

A.I.D. RESEARCH AND DEVELOPMENT ABSTRACTS

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The following cross-sectoral subjects and documents of special interest are featured in this issue of ARDA:

1. Alternative energy sources (methane): 295;
2. Appropriate technology for water treatment: 296;
3. Area studies: (See the geographic index at the back of this issue)
4. Rice manuals: 181, 182, 183, and 193;
5. Ruminant livestock: 196;
6. Rural development: 223, 236, 255, and 259;
7. Women in development: 169, 170, 233, 234, and 245.

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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, 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	<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.

AGRICULTURE AND NUTRITION

AGRICULTURE AND NUTRITION

AGRICULTURAL ECONOMICS

(151) RISK AND UNCERTAINTY IN AGRICULTURAL DEVELOPMENT; NOTES ON AN ADC SEMINAR

Binswanger, H.P.
1977, 31p.

ICRISAT (AID/ta-G-1073 GTS)

(In Economics program occasional paper no. 17)

Presents the reflections of a participant at the Agricultural Development Council conference in 1976. The conference examined how risk and uncertainty about the outcome of production and investment decisions by individuals affect the development process of developing countries. The basic concern was how risk and uncertainty affect the efficiency of production and investment decisions by individuals, firms, and governments, how risk and uncertainty affect the distribution of income and wealth among households, and how risk and uncertainty affect policy prescriptions and the effectiveness of policy tools. The conference was unable to reach conclusions on the role of risk and uncertainty in many development problems because there is a scarcity of empirical evidence on probability distributions; evidence on attitudes towards risk of development actors is still scarce, and there are few risk specific policy alternatives to deal with possible adverse consequences of risk aversion. For decision theory to be more useful, it will be necessary to improve the empirical knowledge in the area and to simplify and standardize the methodological tools.

PN-AAF-048

Paper copy \$3.72
Microfiche \$0.93

(152) ZIMBABWE, ANTICIPATION OF ECONOMIC AND HUMANITARIAN NEEDS: THE AGRICULTURAL SECTOR IN RHODESIA

Nziramasanga, Mudziviri
1977, 44p.

AASC (AID/afr-C-1254 GTS)

(In Transition Problems in a Developing Nation; consultant [occasional] paper no. 7)

This paper on Rhodesian agriculture includes sections on land settlement patterns, agricultural production and marketing, effects of sanctions on agriculture, and the effects of transfer of power. The "land settlement patterns" section discusses the land held by Europeans, by Africans, by national parks, in tribal trust, and unreserved. An analysis of European farms by size is included, as well as land distribution by agro-economic regions. There is a brief discussion by agro-economic regions. There is a brief discussion of the transportation system. Under "agricultural production" there are sections on maize, tobacco, cotton, tea, groundnuts, wheat, sorghum and millet, citrus fruit, and livestock products. The discussion includes productivity and exports and the effects of sanctions on agriculture. Section D makes hypothetical assumptions about events after a change of government. The effects of any exodus by European farmers or reduction in extension services on domestic food supplies would obviously depend on the type of farmers who left and the region most heavily affected. Maize, which is the main staple, will probably raise the prices of food in the south. Estimates of the impact of an exodus are measured in terms of the foreign exchange and wages lost. There will likely be a reduction in the level of beef, wheat, and soybean production and an increased production of fuel-cured

tobacco. Citrus fruit, sugar, and tea are unlikely to be affected. Progress in Rhodesian agriculture will depend on improvement of African productivity and this will involve land reform.

PN-AAF-244

Paper copy \$5.28
Microfiche \$0.93

(153) ZIMBABWE, ANTICIPATION OF ECONOMIC AND HUMANITARIAN NEEDS: LAND REFORM IN ZIMBABWE, PROBLEMS AND PROSPECTS

Shack, W.A.
1977, 66p.

AASC (AID/afr-C-1254 GTS)

(In Transition Problems in Developing Nation; consultant [occasional] paper no. 15)

This report discusses the problems and prospects associated with land reform under African majority rule in Zimbabwe. Planning for land reform by a newly independent African government is bound to contain some measures that will be perceived negatively by certain groups, black and white, in Zimbabwe. The central issues are: to describe the inequities in the present system of land allocation between Africans and Europeans in Zimbabwe and to put forward a proposed model of land reapportionment that would bring about an equitable system of land distribution. This would remedy problems in living conditions which Africans have suffered due to land scarcity. There is an urgent need for changes in Zimbabwe's peasant agriculture. Sound programmatic planning for land reform, however, requires a more thorough knowledge of the three types of African agricultural settlements: Tribal Trust Lands, Purchase Areas, and Irrigation Schemes. Tribal Trust Lands account for the largest number of African cultivators whose style of life has undergone fewer changes than those in other settlement types. Population density is highest in these settlements, but traditional socio-cultural values hold sway and strong resistance to relocation is likely to be expressed. The agriculture here is rudimentary and no substantial agricultural surplus is produced. Purchase areas appear to be receptive to improved farming techniques and economic incentives.

PN-AAF-252

Paper copy \$7.92
Microfiche \$0.93

(154) BARRIERS TO EFFICIENT CAPITAL INVESTMENT IN ASIAN AGRICULTURE

Barker, Randolph
1977, 28p.

IRRI (AID/ta-G-1074 GTS)

(In Agr. Economics Dept. paper no. 77-14)
(Presented at Chicago Univ. Workshop on Constraints to World Agr. Production, 1977)

This paper focuses on capital investment in the free market and labor surplus economies. Most LDC economies experience a shortage of capital for agricultural and economic development. Domestic savings are usually augmented by foreign borrowings to finance new investments. Introduction of new technology raises the return to capital investment and generates a demand for new forms of capital. Capital investments may also produce new technology and its complementary inputs. Technological advances in the fertilizer industry and the lowering of fertilizer prices

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encouraged the development of fertilizer responsive varieties of cereal grains which in turn stimulated further investment in irrigation. Institutions and policies, as well as physical and human resource endowments, can create incentives or disincentives to further investment at any point. The author holds that capital bias exists in both private and public investment, and it is due not only to market imperfections, but more importantly, to constraints arising from the organizational and institutional structure of these societies.

PN-AAF-516

Paper copy \$3.36
Microfiche \$.93

(155) EVALUATING THE DISINCENTIVE EFFECT OF PL480 FOOD AID; THE INDIAN CASE RECONSIDERED

Blandford, David; Von Plocki, J.A.

1977, 61p.

Cornell (CSD-2823 211d)

(In Cornell int. agr. mimeograph 55)

Perhaps no foreign aid program has generated as much debate as the U.S. Agricultural Trade Development and Assistance Act of 1954, Public Law 480 (PL480). A "disincentive effect" is created which, under the assumption of a positive supply elasticity, results in a decline in domestic food production. The effect upon development in the agricultural sector is therefore negative. This paper develops an improved econometric model which can be employed to calculate the disincentive effect. The question of the wider relevance of this type of analysis for policy purposes is also considered. Previous quantitative models by Mann, Rogers, Srivastava and Heady, and Barnum are reviewed. The specification of a new model is discussed under the following headings: supply, demand, income generation, market-balancing (imports and stocks), and identities. The model was estimated for the period 1952-68, which was chosen to provide the maximum complete data length for pre-green revolution conditions. This ensures structural similarity to the sample periods used in previous models. The results are presented and discussed in detail. The model of the Indian cereals market developed in this paper appears to lend support to the argument by Schultz (1960) that food aid may not have a universally beneficial impact upon a recipient nation's economy.

PN-AAF-168

Paper copy \$7.32
Microfiche \$.93

(156) EVOLUTION OF LAND TENURE SYSTEM IN A LAGUNA VILLAGE

Kikuchi, Masao; Maligalig-Bambo, Luisa; Hayami Yujiro

1977, 49p.

IRRI (AID/ta-G-1074 GTS)

(In IRRI paper no. 77-11)

Investigates the process by which population pressure and changes in rice-growing technology are inducing changes in the land tenure system in the Philippines. A survey was conducted of all heads of households in a village of Laguna province from November 1976 to January 1977. The population growth has been high since the 1960's, the number of landless farm workers has rapidly increased, and the average land holding per farm has decreased. Over the past decade, the tenure status of a large fraction of tenants has been converted from share tenancy to leasehold tenancy. The rates of land rent have not been raised, despite growing competition for land and the increased crop yields, and sub-tenancy arrangements

have increased, in spite of land reform laws prohibiting them. The economic basis for the emergence of sub-tenancy is the gap between the actual rent and the functional share of land. The same economic forces have produced a labor contract known as "gama," in which hired workers agree to weed a field in exchange for the right to harvest the crop and receive one-sixth of the product. This system is profitable for both the employers and employees and is more secure since the farmer is guaranteed sufficient daily workers at harvest and the workers are guaranteed employment.

PN-AAE-508

Paper copy \$5.88
Microfiche \$.93

(157) AN ECONOMIC EVALUATION OF THE HAITIAN AGRICULTURAL MARKETING SYSTEM

Roe, T.L.

1978, 215p.

Roe (AID/la-C-1247)

The objectives of this study are: to assist the Haitian Ministry of Agriculture in conducting background research in agricultural marketing, to make recommendations on the marketing of agricultural commodities, and to provide input to the marketing section of USAID/Haiti's Agricultural Assessment. The consumption-production characteristics of Haiti reflect relatively high changing population densities and small dispersed production units, with generally poor access to regional and urban marketing centers. The input markets are unorganized but farmers must rely on purchased inputs. Marketing infra-structure suffers from a lack of investment. The agricultural marketing system in Haiti is characterized by these and other problems not common to developing countries. The report begins with a brief discussion of the role of marketing and a description of Haitian consumption. Discussions are also included on the marketing channels for domestically produced and consumed agricultural commodities, the marketing channels of major export crops, and the marketing of agricultural inputs. The unique marketing characteristics of the major commodities are highlighted and the various problems and inefficiencies identified. Market interdependencies, storage needs and other price dimensions of market performance are considered. Constraints and issues of overall importance to market performance and marketing policy are explored. These include: transportation, weights and measures, grades and standards, information needs, concessional food grain imports, and a description of donor programs in the marketing area. The report concludes with a discussion of additional programs and research needs.

PN-AAF-500

Paper copy \$25.80
Microfiche \$2.79

(158) KEY POLICY ISSUES FOR THE RECONSTRUCTION AND DEVELOPMENT OF HONDURIAN AGRICULTURE THROUGH AGRARIAN REFORM

Parsons, K.H.

1978, 26p.

Wis. (CSD-2263 211d)

(In Land Tenure Center paper no. 114)

This paper deals with the policy issues of reconstruction and development in general terms. The points emphasized are those policy issues which the country confronts in establishing a system of agricultural economy which meets the general criteria laid down in the 1975 Agrarian Reform Law. The general objective of the Honduran agrarian reform program is to transform the "agrarian structure into a system of ownership, tenure and exploitation of the

land which will guarantee social justice in the country in addition to the incrementation of production and the productivity of the agricultural and fishing sector." The agrarian reform programs adopted in Honduras have not been attacks on private ownership of farm land as such; they are attempts to reduce the inequality of privilege and opportunity which have been inherited. Included in the discussion are the processes of agricultural development, individual or cooperative farms, and increasing employment in agriculture. It should be possible to institute productive cooperative programs in credit, marketing, and machine ownership for the small farmers in Honduras, as exemplified by the small farmers in the Monjaras area. If there are to be cooperative farms, it also seems feasible to assign each individual family enough land for a household garden and for the family to grow some corn. Agriculture development programs should make a determined effort to introduce cropping systems in southern Honduras which increase both production and employment per manzana of land.

PN-AAF-471

Paper copy \$3.12
Microfiche \$.93

(159) VENEZUELA'S AGRARIAN REFORM AT MID-1977

Cox, Paul
1977, 77p.

Wis. (CSD-2263 211d)

(In Land Tenure Center research paper no. 71)

This paper is a preliminary assessment of the agrarian reform that began with the return of democratic government in Venezuela in 1958 and was formalized in the 1960 Agrarian Reform Law. Attention is focused on drawing conclusions from published statistical material, and care has been taken to compile data from the most recent and most authoritative sources. The paper describes adjustments to capital policy and land policy since 1974, the adverse effects of regulated prices for beneficiaries, technical assistance and campesino organization, recent labor policy, income distribution, and provision of land through the reform. The latifundia system has been replaced. Most agricultural holdings are now operated by resident owners engaged in commercial agriculture. Sharecropping and tenancy have been almost eliminated. Growth in national agricultural production has not occurred by way of a just system of property, tenure, and land utilization which all ensure the adequate provision of credit and technical assistance. Growth in national agricultural production has been achieved by small numbers of medium and large commercial farmers. The agrarian reform has been instrumental in the rise of a capitalist agriculture which enjoys the benefits of law and order in the countryside as well as massive, public infrastructural investments. The agrarian reform subsector has become less vital relative to other subsectors of Venezuelan agriculture. The author feels that the agrarian reform campesinos are becoming marginalized to the point of obscurity. Only a fundamental change in economic, social, and political conditions would contribute to an outcome in accord with campesino interests.

PN-AAF-470

Paper copy \$9.24
Microfiche \$.93

(160) A WORLD FOOD ANALYSIS: GRAIN SUPPLY AND EXPORT CAPACITY OF AMERICAN AGRICULTURE UNDER VARIOUS PRODUCTION AND CONSUMPTION ALTERNATIVES

Heady, E.O.; Faber, D.C., Sonka, S.T.
1975, 88p

Iowa State (CSD-2824 211d)

(In CARD rpt., 60)

This analysis examines several alternatives in American agricultural production and consumption patterns as they relate to recent concern and emphasis on world food problem. The food crisis has raised questions about the crop exporting capacities of the U.S. Dietary adjustments in any of the following would make it possible to increase U.S. grain exports by 1980: (1) consumption level of meat, (2) substitution of soy protein for animal protein, (3) substitution of silage for feed grain and, (4) allocating crop production among regions in an optimal way comparative advantage method. These are examined and quantitative estimates are made. Potential prices and production for American farm commodities are examined, and estimates are made which assume that consumption patterns of the American public will shift in response to higher meat prices caused by higher livestock feed prices. This analysis indicates that U.S. agriculture has great capacity and flexibility in grain and food production. If the world's food situation is to improve, however, there must be policies and institutions which will guarantee U.S. farmers prices that cover production costs and give market level returns to their resources.

PN-AAD-442

Paper copy \$10.56
Microfiche \$.93

AGRICULTURAL/RURAL DEVELOPMENT

(161) MINIMUM INFORMATION SYSTEMS FOR AGRICULTURAL DEVELOPMENT IN LOW-INCOME COUNTRIES

Cummings, R.W.
1977, 15p.

ADC (CSD-2813 GTS)

(In RTN sem. rpt. no. 14)

Summarizes major points in papers presented at a Seminar held at Oxford in December 1976 on information systems for agricultural development in LDCs. Three essential steps to developing information systems are: to identify and to prioritize the information required for decision-making; to use methods of collecting, processing, and analyzing data that meet reasonable standards of accuracy, timeliness, and coverage while minimizing financial and human costs; and to develop a dialog between users and suppliers of information which is within an institutional structure and flexible to changing demands and new methodologies. The purposes of this paper are (1) to identify the principal users of agricultural information and the types of information they need; (2) to identify the principal suppliers of agricultural information and the types of information they can provide; (3) to review some critical methodological issues in supplying information; (4) to discuss institutional arrangements for collecting, processing and analyzing information; and (5) to identify some critical areas for future attention. The discussion focuses on the supply of information about agricultural commodities generated within the agricultural sector. The strategic part of agricultural decision-making is the careful design of information systems as part of the overall social system.

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Professionals at all levels must be objective in giving advice, with adequate information upon which to base decisions. If they do not play this role, there is little hope to implement a rational decision-making system on a politically sustainable basis.

PN-AAE-545

Paper copy \$1.80

Microfiche \$.93

(162) THE SUPPLY OF DATA FOR AGRICULTURAL ADMINISTRATION AND DEVELOPMENT PLANNING

Eckert, J.B.

1978, 33p.

Colo. State (AID/ta-BMA-6)

(In LASA discussion paper ser. no. 2)

(Prepared for Workshop on Minimum Information Systems for Agr. Development, ADC, 1976)

Before dealing with supply, a government must determine the types of data it requires and the uses to be made of them. The data supply function necessitates the ability to assemble data relating to contemporary questions and also the foresight to establish a data base to meet the changing needs of a planning process in a dynamic economic future. Four distinct types of data may be categorized as: structural or benchmark data, resource inventory data, recurrent series on economic parameters, and special studies. Within the context of these data needs, the data supply industry can be disaggregated by source. Each source has its particular characteristics which lead to comparative advantages in producing different types of data. The need for a continuing flow of recurrent data to support policy and administrative decisions gives rise to agencies within government which are responsible for data collection, tabulation, and occasionally analysis. Two of the sources are central statistical organizations and census organizations. These agencies have no operational role in implementing government development programs and consequently will generally concentrate on national aggregate data. Centrally collected data is often characterized by a broader sampling base and greater accuracy. Another type of governmental data source is the statistical cell. This type is tasked more frequently for data to support an immediate policy or program implementation need. The output will be specific to these needs. Proximity to policymakers can lead to their having an influence on the definition of parameters or on data collection methods. While they may occasionally have lower levels of accuracy, they often collect and assemble data more specifically relevant to sector level planning and analysis. Other data sources are also discussed with their advantages and disadvantages. Methods are suggested to prevent undue distortions by politics. Valid roles for foreign assistance to the data supply in developing countries are suggested.

PN-AAF-439

Paper copy \$3.96

Microfiche \$.93

(163) DEVELOPMENT IN TANZANIA MAASAILAND; THE PERSPECTIVE OVER 20 YEARS, 1957-1977

Jacobs, A.H.

1978, 64p.

Jacobs (AID/afr-C-1279)

This is a final report of impressions gained during a field survey during July-August 1977 of representative portions of Tanzania Maasailand in the light of the author's anthropological research in and experience of these areas during the period 1956-58. It is divided into three major sections: "Major Changes in Maasailand, 1957-1977;" "Probable Future Changes;" and "Recommendations." In spite of demonstrably poor rainfall during the period 1970-76, the majority of range land throughout

Tanzania Maasailand appeared to compare favorably to that of 20 years ago, both in quality and quantity of grass species. Accordingly, the author contends that alleged claims of extensive or excessive overgrazing to the degradation of pasture in Maasailand are, in general, both unsubstantiated and exaggerated. The overall quantitative extent of agricultural expansion into Maasailand does not appear to be substantially larger than that existing in 1957. In other areas, such as Monduli Juu, the Ardai Plains, Korogoro, Nainokanoka/Embukai, and Endulen, agricultural encroachment is actually less than twenty years ago because of recent administrative evictions. There has been a deterioration of a wide range of infrastructure services throughout much of Maasailand, and a wide range of basic technology—such as hides-skins drying racks and hand-powered maize grinding machines—have disappeared, presumably along with the economic stimulus that they provided by drawing Maasai productively into the national economy. Recommendations include: improved information retrieval and dissemination; vocational adult education; soil erosion and water harvesting projects; village industries, workshops and "site-and-service" projects; ghee and skim milk production; hides-and-skins production; oxdrawn plough program and workshops; and closer monitoring of the implementation and effectiveness of particular projects.

PN-AAF-553

Paper copy \$7.68

Microfiche \$.93

(164) SURVEY OF DJIBOUTI'S AGRICULTURAL DEVELOPMENT

Broadnax, Madison; McDermott, J.K.; Shuftans, Claudio

1977, 35p

AID/AFR/EA

Reports the findings of a trip made to the Republic of Djibouti by a three person agricultural team to assess agricultural potential in that country. After gaining independence in June, 1977, Djibouti leaders immediately began exploring the possibilities of agricultural development along with other economic activities. Djibouti has virtually no agricultural tradition. It has few resources for economic development, and the few it has do not fit well together. There is very little fresh water without a significant capital investment and the water is warmer than average, ranging from 102 to 120 degrees Fahrenheit. In places it has a high salt content. The soil is probably adequate to sustain a reasonable level of economic activity, but it is being used at its optimum level right now. It has been damaged by salinization to various degrees, and this will continue to be a problem. Agricultural development cannot be considered in isolation. Such general purpose capabilities as total water management, taxation and public finance, and technical manpower, which currently do not exist, will be essential for agricultural development, and they should be taken into account in designing an A.I.D. strategy or project. No source appears likely for help in these areas other than A.I.D.

PN-AAF-584

Paper copy \$4.20

Microfiche \$.93

(165) VILLAGE STUDY METHODOLOGY AND RESOURCE ENDOWMENTS OF THE SELECTED VILLAGES IN ICRISAT'S VILLAGE LEVEL STUDIES

Jodha, N.S.; Asokan, M.; Ryand, J.G.

1977, 58p.

ICRISAT (AID/ta-G-1073 GTS)

(In Occasional paper no. 16)

(In Village level studies ser. 1.2)

The purpose of the Village Level Studies program is to understand the factors affecting the traditional system of farming in different

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agroclimatic zones. Three districts were selected representing major agro-climatic zones within the semi-arid tropical areas of India. Factors considered for selection of districts were soil types, pattern of rainfall, and relative importance of crops like sorghum, pearl millet, pulses and groundnuts. The availability of a nearby Agricultural University/Research Station from where planning and logistical assistance could be obtained was also important. The three districts selected were Mahbubnager, Sholapur, and Akola. The report includes a discussion of the districts and villages selected, resource endowments, and tables showing the characteristics of the districts. It is hoped that the study of these traditional systems may reveal some elements which could be refined and incorporated into the prospective technology packages and highlight physical, biological, economic, and institutional constraints which condition the traditional system of farming and may prove detrimental to the spread of prospective technology.

PN-AAF-603

Paper copy \$6.96

Microfiche \$3.93

(166) AGRICULTURAL DEVELOPMENT IN HAITI; AN ASSESSMENT OF SECTOR PROBLEMS, POLICIES, AND PROSPECTS UNDER CONDITIONS OF SEVERE SOIL EROSION

Zuvekas, Clarence

1978, 370p.

AID/LA/USAID/Haiti

Summarizes research on agricultural development in Haiti carried out between June 1977 and May 1978 and follows closely the **Agricultural Sector Assessment Guidelines** prepared by A.I.D.'s Bureau for Latin America. This study incorporates material on land tenure, income, and employment prepared by the author and also draws on a variety of other published and unpublished studies listed at the end of the document. Chapter titles include: "Agriculture and the National Economy;" "Agricultural Production Trends;" "Socio-Economic Indicators at the National and Regional Levels;" "Farm-Level Constraints;" "Support System Constraints;" "National-Level (Policy) Constraints;" and "Overcoming the Constraints to Agricultural Development." Constraints to agricultural development cannot be viewed in isolation since all of them are interrelated, and it is often difficult to determine what is cause and what is effect. It is important to consider carefully the direct and indirect effects of any single policy or program and to recognize that agricultural development can best be promoted through strategies which give explicit attention to a number of interrelated problems. Approaches to development need to have some focus—e.g. a crop, a watershed or other region, or overcoming a particular constraint which would have far-reaching benefits. Appropriate policies and programs will vary for each country in accordance with its social, political, and economic structures. In Haiti, the most important farm-level constraints seem to be lack of land tenure security, limited access to higher levels of production technology, and soil erosion. An institutional constraint is the weakness of cooperatives and other baselevel organizations. Continued soil erosion lowers the productivity of the land and makes production increases more dependent on increased use of purchased inputs and improvements in farm technology. Government support for agricultural development is still weak and continues to constitute a major constraint.

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(167) COOPERATIVES AS A VEHICLE FOR RURAL DEVELOPMENT IN NICARAGUA; AN ASSESSMENT FOR THE PURPOSE OF FOREIGN ASSISTANCE STRATEGY FORMULATION

Heard, John; Baker, Christopher; Prentice, Paul; Fledderjohn, David; Scofield, Rupert; Credit Union National Assn., Washington, D.C.

1978, 313p.

CUNA (AID/524-77099)

This study provides a framework of goals and criteria to apply to cooperatives as a means for rural development and assistance to the rural poor in Nicaragua. It can be used by USAID, the government of Nicaragua, and other agencies. This framework could be used in the development of technically sound and viable projects utilizing the cooperative mechanism; it can be used to evaluate options and requests for assistance in the rural cooperative area as they are identified or received. The study is empirical and is based on first hand sources of information in the field and in Managua. It is comprehensive, and, with the exception of Atlantic zone activities, almost every cooperative vehicle and system operating in rural areas was contacted. The study is more reflective of real needs in the countryside than many other program building analytical efforts which focus on identified institutional or technical constraints. Other areas of discussion include: (1) government assisted agricultural and production-based cooperatives, (2) credit cooperatives associated with Fundacion de Desarrollo and Federacion de Cooperativas de Ahorro Y Credito Nicaragua, (3) private and voluntary agency cooperative efforts, and (4) public sector aspects relative to cooperatives.

PN-AAF-427

Paper copy \$37.56

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(168) AN ASSESSMENT OF THE AGRICULTURAL POTENTIAL OF CENTRAL TUNISIA; EVALUATIONS AND RECOMMENDATIONS

Cromwell, C.F.; Hagan, A.R.; Kroth, E.M.; Nolan, M.F.

1978, 225p.

Mo. (AID/afr-C-1139)

This assessment of the agricultural potential of the Central Tunisia Rural Development Project Area relies on documents and on-site visits. Since the majority of the area's residents are dryland farmers with small farms, the team devoted the major share of its time and resources to proposals which would be directed at this group. The objective was to improve the income level of dryland farmers in the region which currently stands at only ten to twenty per cent of the Tunisian national average. A number of constraints to production are identified, these include physical factors, technological limitations, human resource constraints, economic constraints, sociocultural constraints, and institutional factors. The proposed program seeks to provide water for irrigation to as many of the dryland farmers as possible; and it offers proposals for maximizing the income of dryland farmers who must remain in a dryland condition. Interventions for USAID funding are proposed under three general headings: facilities-equipment, demonstrations, and adaptive research and training. A project should include a systematic evaluation component. An evaluation research effort can provide a mechanism for making modifications in program plans and for eliminating components of programs that are ineffective. The report expresses guarded optimism that the lives of some of the area's residents can be markedly improved as a result of the proposed interventions. Preliminary cost estimates are included for the proposed USAID interventions.

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AGRICULTURE AND NUTRITION

RURAL SOCIOLOGY

(169) WOMEN AND PARTICIPATION

Staudt, K.A.
1978, 92p.

