

New Analytical Activities in Agriculture and Natural Resources in Sub-Saharan Africa -- 1994

Proposed Additions to the ARTS/FARA Analytical Agenda with FY 1994 Funding

under the
Policy, Analysis, Research, and Technical Support (PARTS) project

U.S. Agency for International Development (USAID)
Bureau for Africa (AFR)
Office of Analysis, Research, and Technical Support
Division of Food, Agriculture, and Resources Analysis
(ARTS/FARA)

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ARTS/FARA works with and for USAID Missions in Africa to:

- identify and assess natural resources and environmental issues that affect agricultural productivity;
- assist in the design and implementation of interventions that promote sustainable increases in agricultural productivity; and
- monitor and evaluate people-level impacts and share experience so that lessons learned can be applied to new activities.

ARTS/FARA's work is divided among five units:

- Agricultural Marketing and Agribusiness (AMA);
- Environmental Quality (ENV); and
- Food Security and Productivity (FSP);
- Natural Resources Management (NRM).
- Technology Development and Transfer (TDT);

Unit activities are encompassed by the PARTS project, which ARTS/FARA manages.

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I. The PARTS Project

The Policy, Analysis, Research, and Technical Support (PARTS) project is a resource that enables the USAID Bureau for Africa to work with and for Missions in sub-Saharan Africa on agriculture and natural resources issues. The project was implemented in FY 1992 with an authorized lifespan of six years. The project is managed within the Bureau by the Food, Agriculture, and Resources Analysis Division of the Office of Analysis, Research, and Technical Support (ARTS/FARA).

ARTS/FARA's analytical agenda under PARTS is based on a collaborative process involving Missions and African decision makers. A report prepared in January 1993 -- *Resources to Support Activities in Agriculture and Natural Resources in Sub-Saharan Africa: Proposed Analytical Agenda with FY 1993 Funding* (PN-ABF-302) -- detailed analytical activities already implemented under PARTS or proposed for implementation in FY 1993-94. **This subsequent document -- *New Analytical Activities in Agriculture and Natural Resources in Sub-Saharan Africa-1994* -- presents summaries of analytical activities proposed for implementation in FY 1994-95.**

Detailed descriptions of the PARTS Project are available in the following USAID documents: *Resources to Support Activities in Agriculture and Natural Resources in Sub-Saharan Africa; Policy, Analysis, Research and Technical Support (PARTS) Project: Project Paper*, May 1992 (PD-ABG-054); and *ARTS/FARA Organization Briefing Document*, September 1993 (PN-ABQ-058). The following is a brief summary of PARTS' mandate and implementation mechanisms.

A. Mandate

1. *Improve the Effectiveness of Programs*

The PARTS Project funds field-based research, analysis, synthesis, and dissemination on priority issues. It helps both Missions and the Bureau meet the objectives of the Development Fund for Africa (DFA). It responds to the information needs of policy makers and program managers. Analyses focus on answering three questions:

- What are the priority trends and issues within the sector?
- What works, what doesn't, and why?
- What are the impacts of past and current activities, and how are they best measured?

2. *Share Lessons Learned*

The PARTS project requires "effective dissemination of project-generated information to achieve the project purpose." Sharing of lessons learned may be accomplished through printed or visual materials, seminars and workshops, or information management and analytical tools. To ensure that lessons learned are shared, information dissemination is viewed by the PARTS project as integrated into the analytical process. End users are to be critical participants throughout this process.

3. *Report on Results and Impacts*

ARTS/FARA assists the Africa Bureau in reporting on the results and impacts of programs in the area of agriculture and natural resources. Both Bureau and Mission activities are included. Under the DFA, Africa Bureau reports to Congress must include evidence of impact. Many activities in the ARTS/FARA analytical agenda -- including proposed activities described in this document -- are designed to obtain and share information on impacts, and to supplement the Assessment of Program Impact (API) process.

