

ARTS Abstracts

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*This issue of ARTS Abstracts includes reports of ARTS-wide projects from a range of sectors: **agriculture** — Impact of agricultural technology in sub-Saharan Africa: A synthesis of symposium findings; **economics** — Adverse nutrition effects of taxing export crops in Malawi; **health** — Applications of GIS [Geographic Information Systems] technology to disease control; **labor** — Consequences of permanent lay-off from civil service; Results from a survey of retrenched workers in Ghana; **the environment** — Toward a sustainable future for Africa: Improved natural resources management under the Development Fund for Africa, 1987-1993; and **natural resources** — Central Africa: Global climate change and development.*

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Agriculture

USAID conference on agricultural marketing and agribusiness in Africa: The proceedings; Baltimore, Maryland July 12-17, 1992

Thomas J. Herlehy
ARTS/FARA, Washington, D.C.
ARTS Technical Paper, No. 7, May 1993
PN-ABP-174
(Price: microfiche \$2.50/paper copy \$19.75, 138 p.)

In 1992, ARTS organized a conference to discuss its experience promoting agricultural marketing and agribusiness under the Development Fund for Africa (DFA). In plenary and small group sessions, participants assessed mission experience in agricultural marketing and agribusiness programs and projects, examined the results of research and analysis, and explored new approaches to technology development and transfer. The conference concluded that to raise incomes and the standard of living of African people, sustainable, environmentally sound increases in agricultural productivity are necessary. To attain increases, it is necessary to promote more efficient marketing and agribusiness, use of profitable technology, and improve natural resource management. Specific topics included: financial services for agricultural marketing and agribusiness; regional trade opportunities; trade associations; tools and methodologies for marketing; agribusiness and public sector collaboration; and the Africa Bureau reorganization. From these sessions, eight overall recommendations for bureau- and mission-level strategic emphases and operational improvements emerged.

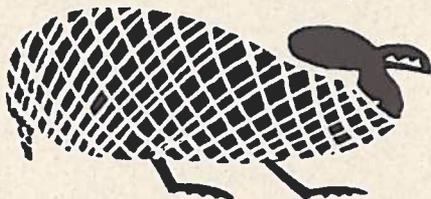
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Constraints on rice production in Madagascar: The farmer's perspective

Rene Bernier, Paul A. Dorosh
Cornell Food & Nutrition Policy Program, Cornell
University, Ithaca, New York
Working Paper, No. 34, February 1993
PN-ABP-176
(Price: microfiche \$1.25/paper copy \$9.49, 64 p.)

Despite market liberalization and other policy reforms introduced in Madagascar's rice sector during the 1980s, rice production has not increased significantly. To shed light on this issue, a survey of rice farmers was conducted in 1990, focusing on economic incentives, production trends, and farmer perceptions. Results show that although some rice marketing problems remain following the liberalization, other constraints on rice production are paramount. Of these, land constraints are the most important, especially for small farmers on the east coast and plateau, making fertilizer use crucial. Unfortunately, yield-response to fertilizer on irrigated land has been somewhat low for many farmers. Off the plateau, many small farmers do not consider lack of fertilizer inputs (or the resources to buy them) a major constraint, and fertilizer use is low. It is concluded that more efforts in research and extension are needed to develop and disseminate technologies suited for various rice ecologies. Investments in irrigation rehabilitation may also be needed in some cases. While marketing reforms were an important first step in increasing rice production in Madagascar, the remaining agronomic constraints cannot be ignored if the country is to maintain or increase per capita rice production in the coming decades.



Impact of agricultural technology in sub-Saharan Africa: A synthesis of symposium findings

James F. Oehmke, Eric W. Crawford
Michigan State University, East Lansing, Michigan
(Symposium on the Impact of Technology on Agricultural Transformation in Africa, Washington, D.C., October 14-16, 1992)
ARTS Technical Paper, No. 3, June 1993
PN-ABP-321
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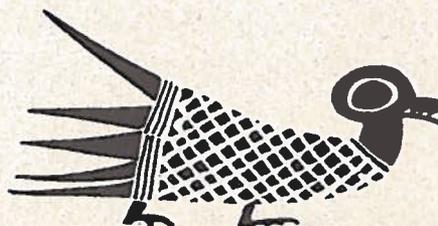
This report summarizes views aired at a 1992 symposium and assesses the value of USAID investments in agricultural technology development and transfer (TDT) - agricultural research and extension - in sub-Saharan Africa, using rate-of-return assessments to determine whether current negative perceptions about the impact of TDT are justified or not. Included is an analysis of factors influencing TDT impact (agroclimatic conditions, civil unrest, research system performance, government policy, and agricultural markets) as well as continuing progress made by USAID during the TDT process, despite adverse conditions in strengthening national, regional, and international research capabilities to develop new agricultural techniques. The report finds that contrary to conventional wisdom, most TDT activities show highly positive rates of return, supporting the proposition that African agricultural research has had people-level impacts which more than justify USAID's investment. Activities such as structural adjustment, policy reform, investments in infrastructure, and greater reliance on market economies and the private sector have served to increase TDT benefits. On the other hand, TDT can be made more effective by revising the scope and scale of activities and promoting financial and agricultural sustainability. A commodity sector approach is seen as the next logical step toward including demand-side considerations in the TDT agenda.