AID/TA/RD

This paper discusses women's participation in LDCs with a broad and divergent set of countries represented; the documentation focuses on Africa. It is addressed to the concerns of two reader audiences; researchers and programmers. In the last decade, studies have shown that economic growth in itself does not ensure equitable distribution of benefits. A recognition of how economic stratification acts to filter and skew services has led analysts to further differentiate and disaggregate rural residents according to land size, income, and crops. Similarly, sexual stratification has affected the allocation of services within households. Further understanding of the complexities of rural development cannot be reached without an awareness of how class and sex interact to stratify benefits. The linkage between economic participation and political participation needs to be fully explored. Economic participation alone will not build workable relationships, or establish accountability, between women as a clientele and administrative agencies. A prior or complementary condition--organizational participation--can initiate, facilitate and sustain those clientele relationships. Initially this can be accomplished through separate women's organizations, establishing multiple linkages with programs and agencies. Various aspects of such women's organizations are discussed, including incentives, representativeness and organizational autonomy. A model is introduced for assessing programs and staff, focusing on the dichotomization of work roles between the sexes. In certain societies an integrated organizational strategy may be more appropriate than separate groups. Such a strategy requires a thorough consideration of the benefits and harmful consequences of programs for women's access to productive resources.

PN-AAF-572

Paper copy \$11.04
Microfiche \$.93

(170) SEX ROLES IN FOOD PRODUCTION AND FOOD DISTRIBUTION SYSTEMS IN THE SAHEL

Cloud, Kathleen
1977, 22p.

AID/AFR/SFWA

This case study is a first attempt to identify the roles and responsibilities of women within Sahelian food production and distribution systems. The discussion begins with a description of the natural environment. Food consumption patterns are described. The Sahelian food production systems are explored including sex roles in food production among sedentary farmers, food distribution practices among sedentary farmers, sex roles in food production among pastoralists, and food distribution practices among pastoralists. Sex roles in food processing and the African women's participation in food-related activities are investigated. It concludes that a significant amount of food production is accomplished by women, that almost all food processing is done by women, and that most of the food produced and processed by Sahelian women is consumed by their immediate companions. A small portion of food production by women reaches the monetized sector; usually the local markets. These traditional food systems were affected first by some degree of modernization and then by the drought. There is an attempt to affect these systems in a planned, rational way through long term development programs. The impact of each of these on the systems is described briefly. There are few women in either the African or American agencies dealing with agricultural development; women do not fully participate in projects since there are few advocates for women's rights. Assistance, training, and resources are being

delivered to men and for men's crops far more than to women and their crops. This differential input tends to undercut women's traditional roles and power.

PN-AAF-437

Paper copy \$2.64
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(171) SOCIAL SOUNDNESS ANALYSIS; LOWER CITANDUY/CISEEL RIVER BASINS, INDONESIA

Hill, George; Berger (Louis) Int. Inc., East Orange, N.J.
1976, 89p.

Berger (AID/afr-C-1132 GTS)

This is the first of two reports prepared as a social soundness evaluation of a proposed USAID project to plan and design flood control and irrigation facilities in Indonesia. The Citanduy River Basin has been divided into four subproject areas for development; the social soundness survey covers one, an area that has approximately 93,000 hectares of land that varies from flat marsh/swampland to slightly sloping farmland. It is mainly a rice growing area and in this survey rice land is used as the primary guide in selecting study areas. The report discusses introduction and background, human and social resources of basin farmers, farm enterprises in the basin, labor patterns and farmers' organizations. Three basic questions are considered. How are people, social groups, and institutions likely to accept the project within their own cultural context? What is the likelihood that new practices or institutions introduced by this project will be diffused among other groups? What movement of people into or within the project area is likely to result from the project? The studies do not show that the poor participate in the processes of problem identification and solution, in contrast to their participation in financial rewards. All three of indirect measures of participation are in agreement that poor farmers have little to do with Farmers Clubs and little voice through their organizations. Their involvement is minimal. A central substantive concept of A.I.D. policy is the need to assure the wide and significant participation of the poor in the development process. With two-thirds of the villages not having Farmers Clubs this should provide a challenge for drastic redeployment of Agricultural Extension Service personnel so that more of them could be put to work at the farm level.

PN-AAF-602

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(172) THE RURAL POOR MAJORITY IN THE PHILIPPINES; THEIR PRESENT AND FUTURE STATUS AS BENEFICIARIES OF AID PROGRAMS

Hickey, G.C.; Flammang, R.A.
1977 110p.

Hickey (AID/asia-C-1251)

The purpose of this research is to assist the AID mission in the Philippines by offering a workable definition of the rural poor majority and also to assess the actual and potential social and economic impact of AID assisted projects on this group. The report discusses the findings and recommendations resulting from the research and observations of the research team. The main body of the report concerns data on the rural poor from documentary sources and from the field research. The case studies collected for this study reflect social differentiation in telling how the styles of life vary among the poor in rural Luzon. They also reflect some significant variations in the styles of life among the poor in the Bicol Region and those in northern Luzon. The studies also indicate the way that various factors, such as income, expenditures, nutrition,

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education, social activities, and geographic setting are interrelated in any given context. They reveal that remittances from grown children who have left home are an important source of income for elderly poor. Large families are a form of social security, and this affects family planning programs. The cases also illustrate the complexity of income and expenditures among the rural poor. In most cases the poor had so many different sources of income and they were so mixed between cash and noncash sources that people really did not know what their incomes were. It is essential that social soundness research be conducted at the very outset of any program planning so that the findings can be included in the early formulation of the programs. A continuing surveillance of programs for social soundness once they reach the implementation stage would also reduce the likelihood that unintended negative effects might occur once the programs were underway.

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(173) INCOME AND EMPLOYMENT PLANNING IN THE RURAL SECTOR; STUDY OF RURAL WELFARE, FINAL REPORT

Pattie, P.S.
1978, 57p.

Nathan (AID-524-76-064-T)

Discusses the development of a methodology for gathering information on income and employment of rural families in Nicaragua through a moderately low cost survey. Emphasis was placed on seeking other kinds of indicators of welfare in addition to employment and income and collecting and tabulating information in a way that it would have direct implications for current program implementation. These interests account for the somewhat new methodological approaches created for use in the survey: use of a community survey preceeding the family survey, and the use of two questionnaires in the family survey. One family survey deals with income and employment and the other addresses use of income and time outside of work-related activities, including rural families' participation in public services. Questionnaire A is titled "Income Generation and Employment". Topics explored include: general characteristics; education and health; structures and equipment; land tenure; crop production; livestock production; non-agricultural production; employment; occupational experience; use of time: days per year; credit, technical assistance, and marketing; and participation in formal organizations. Questionnaire B is titled "Use of Income, Public Services, Well Being". Topics covered include: general characteristics; education; health; nutrition; housing and possessions; household expenditures; use of time: house per day; production and employment; credit, technical assistance, and marketing; values and attitudes about well being.

PN-AAF-591

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PLANT PRODUCTION (GENERAL)

(174) IMPORTANCE OF MULTIPLE CROPPING IN INCREASING WORLD FOOD SUPPLIES

Andrews, D.J.; Kassam, A.H.
1975, 25p.

ICRISAT (AID/ta-G-1073 GTS)

Multiple cropping can be achieved by growing crops in mixture which may be repeated more than once a year, by growing sole crops in sequence, or by combining mixed and sole crops in sequence. Multiple cropping is widely used by farmers in the

warmer parts of the world at all levels of agricultural technology, although the exact form varies from area to area depending on the farmers' total resources. The patterns of multiple cropping reflect two basic practices: **simultaneous** cropping, (growing crops in mixtures), and **successive** cropping, (growing crops in sequence). Intercropping, mixed cropping, and strip cropping are "simultaneous", while double (and triple, etc.), relay, and ratoon cropping are "successive". In vast areas of rain-fed agriculture where full irrigation is an economic impossibility, the extent of crop growth is limited by the duration of the wet season moisture supply. The simultaneous patterns of cropping aim at using both extra time and the spatial arrangements of component crops. In a successful mixture of similar and different maturities, the sum of the inter-crop competition should be less than the sum of the intra-crop competition of the component crops when grown sole. Gains from crop mixtures are due to the fact that individual plants yield more or that higher total plant population densities are possible. Successive cropping is possible in climatic areas where conditions for plant growth exist beyond the duration of one early maturing crop. Successive patterns of cropping aim at multiplying the net return per unit area by growing extra crops. The breeding of high yielding, early maturing crop cultivars has greatly contributed to the flexibility of such cropping patterns. Maximum cropping should be obtained with sequences of high yielding crops in compatible mixtures.

PN-AAE-784

Paper copy \$3.00
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(175) BRINGING THE GREEN REVOLUTION TO THE SHIFTING CULTIVATOR

Greenland, D.J.
1975, 7p.

IITA (AID/ta-G-1185 GTS)

(In IITA j. ser. 69)

(In Science, v. 190, p. 841-844)

The Green Revolution was a success for the application of standard plant breeding techniques to the improvement of wheat, rice, and maize for certain LDCs. Improved varieties enhanced the potential for increased production of these crops by improved irrigation techniques and by the increased use of fertilizers. The improved varieties and methods have been used mainly by the relatively large-scale farmers, utilizing the better soils. There have not yet been as great an impact on the methods and production habits of most of the small farmers living at or near the subsistence level and farming the poorer ultisols, alfisols, and oxisols of the tropics. Transfer of technology is not possible for the great majority of these farmers. Transferable scientific principles for a stable agricultural system are: (1) chemical nutrients removed by crops must be replenished in the soil; (2) the physical condition of the soil suited to the land utilization type is maintained, which usually means that the humus level in the soil is constant or increasing; (3) there must be no buildup of weeds, pests, and diseases; (4) there must be no increase in soil acidity, or of toxic elements; and (5) soil erosion must be controlled. Shifting cultivation can meet these conditions, but it is geared to a low level of productivity and bound to become increasingly inadequate as population continues to increase. Alternatives suggested include: (1) retaining land for forestry or pasture; (2) interplanting and underplanting of tree crops with food crops at the initial stages of forest regeneration; (3) zero or minimum tillage on slopes up to 15 percent to prevent erosion; (4) mixed and relay cropping techniques to keep a plant cover over the soil for most or all of the year; (5) use of legumes to fix nitrogen in the soil; and (6) control of acidity by means of ash or mulches of deep-rooted species or by lime and trace elements.

PN-AAE-615

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AGRICULTURE AND NUTRITION

(176) GENOTYPE SELECTION FOR AGRICULTURAL TECHNOLOGY TRANSFER AND UTILIZATION

Leininger, L.N.; Peterson, H.B.
1977, 23p.

Utah State (CSD-2459 211d)

Many variety cultivar testing trials are conducted throughout the world every year. Most of these tests generate large amounts of information but the data are time and site specific and not readily transferrable. Insufficient information is collected systematically which does not permit the data to be utilized very far from the test site. This paper presents the more immediate aspects in regard to genotype selection for international testing and the benefits which can be expected to result from a thoughtful and systematic selection process. The selection rationale is appropriate to all agricultural research involving plants and will have its greatest synergistic effects when all agricultural research embraces the concept. The greatest plant growth research-data void which exists at the present time is the extensive area of plant environment interactions. This paper identifies part of a rationale for eliminating the void with a minimum of expenditure and in a relatively short time. Limitations of current yield tests are discussed as well as the genotype X environment interaction. The strategy for genotype selection includes characterization of the plant and its environment, use of open pedigree lines, use of indicator lines, and use of specific genotypes. The adaptation of the basic principles outlined can make significant contributions in agricultural research and production to all agricultural research, to genotype by environment interaction understanding, to selecting lines for specific environments, to plant breeding and genetics, to reduce necessary testing, to produce specific genotypes for specific environments, to ensure a broader genetic base and to agricultural production.

PN-AAF-605

Paper copy \$2.76
Microfiche \$.93

PLANT PRODUCTION (SPECIFIC CROPS)

(177) THE WORLD RICE SITUATION, 1977-78

Barker, Randolph; Herdt, R.W.
1977, 15p.

IRRI (AID/ta-G-1074 GTS)

(In Agr. Economics Dept. paper no. 77-16)

This paper was prepared for the December 1977 meeting of the Board of Trustees of the International Rice Research Institute (IRRI). It briefly discusses the short-run and long-run situations with respect to rice production, consumption and trade. Particular emphasis is given to the implications for IRRI research in the long-run. In July of 1977, world stocks of all cereals reached their highest level since 1971/72. World rice stocks are down about 10% from their 1975/76 peak of 18 million tons. The current situation is reminiscent of the early 1970's when many governments grew complacent over the success of the Green Revolution, but there seems to be a greater awareness today that there could be a change in weather with a subsequent loss of crops. Despite a relatively favorable short-run supply situation, the long-run projections indicate that there is no room for complacency. In three separate studies done by the World Bank, the Asian Development Bank, and the International Food Policy Research Institute, results indicate that based upon current trends, there will be a sizeable gap in production relative to demand for food grains in Asia by 1985. Over the next 10 to 15 years, approximately half of the total possible rice production gains from research will be realized in irrigated areas, and another one third in rainfed lowland areas. The research challenge for each of these areas is distinctly different.

Pest management would appear to be the biggest problem in the high-input-intensity irrigated areas while the basic need for the low-input-intensity rainfed areas is the creation of a suitable technology. Maintaining long term growth in rice production at a level adequate to meet future demand will require considerably larger investments in capital and in research.

PN-AAF-517

Paper copy \$1.80
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(178) SOCIO-ECONOMIC CONSTRAINTS TO THE PRODUCTION OF PHOTOPERIOD SENSITIVE TRANSPLANTED RICE IN EASTERN INDIA

Barker, Randolph

1977, 30p.

IRRI (AID/ta-G-1074 GTS)

(In Agr. Economics Dept. paper no. 77-15)

(Presented at Int. Sem. on Photoperiod Sensitive Transplanted Rice of South and Southeast Asia, Dacca, 1977)

This paper outlines the dimensions of the socio-economic problems affecting rice production in three states in Eastern India - Bihar, West Bengal, and Orissa. These three states account for 40% of the rice area and 43% of the total rice production of India. There has been essentially no upward trend in rice yields in this area over the past two decades. Only a small portion of the rice area is irrigated, and modern rice varieties and inputs are not widely adopted in the kharif. Half of the rice area is transplanted to local photoperiod sensitive varieties and another 25% broadcast to local varieties. Due to the high risks of farming, the technology for the rainfed compared to the irrigated areas should be yield stabilizing and low cost. High stability varieties are more appropriate than high yielding varieties. The current price structure discourages the use of modern inputs, as the nitrogen to paddy rice price ratio is almost double the world price ratio. In the near future it would be desirable to "streamline" the process of developing and releasing new varieties. In the long run, research in water management and communications between irrigation systems personnel, research workers, and farmers need to be strengthened.

PN-AAF-518

Paper copy \$3.60
Microfiche \$.93

(179) CONSTRAINTS TO HIGH YIELDS ON ASIAN RICE FARMS: AN INTERIM REPORT

IRRI

1977, 245p.

IRRI (AID/ta-G-1074 GTS)

Average rice yields achieved on farmers' fields in Asia are lower than those in experimental plots. The International Rice Agroecologic Network (IRAEN) was organized in 1974 to allow scientists from six Asia countries to identify and study factors constraining rice yields on farmers' fields. Agronomists, economists, and statisticians in each country focus on biological and socioeconomic constraints. This report presents the major considerations and methodologies for assessing yield constraints in the IRAEN project. The problems encountered during the first two years are discussed and some solutions are suggested. Field research trials and studies include work at three sites in the Philippines, two sites in Indonesia, and one site each in Thailand,

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Taiwan, Bangladesh, and Sri Lanka. Major accomplishments to date include: a workable methodology for identification of constraints; constraints that have been identified are receiving increased attention from researchers; direct contact and interchange between agronomists and economists have been fostered in all cooperating groups; and the international exchanges have given participants from the network countries a better appreciation of their own problems. The papers in this volume represent progress reports on a continuing research effort. Certain questions have been answered on factors constraining rice yield but further investigation is necessary in several areas. Fertilizer use, which has been observed as major physical constraint, is likely to have an interaction with weed control. Water control, the single most important variable seems to influence the use of other inputs in the area. Another factor to study is why farmers grow modern varieties during the dry season but not in the wet season. It is suggested that the project should shift to an area where the modern rice technology has not been as well adopted by farmers.

PN-AAF-045

Paper copy \$29.40

Microfiche \$2.79

(180) GENETIC AND SOCIOLOGIC ASPECTS OF RICE BREEDING IN INDIA

Hargrove, T.R.
1977, 34p.

IRRI (AID/ta-G-1074 GTS)

(In IRRI res. paper ser. no. 10)

The rapid increases in cereal production in LDCs during the 1960's and 1970's were led by new semidwarf varieties of wheat and rice. The new form of genetic technology was rapidly adopted across Asia, Africa, and Latin America, particularly in the irrigated regions. The flow of rice genes during a decade was traced by analyzing randomly selected crosses made at 10 Indian research stations during three periods: 1964-65, 1970-71, and 1974-75. The percentage of total crosses in which a semidwarf parent was used increased to 91% by 1970-71, and remained at that level through 1974-75. As the use of locally developed, semidwarf varieties increased in India, the use of tall varieties decreased. Tropical rices are mostly of the indica type, but rice breeders have long been interested in crossing the indica with the temperate-zone japonica rices. Analysis indicated that the semidwarf indicas, such as TN1, IR8, and the locally developed semidwarfs, pushed the japonica, javanica and ponlai materials out of the programs. The overall breeding objectives included increased yield potential, improved grain quality, growth duration, disease resistance, and insect resistance. Of lesser importance were drought resistance, cold tolerance, waterlogged-soil tolerance, and deep-water tolerance. Semidwarf varieties were chosen for increased yield potential grain quality, and disease and insect resistant crosses. The locally developed semidwarf Jaya was named as one of three most widely grown varieties. The second most popular was IR8, followed by two other semidwarfs, Ratna and IR20. Numerous data tables are included.

PN-AAF-129

Paper copy \$4.08

Microfiche \$9.93

(181) TRAINING MANUAL FOR RICE PRODUCTION

Vo-tong-Xuan; Ross, V.E.
1976, 142p.

IRRI (AID/ta-G-1074 GTS)

(A rev. and updated version of the Manual first published in 1972)

Although much has been added to the knowledge of increasing rice yields in recent years, the flow of information to the rice farmer has been slow. This manual is intended for extension workers involved in teaching the new rice technology. The manual contains all the lessons on the skills of producing rice. The subjects discussed, in detail and with illustrations, are: land preparation, production of seedlings, preparation for planting, fertilizers, agricultural chemicals, weed control, insect control, disease control, and harvesting and processing of grain.

PN-AAD-399

Paper copy \$17.04

Microfiche \$1.86

(182) PRODUCTION OF SEEDLINGS, TROPICAL RICE GROWER'S HANDBOOK

IRRI

1972, 26p.

IRRI (AID/ta-G-1074 GTS)

This handbook presents instructions for growing rice seedlings in several ways. Its seven sections discuss breaking the dormancy of seed, testing the viability of seed, selecting seed by specific gravity, soaking the seed, raising seedlings by the wetbed method, raising them by the dapog method, and raising them by the drybed method. Rice seedlings from a drybed nursery have several good characteristics. They are of uniform size and are easy to pull and transplant. They are free of diseases and pests. They are tough and have short but erect leaves and vigorous roots, and they recover quickly after transplanting. The advantages of the drybed method are: it requires relatively few seeds; the seedlings are easily transplanted; the number of seedlings transplanted per hill can be controlled; and the drybed method is well suited for experimental purposes. The disadvantages of the drybed method are that watering may be a problem, the seedbed preparation and care is laborious, and a heavy rain after seeding can damage the seedbed. Seeds of traditional tropical rice varieties often will not germinate immediately after harvest. They often have a dormant period of more than two or three weeks. An effective way to break dormancy is to treat the seeds with diluted nitric acid, using one liter of water for every kilogram of seeds and 6.3 ml of concentrated nitric acid for every liter of water used.

PN-AAE-427

Paper copy \$3.12

Microfiche \$9.93

(183) MANUAL FOR FIELD COLLECTORS OF RICE

Chang, T.T.; Sharma, S.D.; Adair, C.R.; Perez, A.T.
1972, 17p.

IRRI (AID/ta-G-1074 GTS)

This manual is for field workers who collect and conserve native cultivars, primitive forms, and wild species of rice; it can be used as a guide for planning and conducting collection activities. Wild species of rice need to be saved from extinction because they contribute to the genetic wealth of rice germ plasm and rare genes have made important contributions to rice breeding. The manual begins with planning the field collection. Subsections concern what to put in the project proposal, why it is important to review past collection activities, when to conduct the collection, what

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personnel and equipment are needed, how to conduct the sampling, what field records should be made, and how to protect them against water damage. The section on field collection operations includes communication with local officials, steps in collecting seed, handling collected samples, their registration and storage, and storage of duplicate samples at international centers. A section on preliminary screening and seed increase discusses the number of strains to be grown and cultural methods, plot size, records, and amount of seed stock to be saved. A final section on seed storage gives the proper moisture content and temperature and the proper containers for short-term and long-term storage.

PN-AAE-426

Paper copy \$2.04
Microfiche \$.93

(184) COSTS AND RETURNS OF SORGHUM AND MILLET PRODUCTION AND COSTS AND BENEFITS FROM SMALL AND MEDIUM SIZED IRRIGATED PERIMETERS IN THE SAHELIAN COUNTRIES; PROGRESS REPORT, 1977/1978

Purdue Univ. Dept. of Agr. Economics
1978, 139p.

Purdue (AID/afr-C-1257)

This project arose through a recognition of the need for a better understanding of the farming in the Sahelian country and for more data for use in project design and appraisal. In all of the small and medium irrigated perimeters, the farmers have a variety of agricultural activities including rainfed and flood recession farming, so the two contracts have been conducted as one unified program, with separate accounting. The objectives of the two research projects taken collectively are to: identify impediments to increasing food grain production; identify technical, market and policy interventions that offer potential for relaxing constraints; evaluate the impact of alternative interventions on production of food grains and competing enterprises by typical production units; and develop a scheme for the economic evaluation of small and intermediate sized irrigation projects. There are four general categories of procedures: description, model development, model application, and analysis of irrigation projects. The food problems in the Sahel Countries first caught the attention of the world during the early 1970's when this region was hit by a very severe drought. As the situation existing in those countries and possible means of resolving their long-term problems were studied, several interrelated problems became obvious. Food grain production in the region had been stagnant several years prior to the drought and countries of this region have rapidly increasing population. The combined effect of these factors led to declining per capita food grain production. The knowledge gained in the descriptive phase of this research will be used to develop models of micro production units. These models will be used to identify those variables most constraining on agricultural development, to provide information on the sensitivity of typical farmers to changes in these variables, and to evaluate the likely impact of selective programs and policies on production of traditional food grains and competing crops.

PN-AAF-583

Paper copy \$16.68
Microfiche \$1.86

(185) EFFECT OF GREEN REVOLUTION IN WHEAT PRODUCTION OF PULSES AND NUTRIENTS IN INDIA

Ryan, J.G.; Asokan, M.
1977, 47p.

ICRISAT (AID/ta-G-1073 GTS)

(In Economics Program occasional paper no. 18)

Evaluates the effect of high-yielding varieties (HYV) of wheat introduced in India in the mid-1960's on the production of pulses and major nutrients. Linear trend lines were fitted to date from the 6 major wheat-growing states of India for the 10-year period preceding 1964-65 and separately for the subsequent 10-year period. Twenty-two percent of the expansion in wheat hectareage occurring in the latter period could be accounted for by the reduction in the area of pulses and 8% came at the expense of winter rice and barley. The growth in the area sown to wheat was largely a result of increases in cropping intensities resulting from the HYV's and the expansion in irrigation and an increase in net sown areas. The net nutritional impact of the new HYV's of wheat was both positive and substantial. Total annual trend foodgrain production in 1974-75 would have been 13.4% less had HYV's of wheat not been introduced. The success of these wheats clearly illustrates how a plant-breeding strategy which emphasizes increased yield potential can result in significant improvements in aggregate nutritional well-being. Every hectare of 1974-75 wheat which substitutes for a hectare of chickpea adds a further 55 kg of protein and 2,527,000 kilo-calories of energy to what the chickpea would have produced. If the nutritionally most vulnerable groups are to be made better off, substantial increases in yields of coarse grains and pulses, primarily crops of the rainfed semi-arid tropics, are required.

PN-AAF-030

Paper copy \$5.64
Microfiche \$.93

(186) JORDAN WHEAT RESEARCH AND PRODUCTION; FINAL REPORT

Goetze, Norman; Or. State Univ. School of Agr.
1976, 209p.

Or. State (AID/sa-C-1024 GTS)

This document reviews the efforts of Oregon State University in assisting Jordan with the necessary research and extension activities to double wheat production by 1980. Reports are included on the wheat project research, irrigation, soil fertility, chemical herbicide application, economic evaluation of dryland wheat technologies, availability of goods and services, and constraints on the adoption of improved wheat production practices. Practices such as chemical weed control and the use of improved varieties are being well received by Jordanian farmers. Practices such as improved tillage and use of chemical fertilizers need continuing adaptive research to accelerate the rate of acceptance. Alternate wheat fallow rotations and use of the grain drill are still questioned by most farmers. The wheat project should continue to strengthen its adaptive research program in the field of soil fertility, tillage methods, irrigation techniques, and seedbed preparation. Various alternative crop rotations at different levels of average annual rainfall should also be investigated. All of these adaptive research programs need to be designed so that more definitive economic information can be obtained from them. More technical training for the district extension agents, local managers of the cooperative societies, and employees of the agribusiness firms is needed. The demonstrational program has been very successful and has shown that most of the new technologies are adapted to Jordanian conditions.

PN-AAF-367

Paper \$25.08
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Please use the publication number in ordering.
Example: PN-AAB-000

(187) PEDIGREES OF SOYBEAN CULTIVARS RELEASED IN THE UNITED STATES AND CANADA

Hymowitz, Theodore; Newell, C.A.; Carmer, S.G.
1977, 27p.

Ill. (AID/ta-C-1294 Res.)

(In INTSOY ser. no. 13)

A collection of soybean germplasm is maintained by the U.S. Department of Agriculture for use by plant breeders, geneticists, pathologists, entomologists, and other research workers. The collection is in two parts, one at the U.S. Regional Soybean Laboratory in Urbana, Illinois, and the other at the Delta Branch Experiment Station, Stoneville, Mississippi. This bulletin gives the pedigrees of about 330 of the cultivars released in the United States and Canada as well as the maturity group, year introduced, and year named or released for each cultivar. Cultivars having an experimental strain pedigree are denoted with an asterisk and the strain is underlined. Information about where the strain was selected is included, as is the parentage of the strains.

PN-AAF-455

Paper \$3.24
Microfiche \$.93

SEEDS

(188) SEED PRODUCTION AND SUPPLY IN NEPAL; PART I: TECHNICAL ANALYSIS AND PROPOSAL

Delouche, J.C.; Couvillion, W.C.
1977, 119p.