B. *Implementation*

1. *Selection of Activities for the Agenda*

The ARTS/FARA analytical agenda is part of a larger analytical agenda prepared by ARTS for the Africa Bureau to identify critical issues and to help set the Bureau's agenda. As an ordering of analytical and programmatic questions, it is a major component of the PARTS project's workplan. The analytical agenda establishes priorities, justifies each task, delineates objectives, estimates resources to be applied, and approximates the time frame for completing activities. PARTS project colleagues and clients include African public and private organizations; USAID Missions; REDSOs; the Africa Bureau; the Bureau for Global Programs, Field Support, and Research (G); other offices in USAID/W; and other donors.

2. *How Activities Are Implemented*

Research and analysis proposed in the analytical agenda are carried out by collaborating institutions through contracts, grants, and cooperative agreements. Most of the support will be through PARTS project buyins to ongoing G Bureau projects. These arrangements provide a flexible contracting mechanism to meet the changing focus of the Analytical Agenda. Research is conducted by U.S. private contractors, NGOs, and universities, all of which are encouraged to collaborate directly with African organizations and individuals in doing the analysis. ARTS/FARA staff manage the individual activities in collaboration with the G Bureau and review progress at least semiannually.

3. *Operational Links to Mission Programs*

Although ARTS/FARA's analytical agenda is fully funded by the PARTS project, Missions may choose to supplement or extend particular activities through buyins, support to TDYs, or participation in workshops. With a buyin, for example, a contractor may focus on cross-cutting questions while Mission funding enables analysis of operational issues.

4. *African Participation*

African involvement enhances the work outlined in the analytical agenda and builds African capacity to continue monitoring and evaluating developments in the agriculture and natural resources sector. To ensure African involvement, the analytical agenda provides opportunities for Africans to collaborate in the design and implementation of specific research and analysis activities and in the dissemination of findings. African participation means significant and direct involvement in identifying the issues, setting the agenda, conducting research, and providing feedback. African participation is intended to enhance the relevance and credibility of the research while strengthening African analytical capacity.

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II. Proposed New Analytical Activities for 1994

The following sections present detailed descriptions of the themes that serve as focal points for the work of ARTS/FARA's five analytical units:

- Agricultural Marketing and Agribusiness (AMA);
- Environmental Protection (ENV);
- Food Security and Productive (FSP);
- Natural Resources Management (NRM); and
- Technology Development and Transfer (TDT).

These unit-theme descriptions are then followed by one-page activity sheets that summarize any *new* activities being proposed by the unit for 1994. These one-page sheets are then followed within each unit's section with an additional sheet briefly describing each ongoing analytical activity. Full summary sheets of these *ongoing* activities were previously included in AFR/ARTS, *Analytical Agenda -- Fiscal Year 1992-1993*, April 1992, and ARTS/FARA, *Resources to Support Activities in Agriculture and Natural Resources in Sub-Saharan Africa* (PD-ABF-302). Copies of both documents are available on request.

The themes and activities described here are organized in accord with the structure presented in the PARTS Project Paper (PD-ABG-054). Activities are managed within ARTS/FARA according to the functions and responsibilities presented in the *ARTS/FARA Organization Briefing Document*, rev. September 1993 (PN-ABQ-058). Copies of these two documents also are available on request.

A. Agricultural Marketing and Agribusiness (AMA)

Objective

The goal of the Agricultural Marketing and Agribusiness (AMA) Unit is to increase the efficiency of agricultural marketing systems in sub-Saharan Africa. The unit conducts analyses and assists Missions with issues related to the development of more efficient agricultural marketing systems in which effective private, indigenous agribusinesses are engaged in marketing activities. The analysis focuses on (1) the policy and regulatory environment; (2) the institutional and infrastructural environment and the services provided by those institutions; and (3) the capacity of indigenous agribusinesses and entrepreneurs to engage in marketing activities.

Theme 1: Effectiveness of Agribusiness Development Programs in Sub-Saharan Africa

Under this theme, the AMA Unit proposes continuation of two distinct but complementary studies: (1) analysis of the characteristics of existing regional (transnational) marketing networks and examination of methods to improve their efficiency -- *"The Dynamics and Operations of Regional Trading Networks"* (94 AMA-1a); and (2) continuation of research on, and development of, techniques, processes, and indicators by which Missions evaluate new/innovative, agribusiness development programs -- *"The Impact of Agribusiness Development Programs in Sub-Saharan Africa"* (94 AMA-1b). No new Theme 1 activities are proposed for initiation in 1994.