Economics

Comparative review of the economic impact of selected infectious diseases in Africa

Joan L. Aron, Paula Davis
 Johns Hopkins University, School of Hygiene and Public Health, Department of Population Dynamics, Baltimore, Maryland
 ARTS Technical Paper, No. 2, February 1993
PN-ABP-171
 (Price: microfiche \$1.25/paper copy \$11.96, 84 p.)

The economic impacts of disease, which impedes economic activity directly by absorbing resources for treatment, and indirectly through productivity losses due to morbidity and mortality, are an important consideration in establishing priorities for disease control. For example, a successful dracunculiasis (guinea worm disease) eradication program in a Nigerian village resulted in documented increases in trading opportunities, new construction, and school attendance. This report reviews studies that have examined the economic impact of five diseases—malaria, HIV/AIDS, onchocerciasis, dracunculiasis, and schistosomiasis—mainly, but not only, in African countries. It aims to report on the economic impact of these diseases, and to compare methodologies for determining economic impacts of diseases. Analytical levels vary, from the national, regional, sub-regional, and household level. While all five diseases represent staggering burdens in economic (as well as other) terms, AIDS in particular represents a tremendous threat because of the high costs of treatment and loss of productive persons. An appendix gives short descriptions of all the studies reviewed and 17 studies that addressed analysis of the economic impacts of disease in general.



Adverse nutrition effects of taxing export crops in Malawi

David E. Sahn, Yves Van Frausum, Gerald Shively
 Ministry of Food and Agriculture, Islamabad, Pakistan;
 Cornell Food and Nutrition Policy Program, Cornell University, Ithaca, New York
 Working Paper, No. 29, May 1992
PN-ABP-175
 (Price: microfiche \$1.25/paper copy \$11.96, 35 p.)

This paper combines a macroeconomic model and a household nutrition model to show that Malawi's policy of taxing smallholder export crops has had an adverse effect on household incomes and the nutrition of the preschool-aged children of small farmers. The models suggest that if Malawi had followed the principles of export parity pricing, smallholders would have shifted their land use away from maize toward export crops, particularly tobacco. This would have led to a substantial increase in the output of tobacco and a small decrease in maize production. The effects of such a policy change would have filtered through the economy, to raise overall GDP and redistribute the value added toward small farmers and away from other functional income groups. These higher incomes would substantially benefit child nutrition. The concern that there may be deleterious consequences for nutrition when a greater share of income comes from the sale of export crops instead of from subsistence maize production is shown to be unwarranted. This is important because it reinforces the central message: Policymakers must eliminate distortions in markets in order to raise extremely low incomes and reduce the high level of malnutrition in Malawi. The policy of taxing smallholders, which remains despite a decade of structural adjustment, needs to be quickly addressed.

Economic policy and household welfare during crisis & adjustment in Tanzania

Alexander H. Sarris, Rogier van den Brink
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Harvard University, Department of Anthropology, Cambridge, Massachusetts

PN-ABP-179

(Price: microfiche \$3.75/paper copy \$29.51, 215 p.)

This study's dual purpose is to describe the structure and functioning of Tanzania's economy, and assess the impact of structural adjustment on household income in the country. Chapter 2 overviews the structure of the economy, emphasizing the recent years. In Chapter 3, the authors examine macroeconomic developments and policies, and present an analysis of Tanzania's substantial informal sector, demonstrating in the process that official statistics have failed abysmally to reflect the whole story of the country's economy. Chapter 4, based on an analysis of several household surveys, provides a detailed structural profile of households in Tanzania, showing a degree of poverty much larger than previously thought, but also a very equitable pattern of income distribution. Agriculture, the country's most important sector, is examined in Chapter 5; the analysis demonstrates that contrary to official agricultural statistics in Tanzania, since 1974 comparisons with independent production and consumption surveys suggest that food output has not grown as fast as national figures. Finally, Chapter 6 shows that again contrary to what is generally believed, rural and urban poor have been little affected by structural adjustment. The only groups that seem to have suffered real income decline are the rural middle income and richer households, and the urban rich. The policy implications of this are explored. Includes a seven-page bibliography.