Miss. State (AID/ta-C-1219 GTS)

(In TA 77-7)

The most feasible avenues for increasing food grain and food crop production in Nepal are increasing cropping intensity, increasing the yield per crop, or preferably a combination of the two. One of the requirements for exploiting these avenues is continual development of improved, higher yielding, more efficient crop varieties adapted to the diverse eco-zones in the country. Another requirement is provisions for an adequate supply of the inputs needed by farmers to take advantage of the improved production technology to include seed, fertilizer, pesticides, water, and credit. The focus here is on input supply, especially the supply of seed of improved crop varieties. The report details discussions of the general agricultural background in Nepal, the seed production and supply background, the present status of the seed program in Nepal, and the proposed seed production and supply project. Expanding and improving the seed program in Nepal will require: more efficient and effective organization, more adequate facilities, more and better trained personnel, and a stronger commitment on the part of agencies involved to develop and improve seed production and supply. Long term technical assistance is proposed. There is a need for an external advisor experienced in the full spectrum of seed operations and their management under developing country conditions. There is also a need for a seed technologist or seed engineer experienced in harvesting, drying, processing, and storage operations, and in the maintenance of facilities. Adaptive, problem solving type research is required to resolve the many technical problems that plague the seed program in Nepal.

PN-AAF-608

Paper copy \$14.28
Microfiche \$1.86

(189) PROPOSED DESIGNS FOR SEED PROCESSING FACILITIES; REPORT TO USAID/BOLIVIA AND AID/W ON REPUBLIC OF BOLIVIA SEED PROGRAM

Beck, J.M.; Vaughan, C.E.
1978, 36p.

Miss. State (AID/ta-C-1219 GTS)

(In TA 78-01)

Mississippi State University was asked by the Government of Bolivia to supply designs and equipment specifications for two additional seed processing/storage facilities. The Zudanes plant will be equipped to handle seeds of cereal crops and forages. The facility for Yaciuba will be equipped to handle oilseeds, peanuts, and soybeans, in addition to seeds of cereal crops and forages. This facility will be designed so that it can be expanded in the future. These two facilities are described in detail. Equipment specifications are given in Appendix I and reference is made to known suppliers of each item of equipment. Complete addresses of suppliers are given in Appendix 3.

PN-AAF-429

Paper copy \$4.32
Microfiche \$.93

(190) SEED PROGRAM CONSULTATION AND REVIEW IN COSTA RICA

Boyd, A.H.; Beck, J.M.
1977, 32p.

Miss. State (AID/ta-C-1219 GTS)

(In TA 77-06)

Technical assistance in seed program development for a developing country is aimed at creating a system whereby new varieties provided by national or international research agencies may make their intended contribution to production agriculture. To make the needed impact the seeds must arrive at the field variably pure, of high viability, relatively weed free, in adequate quantities and at the proper time. Accomplishment of these goals requires development of not only physical capabilities but governmental policies and laws, and an infrastructure of dedicated and competent people at all levels of public and private participation in the program. This report describes the evolutionary development of a seed program in Costa Rica. The Seed Technology Lab at Mississippi State University assisted in planning a seed and grain laboratory at the University of Costa Rica and a seed drying, storage and processing facility. The MSU Staff was involved in: feasibility studies, preparation of specifications, assistance in preparation of a seed law, staff development and training, and design and construction of processing facilities. The seed program in Costa Rica is now developed in the areas of seed testing and seed processing-drying capability to the point that they should be a leader in training and demonstrations for other parts of Latin America.

PN-AAF-607

Paper copy \$3.84
Microfiche \$.93

(191) SEED PRODUCTION IN PANAMA: REPORT TO USAID/PANAMA AND GOVERNMENT OF PANAMA ON CONSULTING VISIT

Boyd, A.H.
1977, 59p

Miss. State (AID/ta-C-1219 GTS)

(In TA-77-4)

Summarizes the findings and recommendations of a consultant from the Mississippi State University Seed Technology Laboratory (MSU/STL) concerning seed production in Panama.

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

AGRICULTURE AND NUTRITION

At the request of USAID/Panama, MSU/STL assisted the government of Panama in its developing seed program on several occasions. It participated in design and installation of equipment at Divisa and Alanje. These government seed plants have been recently reorganized into the Empresa Nacional de Semillas (ENASEM), and recommendations were requested for improvement of the seed program and facilities. Observations of seeds in storage were primarily conducted on rice but some corn, bean, sorghum and cowpea seeds were also studied. Some problems and restraints to the program included: poor germination and deterioration of seeds in storage; varietal mixtures in rice from 2% to more than 20%; non-availability of varieties for production at high levels of technical inputs; lack of structure and personnel for certification program; lack of acceptance of ENASEM seed at a price that would allow adequate return on current resources budgeted; maintenance and operational problems with conditioned storage, processing equipment and vehicles; and a need for technical training in seeds and seed program development. Specific recommendations are made for each of these deficiencies by the consultant.

PN-AAF-589

Paper copy \$7.08
Microfiche \$.93

(192) SEED PRODUCTION AND INDUSTRY DEVELOPMENT; ANNUAL REPORT, 1976/1977

Miss. State Univ. Seed Technology Laboratory
1977, 64p.

Miss. State (AID/ta-C-1219 GTS)

The report covers the activities conducted and services performed during the second year of the three year technical assistance contract between A.I.D. and Mississippi State University Seed Technology Laboratory. The USAID Missions in the cooperating countries continued to indicate an increasing awareness of the need for development of the total seed program rather than the fragmented approach noted in previous years. Less reliance is being placed on "stopgap" measures and more attention and thought on developing a viable seed industry with public-private linkages to serve the development needs of the whole agricultural sector. A major portion of services continued to be of a technical and bio-engineering nature, with a significant increase in requests for economic information. Countries serviced in the year of this report included: Costa Rica, Dominican Republic, Ecuador, Guatemala, Central Africa Republic, Chad, Niger, Rwanda, and Thailand. A brief country-by-country report includes a summary of activities and recommendations.

PN-AAF-588

Paper copy \$7.68
Microfiche \$.93

PLANT PROTECTION

(193) A HANDBOOK OF RICE DISEASES IN THE TROPICS

Ou, S.H.
1973, 60p.

IRRI (AID/ta-G-1074 GTS)

Efforts to control rice diseases in the tropics depend for their success on recognizing the disease symptoms and applying effective controls. This pamphlet, intended for the use of trainees at the International Rice Research Institute (IRRI), presents general information on 15 important diseases of rice in the tropics. For each disease it discusses the history and geographic distribution, damage, symptoms, causal organisms, disease cycle, effect of environmental conditions, varietal resistance, and control measures.

A list of all known rice diseases is included to indicate the scope of the rice disease problem. The fifteen diseases discussed in this handbook are tungro, grassy stunt, yellow dwarf, bacterial blight, bacterial leaf streak, rice blast, sheath blight, stem rot, brown leaf spot, narrow brown leaf spot, bakanae disease, false smut, sheath rot, white tip, and stem nematode.

PN-AAE-430

Paper copy \$7.20
Microfiche \$.93

(194) RUST OF SOYBEAN, THE PROBLEM AND RESEARCH NEEDS; REPORT OF A WORKSHOP

Ford, R.E.; Sinclair, J.B.; Asia-Oceania Soybean Rust Workshop, Manila, 1977
1977, 124p.

Ill. (AID/ta-C-1294 Res.)

(In INTSOY ser. no. 12)

Soybean rust is one of the major constraints to growing soybeans in the tropics and some of the subtropics of the Eastern hemisphere. Because of the importance of the rust problem and the values to be gained by cooperative efforts, workers actively engaged in soybean rust research formally organized the International Working Group on Soybean Rust during the regional soybean conference. It was agreed that a systematic, coordinated research, training, and outreach program was urgently needed for many of the Asian and Oceanian countries where the disease limits soybean production. The purpose of this workshop was to discuss the state of knowledge of soybean rust and the biology of the causal agent, *P. pachyrhizi*, to devise a mechanism to coordinate research efforts, and to seek support for a comprehensive program. Reports are presented on soybean rust and the efforts to combat it through breeding, chemical and biological control or other methods. A bibliography of all known publications about soybean rust is included. The workshop contributes information on the global importance of soybean rust, its suspected geographical distribution, the estimated annual losses by country, and other economic factors. Other data also concerns the state of the art of existing knowledge, areas of research still required, methods of sharing knowledge and seed cultures, and the present resources now being contributed to the study of soybean rust. Countries and people with special expertise in the following areas are identified: pathogen identification, rust nursery, disease screening, host ranges, the environmental effects of seasonal climatic and meteorological factor, the disease resistance mechanism, development of fungicides, and crop management practices.

PN-AAF-456

Paper copy \$14.88
Microfiche \$1.86

(195) THE SEARCH FOR APPLICATIONS OF CHEMICAL SIGNALS IN WILDLIFE MANAGEMENT

Shumake, S.A.
1977, 20p.

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

(In Chemical signals in vertebrates, ed. by D. Mueller-Schwarze and M.M. Mozell, p. 357-376)

This paper focuses on the three major damage situations where chemical signals have been used to manage wildlife; coyote predation on livestock, deer and elk damage to trees, and rat damage to crops. The successful synthesized insect pheromones for managing populations and for controlling damage to crops and forests suggests a potential for the use of chemical signals to

manage wildlife. | Almost no work has been done on the practical application of chemical signals for managing birds, and work with mammals has focused on reducing the damage to livestock, crops, and other products. The U.S. Fish and Wildlife Service has been involved in research to develop and improve methods for safely and effectively reducing such damage by wildlife. Chemical signals have been used or proposed for five different kinds of behavior modification: to attract the animal to an area, to repel or frighten it from an area, to encourage it to eat a food, to repel it from eating a food, and to disrupt its normal reproductive patterns. The chemical signals investigated for these purposes have been: signalling pheromones, primer pheromones, attractant food flavors, and repellent or aversive food flavors. They also include the allomones from prey, from avoided predators, or from competitive sympatric species. A great many basic and comparative studies must be undertaken before field applications can be attempted.

PN-AAD-703

Paper copy \$2.40
Microfiche \$.93

LIVESTOCK

(196) POTENTIAL OF THE WORLD'S FORAGES FOR RUMINANT ANIMAL PRODUCTION

Bula, R.J.; Lechtenberg, V.L.; Holt, D.A.; Humphreys, L.R.; Crowder, L.V.; Box, T.W.
1977, 95p.

Winrock (AID/ta-G-1395 GTS)

The four papers in this volume concern the world's forage potential on lands with widely varying growing conditions. They examine the potential of the world's natural grasslands and cultivated forages and the kinds of strategies needed to exploit these potentials. They cover temperate zone cultivated forages, humid and sub-humid rangelands, tropical zone cultivated forages, and arid and semi-arid rangelands. The arable land of the humid temperate region have in the past provided a stable and nutritious production as well as grain production if the productivity of the land is to be maintained. Ruminant animals of the humid, temperate region have in the past provided a stable and nutritious food supply by consuming an all-forage diet. In a tropical environment, grain feeding systems of high cost are rarely used in ruminant production. Ruminants are either grazed on land unsuited to cropping, where their comparative conversion of high fiber diets is preeminent, or they are run in conjunction with cropping land, consuming residue which would otherwise be wasted. A vast majority of livestock in the tropics graze native and natural grasslands; relatively few have access to improved pastures. Use of cultivated grass, legume species, and cultivar and the implementation of agronomic practices, along with appropriate animal management and judicious managerial skills, could measurably increase animal production in the tropics and subtropics. The potential for increased ruminant production from arid and semi-arid rangeland is good. Various estimates exist as to the extent to which this can be accomplished. Major changes in range management are likely to occur. Food chains will be shortened, much rangeland will be converted to crop production, animal protein will be produced from those areas unsuitable for crop production, and rangelands will serve as major recreational and waste disposal areas.

PN-AAF-431

Paper copy \$11.40
Microfiche \$.93

(197) RUMINANT PRODUCTS; MORE THAN MEAT AND MILK

McDowell, R.E.
1977, 32p.

Winrock (AID/ta-G-1395 GTS)

This report examines the theory that there should be greater production of grain for human food rather than for conversion to animal protein, and it argues that the relative non-monetary inefficiency of producing animal protein occurs only when it is produced on cropland suitable for intensive grain crops used as human food. In most cultures cattle or other livestock do not compete with man for agricultural products or lands. More than half the domestic ruminants receive less than five % of their feed from cereal grains. Only a small percentage of the world ruminant population of 3 billion competes with man in that they eat food which would be suitable for humans. The vast majority derive their sustenance from plants totally unfit for human consumption-the forages. Ruminants exist symbiotically with man, and provide the only means of deriving life-sustaining products from that one-third of the earth's land surface unfit for cultivation. About 12% of the human population lives in areas where food crops cannot possibly be raised. This is possible because of the presence of ruminant animals, from which they derive their support. Not only do ruminants convert inedible products into high quality protein but they provide countless nonfood products. These nonfood resources are not being exploited efficiently. The report describes ruminant contributions under fiber resources, skins, traction, waste resources, conservation, pest control, and recreation. It concludes that ruminants play an important part in the interrelationship between animals, plants, and humans.

PN-AAF-438

Paper copy \$3.84
Microfiche \$.93

(198) RESEARCH IN MINERAL DEFICIENCIES FOR GRAZING RUMINANTS; ANNUAL REPORT, NOV. 1976-MARCH, 1978

Fla. Univ. Inst. of Food and Agr. Sciences
1978, 128p.

Fla. (AID/ta-C-1153 Res.)

A PROJECT: To determine the essential mineral supplements for grazing animal diets to increase the efficiency of LDC meat and milk production systems. Conducted by the University of Florida in selected countries in Latin America, Africa and Southeast Asia. **DURATION:** November 1, 1976-November 1, 1980 **DEVELOPMENTS:** Literature related to mineral analyses of soil-plants-animals in Latin America has been extensively reviewed. Numerous mineral deficiencies, imbalances and toxicities are severely inhibiting the ruminant livestock industry in Latin American countries. In cattle, the most prevalent mineral element deficiency is lack of phosphorus. Next to phosphorus the most widely deficient minerals are cobalt and copper, with calcium deficiencies rare. Inadequancies of magnesium, sodium iodine, selenium and zinc and toxicities of molybdenum selenium and flourine have been encountered in widely diverse areas. Experiments designed to pinpoint mineral deficiencies and toxicities for specific farms and regions are in progress in all participating countries. New research data are being generated through experiments designed to determine the mineral deficiencies and toxicities and the mineral relationships between levels in soils, plants and grazing ruminants. Phosphorus supplementation has been shown to dramatically improve the low reproductive performance. A study in Brazil resulted in a 77% calf crop when bonemeal was fed compared to 55% for the controls.

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AGRICULTURE AND NUTRITION

Mineral supplementation trials are now underway in Bolivia, Brazil, Colombia, Ecuador, Peru and Venezuela. Country-by-country summaries are included.

PN-AAF-592

Paper copy \$15.36
Microfiche \$1.86

(199) WORKSHOP ON HEMOPARASITES (ANAPLASMOSIS AND BABESIOSIS)

Wells, E.A.; (Workshop on Hemoparasites, Cali, Colombia, 1975; CIAT
1977, 160p.

AID/TA/AGR

(In CIAT ser. CE-12)

This report of the workshop on Hemoparasites includes a list of participants, the program, and 13 papers presented. The papers cover such subjects as: epidemiology of bovine anaplasmosis and babesiosis, diagnosis of babesiosis, methods of immunoprophylaxis against bovine anaplasmosis, acaricide resistance in *Boophilus microplus*, the epizootiology of anaplasmosis and babesiosis in Uruguay, and others. Participants at the workshop were from 14 countries in South America, Australia, Africa, the United Kingdom and the United States. Some of the recommendations arising from the workshop are: epizootiological studies of babesiosis and its economic impact should be carried out in every Latin American country using the card, passive hemagglutination, and fluorescent antibody tests; there should be studies in the distribution and significance of vectors of babesiosis and anaplasmosis, particularly in their capacity as reservoirs of infection, in each Latin American country; there should be a standardization of antigens and antibodies used in research on anaplasmosis and babesiosis; and there should be further seminars or workshops on subjects raised during the present sessions.

PN-AAF-599

Paper copy \$19.20
Microfiche \$1.86

CLIMATOLOGY

(200) AGROCLIMATOLOGY OF LESOTHO

Wilken, G.C.
1978, 36p.

Colo. State (AID/ta-BMA-6)

(In LASA discussion paper no. 1)

This paper presents a general introductory appraisal of agroclimatology in Lesotho. Gaps in the information base are identified that suggest directions for future research. Some special areas of agroclimatology that are discussed include agroclimatic analogs, microclimates, climatic hazards and risk perception. Lesotho enjoys a pleasant climate with clear skies and moderate temperatures prevailing most of the year. Although average rainfall is adequate for traditional grains such as maize, sorghum, and wheat, damaging or lethal moisture stress may occur during seasonal or mid-season droughts. Crops grown on shallow and eroded soils are especially susceptible. Temperature and radiation levels are relatively high and most lowland areas appear to have average frost free periods adequate for a variety of crops. But late or early frosts can shorten the growing season and ground level measurements suggest that frost risks may be present in most months. Hail storms are also known to cause extensive damage. Factors such as evaporation, wind and solar radiation have not yet been seriously studied. Inadequate climate information is of

particular concern in Lesotho. Although agricultural production is limited, the country inevitably is heavily dependent upon the agricultural sector as a source of food, income and employment. Effective agricultural planning must consider the limitations and opportunities offered by the physical environment.

PN-AAF-576

Paper copy \$4.32
Microfiche \$.93

(201) INTERNATIONAL SEMINAR ON CLIMATOLOGY OF THE SOUTHERN HEMISPHERE; I. DROUGHT AND FROST RESEARCH IN BRAZIL; II. STUDIES AND RECOMMENDATIONS OF TECHNICAL GROUPS

National Research Council. Board on Science and Technology for Int. Development; Int. Sem. on Climatology of the Southern Hemisphere, Campinas, Brazil, 1977
1977, 44p.

NAS (CSD-2584 GTS)

The first part of this report provides an overview of drought and frost research in Brazil. It includes short and long range predictions, mitigation, and frost research. The second part offers research and training recommendations for research related to drought and frost which may be undertaken in Brazil, together with a number of suggestions relevant to meteorological research in general. Some of the recommendations include: improved agroclimatic surveys, crop diversification, programs to increase the drought resistance capacity of plants, and the development of simple wind-powered and solar-powered low-lift irrigation pumps. Frost risk can be reduced through proper interpretation of climatic records from which a valid estimation of risk can be determined. It is recommended that efforts be made to increase the contact, exchange, and coordination among the various research groups in agrometeorology and climatology in Brazil, as well as with corresponding groups abroad. The third part of the report presents the studies and recommendations of technical groups. Crop modeling is considered an aid to research managers, and it is suggested that such a capability should be developed in Brazil. For frost forecasting a denser network of surface observation sites is required than is needed for normal day to day forecasts. An accurate 48 hour frost forecast can greatly minimize crop loss if the information is disseminated quickly enough. The number of trained dynamic, synoptic and agricultural meteorologists is small and the demand is increasing. A list of the active courses in meteorology in Brazil is included.

PN-AAF-435

Paper copy \$5.28
Microfiche \$.93

SOIL RESOURCES

(202) PROCEEDINGS OF A WORKSHOP ON EXPLOITING THE LEGUME—RHIZOBIUM SYMBIOSIS IN TROPICAL AGR., KAHULUI, MAUI, HAWAII, 1976.

Vincent, J.M.; Whitney, A.S.; Bose, J.; Hawaii Univ. Dept. of Agronomy and Soil Science

1977, 481p.

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

This document is a record of the presentations and discussion sessions of a workshop sponsored by the University of Hawaii project to promote Nitrogen Fixation by Tropical Agricultural Legumes (NIFTAL). This workshop is a part of the overall NIFTAL project which includes a range of research, training

and service programs designed to assist **Rhizobium** and legume workers throughout the tropics. Since legume yields are limited by numerous factors, many of which affect symbiosis, this workshop was organized to examine, in an inter-disciplinary setting a number of the major factors affecting symbiosis. The papers presented review the present situation, including potential and restraints, with respect to such topics as the role of legumes in cropping systems, soil and nutritional factors, and **Rhizobium** inoculation and inoculant production. Legume breeding was also a major consideration. Participants were asked to consider research and training needs in several areas including major factors limiting progress, short term vs. long term priorities, and roles of developing countries, international centers and developed countries. While the fertilizer shortage has intensified the need for research on tropical legumes and other types of bacterial nitrogen fixation in crops and soils, the need has predated this crisis. Biological nitrogen fixation (BNF) gives the LDC farmer equal access to a natural resource, nitrogen gas. The NIFTAL project is an important endeavor in broadening the total work into an international network to fully examine the various potentials of the wide variety of legumes which can be produced in the tropics for the desperately needed protein content of human and livestock diets which tend to be protein-deficient in the tropics. The full utilization of biological nitrogen fixation for both soil fertility and protein production is of crucial importance to small farmers who are unable to pay the rising cost of fertilizer.

PN-AAF-133

Paper copy \$57.72
Microfiche \$4.65

(203) ZINC DEFICIENCY IN RICE; A REVIEW OF RESEARCH AT THE INTERNATIONAL RICE RESEARCH INSTITUTE

Castro, R.U.
1977, 21p.

IRRI (AID/ta-G-1074 GTS)

(In IRRI res. paper ser. no. 9)

Next to nitrogen and phosphorus deficiencies, zinc deficiency is now the most important nutritional factor limiting the growth of wetland rice. This review reports the work done since 1967 at the International Rice Research Institute. Research has included diagnosis of zinc deficiency, availability of zinc in flooded soils, and practical methods of correcting zinc deficiency. Zinc deficiency in soils is caused by high pH, continuous water-logging, low zinc content, high organic matter content, and high levels of fertilizer. Zinc deficiency is corrected by draining and drying the field, by dipping the seedlings in a 2% suspension of zinc oxide in water before transplanting, or by applying zinc sulfate to the soil. Organic matter should be avoided and fertilizers used prudently on zinc deficient soils. The report also discusses plant symptoms, soil tests, the effect of fertilizers, the use of zinc oxide and zinc sulfate, and varietal tolerance to zinc deficiency. It is suggested that further study be done on the availability of zinc in flooded soils in order to find long term corrective measures.

PN-AAF-040

Paper copy \$2.52
Microfiche \$3.93

(204) SOIL WATER STUDIES IN OXISOLS AND ULTISOLS OF PUERTO RICO; I: WATER MOVEMENT

Wolf, J.M.; Drosdoff, Matthew
1975, 11p.

Cornell (CSD-2490 Res.)

(In J. of agr. of the Univ. of Puerto Rico, v.60, no. 3, p. 375-385)

Soil water experiments were conducted to determine the water supplying characteristics of two clayey Ultisols, a clayey Oxisol, and a sandy Oxisol. Water infiltration into all soils was very rapid, reaching 9 cm/hr after 1 hr of continuous flooding. The strong structural stability of the clay soils permitted infiltration rates in excess of that for the sandy soil.

Lateral water movement, downslope, was a significant factor in observed high rates of water infiltration and may partially account for downslope movement of nitrates.

Values of soil water tension after 2 to 3 days of free drainage did not exceed 20 to 80 cm of water (roughly 1/50 to 1/12 bar). Field capacity was established to be 1/15 bar for the sandy Oxisol and 1/20 bar for the clayey Oxisol and Ultisols.

Two avenues of soil water movement were postulated: Capillary pores (between soil particles) and non-capillary pores (between soil aggregates). Because of water movement in non-capillary pores, flow characteristics of the clay soils resembled that of the sand. In terms of soil water release characteristics, the clays and the sand were similar.

PN-AAF-124

Paper copy \$1.32
Microfiche \$9.93

(205) SOIL WATER STUDIES IN OXISOLS AND ULTISOLS OF PUERTO RICO; II: MOISTURE RETENTION AND AVAILABILITY

Wolf, J.M.; Drosdoff, Matthew
1975, 9p.

Cornell (CSD-2490 Res.)

(In J. of agr. of the Univ. of Puerto Rico, v.60, no. 3, p. 386-394)

The two Oxisols studied, one very sandy (Bayamon) and the other high in clay (Catalina), tended to dewater at low tensions, whereas soil water release in the Ultisols extended over a wider range of tensions. The sandy soil failed to release appreciable water above 1 bar of tension.

Field capacity was established at 1/15 bar for the sandy soil and 1/20 bar for the clayey soils. The available water stored in the top 30 cm of the soil profile was determined to be 3.6, 5.0, 5.5, and 6.0 cm for Bayamon, Humatas, Torres, and Catalina, respectively. For Bayamon and Catalina, the two Oxisols, the bulk of the water was released between field capacity and 1 bar. In contrast to the Oxisols, a high proportion of the water in the Ultisols, Humatas and Torres, was available only at tensions above 1 bar. The Catalina soil was by far the best in terms of water supplying characteristics, while Humatas and Bayamon were the worst.

PN-AAF-125

Paper copy \$1.08
Microfiche \$9.93

(206) NITROGEN FERTILIZATION OF HIGH YIELDING WHITE-KERNEL CORN IN OXISOLS AND ULTISOLS IN PUERTO RICO

Talleyrand, H.; Fox, R.H.; Lugo-Lopez, M.A.
1975, 10p.

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

(In J. of agr. of the Univ. of Puerto Rico, v.60, no. 3, p. 336-343)

Field experiments with a high-yielding white-kernel hybrid corn, Funk's G-795W, were conducted on four typical soils of Puerto

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AGRICULTURE AND NUTRITION

Rico: two Oxisols (Bayamon sandy loam at Manati and Catalina clay at Barranquitas) and two Ultisols (Humatas clay at Corozal and Torres clay at Cidra). The main objectives of this study were to determine the yield potential and the optimum level of N fertilizer for this hybrid in these soils. Auxiliary objectives were to determine the N supplying power of these soils and the apparent recovery of fertilizer N by the crop. High corn yields (8.4 tons/ha) were obtained on the Humatas clay with 60 to 120 kg/ha of N fertilizer. Only 5.4 tons/ha of corn were obtained on Bayamon sandy loam at the same rate of fertilization. Apparent N recoveries were 60 to 72% at these rates. Grain/stover ratios averaged 1.20 on Humatas and only 0.72 on Bayamon. The low grain/stover ratio and the lower grain yields at this site probably could be attributed to late planting and the damage done to the plants by *Helminthosporium maydis*. There were no yield or N uptake responses to applied N fertilizer on the nonirrigated Catalina and Torres soils. A severe drought reduced stover yields to less than half of those of the irrigated treatments. Maximum nonirrigated grain yields on these soils (4.8 tons/ha) were well below the 8.3 tons/ha obtained on Humatas. The N supplying power of these soils was enough to provide 70 to 90 kg/ha of plant N.

PN-AAF-126 Paper copy \$1.20

Microfiche \$.93

(207) ROOTING DEPTH, GROWTH AND YIELD OF CORN AS AFFECTED BY SOIL WATER AVAILABILITY IN AN ULTISOL AND AN OXISOL

Wahab, A.; Talleyrand, H.; Lugo-Lopez, M.A.
1975, 13 p.

