: the nature of the world's Mediterranean ecosystems, including climatic, vegetative, and soil features; an assessment of man's interaction with those systems; regional problems and approaches in Africa, Australia, California, Mediterranean Sea-bordered countries; contributions to the study of Mediterranean ecosystems; and identifying research problems. Many diagrams, tables, and maps are provided.

PN-AAG-865

Available in microfiche only: \$6.00

(049) PROCEEDINGS OF THE SYMPOSIUM ON CROPPING SYSTEMS RESEARCH AND DEVELOPMENT FOR THE ASIAN RICE FARMER, IRRI, LOS BANOS, PHILIPPINES, 1976

IRRI; Symposium on Cropping Systems Research and Development for the Asian Rice Farmer, IRRI, Los Banos, Philippines, 1976
1977, 416p.

IRRI (AID/ta-G-1074 GTS)

Contains 25 papers and additional discussions from a symposium on cropping systems and development for the Asian rice farmer. The papers present strategies for planning and implementing cropping systems research programs to increase farm income and improve the quality of farm life. Cropping systems research focuses on efforts to increase crop yields, but also concerns itself with the number of crops grown each year, with the goal of increasing food production. The papers are organized into these categories: framework for cropping systems research and development for the Asian rice farmer; physical aspects of cropping pattern design; economics of cropping systems; testing of cropping patterns; component technology including weed science, insect-pest management, varietal requirements; cropping systems approach to adaptive research and to production programs.

PN-AAG-866

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(050) PROCEEDINGS OF THE INTERNATIONAL SEMINAR ON IRRIGATION POLICY AND MANAGEMENT IN SOUTHEAST ASIA, LOS BANOS, PHILIPPINES, 1976

IRRI
1978, 206p.

IRRI (AID/ta-G-1074 GTS)

Contains 20 seminar papers reporting research and management efforts to achieve potential agricultural productivity through improved irrigation planning and implementation in Southeast Asia. Papers cover selected strategies in planning and designing irrigation infrastructure in Indonesia, Thailand, Malaysia; management, operation, and maintenance of irrigation systems e.g., research results and description of training program for water management personnel; economic issues in irrigation such as analyses of the economic performance of various types of projects and assessments of policies for securing repayment of irrigation investment; and irrigation organization and farmers' sociological, anthropological, and socioeconomic behavior. Also includes an interpretative summary identifying the major seminar themes and issues. Many maps, tables, and diagrams of relevant data are provided.

PN-AAG-867

Paper copy \$25.75
Microfiche \$3.00

(051) PROCEEDINGS OF THE FIRST PROVINCIAL PLANNING SEMINAR ON THE USE OF POPULATION DATA IN ECONOMIC AND SOCIAL PLANNING, KERICHIO, KENYA, 1978

Nairobi Univ. Population Studies and Research Inst.
1979, 82p.

AID/AFRICA/USAID/KENYA

Contains papers, discussion summaries, exercises, and other proceedings of the first provincial planning seminar on the use of population data in economic and social planning. Paper topics cover the field of demography; interrelationships between modernization, economic development and demographic factors; effects of modernization on population growth; effects of demographic change on economic growth; population and development planning; and provincial profiles. Data tables and guidelines for discussion groups are reproduced.

PN-AAG-869

Paper copy \$10.25
Microfiche \$1.00

(052) PROCEEDINGS OF THE INTERNATIONAL HILL LAND SYMPOSIUM, WEST VIRGINIA UNIV. 1976

Luchok, J.;
1976, 786p.

W. Va. (AID/ta-G-1309 GTS)

(Abstracts, 70p.: PN-AAD-800)

Constitutes a compilation of 137 papers presented at the International Hill Lands Symposium held in Morgantown, West Virginia in 1976. The original purpose in convening the symposium was to consider means of increasing the agricultural use and productivity of hill land areas in the United States. However, with the support of the Agency for International Development, the scope of the conference was expanded to include the use of hill land for both crop and animal production in tropical and temperate regions of the world. In all, the articles survey hill lands and agriculture in the US, Britain, Wales, Scotland, Ireland, Australia, New Zealand, Switzerland, Norway, Central Europe, Greece, Mexico, the Caribbean, Puerto Rico, Guatemala, the Andes, Kenya, Iran, Nepal, Sri Lanka, and Thailand. Land

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rehabilitation, erosion, cropping patterns, fertilizer usage, livestock production, hill ecosystems and socio-cultural factors are among the very large number of topics presented. The articles are complete with bibliographical references and a discussion section consisting of questions and answers which followed each paper's presentation. Numerous tables and graphs are also provided.

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