Theme 2: Relationship between Agricultural Marketing Development and Effective Financial Systems and Services

Under this theme, the AMA Unit proposes a new research project: the initiation of analyses of the characteristics of successful rural financial institutions and how they have adapted and survived under economic policy reform. To accomplish this research, the unit proposes the following new activity:

- *"The Operation of Rural Financial Institutions and Economic Policy Reform Programs"* (94 AMA-2a)

ANALYTICAL ACTIVITY SUMMARY

The Operation of Rural Financial Institutions and Economic Policy Reform Programs

THEME: Relationship between Agricultural Marketing Development and Effective Financial Systems and Services (94 AMA-2a)

QUESTION: What are the characteristics of successful rural financial institutions (RFIs) in terms of savings mobilization, variety of financial services offered, and outreach efforts to agribusinesses and agricultural marketing agents, and women-owned enterprises?

WHY IS THIS QUESTION IMPORTANT?: Notwithstanding the failure of many RFIs in sub-Saharan Africa -- some as a consequence of economic policy reforms, others by high loan defaults -- several RFIs have been able to adjust to the changing market dynamics and institutional environment. By ascertaining the characteristics of these successful RFIs, policy-specific interventions can be designed for RFIs that may be operating in similar environments -- that is, economic policy reform programs -- to benefit from the experiences of the more resilient and successful RFIs.

RESEARCH DESIGN: Country-specific studies employing a case-study methodology, with two trips of three to four weeks in each country selected. The research will be coordinated with an ARTS/EA-sponsored Cornell University project.

WHO IS GOING TO DO IT?: Ohio State University, through an add-on to the FIRM Project.

ACTIVITY MANAGER: Garland Christopher.

EXPECTED OUTPUTS: At least three country case studies; a synthesis and lessons learned document; and the development of greater linkage with African researchers. A Best Practices Workshop will be convened in Year 2 of the study.

PRIMARY AUDIENCES: USAID Missions, USAID/Washington, donor assistance agencies, African research institutes, PVOs, and NGOs.

FUNDING SOURCE: PARTS.

STARTING AND COMPLETION DATES: Start: 10/94; end: 9/96.

1994 ONGOING ANALYTICAL ACTIVITIES
Agricultural Marketing and Agribusiness (AMA)

THEME 1: Effectiveness of Agribusiness Development Programs in Sub-Saharan Africa

94 AMA-1a: "The Dynamics and Operations of Regional Trading Networks"

RESEARCH DESIGN: Follows a case study methodology, which takes into consideration various indigenous and other trading systems. Among the trading networks under consideration for analysis are those of West Africa, the Sahel and Central Africa, East Africa, and Southern Africa.

ACTIVITY MANAGER: Charles Whyte.

EXPECTED OUTPUTS: A full report that: (1) synthesizes the information across countries and provides broad policy guidance to Missions and host-country governments, and (2) provides in-depth regional case studies with more specific recommendations for the respective national governments. In addition, regional workshops will be convened to present and discuss the findings of these reports with the donors and host-country governments.

COMPLETION DATE: On-going, with Phase 1 consisting of a literature review and initial field research. Phase 2 starts 10/94.

94 AMA-1b: "The Impact of USAID and Non-USAID Assistance on Private Agribusiness Development in Sub-Saharan Africa"

RESEARCH DESIGN: Work with collaborators and Missions to monitor the impact of new and innovative programs at the field level through rapid appraisal surveys. Also includes and a few case studies of targeted agribusiness firms.

ACTIVITY MANAGER: Garland Christopher, Charles Whyte.

EXPECTED OUTPUTS: A concise report on the impact of new and innovative programs with suggestions for modifications and/or strengthening.

COMPLETION DATE: On-going. Phase 2 starts 10/94.