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

(In J. of agr. of the Univ. of Puerto Rico, v.60, no. 3, p. 316-328)

Relationships between rooting depth, growth, and yields of corn and soil water availability in an Ultisol and an Oxisol are presented. Soil and crop management techniques considered to be adequate for maximum yield were used at the two experimental sites. At each site one treatment was irrigated as often as necessary to maintain a water tension of less than 1 bar. Soil properties, plant growth, effective rooting depth, soil water availability, plant water deficits, crop yields, and weather conditions were recorded. During a prolonged drought and at grain filling, corn growing in a typical Oxisol extracted soil water to a depth of 120 cm., and plants became water stressed after a soil water tension of 15 bars developed at 90 cm. In a typical Ultisol plants could not extract water effectively below 30 cm. Plants grew better in the Oxisol than in the Ultisol. Grain yields approached 9.4 tons/ha in the former but only 3.1 tons/ha in the latter.

PN-AAF-127 Paper copy \$1.44

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(208) ROOTING DEPTH, GROWTH AND YIELD OF SORGHUM AS AFFECTED BY SOIL WATER AVAILABILITY IN AN ULTISOL AND AN OXISOL

Wahab, A.; Talleyrand, H.; Lugo-Lopez, M.A.
1975, 7p.

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

(In J. of agr. of the Univ. of Puerto Rico, v. 60, no. 3, p. 329-335)

Grain and stover yields of RS 671 grain sorghum were measured at Barranquias in an Oxisol and at Corozal in an Ultisol. Measurements were made of weather factors, soil moisture content and tension, plant growth, water deficits and rooting depths. At each site a plot was irrigated as often as necessary to maintain a soil water tension of less than 1 bar. Nonirrigated plots at Corozal were watered whenever necessary to prevent plants from wilting permanently.

During a prolonged drought and at grain filling, sorghum extracted water in the Oxisol to a depth of 120 cm. Plants became water stressed after the soil water tension at a depth of 90 cm reached 15 bars. In the Ultisol, sorghum plants were unable to effectively extract available soil moisture at depths below 45 cm. Both plant growth and grain yield were greater in the Oxisol than in the Ultisol. The relative soil compaction of the Ultisol was greater than that of the Oxisol.

PN-AAF-128

Paper copy \$.84
Microfiche \$.93

(209) RESPONSE OF SOYBEANS GROWN IN AN ULTISOL TO RESIDUAL BROADCAST AND BANDED P FERTILIZER

Valle, Reinaldo del; Fox, R.H.; Lugo-Lopez, M.A.
1975, 5p.

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

(In J. of agr. of the Univ. of Puerto Rico, v. 61, no. 2, p. 179-186)

An experiment with soybeans, *Glycine max* (L.) Merrill, was planted at Cidra, Puerto Rico, on May 23, 1973, on Torres clay, an Ultisol (Orthoxic Palehumults, clayey, mixed, isohyperthermic). The experiment was one of a series designed to study the relative efficiency of banded vs. broadcast P and of its residual effects on various successive crops. This was the fourth in the series after two corn and one rice experiments cropped in the same field in the seasons immediately preceding its installation. The identity of the plots was maintained throughout the whole series.

There was no grain response to the broadcast or banded P whether limed or unlimed, which had been applied to the previous crops, although soil analysis by both the Olsen and the Bray No. 2 method indicated deficiency of available P. However, a field-wide grain average of 3698 kg/ha, equivalent to 55 bu/acre, was obtained. The Bray No. 2 extractable P content had fallen to less than 20 p/m two years after applying 359 kg/ha or less fertilizer P. This yield is almost twice that of the average commercial 1973 U.S. yield and demonstrates the potential for growing soybeans on Ultisols of the humid tropics.

PN-AAF-053

Paper copy \$.60
Microfiche \$.93

(210) NITROGEN FIXATION IN GRASSES; ANNUAL REPORT. 1977

Fla. Univ. Inst. of Food and Agr. Sciences
1978, 29p.

Fla. (AID/ta-C-1376 Res.)

Reports on research concerned with the biology of *Azospirillum* and grass bacteria associations in relation to nitrogen fixation. Biological characterization has resulted in the reclassification of *Spirillum lipoferum* into two species, *Azospirillum brasilense* and *A. lipoferum*. Associations of *Azospirillum* with plant roots, consist of bacteria in the rhizosphere, on the root surface, in the mucigel layer and between cortex cells. *Azospirillum* have been found to produce growth regulator-like substances that may affect plant growth. Nitrogenase activity of the associations is O² sensitive and protection of nitrogenase from O² appears to be a problem. The association is influenced by soil nitrogen with low and high amounts preventing increases in plant growth due to inoculation. The inconsistency of inoculation to produce beneficial associations with increased plant growth continues to be the greatest deterrent to definitive research and application to commercial agriculture.

PN-AAF-433

Paper copy \$3.48
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WOOD TECHNOLOGY

(211) PRELIMINARY INDUSTRIAL SURVEY; TROPICAL HARDWOODS UTILIZATION

Main (Charles T.) Inc., Boston, Mass.
1977, 243p.

USDA/FS (PASA TA (AG) 03-75 Res.)

This study examined the potential for utilization of an existing natural resource in a developing country as a means of creating useful products; providing new employment opportunity; stimulating the economy; and improving the balance of trade while observing due regard for conservation and ecological factors. The report consists of a preliminary industrial survey into the feasibility of harvesting run-of-the-woods tropical hardwoods for the manufacture of pulp and fiberboard and for the production of steam and electrical energy from tropical hardwoods. The survey gave primary consideration to Southeast Asia and determined significant differences for Latin America and Africa. Requirements are in two major parts: wood harvesting and processing to chips and wood chip usage for pulp, fuel and fiberboard. Included in the report are discussions on harvesting and chip manufacturing, infrastructure, bleached kraft pulp mill, impact of mixed tropical hardwoods to an existing mill, fiberboard plant, and financial analysis of bleached kraft pulp mill. The appendices detail investment costs, manufacturing costs, and a financial analysis. It is technically possible to harvest tropical hardwoods, convert this material to chips and manufacture market grades of bleached kraft pulp. It is also technically possible to substitute a substantial percentage of wood for the oil which is normally used as fuel for generation of process steam and power. The financial viability of this pulp mill is examined on the basis of the before tax discounted cash flow return on equity and debt service ratio which could be generated.

PN-AAF-596

Paper copy \$29.16
Microfiche \$2.79

FISHERIES

(212) THE U.S. UNIVERSITY ROLE IN EDUCATION FOR MARINE RESOURCES DEVELOPMENT IN THE LDCs

Marshall, Nelson
1978, 11p.

ADC (CSD-2813 GTS)

(In ADC sem. rpt. no. 16)

Representatives from U.S. universities concerned with international educational assistance in the marine sector gathered at the University of Rhode Island in December 1977 to discuss their common interests. Some of the topics reviewed were nearshore and artisan fisheries, aquaculture, coastal land and nearshore management, high seas fisheries, oceanographic research, and seabed resources. A major objective was to place emphasis on educational needs in contrast to the tendency of supporting organizations to undertake projects with an inadequate educational back-up. Other objectives were: to appraise the capacity of U.S. universities to assist LDCs in developing their marine resources; to involve representatives from universities and other supporting groups in discussing a strategy that might aid LDC in-country capabilities; and to agree on initial guidelines and action plans. The paper also deals with the active aspects of university participation in international education in marine resources; these include degree programs, non-degree course and curriculum offerings,

professional reorientation endeavors, information exchange, aid to overseas institutions, and inter-university arrangements. The summary concludes with a discussion of the problems facing a university involved in educational endeavors for the LDCs and a discussion of the funding required for such activities.

PN-AAF-469

Paper copy \$1.32
Microfiche \$9.93

(213) YIELD MODELS AND TROPICAL ARTISANAL FISHERY DEVELOPMENT; STATE OF THE ARTS PAPER

Stevenson, D.K.; Saila, S.B.
1977, 35p.

R.I. (CSD-2455 211d)

Artisanal fisheries include a wide range of labor-intensive, low investment harvesting activities along the inland and marine coastal areas in the LDCs of the tropics. These fisheries generally rely on unsophisticated harvesting techniques. The development of artisanal fisheries must consider both the harvesting and marketing sectors. The general objectives of development are to improve the yield of food resources and to maximize the economic and social benefits of the fishery to the human population. The maximization of benefits requires development strategies which promote the efficient allocation of human and capital resources in order to produce the maximum sustained amount of fish protein for the greatest number of people. This paper reviews existing yield models which can be applied to tropical stock assessment surveys and discusses the assumptions, data requirements, strengths and weaknesses of each. Particular emphasis is placed on the Schaefer and Beverton-Holt models. A discussion is offered of published modifications in the Beverton-Holt model which permit the estimation of the necessary parameters from length-frequency measurements without information on the age composition of the catch and in those cases where independent estimates of growth and mortality may be difficult to obtain. Various techniques for estimating model parameters are mentioned, and cases in which these techniques have been tested are referenced.

PN-AAF-483

Paper copy \$4.20
Microfiche \$9.93

WATER RESOURCES

(214) A RESEARCH-DEVELOPMENT PROCESS FOR IMPROVEMENT OF ON-FARM WATER MANAGEMENT

Clyma, Wayne; Lowdermilk, M.K.; Corey, G.L.
1977, 69p.

Colo. State (AID/ta-C-1411 Res.)

(In Water management technical rpt. no. 41)

A research-development process for rapid improvement of on-farm water management through technology transfer is described. The process focuses on systematic research to identify problems, develop and assess solutions, and implement development programs at the farm level. An interdisciplinary team executes the research-development process with farmers. The technology transfer process consists of four interrelated phases as follows: (I.) Priority Problem Identification; (II.) Search for Problem Solution; (III.) Assessment of Solutions; (IV.) Program Implementation. Problem identification consists of the combination of an interdisciplinary approach with farmer participation to achieve an understanding of system operation. This results in an objective, quantitative definition of priority problems. The interdisciplinary team combines knowledge and experience with systematic research in Phase II to develop direct

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acceptable solutions to priority problems. Applied, adaptive, and evaluative research methods are used under farmer conditions in Phase III for the assessment of solutions. These results are used to redefine problems and improve solutions. In Phase IV an institutionalized development program is implemented. Trained personnel use the carefully designed technological package to work directly with farmers to solve farm problems

PN-AAF-544

Paper copy \$8.28

Microfiche \$.93

(215) WATER AND NUTRIENT MANAGEMENT WITH DRIP IRRIGATION IN HIGHLY WEATHERED SOILS OF THE TROPICS

Keng, John Ching-win
1978, 146p.

Cornell (AID/ta-C-1104 Res)

(Diss.—Cornell)

Summarizes a field experiment to study the feasibility and operational techniques of drip irrigation and fertilization in tropical acid soils. Laboratory studies of profile water movement from line source were conducted using one clayey Oxisol and one sandy Oxisol. Functional relationships between water application rates and vertical/horizontal advances were established. P distribution was also examined. High P concentration was observed in the vicinity of the water source. in both soils under various water application rates. A drip irrigation system was designed based on the laboratory results. For the field experiments, a randomized complete block design was chosen to compare their different fertilization techniques. All treatments but the control plot received the same total amount of fertilizer and the whole experimental area was uniformly drip irrigated. The three fertilization techniques included: fertigation (drip application of N and K, banded P); banded N, P, and K; and broadcast N, P, and K. The fertigation treatment and the banded fertilizer treatment produced the highest yield. The drip method of irrigation is feasible and may be profitable for certain crops in the tropics. However, detailed studies on drip discharge rates and irrigation and fertilizer schedules are needed in order to modify and standardize the drip system operations.

PN-AAF-528

Paper copy \$17.52

Microfiche \$.1.86

(216) THE COMPARTMENTED RESERVOIR: A METHOD OF EFFICIENT WATER STORAGE

Cluff, C.B.
1977, 173p.

Colo. State (AID/afr-C-1263)

(Diss.—Colo. State)

This dissertation demonstrates that large water losses through evaporation can be reduced by compartmentalizing shallow impervious reservoirs and in flat terrain concentrating water by pumping it from one compartment to another. This method reduces the surface-area-to-water-volume ratio to a minimum, thus decreasing evaporation losses by reducing both temperature and exposure of the water to the atmosphere. There is a need for low cost, efficient water storage in semi-arid and arid lands. An examination of storage reservoirs in Arizona, northern Mexico and West Africa revealed the average depth at less than the average annual water evaporation rate. This report includes a discussion of the potential of the compartmental reservoir, a literature review, a

description of the compartmental reservoir optimization program (CROP-76), a demonstration of the compartmental reservoir using the CROP-76 model, detailed appendices on pumping methods, required embankment materials, and the Fortran IV listing of CROP-76, and many illustrative tables and figures. It is concluded that the rate of increase of efficiency of storage decreases as the number of compartments increase; there was no significant difference in evaporation loss by varying the relative size of compartments provided the side slope depth total number of compartments and the total combined volume remained constant; the increase in efficiency due to the use of the compartmented system decreases as the depth of the reservoir increases, becoming insignificant for depths of 20 or more meters; and the use of a compartmented reservoir provides efficient storage for a water harvesting agri-system. The evaporation savings as determined by CROP-76 are based on a reduction of surface area only. There should also be a significant reduction by decreasing the temperature by increasing the average depth.

PN-AAF-039

Paper copy \$20.76

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(217) ZIMBABWE, ANTICIPATION OF ECONOMIC AND HUMANITARIAN NEEDS: WHITE AND BLACK IRRIGATION IN RHODESIA

Roder, Wolf
1977, 74p.

AASC (AID/afr-C-1254 GTS)

(In Transition Problems in a Developing Nation; consultant [occasional] paper no. 8)

The uncertainty of the Rhodesian situation makes it extremely difficult to project or make recommendations for irrigated agriculture. This paper discusses environmental conditions, African irrigation, European irrigation, regional development, and recommendations. The African irrigation projects are rooted in the earliest decades of white occupation, have been there a long time, and have not expanded much. They are firmly embedded in the landscape and the regional economy and will probably survive. New investment in small holder irrigation projects must consider carefully the long term viability of such projects, their ability to repay investment capital, and their contribution to the national economy and development. Their potential role of stimulating the regional economy in remote areas should be considered in formal assessment. The greatest opportunities for African agricultural settlement exist in the underutilized European farms of the high rainfall areas, not in irrigation development areas. The future operation of the irrigated estates has several options: continuation in the hands of the private companies of government takeover as state farms or cooperative management by the work force. The regional economy and the population dependent on it demand that lowveld development be maintained at its present level. Additional investments demand careful analysis before capital resources are committed. Irrigation investment is not the most profitable use of scarce capital resources, nor will it show great social benefits. The high rainfall areas of the Rhodesian highland ought to provide ample scope for the future of Zimbabwe.

PN-AAF-245

Paper copy \$8.88

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HUMAN NUTRITION

(218) SIMPLIFIED FIELD ASSESSMENT ON NUTRITIONAL STATUS IN EARLY CHILDHOOD: PRACTICAL SUGGESTIONS FOR DEVELOPING COUNTRIES

Miller, D.C.; Nichaman, M.Z.; Lane, J.M.
1977, 33p.

AID/TA/N

A simple, inexpensive approach to the field assessment of nutritional status is proposed to determine the location and extent of protein-energy malnutrition and anemia in a defined geographic area. The approach has two principal features, a simple statistical method for randomly selecting the population samples to be studied, and suggested core of objective nutritional indicators, uniformly measured, in young children. The method limits basic measurements to body length and weight, hemoglobin concentration, and pretibial edema. The need to adequately train indigenous para-professionals as assessors and to periodically control their measurement accuracy is stressed. The paper advocates the cross-tabulation form proposed by J.C. Waterlow for cross-classifying height-for-age and weight-for-height to estimate prevalence and severity of past and recent undernutrition. It suggests methods for comparisons with reference data. The Waterlow method makes the degrees of long-term stunting and shorter-term wasting in a population more readily discernable. In addition to providing baseline indications of where and to what extent common nutritional problems may exist in various regions of a nation, the assessment method, repeated periodically, will indicate changes with time, and thus it may be used to evaluate the effectiveness of remedial intervention. If the assessment demonstrates that protein-energy malnutrition is a public health problem, a supplemental ecologic analysis of possible causal factors may be indicated so that appropriate remedial programs can be instituted.

PN-AAF-467

Paper copy \$3.96
Microfiche \$.93

(219) JUDGING THE MERIT OF CHILD FEEDING; A DEVELOPMENT HANDBOOK FOR PLANNERS, MANAGERS, AND EVALUATORS

Ellis, Richard; Cleemput, Diane; Cooper, Mark; Manly R.P.; Checchi and Co.
1975, 316p.

Checchi (AID/CM/otr-C-73-19-199 GTS)

This handbook provides background materials, technical suggestions, and examples of pilot studies to assist those engaged in the evaluation of supplementary feeding projects for children in LDCs. It is based on the results of a pilot evaluation study of maternal child health clinics and school feeding operations at thirty selected sites in Colombia, Kenya, and the Philippines. Its four basic objectives are: to create a design for the rigorous assessment of feeding projects; to field test this design; to analyze and to present the results of the field tests; and to refine the design and to explain its rationale and methods. The handbook is organized into three parts. Part One deals with conceptual issues raised by evaluations generally and by studies of child feeding in particular. Part Two discusses specific tasks necessary to a thorough evaluation research project. Part Three contains substantive findings of the pilot studies and gives key data elements. The goal of evaluation is to improve the use of scarce development resources. There is a need for improvement in the understanding of how child feeding operations are affected by their surroundings. Whether or not a child benefits from a program is a function of the child's unique relationship to the family, the community, and the program.

PN-AAE-756

Paper copy \$37.92
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(220) REPORT ON THE NUTRITION PLANNING CONFERENCE

Nutrition Planning Conf., Port Moresby, Papua, New Guinea, 1976
1977, 92p.

FSP (AID/ta-G-1304 GTS)

This report gives the proceedings of the Foundation of the Peoples of the South Pacific's Nutrition Planning Conference in Papua New Guinea in 1976. The aims of the Conference were: to promote an understanding of the multi-sectoral approach to nutrition planning and to develop a better understanding of the technical and analytical methods that are applicable to nutrition planning. Additional goals were to encourage cooperation between the various government departments and the voluntary agencies in an effort to improve nutrition status and to pinpoint practical nutrition interventions that could reduce the incidence of malnutrition. Lectures were given on improving nutrition through integrated rural development, the political parameters of nutrition planning, and a national development strategy for Papua New Guinea. The effect of malnutrition on work output, the current state of nutrition programs in Papua New Guinea, malnutrition causality, nutrition interventions and planning, and the Fiji development plan are also discussed. An evaluation of the conference discusses the most useful aspects, least useful aspects, and general comments. The report concludes with a detailed series of recommendations.

PN-AAD-744

Paper copy \$11.04
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(221) NEPAL NUTRITION STATUS SURVEY: JAN. 1975 TO MAY, 1975

HEW/PHS
1976, 90p.

HEW (RSSA-HEW/CDC 3-75 GTS)

The main objective of the 1975 Nepal nutrition status survey was to provide statistically valid data on the type, extent, and distribution of protein energy undernutrition in Nepal using anthropometric measurements and selected clinical criteria. Qualification of the prevalence of anemia was a second goal. The survey methodology can be used to assess the effects of nutrition intervention at later points in time. This report includes the survey design, sampling methods, survey items, anthropometry methods, hematology, data preparation, and special group consisting of four hundred eighty-six children. Survey results describe the distribution of sample sites, age and sex distribution, weight-for-height, height-for-age, weight-for-age, arm circumference for height and skinfold for age. Caste, pedal edema, anemia levels as measured by hemoglobin determinations, and prevalence of naturally acquired measles by serological survey for antibodies are also described. The discussion at the end analyzes the results of the survey and the meaning for Nepal. Protein energy undernutrition in rural Nepal is a general problem which differs in various geopolitical units. The wasting and stunting sector of undernutrition calls for some type of priority action. Infants and children through 35 months are most seriously affected. The pattern could indicate a general maternal inability to provide adequate milk, poor quantity and quality of weaning foods and the young child's inability to compete successfully in the family food chain. Those initially stunted probably remain permanently behind in linear growth. A baseline of nutrition status emerges which the government can use as a guideline in determining methods and priorities of intervention.

PN-AAE-106

Paper copy \$10.80
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AGRICULTURE AND NUTRITION

(222) SRI LANKA NUTRITION STATUS SURVEY:

SEPT. 1975 TO MARCH, 1976

HEW/PHS

1976, 110p.

HEW (RSSA-HEW/CDC 3-75 GTS)

The three objectives of the Sri Lanka nutrition status survey were: (1) to provide a statistically valid assessment of the nutritional status of the preschool population by measuring key indicators of nutrition status in preschool children; (2) to fulfill the need for a reliable reference data base to be used in planning intervention programs in nutrition and monitoring possible changes in nutritional status; and (3) to help develop the capability of Sri Lankan personnel to conduct a survey and make nutritional assessments by selected anthropometric, biochemical, and clinical means. There is evidence that protein-calorie undernutrition, anemia, and vitamin A deficiency may be great nutritional problems in Sri Lanka. This report discussed the survey design and methodology, field methodology, and survey results and analysis. The survey results indicate some real differences in nutrition status between the estate and village sectors of rural Sri Lanka. The preschool population of the estate sector is statistically and practically worse off by the anthropometric indices of height for age and weight for age. The differences between the two sectors for acute protein calories undernutrition (defined as a weight for height deficit) may be too small to be useful. This may also be true for sector comparisons of vitamin A deficiency signs and symptoms. The questionable hemoglobin data available indicates no major difference in anemia prevalence. The appendices include references and data comparisons, selection of sample sites, procedures for anthropometric measurements, procedures for collecting blood samples, distribution details of anthropometric indices, correlations between anthropometric measurements, and the Sri Lanka nutrition status survey form.

PN-AAE-105

Paper copy \$13.20
Microfiche \$2.79

(223) FOOD AND NUTRIENT INTAKE STUDIES OF RURAL POPULATION IN KOREA

Park, Hong-nai; Kim, Harriet; Korean Statistical Assn., Seoul
1977, 165p.

AID/ASIA/USAID/Korea

This paper is organized into four major sections: "Survey on Communal Feeding;" "Food and Nutrient Intake Studies on Pregnant, Lactating Women and Weaning Children;" "Nutrient Intake Level of the Average Rural Resident;" and "An Overview of Research on the Nutritional Status of Koreans." Communal Feeding (CF) is relatively new. It appeared two years ago and spread rapidly with the enthusiastic support of rural residents. Food and nutrient intake was surveyed by the precise weighing method on 524 participants of four CF villages from three provinces in Korea. Meals that the CF program provide to farmers supplied enough calories and all other nutrients, except riboflavin, to sustain them in the intensive work of harvesting. Surveys of pregnant, lactating women and weaning children in rural Korea indicated that their diet was generally unbalanced. Mean daily intakes of calories, niacin, thiamine, and ascorbic acid exceeded the recommended allowances for pregnant and lactating women, but vitamin A, calcium, and riboflavin intake was low. All nutrient intakes by weaning children were deficient, particularly in animal protein, calcium, iron, vitamin A, riboflavin, and vitamin C. The following recommendations are made: that the government decide that an adequate nutrition for all people is an appropriate national goal and set up a national nutrition policy; that special

attention should be paid to the nutritional status of vulnerable groups such as pregnant, lactating women and weaning children; that the government should initiate the formulation, production, and distribution of weaning foods; that instruction in nutrition should be included in elementary school curriculum; that CF program should be encouraged and extended; and that consideration should be given to fortification of appropriate commodities with vitamin A, riboflavin, calcium and iron.

PN-AAF-515

Paper copy \$19.80
Microfiche \$1.86

(224) NUTRITION ASSESSMENT REPORT FOR EL SALVADOR

Community Systems Foundation, Ann Arbor, Mich.
1977, 88p.

CSF (AID/ta-C-1383 GTS)

This technical assessment of El Salvador's nutrition problems augments the Health Sector Assessment and Agriculture Assessment and serves as a basis for proposed nutritional projects sponsored by A.I.D. and other international agencies. The result of the project is described in the report and includes the data collected, an analysis of the data for diagnosing malnourishment, and the recommendations for future activities and programs. Community Systems Foundation has developed a theory - the nutrient flow theory - to guide the assessment of nutritional status and the formulation of strategies to reduce malnutrition. In schematic form, the model shows the flow of nutrients from production through assimilation in the body. The analysis of the available information confirms the presence in El Salvador of acute and chronic malnourishment, of a deficit of nutrients, and of a high morbidity and mortality rate which leads to an increase in real requirements. A number of steps are recommended which can be implemented to define the problem further and to identify projects which have the potential to reduce malnutrition. The assessment is divided into three major sections, with Appendices: the data, the analysis, and the recommendations. Two principal needs became evident: El Salvador needs to develop an interest and a capability in the nutrition planning process, and new data must be generated which better defines the nutrition problem and its location and causes. It suggests that the planned nutrition loan be postponed until 1979 to allow time to concentrate on training and supporting a technical level planning staff which would produce a detailed plan for the nutrition loan.

PN-AAE-120

Paper copy \$10.56
Microfiche \$.93

(225) SURVEY OF COMMERCIAL WEANING FOODS IN LESS DEVELOPED COUNTRIES, EL SALVADOR AND COSTA RICA

Cyrog, L.; Falletta, C.; Hoskins, W.
Foremost Research Ctr., Dublin, Calif.
1977, 210p.

USDA/ERS (RSSA 1-74 GTS)

This report is a summary of a project designed and conducted by Foremost Foods Company and USDA to study the availability and consumption of commercial weaning foods (CWF) in El Salvador and Costa Rica. This will be a multiphase program with the long term objective of identifying methods to make low cost nutritious weaning foods available to preschool children of low income groups through commercial channels. The report defines the available commercial weaning foods in both countries, demographically identifies households that consume these products, and discusses alternative methods to extending the availability of CWF's to lower income groups. Public

DEVELOPMENT ASSISTANCE

institutions have made efforts to develop inexpensive weaning foods and have created a variety of highly nutritious cereal-based food powders, but the products have been unsuccessful in reaching low income families. This lack of success is attributed to the inability to achieve sufficiently low cost while satisfying profit goals and to a lack of consideration for traditional eating habits. Since price appears to be the major deterrent to purchase of CWF's by low income groups, several methods of reducing costs of these products are presented. These methods deal with such items as ingredient modifications, pricing practices, packaging materials, and streamlined distribution systems. If a CWF product was produced locally on a commercial basis, it appears that some type of government support would be necessary as an incentive for private industry. Such support should aim at reducing the initial investment risk with support decreasing as the commercial viability of the product is established.

PN-AAF-081

Paper copy \$25.20
Microfiche \$2.79

(226) NUTRITION SECTOR ASSESSMENT FOR NICARAGUA

Pyner, George; Strachan, Catherine
1976, 110p.