Health

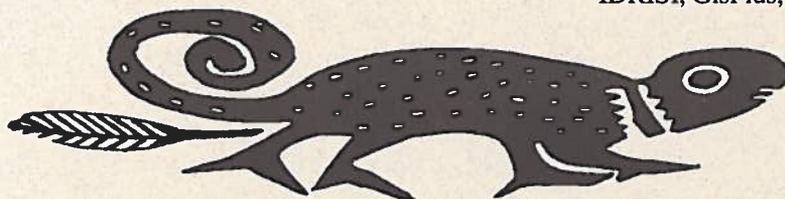
Applications of GIS [Geographic Information Systems] technology to disease control

Gregory E. Glass, Joan L. Aron, et al.
Johns Hopkins University, School of Hygiene and Public Health, Department of Population Dynamics, Baltimore, Maryland, February 1993

PN-ABP-170

(Price: microfiche \$1.25/paper copy \$5.85, 39 p.)

The increasing availability of powerful, easy to use computer hardware and software promises to make the Geographic Information System (GIS) a useful decision making tool in the public health domain. This booklet focuses on the application of GIS to the epidemiology of infectious diseases, particularly in Africa. It begins by describing the four major subsets of GIS and the five roles a GIS can play: for data collection/storage, data management, data querying, modeling, and decision making. Technical aspects of GIS are examined next, including methods for gathering and structuring data; data sources include administrative records of public agencies, surveys, and remotely sensed data from satellite imagery. While surveys have been the main source of data for GISs to date, remote sensing holds great potential for epidemiology in Africa, and possible applications are discussed in some depth. Applications of a GIS, while limited to date, have included tracking vectors that carry diseases such as Rift Valley fever and trypanosomiasis. The application of GIS to the epidemiology of malaria, onchocerciasis, and AIDS may be key areas for the future. Finally, the role of GIS in the public health decision-making process is discussed; linking the science of GIS to real-life social and health issues is essential. Includes references, and an appendix describing six GIS software packages: MapInfo, MapInfo for Windows, IDRISI, GisPlus, pcArc/Info, and SPANS.



Labor and women's nutrition: A study of energy expenditure, fertility, and nutritional status in Ghana

Paul A. Higgins, Harold Alderman
Cornell Food & Nutrition Policy Program, Cornell
University, Ithaca, New York
Working Paper, No. 37, Feb 1993
PN-ABP-178
(Price: microfiche \$1.25/paper copy \$5.98, 39 p.)

The role of energy expenditure in contributing to female malnutrition is potentially more important in sub-Saharan Africa than anywhere else in the world. African women tend to spend a relatively higher proportion of their time performing physically demanding tasks, with relatively less leisure time, due mainly to their central role in agricultural production and distribution, and a lack of labor-saving devices. This study uses household survey data from Ghana to examine the determinants of the nutritional status of adult women; its main contribution lies in exploiting time-use data to estimate the contribution of individual energy expenditure differentials in determining nutritional status. A secondary focus of the analysis is the role of fertility in women's malnutrition, i.e., whether rapid reproductive cycling contributes to a "maternal depletion syndrome." Results show that the physically demanding work performed by Ghanaian women in agriculture and possibly also in food processing (e.g., pounding roots to make fufu), has a significantly negative effect on their nutritional status, suggesting that labor-saving devices may have as direct an impact on nutrition as increased food consumption. Ghanaian women's high fertility rate, in concert with disease and inadequate health care and nutrient availability, also take a measurable toll, highlighting the nutritional importance of education for women and of family planning programs. Includes references.

Labor

Consequences of permanent lay-off from civil service: Results from a survey of retrenched workers in Ghana

Harold Alderman, Sudharshan Canagarajah, Stephen S. Younger
Cornell Food & Nutrition Policy Program, Cornell
University, Ithaca, New York
Working Paper, No. 35, February 1993
PN-ABP-177
(Price: microfiche \$1.25/paper copy \$5.85, 39 p.)