AID/LA/USAID/El Salvador

The purposes of this nutritional sector assessment of Nicaragua are: (1) to describe the extent and severity of the malnutrition problem; (2) to identify some of the most important variables related to the problem; (3) to highlight the government's current policy, plans and programs relative to the nutritional status of the population; and (4) to propose some areas where intervention may impact significantly on the nutritional problem. The major nutritional problems of the two most vulnerable groups, young children and pregnant and lactating women, are protein-calorie malnutrition, nutritional anemia, vitamin A deficiency, endemic goiter, and other vitamin deficiencies. Protein-calorie malnutrition affects over half of all the Nicaraguan children under five years of age. Other nutritional deficiencies are widespread within the general population. Given the nutrition problem, appropriate planning must be based upon knowledge of associated factors and causes. Malnutrition is a complex, ecological problem and is determined by numerous interacting factors in a community's physical, biological, and cultural environment. A conceptual, linear model is presented which provides a framework within which to view the interrelated, logical, and complex network of factors that directly or indirectly influence the nutritional status of any population. The quantity and quality of food ingested depends on four major factors: the availability of foods, income or purchasing capacity, food habits, and education and information regarding food and nutrition. Each of these variables is explored as it relates to Nicaragua. Perhaps the most significant factor affecting malnutrition is the inequality of income distribution. This factor is further compounded by poor environmental sanitation, low levels of education, and limited access to preventive and curative health services. The report also discusses policy, programs and alternative interventions.

PN-AAF-434

Paper copy \$13.20
Microfiche \$1.86

(227) AN OVERVIEW OF ECONOMIC AND DATA ANALYSIS TECHNIQUES FOR PROJECT DESIGN AND EVALUATION

Daines, S.R.
1977, 144p.

AID/SER/PM/PS&CD

(In Development Studies Program, Course Manual for Data and Economic Analysis Weeks)

This text for the Data and Economic Analysis weeks of the Development Studies program of AID follows the course presentation closely, and it provides relevant source material and background information. This segment of the course gives the participant data and measurement techniques as they relate to Mandate oriented AID projects. The context of the discussion is generally economic and financial. The focus of the first week is measurement. The second segment deals with the data required to measure the Mandate related objectives and the data gathering techniques which may be used to obtain the data. The final segment focuses on techniques for interpreting or analyzing data. The context of the discussion is the AID project cycle. The focus is on projects directed at the rural poor. Measurement and analysis enter the project cycle at all stages, at the pre-project sector assessment stage, in project selection and design, and in project monitoring and evaluation. Certain measurement techniques are more suited to the purposes, timing, and budget constraints of these different AID project stages. The manual presents ideas about the appropriate stage at which each discussed technique fits into the AID project cycle.

PN-AAF-436

Paper copy \$17.28
Microfiche \$1.86

(228) HANDBOOK ON MANAGEMENT DEVELOPMENT WORKSHOPS FOR APPLIED RESEARCH INSTITUTES

Denver Research Inst., Denver, Colo.
1978, 106p.

Denver Research Inst. (AID/ta-C-1337)

This handbook provides the reader with a simple step-by-step guide on how to organize and conduct a successful and effective management development workshop. It is based on the knowledge and insights gained by the Denver Research Institute (DRI) while conducting and experimenting with such workshops and on material taken from the general training literature. There are five major sections. Section I focuses on the thought processes and steps prior to any decision to conduct an R&D management development workshop. Section II deals with workshop planning in terms of its structure and organization. Section III describes various workshop techniques and the advantages and disadvantages of each. Section IV is concerned with conducting the workshop for the maximum benefit for all the participants. Section V discusses workshop evaluation -- why this is important and how it should be done. The handbook assumes that the reader has at least a rudimentary understanding of management concepts and practices. However, a bibliography at the end of the handbook provides references on general management background if this is needed.

PN-AAF-582

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DEVELOPMENT ASSISTANCE

(229) MARKETING THIRD WORLD DEVELOPMENT AT HOME AND ABROAD

Sem. on Marketing Third World Development at Home and Abroad, Washington, D.C., 1977; Match Institution, Washington, D.C.
1977, 86p.

Match (AID/afr-C-1290)

This document was prepared for the participants at the Marketing Third World Development at Home and Abroad seminar, held in Washington, D.C. on June 27, 1977. This seminar was an outgrowth of the efforts of the A.I.D. Bureau for Africa toward assuring that the resources of minorities and women are not lost to international development efforts. One function of the seminar was to inform the skilled community of minorities and women what, when, where, and how the Bureau for Africa involves private participation in its projects. Secondly, it sought to clarify the availability and interests of organizations primarily identified with minorities and women for the design, implementation, and evaluation of the Bureau's work. The information and materials gathered in this document serve as a resource book for persons interested in furthering their understanding and working knowledge of A.I.D. involvement in Africa and how they might contribute to these efforts. Section titles include: "Agenda: Marketing Third World Development at Home and Abroad"; "A.I.D. Origins: What is A.I.D. Anyhow?"; "Why the Africa Bureau Outreach for Minorities and Women"; "A.I.D. Focus on Program 'Sectors' "; "Contract & Grants: Getting in on the A.I.D. Action "; "The Broader A.I.D. Context: Tidbits of Facts and Figures at Home and Abroad"; and "Action Epilogue: The Last but not the Final Word".

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(230) PUBLIC FINANCE ASPECTS OF A BASIC NEEDS STRATEGY: SOME RESEARCH ISSUES

Curry, R.L.
1978, 33p.

AID/IIA/EA

This paper aims to: 1) identify some of the problems and issues in designing of public sector policy in support of basic needs objectives, with a primary focus on pricing policy for public services and public finance; 2) raise some aid policy issues for donors; and 3) suggest a research design for addressing some of these problems in detail in the context of individual LDCs. Numerous questions have been raised about the nature of LDCs and donor policies and programs that are most appropriate for the pursuit of basic human needs (BHN) objectives within the context of self-sustaining, broadly based economic development. The first part of this paper summarizes key elements in a BHN strategy and their linkages to the public sector. Subsequent sections review available estimates for fixed and recurrent costs in the provision of public services, identify alternatives for public service pricing and financing, raise issues for aid policy and provide a tentative research design. The objectives of BHN strategy are the attainment of particular standards of well-being for the poor over time. Among such standards is the ability to attain minimum levels of consumption of food, health, shelter, and education. The amount of investment and recurrent costs of a program depend on the resources required to construct, maintain, and operated a BHN network designed to serve a target population with goods and services of various qualities and quantities. Costs increase as more people are served, with larger quantities delivered through higher

quality networks. However broader and more complex systems could reduce unit costs given potential complementarities and interdependencies among BHN items. County-specific research could either seek to identify minimum standards of consumption that are necessary for the target group's well-being, or use existing information or standards and consumption gaps and proceed directly to costs.

PN-AAF-009

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(231) PRIVATE VOLUNTARY ORGANIZATIONS IN FOREIGN ASSISTANCE PROGRAMS; AN ASSESSMENT

Cuellar, Alfredo
1978, 59p.

Cuellar (AID/la-C-1246)

Recently A.I.D. has sought to increase the participation of private voluntary organizations (PVOs) in the delivery of foreign assistance. As part of this commitment to PVOs A.I.D. is now studying the possibility of participation by U.S. minority organizations in PVO activity. The major objective of this study is to identify minority organizations with the capability for carrying out socio-economic development assistance programs in Latin America and the Caribbean. The study also undertakes an assessment of A.I.D. policy toward PVOs and its implications for minority organizations. This orientation involves a methodological judgement, namely, that a compilation of minority organizations meeting the criteria for socio-economic development work in Latin America and the Caribbean would be less interesting and, more significantly, less useful, to A.I.D. than an explication of fundamental policy toward PVOs and its relevance to minority organizations. In contrast to multilateralism and bilateralism, PVOs represent the unique efforts and capabilities of private citizens at the local level in the LDCs. The major drawback stems from their fundamental orientation to relief and charity as opposed to more modern forms of social action involving self-help and economic development which leads to systemic social change. This report makes the point that there are other forms of voluntarism, particularly in minority communities, with greater potential for development assistance. It points out that the involvement of some minority organizations in development assistance would be an example of technology transfer, an extension of existing capabilities to a different setting, and not the acquisition of an entirely new capability. This would be a strategy more in line with A.I.D.'s development objectives and a more rational, cost effective utilization of A.I.D.'s resources.

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(232) REPORT OF A CONFERENCE FOR AID-RELATED PRIVATE AND VOLUNTARY ORGANIZATION

Shaffer, Jack; Conf. for AID-Related Private and Voluntary Organizations, Washington, D.C., 1978
1978, 67p.

AID/PDC/PVC

In 1973 Congress focused the attention of the U.S. development assistance efforts on programs to reach the

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poorest of the poor in LDCs. Recognizing an existing experience and potential in U.S. private and voluntary organizations (PVOs), the lawmakers mandated that these groups be used to the maximum in carrying out this "New Directions" emphasis in foreign aid. In 1974 A.I.D. convened a large and inclusive meeting of private agencies and began to explore their potential for carrying out this mandate. Subsequent meetings have taken place around special issues and needs. There has been an increase in the level of cooperation and collaboration among PVOs who have increasingly found new ways to work together. At the conference here reported, A.I.D. explores future directions together with the voluntary sector. Addresses by A.I.D. officials are followed by question and answer sessions. Among those who spoke were John A. Ulinski, Jr., Allan R. Furman, Governor John J. Gilligan, and Robert H. Nooter. A panel presentation was given on "A.I.D. Program and Grant Policies Regarding Private and Voluntary Organizations". Workshop reports included: The PL480 Program -- Recent Changes and the Use of Food as a Development Resource; PVOs Assisting Each Other; PVOs and Constituency Building; PVOs and the Peace Corps; PVOs as an Early Warning System for Emerging Disaster Conditions; PVOs and Appropriate Technology International.

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(233) PRACTICAL ASPECTS OF INTEGRATING WOMEN IN DEVELOPMENT INTO A BASIC HUMAN NEEDS PROGRAM; OR, WORKING AND LEARNING FOR DEVELOPMENT

Fraser, A.S.
1977, 24p.

AID/WID

This report is organized into two parts. Part one outlines the various proposals of national and international organizations to improve the status of women and their participation in economic, social, and cultural development. The second part contains an illustrative strategy to add women in development of basic human needs for OECD, DAC, Donor Nations, and LDC's. In December, 1975 the United Nations General Assembly proclaimed 1976-85 as the Decade for Women, in the face of women's determination to participate as decision-makers, contributors and beneficiaries in economic and social development. It called upon regional commissions and national governments to give priority to the World Plan of Action adopted at the U.N. World Conference on International Women's Year in Mexico City, July 1975. The five-year minimum goals of the World Plan include the broad issues of education, employment, rural development and women's participation and also concentrate on the economic value and critical importance of women's traditional work in domestic food production and in marketing, as well as on the often-overlooked tasks of carrying water, processing and storing food. The author suggests that a Women in Development Task Force be established which would propose a series of model cooperative programs for implementation by LDC's and donors to meet basic human needs, using the World Plan of Action as a guide. Private, independent, entrepreneurial development institutions such as Women's World Banking and other cooperative ventures could be encouraged and a special Women's Decade Basic Human Needs Fund established. Another undertaking might be community participation in national inventories on social and economic conditions. This community inventory should address, among other things, the role and status of women, the magnitude of

their problems, and the success in meeting basic needs of both women and men in the community. The OECD could coordinate evaluation and review progress of basic needs, efforts and programs carried out in LDC's.

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(234) WOMEN-HEADED HOUSEHOLDS; THE IGNORED FACTOR IN DEVELOPMENT PLANNING

Buvinic, Mayra; Youssef, N.H.; Von Elm, Barbara
1978, 127p.

ICRW (AID/otr-G-1593)

Women who are heads of households in developing societies are presented here as a special group among the poor worthy of the full attention of policy makers concerned with improving the quality of life of the poorest of the poor. Census data, if and when it deals with family headship, generally fails to establish a viable criterion with respect to the definition of the term 'head of household' and one which could reflect the changing role of women in assuming de facto economic responsibilities for their own and their children's survival. The findings reported by microliterature suggest a typology of who these de facto women heads of household are and where they might be. These are women who because of marital dissolution, desertion abandonment, absence of spouse or male marginality are structurally placed in a situation where they are economically responsible for themselves and their children. On the basis of the typology derived from micro data the phenomenon of female headed households is translated into aggregate data for 74 developing countries. This is done by quantifying for each country on the basis of census data, the total range of adult women who because of their current marital/family status carry the potential of being or eventually becoming family heads. The average percentage of potential household heads who are women is 22% for sub Saharan Africa, 20% for Central America and the Caribbean, 16% for North Africa and the Middle East and 15% for South America. This potential segment is not a de facto group but is meant to be taken as suggestive of trends and patterns. This report also includes a separate case model for the kind of data generated and presenting compelling evidence of the disadvantaged position of women heads of households. This study identifies one group of people who are among the poorest of the poor and suggests that policies geared to assist these women would be a significant weapon in the struggle against poverty.

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(235) POLITICAL COMMITMENT AND ADMINISTRATIVE SUPPORT: PRECONDITIONS FOR GROWTH WITH EQUITY POLICY

Rondinelli, D.A.; Ruddle, Kenneth
1977, 11p.

Rondinelli (AID/ta-C-1282 GTS)

(In J. of administration overseas, v. 17, no. 1, p. 43-60)

This paper reviews the experiences with rural development in a number of countries and examines major political and administrative obstacles to implementing the new directions in development policy. It also identifies administrative prerequisites or components for growth-with-equity programmes and suggests a selective experimental programme of international assistance for achieving integrated

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development goals. Two preconditions for achieving redistribution are building political commitment and expanding national administrative goals. In developing countries the national government is generally the only entity capable of initiating, organizing, and guiding programs of the magnitude and complexity of integrated rural development. Without national political, administrative and financial support integrated development programs inevitably fail. Commitment to a complex program for transforming economic and social structures in rural areas, reallocating investments from primate cities, breaking the political bottlenecks to income redistribution, and consolidating local support for development projects must be strong if change is to be introduced and sustained. Two types of experimental lending schemes should be supported by international agencies. One would concentrate intensive technical assistance in agricultural production, integrated spatial development and creation of marketing and financial networks in those countries that have demonstrated strong political commitment and administrative support for growth with equity policy. The other would be a two phased experiment in the poorest developing nations where some political support exists but where administrative and financial capacity is low. The entire growth with equity strategy should be viewed as a complex social experiment to be approached through carefully designed, high selective pilot projects.

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Paper copy \$1.32
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(236) RURAL DEVELOPMENT DATA GATHERING AND ANALYSIS METHODS; KENYA RURAL ROADS EVALUATION DESIGN, CONSULTANCY REPORT

Ingle, M.D.; Lago, A.M.
1978, 85p.

PCI (AID/ta-C-1469)

Summarizes the findings of an on site consultancy in Kenya during April 1978. The main objectives of the consultancy were to: recommend modifications to the terms of reference of the Kenya Ministry of Works (MOW) "Impact Study" in order to satisfy USAID's legal, program and procedural evaluation requirements; and design the general guidelines and terms of reference for a Scope of Work to provide the Kenya A.I.D. Mission with consulting assistance for periodic short term evaluation assistance for the Rural Access Road Program (RAR) and the Gravelling, Bridging, and Culverting Program's (GBC) Gravelling Road Program. Several consecutive analytical steps were taken in pursuing these objectives. First, the consulting team reviewed the evaluation requirements for the two road projects contained in the Project Agreements and the Project Implementation Letters, and A.I.D.'s evaluation requirements as outlined in A.I.D. Policy Statement VI-5. A logical framework evaluation design was then prepared combining evaluation requirements from both of these sources. The overall design of the MOW Impact Study Plan was then reviewed, particularly its experimental design approach, data sources and number of surveys and questionnaires. Finally, the Scope of Work was analysed for a consultancy on analytical items not covered in the MOW study, such as social, economic and environmental analysis of the GBC Gravelling Road Program. Numerous specific recommendations have been included on the basis of these analyses.

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(237) ZIMBABWE (AND) NAMIBIA: ANTICIPATION OF ECONOMIC AND HUMANITARIAN NEEDS; TRANSITION PROBLEMS OF DEVELOPING NATIONS IN SOUTHERN AFRICA

Adams, S.C.; African-American Scholars Council,
Washington, D.C.
1977, 514p.

AASC (AID/afr-C-1254 GTS)

This final report of the Southern Africa project represents a culmination of seven months of intensive research, consultation with the AID Africa Bureau, and an extensive effort to create a data base as well as a repository of information relevant to southern Africa. This study was undertaken to make southern Africa comprehensible to various audiences and to supply data for use by professional planners and analysts who are concerned with the region. A newly independent majority rule government in Rhodesia and Namibia will face a mix of transition issues and development issues. Implications for donor assistance, where transition and development problems can be identified, are noted. The study begins with individual examination of the political factors, economic factors, and human resources in contemporary Zimbabwe and Namibia. The treatment of each country then focuses on transition problems, development issues, strategies and choice. The appendices include tables on population and demography, education, employment, and the economy, as well as maps and graphs and an annotated bibliography. A possible U.S. response during the transition period might be manpower training programs and technical surveys for Zimbabwe and public administration training and industrial and other capital development projects for Namibia. This response may be more effective if channeled through African or international organizations than as direct bilateral aid. This document, with its four appendices and twenty-six occasional papers, is a significant effort to further common knowledge and understanding about two countries emerging to independence at a critical juncture for southern Africa.

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(238) ZIMBABWE, ANTICIPATION OF ECONOMIC AND HUMANITARIAN NEEDS: U.S. POLICY CHOICES IN ZIMBABWE

Butcher, G.T.
1977, 160p.

AASC (AID/afr-C-1254 GTS)

(In Transition Problems in a Developing Nation; consultant [occasional] paper no. 2)

This paper is on U.S. foreign policy choices with respect to Zimbabwe. Part I gives the primary issues, analysis, and background data. Supplementary data are contained in the appendices. Part II deals with Zimbabwe. It identifies policy alternatives and recommends courses of action. It also discusses the vested interests and likely foreign policy actions of key third countries, such as South Africa, Britain, Zambia, Mozambique, China, and the Soviet Union. The thesis of this paper is that U.S. short-term and long-term interests have already merged. Therefore the usual dichotomy in foreign policy analysis between long and short-term interests is not employed in this analysis. It considers these interests: the U.S. interest in preserving friendly ties with African countries; the U.S. interest in preserving U.S. and Western influence in southern Africa; the U.S. interest in denying such influence and ties to the Soviets as well as to

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the Chinese; and the U.S. interest in preserving its access to the raw materials of southern Africa. It would seem to be beneficial for U.S. foreign policy interests if the objectives of assistance were to help Zimbabwe to develop a substantial economic position in the region with a viable economy for all of its people. The premise for U.S. assistance programs of a U.S. foreign economic policy should be that the firmest base for friendly, satisfying, and mutually helpful relationships between Zimbabwe and the U.S. rests in the country along the course freely chosen by the majority of the Zimbabwean people.

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(239) ZIMBABWE, ANTICIPATION OF ECONOMIC AND HUMANITARIAN NEEDS: ANTICIPATED U.S. LEGISLATIVE REQUIREMENTS FOR EFFECTIVE U.S. RESPONSE TO A ZIMBABWE TRANSITION SITUATION

Gran, Guy
1977, 101p.

AASC (AID/afr-C-1254 GTS)

(In Transition Problems in a Developing Nation; consultant [occasional] paper no. 3)

This report catalogs the policy options available to the U.S. Congress toward southern Africa. The potential policies are grouped under five political choices: to support the evolution of South Africa through economic development; to disengage western nations in symbolic ways; to encourage parliamentary and nonviolent opposition to continued white rule; to persuade press or coerce the Vorster and Smith governments to accept substantive institutional change; and to encourage and assist black African opposition efforts. Forty to forty-five possibilities are covered in 25 essays. Each option is treated as a separate issue. The essays provide some initial factual data, explore the assumptions underlying each option, and suggest aspects that may need more detailed research. A sketch of the legislative strategy are touched on. A bibliography is appended. This is a preliminary survey of a rapidly changing situation. The length of an essay does not indicate the importance of the topic; it indicates the availability of materials.

PN-AAF-240

Paper copy \$12.12
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(240) ZIMBABWE, ANTICIPATION OF ECONOMIC AND HUMANITARIAN NEEDS: RHODESIA

Rotberg, R.I.
1977, 22p.

AASC (AID/afr-C-1254 GTS)

(In Transition Problems in a Developing Nation; consultant [occasional] paper no. 4)

This occasional paper gives an overview of Rhodesia as it prepares to change to majority rule, and it covers history, geography, ethnicity and sectionalism, the administration of Africans, and the administrative reservoir; it also covers the neighboring countries and foreign relations, industrial and consumer markets, transportation, politics, and the liberation struggle. From a political viewpoint, the major problems of Zimbabwean independence will be: how to prevent deferred civil war; how to

prevent conflict by minimizing ethnic or sectional conflict over appointments to the central bureaucracy and the security forces; and how to eliminate this ethnic-organized envy by minimizing conflict over developmental decisions which will be seen as favoring one group or another. Problems also include: how to integrate the peoples of Zimbabwe; how to give control of the white directed government and economy to blacks; how to minimize the shortrun flight of whites; and, how to maintain existing levels of agricultural and industrial productivity in the face of instability.

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(241) ZIMBABWE, ANTICIPATION OF ECONOMIC AND HUMANITARIAN NEEDS: POLITICS IN ZIMBABWE

Short, J.N.

1977, 96p.

AASC (AID/afr-C-1254 GTS)

(In Transition Problems in a Developing Nation; consultant [occasional] paper no. 5)

Aid options for the U.S. should not be studied or conceived, much less implemented, without reference to the political context and to the overall goals of the United States in southern Africa. This project concerns U.S. interests in Southern Africa and the desirable goals for U.S. policy, especially aid policy. It is assumed that it is in the national interest of the U.S. to strongly support majority rule in Zimbabwe, Namibia, and South Africa. The objectives of economic assistance as such should be to help ease the transition to majority rule and to help the African majorities achieve full self-determination. This study focuses on short-term conditions in the two transitions which may be susceptible to economic assistance. It attempts to anticipate what adverse conditions may arise in the administrative, economic, and human resource sectors of the two countries. The analysis may suggest ways to alleviate short-term problems or crises, but the main objective is to avert or alleviate possible problems and to help put the new African governments in the best position to deal with underlying problems of underdevelopment in the future. The report provides an initial assessment of the likely consequences of transition to majority rule in Zimbabwe and Namibia, and of the likely consequences in the political/administrative, social, economic, and human welfare sectors of the two countries. It should be of help in developing a basic U.S. aid posture, in developing specific programs of aid, and in identifying areas for further study. The possible consequences of transition, outlined in this study, concern not only foreign aid but also foreign investment, international banking, and finance. A.I.D. type assistance must be conceived in a broad framework.

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(242) NAMIBIA, ANTICIPATION OF ECONOMIC AND HUMANITARIAN NEEDS: U.S. POLICY CHOICES IN NAMIBIA

Butcher, G.T.

1977, 97p.

AASC (AID/afr-C-1254 GTS)

(In Transition Problems in a Developing Nation; consultant [occasional] paper no. 1)

Examines U.S. interests with respect to Namibia and discusses what policy choices exist for designing and implementing a massive assistance program. The topics include: U.S. foreign policy interests in Namibia; the international significance of U.S. action with respect to Namibia; implications of present U.S. policy; and

DEVELOPMENT ADMINISTRATION

recommendations for U.S. foreign policy choices. A review of the economic inequities in Namibia raises serious doubt as to whether the goals of "addressing problems of equity" and "providing continued satisfaction to the whites" are mutually consistent. Any valid policy of protecting U.S. interests in Africa should be geared towards the majority, not the minority. The U.S. approach to an independent Namibia is critical to the communication to South Africa of a decision of non support for minority rule. It is recommended that all U.S. training and assistance be handled through the UN and the Namibia Institute in Lusaka and that the U.S. channel all assistance through the UN, World Bank, IDA, African Development Bank, and other international agencies. Appendices to this report include: "Soviet Aid in Africa"; "Chinese Aid in Africa"; "Soviet and Chinese Assistance to Liberation Movement of Zimbabwe"; "Overview of Communist Economic and Military Aid: Worldwide, to LDC's and to Africa"; "Aid Donors to Lusophone States Upon Independence"; "Implications for Zimbabwe and Namibia of Aid Donors to Lusophone States Upon Independence"; "Foreign Investment and Capital Flows: Analysis of Revelant Examples: Angola"; and "Foreign Investment and Capital Flows: Analysis of Relevant Examples: Mozambique".

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(243) DEVELOPMENT VERSUS THE WORLD— SYSTEM: A MODEL POLICY PLANNING COUNTRY STUDY OF PERU

Gran, Guy
1978, 160p.

Gran (AID/la-C-1245)

This paper applies systems analysis to a study of the world economy to create, with Peru as the model, a sample policy planning country study that illustrates how AID should, in theoretical and operational terms, proceed to implement the New Directions aid legislation mandated by Congress. The New Directions foreign aid policy is a humanistic statement that the world's poor deserve to live a decent life. The essay seeks to define the processes that create and sustain poverty in specific groups, regions, and countries. The study demonstrates that analytical and operational responsibilities of AID's Latin America Bureau to meet the Congressional New Directions mandate of participatory development cannot be fulfilled with the conventional collection of normative assumptions and analytical tools, a collection termed "developmentalism." The normative basis of developmentalism has been shown to be antithetical to the welfare of the majority of poor people. From the systems analysis approach there logically develops three basic categories of international development activities. They are ameliorative, technocratic, and conflictive. Conflictive activities involve the participatory processes which are integral to an activity which will have significant and lasting positive benefit for the poor. Systems analysis argues explicitly for the interrelationship of political, economic, and social processes over both time and space. It posits that the economic processes are the core determinant, doubly so for analysts who are desirous of affecting economic change. Thus the conditioning and organizational impact of nation-states and cultural communities are in such an analysis subsidiary to the way people structure their economic relations.

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ECONOMICS

(244) U.S. COMMODITY TRADE POLICY AND THE DEVELOPING COUNTRIES

Michalopoulos, Constantine
1977, 45p.

AID/PPC

(In AID discussion paper no. 37)

This paper analyzes the circumstances under which U.S. and LDC interests in commodities coincide and diverge. The analysis discusses ways to resolve commodity problems through international action, and it gives U.S. policy alternatives for commodity issues of importance to developing countries. The traditional U.S. view has been that free markets tend to promote both developed and developing country interests. The LDCs have challenged this view and have called for the implementation of an integrated program of action which involves market intervention through commodity agreements. It also involves setting up a common fund to pay for the buffer stocks to support the commodity agreements. The basic U.S. objective in the commodity field has been the development of secure and adequate supplies of raw materials and commodities at reasonable prices for U.S. industries and consumers. A second objective has been the promotion of the economic development of LDCs; LDCs are often the source of supply of commodities and raw materials. This objective deserves more attention than it has received because developing countries have made commodity issues central to their discussions with the U.S. and other developed countries over broad aspects of economic development. This paper explores the perceptions of LDCs, and it covers problems and proposals.

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(245) AFRICAN WOMEN SMALL ENTREPRENEURS IN SENEGAL, THE GAMBIA, SIERRA LEONE, CAMEROON AND MALAWI; PRE-FEASIBILITY STUDY FOR PROVIDING ASSISTANCE

National Assn. of Negro Business and Professional Women's Clubs, Inc. Int. Affairs Div., Washington, D.C.
1977, 96p.

NANBPW (AID/afr-G-1317)

The National Association of Negro Business and Professional Women's Clubs, Inc. (NANBPW) explored five African countries to examine the activities and role of the African female entrepreneur. The NANBPW feels that its accumulative and collective skills in business and business management have transferable value to the developing entrepreneur. Its objective is to direct the focus of its international activities on the problems of the African women entrepreneurs. Emphasis would be placed on assistance in improving and expanding her existing business enterprise; providing the necessary technical skills and management training in relationship to her business; improving upon or developing new commodities; expanding the scope of her market and any related training or development required to increase her competence as an entrepreneur. The association would also like to identify prospective entrepreneurs and assist them in the establishment of their enterprises. This report includes the project description with a brief look at Senegal, the Gambia, Sierra Leone, Cameroon, and Malawi. Also included are recommendations, beneficiaries, financial plan, and project development schedule. The rural female with little in the way of financial resources or materials needs literacy and numeracy. The NANBPW aims to assist the illiterate woman to understand and implement time management, personnel management and bookkeeping so that she may learn to keep pace with more

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successful urban women. 750 villages will be covered over a five-year period impacting 3,500 women. It is anticipated that some program spill over will occur among semi-urban women who are having similar employment difficulties.

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(246) ZIMBABWE, ANTICIPATION OF ECONOMIC AND HUMANITARIAN NEEDS: GROWTH STRUCTURE AND PROSPECTS OF THE ZIMBABWE ECONOMY

Berg, Elliott
1977, 35p.

AASC (afr-C-1254 GTS)

(In Transition Problems in a Developing Nation; consultant [occasional] paper no. 6)

Section I of this occasional paper discusses the three major political events which dominate the economic history of the past 20 years in Rhodesia. These events were the formation of the Central African Federation, the weakening and final dissolution of the Federation, and the last, the Unilateral Declaration of Independence in November 1965. Other factors affecting the economy after 1965 were the weather, which was worse than normal, and the eruption of guerilla warfare. Despite these unfavorable obstacles the Rhodesian economy managed to perform well. The reasons for this performance are also explored. Section II describes the structural characteristics of the economy. The Zimbabwe economy is relatively developed by African standards. Industrial development is extensive. A large proportion of the adult male population is absorbed into the modern wage sector. The economy is highly diversified. The rapid growth in the recent past has not changed relative earnings of white and blacks though it has led to a significant increase in African real wages. The economy has a bigger private component than is common in LDCs. There is extraordinary flexibility in the Rhodesian economy, most dramatically in agriculture. Section III discusses the prospects for the economy in Zimbabwe beginning with the economic heritage. Some of the country's advantages are a natural endowment with a diversity of minerals, a favorable pattern of exports, a well developed physical infrastructure, a relatively large industrial sector, and great potential in the undeveloped areas. Observations from other transition situations are included, and speculation is given on the nature of the transition.

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(247) ZIMBABWE, ANTICIPATION OF ECONOMIC AND HUMANITARIAN NEEDS: THE EFFECTIVENESS OF ECONOMIC SANCTIONS AGAINST RHODESIA

Porter, R.C.
1977, 19p.

AASC (AID/afr-C-1254 GTS)

(In Transition Problems in a Developing Nation; consultant [occasional] paper no. 9)

The paper discusses the theory of economic sanctions, evaluates the actual effectiveness of the Rhodesian sanctions, and looks at four alternative theories on how sanctions work. From 1965 on, the economic literature on sanctions is almost entirely consistent in its conclusions: some short run damage to the Rhodesian economy, a rapid growth of manufacturing to replace imports, the expansion of the tertiary sectors to maintain white employment,

and some slowdown in overall growth to rates below those that could have been expected in the absence of sanctions. Actually, the GNP per capita fell only slightly in the late 1960's and rose rapidly in the early 1970's. Rhodesia has taken a giant step in import-substitution-industrialization since 1965. Zimbabwe would inherit a large and sound manufacturing sector. The shift of agriculture out of tobacco can be reversed. Sanctions have provided an experiment in alternative cropping patterns which have broadened the post sanction options. Zimbabwe, and the end of sanctions, will reverse the process whereby the principal burden of sanctions fell on African employment, but they will not reverse the gains made by Africans in this period. The removal of sanctions will not guarantee Zimbabwe an enhanced growth rate, but it will open and re-open many policy options which can only make a larger growth rate more easily attained.

PN-AAF-246

Paper copy \$2.28
Microfiche \$.93

(248) ZIMBABWE, ANTICIPATION OF ECONOMIC AND HUMANITARIAN NEEDS: SURVEY OF THE TRANSPORT-COMMUNICATIONS SECTOR

Pinckney, Annette
1977, 15p.

AASC (AID/afr-C-1254 GTS)

(In Transition Problems in a Developing Nation; consultant [occasional] paper no. 12)

One mark of Zimbabwe's relatively high level of development in comparison to other African LDCs is an advanced infrastructure in the transport-communications sector. These are measured by such factors as the extent of road and rail networks, the volume of freight moved by various modes, and the number of road vehicles in use. This paper examines aspects of the transportation sector in detail and focuses on the response of the transport sector to the imposition of sanctions and on the problems arising from transport policies and administration. Problems in the transport sector which have implications for the transition are discussed and certain critical issues pointed out. The emphasis of transport policy on external trade has produced the following consequences: railways receive a disproportionate amount of resources, railway capacity has been built up in areas which may not be profitable after the removal of sanctions, road transport has been under-financed, and the interior transport system has been affected by inadequate funds for maintenance and replacement. The removal of sanctions should permit shorter, more efficient routes to be utilized for external trade, and should cause a lowering of the transport costs of imported and exported commodities.

PN-AAF-249

Paper copy \$1.80
Microfiche \$.93

(249) ZIMBABWE, ANTICIPATION OF ECONOMIC AND HUMANITARIAN NEEDS: ELECTRIC ENERGY AND THE TRANSITION

Wolff, Theodore
1977, 11p.

AASC (AID/afr-C-1254 GTS)

(In Transition Problems in a Developing Nation; consultant [occasional] paper no. 13)

This paper covers the electric power sector of the Southern Rhodesian economy. It includes a description of the structure, organization, and physical dimension of the sector, and it discusses interplay of these elements in the transition and future of Zimbabwe. It suggests lines of strategy and actions for the present

ECONOMICS

and near future. The integrated system for the generation, transmission, and distribution of electric energy in Zimbabwe is superior and unique compared to almost all LDCs. The dominance of a single major hydroelectric installation and the long high voltage transmission lines linking major load centers would make the system exceptionally vulnerable to sabotage if the transition to majority rule were either drawn out or excessively corrosive to European expectations. If such acts are avoided, the quality of the system, the non-European staff, the ongoing procedures for maintenance and management are in place. The energy sector plays a key role in monetized economic activity. Measures are suggested to ensure its continued operation including: (1) a Zimbabwe technical power planning group should be constituted to plan for transition management and operations and (2) there should be overseas in-service training for selected African management and technical candidates. The paper recommends a similar effort on behalf of other public utilities, such as the water supply utility. Should transition be violent, these utilities will be extremely vulnerable and impossible to defend; this could be disastrous for a new nation.

PN-AAF-250

Paper copy \$2.20
Microfiche \$.93

(250) ZIMBABWE, ANTICIPATION OF ECONOMIC AND HUMANITARIAN NEEDS: OBSERVATIONS ON THE LABOR FORCE IN ZIMBABWE

Fasensfest, David
1977, 32p.

AASC (AID/afr-C-1254 GTS)

(In Transition Problems in a Developing Nation; consultant [occasional] paper no. 11)

This paper examines the nature of the work force in manufacturing, with special concern for the level of skills of African and non-African workers. It examines the extent to which an exodus of non-Africans will affect the various sectors of manufacturing. The report is in two parts. The first discusses the location of skilled African and non-African workers and those sectors which appear to be most vulnerable to a rapid exodus of whites. Section II discusses the composition of the skilled African work force, how skilled they are relative to non-African skilled workers, and the potential for a rapid increase in the skill levels of Africans. It concludes that most skilled African workers perform functions which are on the lower end of the range of necessary skills. It also appears that in the 10 to 15 years, there has not been any meaningful number of Africans entering into apprenticeship programs. There is no expected increase in the actual level of skills among African workers. Non-African skilled workers most often appear in industries with relatively low African to non-African worker ratios. This implies that these industries are heavily dependent upon their skilled non-African workers. Unless there are a large number of underemployed Africans with the necessary skills who are not permitted to work under the present regime, it is assumed that a loss of skilled non-Africans will result in serious problems in those sectors under consideration.

PN-AAF-248

Paper copy \$3.84
Microfiche \$.93

(251) ZIMBABWE, ANTICIPATION OF ECONOMIC AND HUMANITARIAN NEEDS: RHODESIAN MANUFACTURING AND UDI

Porter, R.C.; Sherman, J.C.
1977, 26p.

AASC (AID/afr-C-1254 GTS)

(In Transition Problems in a Developing Nation; consultant [occasional] paper no. 10)

The size and structure of the manufacturing sector in Rhodesia has grown rapidly and diversified greatly over the past decade. This paper describes these changes in a historical context and examines the proximate causes of the changes. It examines how the pattern of Rhodesian manufacturing development was affected by the declaration of independence and the resulting sanctions; and it speculates on the international competitiveness of Rhodesia's manufactures, especially the production in the recently introduced or expanded sectors. Comments are offered about the value and problems that Zimbabwe will inherit in its manufacturing sector; Zimbabwe will inherit a large, growing, and flexible manufacturing sector. The recent growth is not sudden but part of a longer term trend. Some exporting eastward and southward has occurred despite the sanction induced encouragements to prefer the internal market. There is evidence that there have been few import substitution excesses in the sanctions period. Even if the overall industrial legacy to Zimbabwe is sound, however, it would be surprising if particular plants and even sectors did not prove unviable. This is an area where the new government must be careful. Plans can be made to support these firms but plans should also be made for their demise if they appear to become permanent detractors from the Zimbabwe budget.

PN-AAF-247

Paper copy \$3.12
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(252) ZIMBABWE, ANTICIPATION OF ECONOMIC AND HUMANITARIAN NEEDS: THE MINING SECTOR OF THE RHODESIAN ECONOMY

Black, R.A.
1977, 12p.

AASC (AID/afr-C-1254 GTS)

(In Transition Problems in a Developing Nation; consultant [occasional] paper no. 14)

Gives an overview of the mining sector of the Rhodesian economy with emphasis on its structure and composition in recent history. It highlights aspects of the sector which will be affected by the transfer to majority rule. The mineral sector is strong and diversifying. It is heavily controlled by foreign investment and markets. It has been consolidated since the early part of the century with the large companies responsible for most of the production. The paper deals with the following specific minerals: asbestos, chrome, coal, copper, gold, nickel, iron ore, pig iron, tin, tungsten, lithium, beryllium and emeralds. If it is assumed that a majority rule government would attempt to upgrade the economic status of Africans, then other factors being equal, production costs will rise. There could be a white exodus resulting in a serious shortage of unskilled labor. A majority rule government would favor the indigenous Zimbabweans over foreigners; this would result in an unskilled labor shortage and would affect wages costs. Many of the mining interests are foreign controlled and interlocked. The possibility exists that all or part of the industry would be nationalized.

PN-AAF-251

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Example: PN-AAB-000

(253) NAMIBIA, ANTICIPATION OF ECONOMIC AND HUMANITARIAN NEEDS: NAMIBIA, ECONOMIC GROWTH, STRUCTURE AND PROSPECTS

Berg, Elliott; Pinckney, Annette; Fasenfest, David; Kazana, Jemadari; Wolff, Theodore
1977, 69p.

AASC (AID/afr-C-1254 GTS)

(In Transition Problems in a Developing Nation; consultant [occasional] paper no. 4)

This report is divided into four sections: "Recent Economic growth and the Political Evolution;" "The Prospects;" "Economic Structure (Mining, Agriculture, and Fishing);" and "Technical Appendices and Tables." Virtually all of Namibia's modern economic growth is recent. The first post-World War II decade brought the greatest surge of growth. Between 1946 and 1956, GDP rose at an average rate of more than 20% annually. Since 1966 the government of South Africa has prohibited the release of information on the composition of output in Namibia. However, the United Nations has published estimates of GDP for some intervening years. By 1970 estimated GDP was at 615 million Rand, with the the mining sector accounting for an estimated 60% of the total value of output. South Africa holds the dominant position vis-a-vis all foreign investment in Namibia. Of a total of 85 multinational firms operating in the country, 57 are South African. Analyses of the main sectors of the economy reveal the details of this pattern of dominance. As in all colonial situations, the economic consequences of the transition to independence depend very much on the nature and extent of the internal political consensus which follows colonial rule. There is concern with the current rate of exploitation of mineral resources. The implication is that limitations may be placed on new mineral-extraction operations. A second matter of concern is employment policies of multinational firms operating in the country. Other problems facing an independent Namibia include: the transfer of government operations; the constraint of infrastructure linkages to South Africa; and the inadequacy of the Luderitz harbor to handle the shipping needs of the mining industry or other exports. Namibia will come into independent nationhood with some extraordinary disabilities. The European grip on the modern economy has been particularly heavy and restrictive, and Namibia's pool of indigenous skills appears to be smaller than in any other African state at comparable periods in their movement to independence.

PN-AAF-258

Paper copy \$8.28
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(254) WORKERS' PARTICIPATION IN MANAGEMENT AS APPLIED TO INDIA

Ghosh, P.K.; Van de Vall, Mark
1977, 27p.

Southern (CSD-3414 211 (d))

This report develops a theoretical framework with seven variables: social perception, power equalization, self actualization, organizational structure, knowledge differential, union involvement, and the total amount of control available to workers and management. Using this framework a systematic evaluation is presented of the formal organization of the recently introduced system of workers' participation in management of the manufacturing and mining industries in India. Politically, the workers' growing subordination to employers in the economic sector has become increasingly discordant with their political status of equality under the law. It is concluded that given the involvement of the Indian unions, the sum of the partial gains in control resulting from worker participation in Indian industry is

greater than the total amount of control that would have been available without a system of workers' participation.

PN-AAE-513

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EDUCATION

(255) FEASIBILITY STUDY FOR AN INTERNATIONAL EVALUATION OF THE EFFECTIVENESS OF BILINGUAL APPROACHES IN EDUCATING RURAL POOR LINGUISTIC MINORITIES

Ctr. for Applied Linguistics, Arlington, Va.
1978, 256p.

CAL (AID/ta-G-1396)

This report summarizes a study on the feasibility of conducting a coordinated international evaluation of models of vernacular educations for rural, poor, linguistic minority populations in LDCs. Since its inception in 1959, the Center for Applied Linguistics (CAL) has been concerned with the role of language in the growth of LDCs. For purposes of this study, seven countries were selected; they include: India, Philippines, Ghana, Nigeria, Sudan, Mexico, and Peru. The choice was based on CAL's awareness of the existence of bilingual education activities, contacts with potential cooperating centers, and the desire to include a wide range of contextual situations. The feasibility study consisted of three parts: a literature review; an on-site visit to each of the selected countries; and the development of a final research design. An examination of the country profiles in Chapter 2 reveals the complexity of the language situation in these countries. The profiles include a 1977 estimate of the population, a general overview of the language situation, the patterns of urban and rural school populations, educational research and innovation, and local resources and interest. The subsequent chapter addresses the feasibility of a study of an international evaluation and includes a research design. In all of the countries surveyed, the expansion of educational opportunity implies the need for strategies to copewith children who do not speak the official or national language. This presents the dilemma of how to engineer two contradictory goals: student comprehension and rural development, and national identity and preparation for economic survival in a state controlled by agro-business or industrial interests. There is much evidence of continuing compromise between these two philosophical poles. However, little attention is directed to the premise that rural education can be designed to make rural citizens more effective in a rural, rather than urban, setting.

PN-AAF-527

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(256) ZIMBABWE, ANTICIPATION OF ECONOMIC AND HUMANITARIAN NEEDS: EDUCATIONAL AND TRAINING OPPORTUNITIES WITH ZIMBABWE AND IN NEIGHBORING COUNTRIES DURING AND AFTER TRANSITION

Wilks, B.S.; Anderson, J.E.; Baurmann, Richard; Midgaard, Susan
1977, 76p.

AASC (AID/afr-C-1254 GTS)

(In Transition Problems in a Developing Nation; consultant [occasional] paper no. 17)

This paper analyzes the educational and training needs of Zimbabwe in the unusual and possibly crisis situation prior to the achievement of African led government. One objective is to catalog the human resource problems likely to develop in the fields of formal and nonformal education in the case of four possible

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eventualities: negotiated settlement with interim shared government, negotiated settlement with immediate majority rule, guerrilla warfare, and civil war. Other objectives are: to identify the capacity of institutions, agencies, and people who could assist; to indicate the extent to which the U.S. might assist through both bilateral and multilateral programs of technical assistance; and to analyze the extent to which further research in specific areas will be necessary. The framework of the paper includes: general indicators of current development of education and training in Rhodesia; and assessment of manpower needs by sector; a sectoral analysis of educational needs in the transitional phase to majority rule; a catalog of available programs and institutions; and programmatic recommendations. It is the researcher's opinion that stress should be put on relating programmatic options to African, and especially Zimbabwean, experiences in order to make them as relevant as possible. The major recommendations concern high level management training, middle level supervisory and technical training, and labor-intensive programs and basic skills training. They also cover shortfalls in specialist teaching personnel, the development of educational technology and materials, sector review of education, integrated rural development, study abroad, and further research.

PN-AAF-254

Paper copy \$9.12
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(257) NAMIBIA, ANTICIPATION OF ECONOMIC AND HUMANITARIAN NEEDS: AN ANALYSIS OF THE MAIN ASPECTS OF MANPOWER AND EDUCATION NEEDS FOR NAMIBIA IN A SITUATION OF TRANSITION

Wilks, B.S.; Anderson, J.E.; Baurmann, Richard; Midgaard, Susan
1977, 35p.

AASC (AID/afr-C-1254 GTS)

(In Transition Problems in a Developing Nation; consultant [occasional] paper no. 6)

The manpower problems facing Namibia in the transition to majority rule are primarily the result of colonization, the ideology of "apartheid" and "underdevelopment" as it pertains to the concept of LDCs. All three of these phenomena have affected the development of educational processes and the resulting manpower training efforts. The present assessment of human resource requirements will also have to respond to two widely different possible situations: a negotiated settlement for Namibia as a whole, and a partitioned Namibia in which the area of concern would be the northern segment, consisting of Ovamboland, much of Damaraland and the Caprivi Strip. The agriculture, fishing, mining, transportation and communication, and government and administration sectors are analyzed separately. In the situation of a negotiated settlement for Namibia as a whole, the opportunities for U.S. technical assistance would be far greater than if guerilla warfare continued or civil war broke out. The areas of critical high level training needs will be in central administration and policy making in agriculture, mining and resource development, communications, health, and education planning and operation. In the short run situation, relatively large numbers of middle level skilled technicians and supervisory personnel will need to be imported, with on-the-job training programs for Namibians. If Namibia is partitioned, the U.S. will be forced to choose sides and very little programmatic involvement can be envisaged.

PN-AAF-260

Paper copy \$4.20
Microfiche \$.93

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Index of Issuing Offices at the rear.

(258) NAMIBIA, ANTICIPATION OF ECONOMIC AND HUMANITARIAN NEEDS: THE EDUCATION OF REFUGEES IN ZIMBABWE AND NAMIBIA

Smythe, M.M.
1977, 19p.

AASC (AID/afr-C-1254 GTS)

(In Transition Problems in a Developing Nation; consultant [occasional] paper no. 8)

This paper identifies refugees and exiles (both students and non-students) who can provide a pool of talent and manpower available to an independent Zimbabwe and Namibia. Southern Africa has seen considerable movement of refugees in recent years, particularly from areas dominated by white minority governments. By mid-1976, the United Nation High Commission for Refugees (UNHCR) reported 25,000 Zimbabwean refugees in Mozambique. An estimated 2,500 refugees from Zimbabwe, Namibia, and South Africa have asked for asylum in Botswana. Highly educated persons from Southern Africa can be found on the faculties of a number of universities in West and East Africa. There is an assumption that the dispersed academic talent will return to an independent country, in many instances. Refugees from Southern Africa are also found in Zambia, Swaziland, Lesotho, Benin, the Gambia, Ghana, the Ivory Coast, Liberia, Mali, Nigeria, Niger, Sierra Leone, Togo and Upper Volta. The UNHCR is a cooperative agency depending on the cooperation of governments of the host countries and missions or other voluntary agencies with which the host countries may wish to work. Institutions providing education for Namibians preparing for the independence of their country include the U.N. Institute for Namibia in Lusaka and Nkumbi International College in Zambia. Alumni listings indicate that 306 Zimbabwe and 46 Namibian students have earned diplomas, certificates, or degrees in economics, business, biology, education, chemistry, agriculture, public administration, medicine, mathematics, law, social work, industrial arts, and other academic disciplines. The emphasis of training for refugees has been on literacy, secondary education, and higher education, with little organized effort to develop persons trained in the skilled trades. There is an urgent need for training programs in these skills which are not now available to African workers in Zimbabwe and Namibia.

PN-AAF-262

Paper copy \$2.28
Microfiche \$.93

(259) DEMAND FOR CHILDREN'S EDUCATION AMONG SMALL FARMERS IN A RURAL AREA OF BRAZIL

Jabara, C.L.
1977, 168p.

Purdue (AID/ta-C-1326 Res.)

(Thesis M.S. -- Purdue)

In recent years economic studies have focused on the role of education as a factor leading to higher incomes in rural areas. These studies indicate that education helps to increase the productivity of resources in agriculture as well as the occupational mobility of farm people. This study is an analysis of the demand for children's education among small farmers in Brazil. The region studied was the Vale do Ribeira in the state of Sao Paulo, a relatively poor area located about three hours drive from the city of Sao Paulo. The method of analysis was to use cross-section household data to examine the demand for children's education from the perspective of human capital theory and the new household economics. Ordinary least squares regression analysis was used to examine the relationship between school enrollments

of children and variables which reflect the opportunity costs of time for family members as well as other hypothesized household influences. The ages of the parents, the education of the wife, type of land tenure, number of children in the family and their ages, the frequency at which the husband listens to the radio, and family consumption expenditures are important determinants of the demand for children's education. Costs and returns to education are important considerations for school enrollment. In the sample area the opportunity cost of children's time in school is determined by the value of their time spent in off-farm work or work within the home. The wife appears to be an important decision-maker in the education process, and the tenure status of the family also effects schooling decisions significantly.

PN-AAF-542

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(260) EL SALVADOR EDUCATION SECTOR ANALYSIS; EXECUTIVE SUMMARY AND STATUS REPORT

Robinson, Brandon
1977, 32p.

AID/PPC

The El Salvador education sector analysis has two basic objectives: to obtain findings for increasing the efficiency, access and relevance of the education and training sector and to develop the Ministry's capacity for data collection, data processing, and analytical interpretation aimed at continuous improvements in the formulation of policy and the allocation of resources. The final output will be fifteen analytical working documents written in Spanish. This paper is based on six working documents and deals with the maximization of the efficiency of basic education viewed as: maximizing academic performance or learning; minimizing dropout; minimizing repetition; and minimizing per student cost. The final analysis will focus on the efficiency, access and relevance of kindergarten, basic education, high school, higher education, and non-formal education and training. Section III sketches some procedures for improving Ministry analysis, planning, and management. Because of the analysis the Ministry of Education has altered its view concerning the causes of the huge wastage or enrollment loss in the rural areas and now views it as mainly a problem of insufficient supply, not as a problem of demand. It plans to further expand educational services in the rural area, in part by completing all the incomplete schools, and in the future, by not building schools which have less than six grades. The analytical evidence indicates that a large scale shift to half-day schools will have neither an overall favorable nor unfavorable effect on learning, that it will reduce dropouts, and that it will probably reduce repetition. State owned buildings can be expected to provide a more appropriate physical layout for learning and teaching than rented buildings.

PN-AAF-457

Paper copy \$3.84
Microfiche \$.93

(261) GUATEMALA EDUCATION SECTOR ASSESSMENT

Acad. for Educational Development, New York
1978, 295p.

AED (AID/afr-C-1131 GTS)

Describes in depth those factors which have impact on the Guatemalan education system, in order to determine recommended actions on the part of A.I.D. and the Government of Guatemala to achieve improvements in the education sector. Such factors include: the historical, social and economic setting; characteristics of the education sector; implementation of the administrative reform in the Guatemalan Ministry of Education;

how education is financed in Guatemala; external and internal constraints on educational performance and learning outcomes: internal efficiency of primary education; external efficiency of the system, the economic implications of rural primary education; the educational development strategy; and the current issues of educational development in Guatemala. The assessment includes the formal system as well as non-formal education. The formal education system includes primary, secondary and higher levels and is divided into urban and rural areas and according to private and public sources of support. The emphasis of this study, however, is placed on rural public primary education. This is in line both with the current thrust of Guatemala's educational development policy and with A.I.D.'s own program priorities.

PN-AAF-586

Paper copy \$35.40
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(262) A CASE STUDY OF INDIA'S SATELLITE INSTRUCTIONAL TELEVISION PROJECT (SITE)

Block, Clifford; Foote, Dennis; Mayo, J.K.
1977, 73p.

AED (AID/ta-BOA-1060 GTS)

This paper summarizes observations made of the India satellite instructional television project (SITE) in July and August 1976 during its last weeks of operation. The purpose of the visit was to take a serious and objective look at the project for lessons useful for planning and policymaking in similar endeavors around the world. The report begins with a description of the main features of the experiment - including its goals, implementing institutions, hardware, main programs, evaluation activities, and logistics. This is followed by a long section of observations about the projects, which includes more details on its more important aspects. SITE's encouraging technical results are attributed largely to a flexible and well-planned maintenance system. This overview discusses the project environment, programming results, programming policies and decisions, research, and the indirect effects of the project. India's goals for the SITE project were: to gain experience in the development, testing, and management of satellite based instructional television system; to demonstrate the potential value of satellite technology in the rapid development of effective mass communications in developing countries; to demonstrate the potential value of satellite broadcast TV in practical instruction; and to give the economic, technological and social implications. It is felt that these goals were satisfactorily met.