In 1986, the government of Ghana, faced with dwindling revenues and a burgeoning civil service, initiated a program to reduce the number of public sector employees by redeploying them to the private sector. In 1991, the Cornell Food and Nutrition Policy Program conducted a survey to determine the effects of this redeployment in terms of income, consumption, labor force participation, migration patterns, and other socioeconomic variables. Results of that survey show that the fear of unemployment was exaggerated: the majority of redeployees worked without interruption after leaving government service, in part because they continued in moonlighting jobs they already had. Further, a significant number chose to migrate from urban to rural areas, and most of these are now farming. On the negative side, household income of the redeployees is somewhat lower than the general population, and a substantial number are poor by any standard; from a social welfare perspective, further benefits to redeployees should focus on those who are farming. Non-farm income, on the other hand, is higher than average, and self-employed redeployees are earning average incomes, even though few received any training or assistance (except for severance pay). Finally, redeployees devoted a significant amount of their severance pay — which all donors refused to finance, even though the alternatives they offered have produced few results — to savings, and much of that has been used for physical investments in self-employment enterprises.

Environment/Natural Resources

Toward a sustainable future for Africa: Improved natural resources management under the Development Fund for Africa, 1987 to 1993

ARTS/FARA, Washington, D.C.
ARTS Technical Paper, No. 5, April 1993
PN-ABP-172

(Price: microfiche \$1.25/paper copy \$3.00, 39 p.)

Since 1987, USAID's Development Fund for Africa (DFA) has provided over \$300 million to programs supporting environmentally sound development in Africa. The programs have focused on three priority areas - sustainable agriculture, tropical forestry, and biodiversity - and have not been directed as in the past, at helping individual farmers but at promoting the systemic institutional, technical, economic, and political changes needed to support improved natural resource management. This report outlines and exemplifies experiences and successes to date under the DFA and the Africa Bureau's plan for supporting natural resources in sub-Saharan Africa. The programs described are often multifaceted; they support the work of PVOs at the community level, provide technical assistance to government agencies and others involved in managing the natural resource base, support host-country initiatives in natural resource planning and management, and provide incentives for changing underlying policies such as land tenure. A major initiative has been support for the National Environmental Action Plan (NEAP) process in Madagascar (the originating country of the NEAP concept), Uganda, the Gambia, and Rwanda. The report also notes work underway to support other U.S. concerns such as the protection of elephant habitats and the mitigation of global climate change. A concluding series of country examples documents what is possible when donors work together with Africans to promote sustainable development. The key lesson for both is the need for patience and long-term planning. To seek short-term results while ignoring underlying conditions is bound to fail.

Dryland management and the USAID response in Africa: Combating desertification through development

Stryk Thomas, John Gaudet
ARTS/FARA, Washington, D.C.
ARTS Technical Paper, No. 6, May 1993
PN-ABP-173

(Price: microfiche \$1.25/paper copy \$3.51, 28 p.)

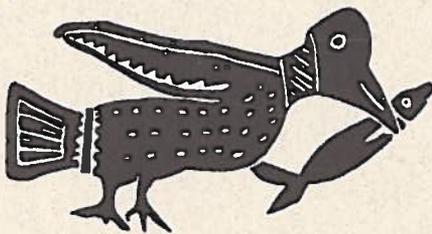
Over the past several years, USAID has carried out numerous projects to combat desertification, to improve the management of dryland resources such as soils, forests, and range and water resources. Many of these projects were designed as a result of experience gained during the 1983-84 drought in Africa. In addition, USAID has conducted an extraordinary number of studies and evaluations of desertification and has analyzed 70 promising natural resource management initiatives in Niger, Mali, Senegal, and the Gambia. This experience indicates that desertification is a complex problem, incapable of being halted by a single strategy, but a sufficient range of technically proven and economically attractive interventions are available. The chief limiting factor is no longer technology, but its widespread adoption, an effort in which donors and the public sector have important extension, technical assistance, and management roles to play. Even successful programs, however, are not likely to bear fruit for at least 20 years. The coordination of national efforts toward dryland management has been made a priority by Agenda 21 of the U.N. Conference on Environment and Development; this coordination could be achieved by incorporating national Plans of Action to Combat Desertification (PACDs) into National Environmental Action Plans (NEAPs). The NEAPs, in turn, could be especially useful in providing a framework within which NGO/PVO and regional/village-level participation would be encouraged.