PN-AAD-648

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(263) RADIO, ADVERTISING TECHNIQUES, AND NUTRITION EDUCATION; A SUMMARY OF FIELD EXPERIMENT IN THE PHILIPPINES AND NICARAGUA

Cooke, T.M.; Romweber, S.T.
1977, 115p.

Manoff (AID/ta-C-1133)

An essential component of health and nutrition improvement programs is education of the public about better food choices and health care. This paper presents the results of a field experiment in the Philippines and Nicaragua in the use of the advertising approach, or the "reach and frequency" technique, to disseminate health and nutrition education messages. The themes and messages were developed in consultation with local health and nutrition

EDUCATION

developed in consultation with local health and nutrition authorities, recorded, and tested with representatives of the target audience before airing them. The messages were then redrafted and aired according to the listening habits of the target group for approximately one year in each country. In the Philippines, the messages were directed to mothers of children under 12 months. They presented ways to enrich a 6-month-old child's rice porridge with oil, fish, and vegetables. In Nicaragua, the messages were directed to mothers of children five years old and younger. They instructed mothers how best to care for children with diarrhea. Evaluation data were gathered through questionnaires administered to mothers in their homes in baseline studies, six months after broadcasts began, and 12 months after the baseline. Positive attitudes toward putting oil in rice porridge in the Philippines increased from 15% at the baseline to 74% after one year; toward adding fish, from 48% to 81%; and toward adding vegetables, from 49% to 79%. In Nicaragua, after one year, 25% of mothers with children under five report using the recommended rehydration fluid for their child's last case of diarrhea, where 2% had been giving lemonade before. Sixty-five % of the respondents could correctly recall at least one element of the broadcast messages. This experiment shows that the reach-and-frequency technique is effective in bringing about behavior change, as well as attitude and knowledge change, in broadcasting to unorganized audiences.

PN-AAF-514

Paper copy \$13.80
Microfiche \$1.86

(264) NON-FORMAL EDUCATION INFORMATION CENTER; A REPORT OF PROGRESS, ANNUAL SUPPLEMENT FOR 1977

Claffey, J.M.
1978, 32p.

Mich. State (AID/CM/ta-C-73-22 GTS)

(Suppl. to 1977 progress rpt., 72p.: PN-AAC-780)

This supplement details the work and evolution of the Center, the people and organizations served, the kinds of requests received, and the services rendered. This supplement highlights changes in the demographic structure of the Center, describes the nature of increased requests for services during 1977, and projects some alternatives for future courses of action. The Center's priority concerns are problems of health, nutrition, agricultural self-sufficiency, functional literacy and numeracy, housing, employment of the world's most needy. The focus is on non-formal education (NFE) for development and those working in direct behalf of the world's poor. The information center operates to put people in touch with resources and ideas related to non-formal education for development, to facilitate contacts and promote horizontal linkages, and to make possible an exchange of information and knowledge. Tables give the characteristics of the persons interacting with the Information Center. Examples are given of special task requests in 1977. The most frequent requests in 1977 were for information concerning NFE in the context of health, nutrition and population education and requests for information on NFE and media. One section discusses the trend toward fortification and self sufficiency of in-country information centers, and it discusses benefits to be derived from support of such efforts.

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HEALTH AND POPULATION

(265) UTILIZATION OF HOSPITAL BIRTH WEIGHTS AND MORTALITY AS INDICATORS OF HEALTH PROBLEMS IN INFANCY

Serrano, C.V.; Puffer, R.R.
1974, 22p.

PAHO (CSD-1431 Res.)

(In Bul. of the PAHO, v. 8, no. 4, p. 325-346)

This paper aims to encourage and to facilitate the routine use of hospital data on the outcome of pregnancy in order to help meet basic health program needs. Three indicators of health problems in infancy are proposed: the frequency of low weight births, the frequency of births of deficient weight, and mortality rates on the first day of life. To serve as a basis for comparison with the results of hospital studies, the distributions of birth weights obtained from two projects of the Inter American Investigation of Mortality in Childhood and from two hospitals are provided as examples. These distributions of birth weights were found to vary with the age of the mothers. High proportions of the infants born to young mothers had low or deficient weights. Differences were also observed among the places studied in the distribution of birth weights. The lowest neonatal death rate was found for the group of infants with birth weights of 3,501-4,000 grams. Neonatal mortality was over twice as high in the group of newborns with deficient birth weights of 2,501-3,000 grams. This group also contributed significantly to post-neonatal mortality. It is recommended that the use of hospital data on immaturity and on the outcome of pregnancy be taught in medical courses on preventive medicine, nursing, midwifery, and medical records.

PN-AAC-994

Paper copy \$2.64
Microfiche \$.93

(266) BIRTHWEIGHT, MATERNAL AGE, AND BIRTH ORDER: THREE IMPORTANT DETERMINANTS IN INFANT MORTALITY

Puffer, R.R.; Serrano, C.V.
1975, 47p.

PAHO (CSD-1431 Res.)

(In PAHO scientific pub. no. 294)

Identification of the major factors involved in infant mortality, was a goal of the Inter-American Investigation of Mortality in Childhood. More than 35,000 deaths in infants and children under five years of age from 15 project areas widely spaced throughout the Americas were carefully studied. Using data on the deaths of children under one year of age, this paper analyzes three major determinants of infant mortality for eight projects: birthweight, maternal age, and birth order. Cross tabulations of live birth data from Chile, El Salvador, and California by birth order and by maternal age group are used in this analysis. References are also made to previous studies in which the three factors have been analyzed. Comparisons are made with data on a 1968 live birth cohort in New York City; this reveals similarities with the results from the Inter-American Investigation and supports the emphasis being placed on these three determinants, especially birthweight. The data indicates the importance of the mother's age and parity in the survival and future health of a child. Nutritional deficiency and low birthweight endanger the survival and hamper the growth of infants, of young children, and probably of future mothers.

PN-AAC-998

Paper copy \$5.64
Microfiche \$.93

HEALTH AND POPULATION

(267) DEVELOPMENT AND MAINTENANCE OF A SAMPLE VITAL REGISTRATION SYSTEM IN THE PHILIPPINES

Mijares, T.A.

1977, 59p.

N.C. (AID/PHA-C-1114 GTS)

(In Laboratories for Population Statistics. Reprint ser. no. 19)

This project seeks to improve the vital registration system in the Philippines so that it can produce reliable demographic statistics needed by public and private planning agencies. Information on the future size and structure of a population is needed for sound socio-economic planning. At present, civil registration is inadequate due to a lack of interest among parents, ignorance about the law requiring compulsory registration of birth and death, customs among cultural minorities, the distance from place of occurrence to the registration center, and the common belief that baptism is registration. The report describes the sample registration scheme, the National Census and Statistics Office's project to develop a sample registration system, field and office procedures, and an analysis of the results. The project used the dual record system and was organized into ten regions. Within each region a stratified multistage sample design was used to select the sample enumeration districts. The first element of the project's dual record system was the continuous reporting system. It used local civil registration data in the sample areas in combination with a complementary reporting scheme whereby *barrio* captains supplied information about vital events occurring every month in their respective sample areas. The data from these two sources were combined through a matching procedure to obtain the total events recorded under the continuous reporting system. The other element was a periodic household enumeration which collected vital events during the preceding 12 months and also produced the base population used to compute vital rates. Only three of the ten regions reached the desired goal of 91% coverage of both births and deaths by the civil registration system.

PN-AAF-041

Paper copy \$7.08

Microfiche \$93

(268) HEALTH SECTOR ASSESSMENT TEAM, SUDAN

Medical Service Consultants, Inc., Arlington, Va.
1977, 386p.

Med. Serv. (AID/afr-C-1133 GTS)

The purpose of the A.I.D. health sector assessment team visit to the Sudan was to review the recently formulated National Health Plan, to assess the resources and needs of the program, and to develop a strategy for possible A.I.D. assistance that would help the Government of Sudan (GOS) achieve its goal of strengthening delivery of rural health services over the next seven year development period. This report reviews health resources of the GOS against the backdrop of that country's major health problems and suggests ways in which A.I.D. assistance should serve to strengthen health infrastructure and improve delivery of rural health services. The report is presented in eight parts: introduction, background, national health policies and priorities, health sector resources, major health problems, and programs, program constraints, and recommendations for A.I.D. assistance strategy. The appendices include persons and places visited, a survey report on drugs, medical supplies and equipment, and a bibliography. The assessment team stresses that GOS requirements for successful implementation of its rural health programs are of such magnitude that assistance will be necessary from a number of major international donors. Such multi-donor assistance will require

careful coordination to assure maximum impact within the capability of the GOS to absorb external assistance. It is proposed that a three member country health team be established in the A.I.D. Affairs office, Khartoum.

PN-AAF-613

Paper copy \$46.32

Microfiche \$3.72

(269) ZIMBABWE, ANTICIPATION OF ECONOMIC AND HUMANITARIAN NEEDS: HEALTH CONSEQUENCES OF TRANSITION IN ZIMBABWE

Watson, J.C.

1977, 103p.

AASC (AID/afr-C-1254 GTS)

(In Transition Problems in a Developing Nation; consultant [occasional] paper no. 16)

Discusses present health services in Zimbabwe and problems anticipated with the change from minority to majority government. The health care system is presently segregated, as are all other phases of life in the country. Race is the prime criterion by which the available resources are allocated. Preventive medicine is practiced largely in areas where there is economic concern or there is a European population. Priorities for health care are: (1) the training of health personnel at all levels and more efficient use of this personnel; (2) extension of service, particularly to include an improved rural coverage; (3) shift of emphasis from hospital-based to community preventive services; (4) improved hospital services through the training and provision of specialists, better administration, maintenance and equipment, and more rational siting of hospitals; (5) elimination of communicable and preventable disease; and (6) improvement in environmental sanitation and control. The availability of safe water supplies and waste disposal methods would greatly reduce morbidity and is one of the most basic of preventive measures. The health systems of Mozambique and Angola are presented as examples of territories with similar health problems based on their colonial systems. Cuba is studied as an example of a nation that has undergone revolutionary changes in its political and health systems. Sections on programmatic implications of this study and recommendation for a health care organization are included.

PN-AAF-253

Paper copy \$12.36

Microfiche \$1.86

(270) NAMIBIA, ANTICIPATION OF ECONOMIC AND HUMANITARIAN NEEDS: HEALTH CONSEQUENCES OF TRANSITION IN NAMIBIA

Watson, J.C.

1977, 51p.

AASC (AID/afr-C-1254 GTS)

(In Transition Problems in a Developing Nation; consultant [occasional] paper no. 7)

Summarizes the present health delivery system in Namibia, citing funding, manpower, and facilities. Resources for future development and manpower shortages, distribution and inadequacies are discussed. A review of the available literature suggests that health care services are readily available and accessible. However, key sources of data relating to morbidity and mortality are not available in reliable form from South African government sources. There is strong evidence of malnutrition in the reserves or homelands, requiring protein supplementation of the rural African diet. There is a lack of knowledge concerning the

HEALTH AND POPULATION

effective application of an adequate health care system designed to meet the needs of the individual as well as the community. Goals, priorities and objectives are not clearly defined, and there is no adherence to principles of sound management and organization in the present health care system. Until April, 1970, the mission hospitals provided primary hospital services in the Homelands. Increasing use is made of paramedical personnel. At various clinics they distribute medication and give injections until the next visit by a qualified physician. At present there are about 183 hospitals and clinics. In 1973 there were 143 general medical practitioners and 19 specialists in the territory. To solve the manpower problems facing Namibia, it needs to develop education programs for the medical, para-medical, and nursing personnel and to commit the necessary funds to this end. Immunization programs are critical to prevent epidemics of polio, tuberculosis, diphtheria, tetanus, and pertussis. In general, curative services should be de-emphasized, with an increase in preventive and educational services.

PN-AAF-261

Paper copy \$6.12
Microfiche \$9.3

(271) CONTINUITIES BETWEEN THE PRACTICES OF TRADITIONAL AND SCIENTIFIC BOTSWANA HEALTH CARE PRACTITIONERS; FINAL REPORT

Osborne, O.H.; Balintulo, Malusi; Barbee, Evelyn; Brown, Freida; Fako, Thabo; Mbere, Nomtuse; African-Am. Scholars Council, Washington, D.C.
1977, 94p.

AASC (AID/afr-G-1076)

Contains the major research findings and policy recommendations of a research project designed to identify continuities between the health serving behavior of traditional and scientific African health care practitioners, and characteristics of African peoples' health seeking behavior, which might suggest ways to include traditional healing practices in the overall health care delivery system. During colonial times and immediately after independence, most African countries were committed to the development of a health care delivery system modeled after those used in Western Europe and America. Today this policy is being reassessed. A central aspect of this reassessment is re-evaluation of the role of traditional health care practitioners and their potential contributions to the formulation of developing African health care delivery systems, recognizing the uniqueness of African cultures and the relationship of culture and social structure to the health seeking behavior of the African peoples. The design of this project required a multidisciplinary and multicultural research team. The disciplines represented included sociology, anthropology, nursing and psychology. The behavior of both health providers and health seekers was studied through interviews, informal interactions, and participant observation. Serowe, a large Botswana village and capital of the Ngwato people, was selected as one of the primary research sites. The data suggest that, with sensitive programming, scientific health care experts can train selected traditional practitioners in the rudiments of scientific health care practices and traditional healers can contribute to the training of scientific health care practitioners. However, initial efforts toward this kind of collaboration must be considered experimental until the right combination of curriculum elements and educational settings can be identified.

PN-AAF-590

Paper copy \$11.28
Microfiche \$9.3

(272) SYNCRISIS, THE DYNAMICS OF HEALTH: 22, MOROCCO

Weissman, Juliana
1977, 192p.

HEW/OIH (RSSA HEW 1-74 GTS)

This document 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 on socioeconomic development. The primary purpose of this study is to provide a concise and up-to-date introduction to the health situation in Morocco, for use by A.I.D. and the international health community. Topics of discussion include: Population; The Health Environment; Health Status; Nutrition; Health Infrastructure; Health Manpower; Health Facilities; Health Programs; and Morocco in Perspective. The majority of the population in Morocco subsists on extremely low incomes. Rapid population growth and a lowering of the death rate will cause the population to double in 23 years. In order to maintain the present low standard of living, housing, agricultural production, job opportunities and social services will also have to double their output. Malnutrition is found among more than 50% of Moroccan children under four years of age. The uneven distribution of food throughout the country and wide fluctuations in food production from year-to-year are partially responsible for this high rate of malnutrition. Tuberculosis, eye diseases such as trachoma and conjunctivitis and upper respiratory or gastrointestinal infections contribute significantly to the morbidity statistics of adults. The Moroccan public health system has grown rapidly during the past 20 years to a complex organization addressing the health problems of 80-90% of the population. One of the problems of the system is the underutilization of dispensaries for basic curative and preventive care. Another major problem is an uneven geographic distribution of facilities. Since independence, Moroccans themselves have made the major advances in the development of the Moroccan health care system, rather than outside assistance programs.

PN-AAF-573

Paper copy \$23.04
Microfiche \$1.86

(273) 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

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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

(274) HEALTH SECTOR ASSESSMENT FOR BOLIVIA

AID/LA/USAID/Bolivia
1975, 510p.

AID/LA/USAID/Bolivia

This health sector assessment is one of three efforts which analyzes the current status of sector activities in Bolivia and provides guidance for planning future USAID programs. A simultaneous review of health problems and programs was undertaken by a specially convened Interministerial Commission. This assessment process achieved: the involvement of Bolivian officials and technical personnel in the analysis and initial planning of sector activities and the participation of other donor organizations. It also achieved the documentation of baseline data, the provision of a single reference source for health information on Bolivia, and the development of a sector assessment methodology which could be beneficial to similar undertakings by other agencies. There are ten chapters; each begins with a summary statement. The first four provide background information on conditioning factors, health status, socio-economic impact, and the structure of the sector. The next three chapters are analytical and deal with sector programs, infrastructure, and intersectorial activities. The last three chapters describe the responses to the situation. The data is based on the information available due to the lack of a national census since 1950 and deficient health and management systems.

PN-AAE-654

Paper copy \$61.20
Microfiche \$5.58

(275) TSETSE FLY ERADICATION AND ITS IMPLICATIONS

Shafer, Michael
1977, 85p.

AID/TA/DA

This paper considers tsetse fly eradication and its implications in a broad context. Tsetse fly control is discussed in terms of both the problems it poses which are specific to tsetse flies and trypanosomiasis and those which pertain to larger issues such as new lands development and resource protection of which tsetse fly control is but an aspect. The author attempts to draw together many diverse strains of thought from a wide range of sources and to present in succinct form the major issues raised by the possible development of cheap and effective eradication technologies. There are thirty some species and sub-species of tsetse fly each with a preferred habitat and well defined behavior patterns. Thus in a given area, plans for the eradication of tsetse flies must be targeted for the species of fly present. Modern eradication technologies can effectively clear tsetse flies from the control area. The ease, effectiveness and relative low cost with which tsetse can be controlled raise the question of the land use implications of tsetse fly eradication. This paper addresses itself to these secondary impacts. Tsetse fly eradication projects must be part of a broader development effort attacking all relevant constraints. Failure to manage any one may limit the success of the whole program. For an eradication project to succeed, a land use scheme for the entire area must be ready to be put in place immediately. The maintenance of fly barrier zones around control areas must be guaranteed until habitat modification and game displacement have rendered them unacceptable to tsetse fly. Without concurrent population control efforts tsetse fly eradication will be only a

short-term palliative. Limited alternatives to tsetse fly control exist for the development of the fly belt. Further research is needed and more consideration should be given to such options as tourism.

PN-AAF-614

Paper copy \$10.20
Microfiche \$9.93

(276) THE MALAYSIAN FAMILY LIFE SURVEY: FIELD AND TECHNICAL REPORT

Jones, Robert; Spoelstra, Nyle
1978, 70p.

Rand (AID/pha-C-1057 Res.)

(In RAND/WN-10150-AID)

This working note results from a survey and research project to investigate the influence of certain economic and institutional factors on couples' fertility behavior in Peninsular Malaysia. The purpose of the project was to identify factors within the range of direct public policy influence which directly or indirectly affect birthspacing and family size and to estimate the magnitude of statistical relationships between these factors and the outcomes of interest. The first section briefly describes the purpose of the survey and the survey instruments. Other sections describe the sample, respondent selection, field-work procedures, and response rates. The appendix contains various materials used in the field. The questionnaires are designed to provide data for estimating the magnitude of key economic and biomedical relationships affecting birthspacing, family size, and breastfeeding patterns of families in Malaysia. Testing the project's research hypotheses requires data on the following conceptual variable areas: demographic dependent variables, primary demographic and biological conditioning factors, major determinants of opportunity cost of a woman's time with children, major components of the family's economic resources and community factors of primary interest. Nearly all the individual questions in the survey instruments are designed to elicit data on one or more of the conceptual variables listed.

PN-AAF-610

Paper copy \$8.40
Microfiche \$9.93

(277) THE MALAYSIAN FAMILY LIFE SURVEY: DESCRIPTIONS OF SAMPLE COMMUNITIES

Omar, Fahmi
1978, 335p.

Rand (AID/pha-C-1057 Res.)

(In RAND/WN-10151 AID)

This report is one of a series of publications resulting from a survey and research project to investigate the influence of certain economic and institutional factors on couples' fertility behavior in Peninsular Malaysia. It includes maps and verbal descriptions of the 52 primary sampling units in the sample. The descriptions are based on interview with knowledgeable local officials and residents and on personal observations, all made in 1976 and 1977. An important part of the survey has been documentation of community and public program characteristics that might affect people's economic and demographic behavior. Working with a list of specific questions and more general areas of interest, the author attempts to describe each Primary Sampling Unit (PSU) in detail. Both current characteristics and recent historical data are of interest. Background information about Peninsular Malaysia and the definition of a PSU are presented. PSU descriptions are organized in three sections: main market centers, other urban towns, and rural. Forty-nine of these PSUs were selected using probability sampling methods and constitute a random sample of the 6125 PSUs in Peninsular Malaysia.

PN-AAF-612

Paper copy \$40.20
Microfiche \$3.72

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(278) THE MALAYSIAN FAMILY LIFE SURVEY; QUESTIONNAIRES, AND INTERVIEWER INSTRUCTIONS

Butz, W.P.; DaVanzo, Julie; Fernandez, D.Z.; Jones, Robert; Spoelstra, Nyle
1978, 315p.

Rand (AID/pha-C-1057 Res.)

(In Rand/WN-10147-AID)

This working note is one of a series of publications resulting from a survey and research project to investigate the influence of certain economic and institutional factors on couples' fertility behavior in Peninsular Malaysia. The purpose of the project is to identify factors within the range of direct public policy influence which directly or indirectly affect birthspacing and family size and to estimate the magnitude of statistical relationships between these factors and the outcome of interest. This report contains the survey instruments and field materials that were used to collect the project's data, as well as a general description of field procedures. The purpose of the survey is discussed as well as the survey instruments and the design and operation of the fieldwork. The questionnaires were subjected to a number of field tests in different socioeconomic settings. Tests were conducted in Malay, English, Mandarin, Cantonese, and Tamil. Interview-reinterview checks on reliability and husband-wife comparisons of validity were made at this stage. The purpose of each questionnaire is described indicating to whom and how often it is administered. The last section includes a respondent selection form and an interviewer manual.

PN-AAF-611

Paper copy \$37.80
Microfiche \$3.72

(279) CONTRACEPTING, BREASTFEEDING AND BIRTHSPACING IN MALAYSIA: A MODEL OF DECISION MAKING SUBJECT TO ECONOMIC AND BIOLOGICAL CONSTRAINTS

Butz, W.P.; DaVanzo, Julie
1978, 92p.

Rand (AID/pha-C-1057 Res.)

(In RAND/WN-10146-AID)

This working note results from a survey and research project to investigate the influence of certain economic and institutional factors on couples' fertility behavior in Peninsular Malaysia. The purpose of the project was to identify factors within the range of direct public policy influence which directly or indirectly affect birthspacing and family size and to estimate the magnitude of statistical relationships between these factors and the outcomes of interest. Breastfeeding currently provides about one-third more protection against pregnancy than do family planning program contraceptives. This protection is rapidly diminishing in Malaysia and in most other LDC's due to the decline in breastfeeding. This paper reports empirical evidence concerning these issues. The initial results are from a survey and research project designed to estimate the responsiveness of couples' contraceptive use, breastfeeding, and birthspacing to changes in specific factors under policy influence. The survey was conducted in 52 primary sampling units throughout the country, with a sample of over 1200 households. The characteristics of the sample are described and trends in the demographic variables or principal interests since World War II are discussed. Section III summarizes a model of couples' breastfeeding, contraceptive use, and birthspacing that characterizes behavior in these areas as the result of an optimization process subject to biological and behavioral constraints. This model is the structure for the regression analyses that follow in Section IV. Separate regression analyses are discussed for length of post-partum amenorrhea, length of full and

partial breast-feeding, length of closed menstruating interval, use of contraceptives, length of closed birth interval, infant mortality, and birthweight. The last section reviews the findings and discusses some implications for public policies, particularly those that influence the supplies of contraceptives, infant food, and health care.

PN-AAF-609

Paper copy \$13.80
Microfiche \$.93

SOCIAL SCIENCES

(280) THE ROLE OF ANTHROPOLOGY IN THE AGENCY FOR INTERNATIONAL DEVELOPMENT, WORKSHOP REPORT

McPherson, Laura; Workshop on the Role of Anthropology in the Agency for International Development; Inst. for Development Anthropology, Washington, D.C.
1978, 93p.

AID/PPC

This report summarizes a one-day workshop on "The Role of Anthropology in A.I.D.", held in Washington, D.C., on May 27, 1977. Three major points emerged, all relating to Social Soundness Analysis (SSA): SSA should be integrated into all stages of development of a project, since a major weakness of past efforts was that SSA was introduced too late to be effective; SSA should be incorporated into the Development Assistance Program document assessing development prospects for a country, region, and/or sector; and more full-time persons capable of making SSA's must be employed by A.I.D. at all levels. Papers presented include: Office of Rural Development; An Aid to Mission Social Science Analysis; Social Analysts and Analysis in the Near East Bureau; Social Analysis in the Asia Bureau: Some Issues and Comments; and State of Social Science Analysis in the Latin America Bureau. In the past, many people responsible for shaping development assistance assumed that low income non-western peoples' productive practices are governed by tradition and that their economic behavior is non-rational or significantly less rational than that of "modern man." They believed that traditional societies are static and that development required the destruction of constraining traditional institutions. Today development practitioners recognize that traditional production systems are usually well adjusted to local conditions and their fluctuations and that traditional producers make conscious and recurrent decisions about the use of productive assets, the organization of labor, marketing, savings and investment. In short, existing institutions persist because they meet real needs, and new organizational forms will be accepted only if they meet these needs more effectively. Essential information about the social environment and its relevance for development can be obtained through social analysis by trained experienced social scientists.

PN-AAF-575

Paper copy \$11.16
Microfiche \$.93

(281) ZIMBABWE, ANTICIPATION OF ECONOMIC AND HUMANITARIAN NEEDS: LOCAL GOVERNMENT AND POLITICAL INTEGRATION

Bond, G.C.
1977, 30p.

AASC (AID/afr-C-1254 GTS)

(In Transition Problems in a Developing Nation; consultant [occasional] paper no. 1)

This report describes the manner in which the African population was brought under European rule. It describes elements of the traditional system of indigenous government, the manner in which these indigenous political arrangements were incorporated into the

Southern Rhodesian system of direct rule by European colonial officers, and the subsequent restoration of authority and power to pseudo-traditional African authorities. Though direct rule has continued to serve as the principal orienting approach to African local government, chieftaincy has gradually regained its significance in local administration and chiefs have regained their powers as traditional rulers and as the agents of the European central government. It is the chiefs who represent the African population in the Southern Rhodesian Parliament. The prospects for local government and community development cannot be considered without reference to the inter and intra factional cleavages in the independence movement represented in the leadership of Joshua Nkomo and Abel Muzorewa, Ndabaningi Sithole, and Robert Mugabe, as well as the third force and its leaders. Each faction of the independence movement which these men represent has its own pool of human resources, its own external and internal constituencies, and its own body of general directives. The civil service, anchored in the European middle class may well serve as the basis for a working coalition with the more conservative sections of the African middle classes of the urban areas. There is the potential for alliances and coalitions to be formed on the basis of common economic and political interests which transcend historical, racial, ethnic, and linguistic cleavages against the threat of a radical reordering of society.

PN-AAF-238

Paper copy \$3.60
Microfiche \$.93

(282) NAMIBIA, ANTICIPATION OF ECONOMIC AND HUMANITARIAN NEEDS: NAMIBIA, POLITICS, ECOLOGY, AND SOCIETY

Rotberg, R.I.
1977, 66p.