Non-governmental organizations and natural resources management: An assessment of 18 African countries — Executive summary

Michael Brown, Jill Rizika, et al.
World Learning Inc., Cooperative for American Relief Everywhere, Inc., New York, New York; World Wildlife Fund - U.S., Washington, D.C., March 1993
PN-ABP-251

(Price: microfiche \$1.25/paper copy \$7.93, 62 p.)

The PVO-NGO/Natural Resource Management Support (NRMS) project recently undertook a rapid analytical assessment of NGO situations in NRM in a number of African countries. This summary report presents the results of that initiative: an overview of active and potential opportunities for NRM in Benin, Burundi, Central African Republic, Congo, Eritrea, Ethiopia, the Gambia, Ghana, Guinea, Mauritius, Namibia, Niger, Rwanda, Senegal, Seychelles, Tanzania, Togo, and Zambia. Intended to be used as a background tool for NRM programmers and donors, the assessments are quite general: 14 of the 18 were made in six days or less, and the Namibia, Ethiopia, and Eritrea evaluations are based on desk research only, with no site visits. Each country is treated in a separate section and evaluated on the following: (1) the general context within which NGOs and to a limited extent, community groups, operate within the country, and issues that affect their activities; (2) the content of NGO work and general donor trends in NRM programming; (3) the perceived needs of the NGOs; (4) NRM activities that could be undertaken; and (5) the overall feasibility of a project such as PVO-NGO/NRMS operating in each nation.



Central Africa: Global climate change and development — Overview

World Wildlife Fund - U.S., Washington, D.C.; Nature Conservancy, Arlington, Virginia; World Resources Institute, Washington, D.C., 1993

PN-ABP-066

(Price: microfiche \$2.50/paper copy \$15.47, 108 p)
(Related documents: Synopsis: PN-ABL-401; Technical report: PN-ABP-067)

Central Africa's moist tropical forest and surrounding seasonal woodlands constitute the greatest potential source of future greenhouse gas emissions from sub-Saharan Africa. This report summarizes three U.S.-based desk studies, focusing on six Central African countries (Cameroon, Central African Republic, Congo, Equatorial Guinea, Gabon, and Zaire) which together contain the second largest contiguous expanse of moist tropical forest in the world. The current state of Central Africa's forests, greenhouse gas emissions from deforestation and savannah burning in the region, and the potential impacts of global climate change on the region are discussed first. This is followed by an overview of the socioeconomic factors underlying human use of the forest, and causal relationships between policy, demographics, economics, and land-use change. A final section outlines the role of remote sensing and Geographic Information Systems in managing and analyzing data for regional climate change research. Study findings show that greenhouse gas emissions from the region are currently small, but could become significant if deforestation rates accelerate. If global climate change does increase, it is likely to have broad, damaging impacts on the environment and peoples of Central Africa. Right now, the region's relatively intact forests provide policymakers with a unique opportunity to apply effective forest management strategies and avoid the social, economic, and environmental costs of forest loss and degradation. Includes a 19-page bibliography.

Central Africa: Global climate change and development — Technical report

World Wildlife Fund - U.S., Washington, D.C.; Nature Conservancy, Arlington, Virginia; World Resources Institute, Washington, D.C. 1993

PN-ABP-067

(Price: microfiche \$5.00/paper copy \$41.60, 320 p.)
(Related documents: Synopsis: PN-ABL-401; Overview: PN-ABP-066)

Biomass combustion and deforestation are responsible for most of sub-Saharan Africa's greenhouse gas emissions. Central Africa's (Cameroon, Central African Republic, Congo, Equatorial Guinea, Gabon, and Zaire) moist tropical forests and surrounding seasonal woodlands constitute the greatest potential source of future emissions from the region. World Resources Institute, NASA's Goddard Space Flight Center, and the University of Maryland were among the organizations tapped to perform the three U.S.-based desk studies presented here. The first study focused on assembling information on Central Africa's climate, hydrology, soils, and vegetation, and estimates of current and potential greenhouse gas emissions: relevant factors include total vegetative biomass, deforestation rates, and biomass-gas conversion ratios. The second study focused on the impact of human activities (forestry, agriculture, infrastructure, mining, and energy) on the landscape of Central Africa. Heading a list of recommendations is a call for an international effort to promote protection and sustainable utilization of Central Africa's forests. The third study focused on the application of remote sensing (i.e., satellite imaging) and Geographic Information Systems technology to the study of climate change in Central Africa. If Central Africa's forests are to be managed and utilized in a sustainable fashion, information provided by these technologies will be indispensable to the planning and implementation process. Each study includes an extensive bibliography, and the last includes many full-color satellite images.

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