AASC (AID/afr-C-1254 GTS)

(In Transition Problems in a Developing Nation; consultant [occasional] paper no. 2)

Describes and analyses how Namibia is organized politically and socially and how it came to be that way. Namibia is sparsely populated, ecologically fragile, and agriculturally limited. It lacks an industrial base and a good administrative system. It is, however, mineral rich and enjoys the advantages of an Atlantic coastline. If the populations of Namibia remain in rural areas, they will continue to be widely dispersed. Raising rural standards of living will be difficult. The Ovambo represent 57% of the indigenous population and supply about 65% of the unskilled labor. The historic rivals of the Ovambo are the Herero, who comprise only 9% of the population. Due to Ovambo preeminence, the Herero will find themselves in an essentially powerless position after independence. Traditional rule depends on South African derived legitimation, not indigenous attributes. This legitimation will quickly wither under assault from modern Namibians. Blacks occupy half of the posts in the national civil service, but they are confined to the lower grades. Programs for training and upgrading black civil service staff will be necessary. Since whites are so small in absolute number and so divided in terms of self-interest, integration of whites into a new Namibia should present no insuperable problem. It will be necessary to retain the services of white managers and civil servants if the present highly developed South African infrastructure is to be used for the benefit of all Namibians. Namibia is a potentially wealthy country, if there are ample supplies of ground water for mining and agriculture, if today's excellent infrastructure is maintained and if an extended communications and transportation network continues to be developed.

PN-AAF-256

Paper copy \$7.92
Microfiche \$.93

(283) NAMIBIA, ANTICIPATION OF ECONOMIC AND HUMANITARIAN NEEDS: POLITICS IN NAMIBIA

Short, J. N.
1977, 37p.

AASC (AID/afr-C-1254 GTS)

(In Transition Problems in a Developing Nation; consultant [occasional] paper no. 3)

In Namibia today, political and economic underdevelopment coexists with a relatively high degree of development which benefits whites. Racial inequality is pervasive and has been imposed in a deliberate and systematic fashion. The Africans of Namibia are dependent on a white-dominated political and economic system. In the period since World War II, South African administration has been characterized by efforts to consolidate, rationalize, and institutionalize racial dominance and discrimination and by efforts to thwart nationalist opposition. Nationalism in Namibia, which wants one nation as a unified state, is the antithesis of South African plans to divide Namibia into a group of self-governing and ultimately independent homelands. The South West Africa Peoples Organization (SWAPO), organized in 1960 is the foremost nationalist party. It claims the largest membership and is recognized by the UN and the Organization of African Unity as the representative of the Namibian nation. SWAPO has mounted guerilla operation against the South African regime since 1966. There have been no major successes so far, but it has provoked an anxious and large-scale military build-up by South Africa in the northern part of the country. Despite the assertion of UN authority and the appointment of a "Commissioner" for Namibia, South Africa has effectively denied any role or territorial presence for the UN. Thus, Namibia is unique in its international status. Virtually all governments in the world recognize that South Africa's occupation of Namibia is illegal and many would countenance or support strong enforcement measures to expel South Africa from the territory. The Turnhalle constitutional talks in Windhoek may have a large role in determining the final political and administrative legacy of South Africa in Namibia. The 156 delegates to the conference represent the 11 ethnic groups within the homelands political system. Nationalist parties have been barred from the talks.

PN-AAF-257

Paper copy \$4.44
Microfiche \$.93

(284) NAMIBIA, ANTICIPATION OF ECONOMIC AND HUMANITARIAN NEEDS: THE MULTI-ETHNIC FACTOR IN NAMIBIA

Shack, W.A.
1977, 71p.

AASC (AID/afr-C-1254 GTS)

(In Transition Problems in a Developing Nation; consultant [occasional] paper no. 5)

Examines some aspects of the relation between Namibia's major ethnic groups insofar as they are differentially integrated in the socio-economic and political systems. The report is organized into five main sections: "Introduction;" "Historical Overview;" "Ethnicity and the Socio-Economic Structure;" "Ethnic Factor in Political Parties and Political Leadership;" and, "Summary." Major considerations are given to the character of historical and political factors that have linked and divided Namibian ethnic groups in the past and do so at present and also to the probable effect of interethnic relations on political processes involved in the transition to majority rule. It cannot be emphasized too strongly that the mere presence of diverse ethnic groups within the boundaries of African Nation-States need not inevitably give rise to ethnic strife. Political coups in Africa generally represent power struggles between political elites rather than inter-ethnic conflict.

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Whether or not interethnic rivalry will surface and disrupt the process of smooth transition to majority rule in Namibia is problematic. Realignment of the occupational structure to bring about greater equity among the differential positions occupied by ethnic groups will lessen the possibility of inter-ethnic strife over competition for skilled and semi-skilled employment opportunities. The long range prospects for national integration appear to rest upon the capacity of the new government to redistribute scarce resources.

PN-AAF-259

Paper copy \$8.52

Microfiche \$9.93

(285) NAMIBIA, ANTICIPATION OF ECONOMIC AND HUMANITARIAN NEEDS: ZIMBABWE AND NAMIBIA

Baker, D.G.

1977, 124p.

AASC (AID/afr-C-1254 GTS)

(In Transition Problems in a Developing Nation; consultant [occasional] paper no. 9)

This paper gives an overview of Namibian society. Major attention is directed toward those factors which are of crucial importance for development. The analysis is divided into two parts. Part One includes: the general characteristics of Namibia society as a functional whole; the analysis of economic, political and social organizations or sectors; and the major issues emerging from the analysis which indicate the key areas for development aid. Part Two explores the contemporary political situation, focusing on transition issues, group views, and the possible implications for development. Namibia is a sparsely populated, desert-like country. Foodstuffs have to be imported to a large extent, mainly from South Africa. Historically, Namibia was not one nation, but the European nations arbitrarily turned it into a country when they set out the boundaries for "South West Africa." It is characterized by a dual economy in which whites control and use the major resources of the cash economy for their own benefit, and most indigenous groups eke out a living in the subsistence agricultural economy. Where the land cannot support the people, they are forced into the white economy in a subsidiary role. There is a great lack of trained, educated, and skilled Namibians to take over control of the infrastructure and the government and economic organizations when the country becomes independent. Few Namibians have been trained outside the country. Although South African policy has been aimed at splintering the diverse groups within Namibia, there is a growing sense of national identity and a desire for independence. However, numerous divisive factors are present that could prompt serious problems and political instability within an independent Namibia. A new government must establish its legitimacy, credibility, and efficacy in the eyes of the people. Zimbabwe and Namibia can draw upon and learn from the experiences of other African countries undergoing development, despite the deeply engrained conditions of underdevelopment, inequality, and dependency.

PN-AAF-263

Paper copy \$14.88

Microfiche \$1.86

URBAN DEVELOPMENT

(286) PREPARING A NATIONAL HOUSING POLICY

Van Huyck, A.P.

1977, 91p.

AID/SER/H

This paper updates the 1974 document "Preparing a National Housing Policy". While keeping to the fundamental principle that the preparation of a national housing policy must be the

responsibility of an LDC itself, this paper attempts to develop more specific guidelines and suggested objectives based on current world experience. AID views its role in housing policy formulation as stimulating the developing country to recognize the importance of a national housing policy; providing limited technical assistance in determining how to prepare a national housing policy; and providing access to worldwide experience in order to assist the country in understanding the range of options and solutions which other countries have adopted. The recognized deficits in housing stock are the result of a mix of factors affecting the quality of life in LDCs. Some of the factors are: (1) the urban population in developing countries is over 544 million, (2) additional capital investment of almost one trillion dollars would be required to provide minimal housing, infrastructure, facilities, and jobs for this population; (3) for most urban centers buildable land is subject to speculation which causes land value to increase from 10 to 25% annually; and (4) the public sector in most LDCs is ill equipped to respond to these enormous urban challenges. Cities such as Karachi, Pakistan and Calcutta, India are faced with providing between 40,000 and 60,000 dwelling units a year for the next 30 years if they are to keep up with the population growth. This means tripling and quadrupling housing construction rates. This must be accomplished in the face of material shortages, skilled labor shortages, capital shortages, and the inability of the majority of people to pay economic rates for minimum shelter. This paper's premise is that the starting point for rational decision making in housing is the formulation of a national housing policy.

PN-AAF-432

Paper copy \$10.92

Microfiche \$9.93

(287) A.I.D. HOUSING GUARANTY PROGRAM; ANNUAL REPORT, 1977

AID/SER/H

1978, 49p.

AID/SER/H

The Housing Guaranty Program facilitates the transfer of resources and technologies to countries concerned with shelter and related urban problems. This is a unique A.I.D. activity in which U.S. private sector lenders provide long term financing for low-income housing programs in developing countries. The U.S. Government underwrites these transactions through the provision of a full faith and credit guaranty. In recent years guaranties have gone to finance housing and basic shelter for the urban poor. Since 1961, the Housing Guaranty Program has grown from a ten million dollar experiment to more than a billion dollar resource. It represents the largest single source of international financing for shelter and is the U.S.'s primary instrument for assisting countries in addressing the shelter problems of the poor. The programs financed in 1977 include slum upgrading, with facilities for water, sewage, electricity, roads, etc., as well as building materials for self help home improvement; sites and services, including preparing vacant areas for productive shelter use; core housing, involving basically a sites-and-services project with the addition of rudimentary housing shell on each lot; and low cost housing units for sale or rental. Other subjects covered by this report are methodology, administration and organization, lenders, financial report, country information, projects authorized, claims against guaranty, shelter program objectives, urbanization and the urban poor, and the foreign assistance act of 1969.

PN-AAF-606

Paper copy \$5.88

Microfiche \$9.93

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

(288) A CASE STUDY OF THE KOREAN HOUSING INVESTMENT GUARANTY PROGRAM 1971-1977

PADCO, Inc., Washington, D.C.
1977, 163p.

PADCO (AID/SER/H)

A case study of the Korean Housing Guaranty Program was done to find the lessons to be learned from the experience and to provide guidance for the formulation of multi-year housing guaranty programs in other nations. The program, one of the largest and most significant of the Office of Housing, covered seven years and included five individual loans as well as multiple technical assistance missions. The report discusses these individual events along with the conclusions reached. Included are the context of the housing programs, separate discussions of the years 1971-72 and 1973-76, the specific projects financed, the home improvement program, an overview of the issues, and possible program strategies. The Korean program is a study of the relationship between an international assistance agency and a developing country government each with its own objectives and constraints. Sustained support from AID and constant dialogue brought about fundamental changes in Korean housing policy and have introduced entirely new concepts of preserving existing housing stock through upgrading. While the overall impact of the housing program was positive, the study has pointed to some shortcomings which can be prevented with more advance planning. A possible approach to forward planning for multiple year lending programs is presented. What is needed is an approach in which, through multiple year housing guaranty lending, a comprehensive series of changes can be achieved within the host country at a pace which can be supported politically and implemented technically.

PN-AAF-502

Paper copy \$19.56
Microfiche \$1.86

(289) A STUDY OF INCOME STRUCTURE IN TWO PARAGUAYAN TOWNS

Laird, J.F.
1978, 123p.

Laird (AID-526-438)

This survey is a pilot study for an income analysis of municipalities in Paraguay. The primary objective of the survey was to obtain data on the economic life in typical Paraguayan towns so that USAID could more effectively direct its economic assistance to the target group population. The survey team eliminated towns with populations of less than 3,000 and those within the Central Department which lie within commuting distance from Asuncion. The two towns selected, Carapegua and General Artigas, are typical of small town economic life. The findings of an income survey carried out in the late 1977 are reported. The study includes methodology, income, determinants of income, family composition in the sample households, the standard of living, and an instruction manual for interviewers. The survey demonstrates that the low income population makes up a substantial proportion of the populations in Carapegua and General Artigas. In determining which persons should qualify for USAID assistance, it is suggested that a rigid cut-off point will unfairly discriminate against some families who are genuinely in need since these families will tend to slip back and forth across the cut off point as prices and costs fluctuate. Survey data on housing conditions and possession of modern conveniences demonstrate a low level of material comfort in the two towns. USAID programs to benefit the lower income group will have to take into account the disproportionate earnings of males and females and will have to direct attention to women in small towns to assure them a more equitable share of income. The most important determinants of income are probably occupation and family size; in the case of women it is educational experience.

PN-AAF-473

Paper copy \$14.76
Microfiche \$1.86

(290) PANAMA SHELTER SECTOR ASSESSMENT

Priftis, Ted; Casasco, Juan; Kessler, Earl; Sorock, Marjorie; Stout, Donald; Foundation for Cooperative Housing, Washington, D.C.
1977, 188p.

FCH (AID/ots-G-1583)

This study was conducted by the Foundation for Cooperative Housing in cooperation with representatives of the Government of Panama under the auspices of the A.I.D. Office of Housing. The report is divided into two main parts: (1) the Panama shelter sector assessment itself together with the recommendations which stem from the analysis; and (2) a description and analysis of the components of the shelter sector. In recent years, Panama has been in its worst recession since 1947-51. The causes can be found in exogenous world economic shocks, long-term structural changes within the economy which dictate a need to exploit new sources of growth, and the short-term effects of new social policies. A major housing effort could provide an immediate growth pole around which to mount a recovery program. The Ministry of Housing (MIVI) and the private sector have the experience, the management capabilities, and the supply of labor and materials inputs which would be necessary. A.I.D.'s below-median-income target population for its housing assistance programs has a large component of the "poorest of the poor", and uneducated and unemployed with worse health and nutrition standards than the country as a whole. They constitute the proper focus of MIVI and A.I.D. efforts. Private investors have stepped back from housing investments in part because of rent control laws which make housing investments financially unattractive. The shelter delivery system is basically sound and the organization of the financial system for housing is good. The operation of the housing finance system, however, could do more. MIVI has become the most dynamic factor in the housing sector, quickly becoming the major supplier of housing. Attention to some policies and increased coordination with other agencies in the housing field could increase its effectiveness still further.

PN-AAF-543

Paper copy \$22.56
Microfiche \$1.86

(291) REPUBLIC OF TOGO, SHELTER SECTOR ASSESSMENT

Perta, Joseph; LaNier, Royce; Senold, F.J.; Hammam, Sonia
1977, 173p.

AID/SER/H

This study gives information on the shelter sector in Togo. Conditions in Togo's major urban center illustrate four areas of shelter problems: human settlement patterns, the housing stock, infrastructure, and environmental and health conditions. This report describes Togo and its economic situation, its population characteristics, the dimensions of the shelter problem, the shelter delivery system, and the constraints to the delivery system. Recommendations are offered in the areas of shelter policy, new housing and urbanization institutions, finance, densities, and waste disposal. It recommends that the government focus its intervention on the families below the urban median income level as their need is the most acute. It suggests that these shelters be designed to minimum standards and rely on the ability of low-income families to build and upgrade their own units. This effort requires both land and infrastructure, which low income families cannot totally provide for themselves. Target densities for the development of Lome' as an urban center growing at almost 10% per year, should be a minimum of 220 persons per hectare. Higher densities than those now found in Lome' are a prerequisite for the efficient development of an urban center and for the successful operation of a system of urban infrastructure services. Finally it is recommended that the government give serious consideration to

URBAN DEVELOPMENT

developing low cost waste disposal systems to be used in residential areas of the city. Since the area is only several meters above sea level, these systems might be aerobic or anaerobic digestion systems rather than water flushed waste disposal systems.

PN-AAF-454

Paper copy \$20.76
Microfiche \$1.86

(292) GHANA PRELIMINARY STUDY SHELTER SECTOR

Slingsby, Ernest; Wright, J.E.; Dawson, Marilyn
1978, 134p.

AID/SER/H

This Shelter Sector Assessment has been prepared to assist Ghana in achieving solutions to its low-income shelter problems. It analyzes the local shelter situation, formulates shelter needs and assesses the options for possible shelter development programs. The report includes country background information, demographic analysis, target group identification, shelter policy and institutions, construction and building materials industries, and illustrative tables. Ghana has one of the most rapid rates of urbanization south of the Sahara, and most of this urban population is poor. Most of the urban poor live in low income settlements with low levels of urban services. The existing formal shelter delivery system has had a significant impact, but it has only reached a limited number of the urban poor with high subsidies. Most poor households remain outside the reach of this program. Technical support should be given to the Ministry of Works and Housing for staff support and for policy/program formation. Coordination between the various ministries and agencies involved in shelter policy should be promoted. This should include policy coordination, development of long term urban and regional policies, import policy, price and labor policies, finance, employment, and technology. Assistance should focus on the following areas; reduction in subsidies for income groups, regularization of land tenure in existing settlements, support of existing financing programs, support for informal and small scale industries, income support, development of local materials industries, and provision of basic urban services.

PN-AAF-453

Paper copy \$16.08
Microfiche \$1.86

(293) A SOCIAL SOUNDNESS ANALYSIS OF THE AMMAN WATER AND SEWERAGE SYSTEMS

Dajani, J.S.
1978, 50p.

Dajani (AID/ne-C-1493)

This paper analyzes and evaluates the impacts of the proposed expansion of the water and sewerage systems on the population of Amman, Jordan. Special emphasis is placed on the needs of the urban poor and on the expected health, social, and economic implications for the residents of the city. About 35% of the population of Jordan lives within the boundaries of Amman. The city is partially served by water distribution and sewerage networks, but rapid growth and expansion of the city have left many portions unserved by the existing system. The report discusses the effectiveness of the present system, the socioeconomic setting, access and utilization, and existing systems. An effort should be made to regulate the prices being charged by water and sanitation tankers and private well owners. Consideration should be given to allowing payment of connection costs in monthly installments over a period of 12-18 months to be collected with the quarterly water bills. The possibility of increasing the number of sewer connections in the Nadif and Mahatta areas should be reviewed. Educational programs should be conducted in the schools, and the mass media should emphasize the goals of

conservation and the judicious use of water. These programs should stress that water is a valuable and scarce resource and that a certain amount of it is necessary for clean and healthy living. The use of water conserving fixtures should be encouraged. The program for detecting and repairing or replacing leaky pipes should be strengthened. It is imperative that strict quality control and continuous testing of the water leaving King Talal Dam, flowing into it, and flowing at selected points along the Seil Zarqa be conducted. The question of water pollution in the Seil Zarqa should also be addressed.

PN-AAF-458

Paper copy \$6.00
Microfiche \$.93

(294) STUDY OF BUILDING MATERIALS FROM POLYMER STABILIZED SOIL

Zipf, K.A.
1978, 88p.

Carnegie-Mellon (AID/ta-C-1345)

(Thesis M.S. - Carnegie-Mellon)

One of the main problems facing low-cost house construction is the availability of suitable building materials. Often they are not readily available and if procured the cost is often prohibitive. Of all materials common to any environment, the most universal is soil. The purpose of this study was to find admixtures to render sand or other soils suitable for construction. One such method is through the in-situ polymerization of water-soluble monomer. Calcium acrylate was the best of several monomers tested to stabilize soil. The report describes the history and characteristics of calcium acrylate. Several requirements must be met for the construction of a dwelling using chemically stabilized earth. The monomer system must be a water-soluble solid that can be polymerized in solution. It has to be non-toxic, inexpensive, and incorporated in small quantities. A literature survey indicated that the metal salts of acrylic or methacrylic acid would be the most likely candidates. Five monovalent salts were made and three divalent salts were produced. These were: potassium methacrylate, sodium methacrylate, potassium acrylate, sodium acrylate, ammonium acrylate, barium acrylate, calcium acrylate and magnesium acrylate. A decision was reached to concentrate on the calcium acrylate because it would readily polymerize, needed no crosslinking compound and it would probably be the cheapest to manufacture. The experimental procedures used are outlined. The appendices include building specifications, soil properties, and sample calculations.

PN-AAF-615

Paper copy \$10.56
Microfiche \$.93

SCIENCE AND TECHNOLOGY

(295) RESEARCH IN METHANE GENERATION; FINAL REPORT

Johnson, A.L.; Aerospace Corp., El Segundo, Calif.
1976, 127p.

Aerospace (AID/ta-C-1278)

The purpose of this study was to provide experimental data necessary for the evaluation of methane generation from combined vegetable and animal waste. In the performance of this study, a rather complete literature review of the subject was undertaken, an experiment was conducted at the Taiwan National Livestock Research Institute to evaluate some of the unknown responses on a scale suitable for immediate application, a design approach was initiated, and further necessary analysis and research was identified. It was concluded that it is possible to utilize vegetable wastes to increase the methane production of relatively simple

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animal waste anaerobic digesters. It appears that significant reductions in capital cost, improved performance, and increased useful product can be obtained by utilization of a two-stage (acidogenic/methanogenic) continuous flow excrement anaerobic digester operating in conjunction with batch mode biomass (vegetable waste) leaches. Modular construction of the digester from elastomeric materials and suitable insulation is suggested. Further experimental research and prototype design is recommended prior to an extensive field trial program.

PN-AAF-350

Paper copy \$15.24

Microfiche \$1.86

(296) APPROPRIATE METHODS OF TREATING WATER AND WASTEWATER IN DEVELOPING COUNTRIES

Reid, G.W.; Coffey, Kay; Okla. Univ. Bureau of Water and Environmental Resources Research
1978, 678p.

Okla. (AID/CM/ta-C-73 Res.)

This volume concerns the proper site-specific selection of appropriate technology for water treatment and waste disposal systems in cities and towns of LDCs. Many water projects have not worked when direct technology transfers have resulted in the selection of treatment processes too sophisticated or costly for in-country construction, maintenance, or operation. Chapters I and II outline the difficulties which occur in donor/client relationships and technology transfer. Chapter III explains a methodology for selecting the most appropriate technology for water and wastewater treatment for a specific LDC site and at a particular time, according to the material and manpower resources available. Chapter IV presents a mathematical model for LDCs in Africa, Asia, and Latin America to predict water and wastewater demand, as well as construction, operation, and maintenance cost estimates for slow sandfilters, rapid sand filters, stabilization lagoons, aerated lagoons, activated sludge systems, and trickling filters. The model used step-wise multiple regression, working from LDC in-country data. Chapter V gives a methodology for setting priorities among water supply programs. Chapter VI-X give state of the art resumes on past, present, and future technologies for water and wastewater for application in LDCs; these include on-site disposal and treatment concepts.

PN-AAF-556

Paper copy \$81.36

Microfiche \$6.51

(297) DEVELOPMENT OF ENVIRONMENTALLY ACCEPTABLE REPLACEMENT FOR DDT

Ill. Univ. Dept. of Entomology
1978, 46p.

Ill. (AID/ta-C-1228)

A total of 130 analogues of DDT were synthesized and investigated as "environmentally acceptable replacements for DDT". This paper summarizes research methodology and results, including numerous data tables. Extensive studies of structure vs. activity, of quantitative evaluation of toxicity to susceptible and resistant house fly, black blow fly, and *Culex pepiens quinquefasciatus* and *Anopheles albimanus* resulted in selection of a number of the most promising compounds. These were evaluated further for biodegradability and for feasibility and ease of synthesis. Kilogram quantities of some compounds were made and are being further evaluated in several laboratories. The most promising compounds selected for intensive study were OMS-1715 (DECP) of 1, 1-bis-(p-ethoxyphenyl)-chloropropane and OMS-1856 (DEIB) or 1-(p-ethoxyphenyl)-1-(p-tolyl)-2,2,2-trichloroethane; with methoxychlor, and with DDT. Both DECP and DEIB showed long-lasting residual toxicity when applied to plywood surfaces or in plywood huts for knockdown and kill of *Anopheles*

albimanus. DEIB was selected as the most generally suitable insecticide as it is only one-tenth to one-fiftieth as toxic as DDT to laboratory animals and contains no chlorine. It was concluded that it could be used in a variety of insect pest management programs without being deleterious to environmental quality.

PN-AAF-577

Paper copy \$5.52

Microfiche \$9.93

BIBLIOGRAPHIES

(298) INTERNATIONAL BIBLIOGRAPHY ON CROPPING SYSTEMS, 1975

Ramos, M.M.

1977, 219p.

IRRI (AID/ta-G-1074 GTS)

(Supplements Int. Bibliography on Cropping Systems 1973-1974, 333p.: PN-AAC-913)

This bibliography supplements and updates the International Bibliography on Cropping Systems, 1973-1974. It includes literature published in 1975 and titles from 1973 and 1974 which were not included in the basic volume. The entries are classified under general works, physiology and biochemistry, crop ecology and meteorology, crop varieties, agronomy, soils, fertilizers, irrigation, mechanization, plant protection, economic aspects and social aspects. There are 1,704 listings in English and in Spanish. Author and keyword indexes are provided.

PN-AAF-460

Paper copy \$26.28

Microfiche \$2.79

(299) A PARTIAL BIBLIOGRAPHY OF WEED RESEARCH AND CONTROL PUBLICATIONS FOR SOUTH AND CENTRAL AMERICA, THE CARIBBEAN, AND MEXICO, 1942-1976

Fisher, H. H.; Locatelli, Eduardo; Anderson, Christie; Chase, R.L.; Or. State Univ. Int. Plant Protection Ctr.
1978, 260p.

Or. State (AID/ta-C-1295 Res.)

(2d ed.)

The first edition of this bibliography, published in 1973, contained references to material published during 1942-1972. This second edition incorporates all material found in the 1973 edition plus a large group of references published during 1973-1976 and a few references published prior to 1973 not included in the earlier edition. This bibliography provides: a source for researchers and students to utilize in conducting literature reviews; a listing that may help to avoid duplication of efforts; and a vehicle to help improve communication among the entire weed research community. It was developed through searching the literature, especially Bibliography of Agriculture (USA), Weed Abstracts, and other weed science journals and books, plus a number of Latin American publications. The bibliography has been arranged and color coded in four general geographic areas: South America; Central America; the Caribbean, and North America (essentially Mexico). An unclassified section is also included. The entries are further separated into four categories within each country:

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Taxonomy; Biology; Weed Control and Physiology; and Poisonous Plants. The new entries are marked with an asterisk. They are arranged alphabetically by author and placed at the end of the appropriate subject category within each country's listing. To the extent possible, entries are presented in their original language. An exception is made in cases where only an English version of a particular title could be located. Where this occurs, an indication of the language of the original article appears after the title.

PN-AAF-574

Paper copy \$31.20

Microfiche \$2.79

(300) SELECTED REFERENCES ON SOIL EROSION

Arizona Univ. School of Renewable Natural Resources

1976, 72p.

Ariz. (CSD-2457 211d)

(In WAMIS abstracts no. 3)

This volume of abstracts was produced by a bibliographic retrieval system, called the Watershed Management Information System (WAMIS), initiated in 1972 by the School of Renewable Natural Resources, University of Arizona. The purpose of WAMIS is to provide bibliographic references on topics of interest in the general area of natural resource management. Users of WAMIS submit a request and receive an individualized computer printout with a citation and abstract for each reference. There are no user restrictions. This bibliography, WAMIS Abstract No. 3, is a sample of the materials retrievable through WAMIS. It deals with three topics relating to soil erosion: forecasting soil erosion; mechanical or conservation practices for erosion control; and vegetal erosion controls.

PN-AAC-827

Paper copy \$8.64

Microfiche \$.93

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