B. Environmental Protection (ENV)

Objective

The Environmental Protection (ENV) unit focuses on environmental impact review and monitoring to assess the short- and long-term interrelationships of development and environment. Environmental protection is understood in its positive sense, as providing opportunities to identify activities that are good for development and also good for the environment.

Theme 1: Environmental Protection for Sustainable Development

Through innovative grants, training initiatives, and a series of case studies, activities under this theme will demonstrate that environmental protection and the mitigation of negative impacts begins with in-country efforts at the people level. Examples include: (1) characterizing successful methods in integrated pest management as environmentally superior technology and strategy; (2) innovative approaches to formal and nonformal environmental education directed at host-country environmental protection, and (3) promoting the strengthening of the capacities of private voluntary organizations (PVOs) and nongovernmental organizations (NGOs) in sound environmental design and implementation of development interventions. The ENV unit plans to continue two ongoing activities under this theme in CY 1994: *"Environmentally Superior Technologies and Strategies: Environmental Monitoring in Regard to Forecasting and Prevention in IPM"* (94 ENV-1a); and *"Environmental Guidelines for NGO/PVO Project Design and Implementation"* (94 ENV-1c). No new Theme 1 activities are proposed for initiation in 1994.

Theme 2: Monitoring to Improve Understanding of Environmental Degradation and Development Impact

This theme seeks to develop better methods of collecting and applying data that are useful in managing projects and assessing impacts. Included are: (1) assistance in implementing geographic information systems (GIS); (2) support to Missions through research and TDYs; and (3) support for a Natural Resources Information Consultative Group (through the World Resources Institute) to provide advice to the Africa Bureau and Missions. One ongoing activity under this theme is scheduled to continue in CY 1994: *"Natural Resources Information Consultative Group"* (94 ENV-2a). One Theme 2-related initiative is proposed for initiation in 1994 as a cross-unit activity and is included in "II-F. "Cross-Unit Topics (CUT)":

- *"Monitoring to Better Understand Environmental Change and Development"* (94 CUT-1)

Theme 3: Improving Long-Run Environmental Analysis

Activities under this theme provide advice and insights to the Africa Bureau and the field regarding the application of environmental authorities to projects and programs under the Development Fund for Africa (DFA), including the environmental implications of nonproject assistance programs. The Foreign Assistance Act requires that policy reforms include provisions to protect long-term environmental interests from negative consequences of the reforms. Emphasis is on early detection, mitigation, and even reversal of long-term impacts of policy reform, especially in the agriculture sector. Particular attention will be placed in CY 1994 upon the environmental implications of privatization.

Under this theme, the ENV Unit also seeks to develop improved environmental review and implementation guidelines for both project and policy-based activities, including mechanisms to allow a delegation of authority to the field for local approvals. In addition, the unit is working toward a basic strengthening of the Mission Environmental Officers in the area of environmental review process. Three ongoing Theme 3 activities -- *"Environmental Implications of Agricultural Trade and Policy Reform Programs: Pesticide Inputs"* (94 ENV-3b), *"Regional Support for the Environmental Protection Process in Africa"* (94 ENV-3a), and *"Environmental Implications of Privatization"* (94 ENV-3c) -- continue through 1994. No new analytical activities under this theme are proposed to commence this year.

1994 ONGOING ANALYTICAL ACTIVITIES

Environmental Protection (ENV)

THEME 1: Environmental Protection for Sustainable Development

94 ENV-1a: "Environmentally Superior Technologies and Strategies: Environmental Monitoring in Regard to Forecasting and Prevention in IPM"

RESEARCH DESIGN: Work closely with regional and national AGRHYMET and plant protection staff, emphasizing Mali and Niger, to (1) standardize the collection and compilation of survey data; (2) assimilate historical and current data to develop a relational database (dBase IV) on acridids; (3) integrate field observation, spatial statistics, and GIS techniques in development of acridid and vegetation coverages; and (4) develop a modeling framework based on Maximum Likelihood Classification schemes with and map correlation techniques to be used in developing decision-making tools.

ACTIVITY MANAGER: Walter Knausenberger, Dan Dworkin.

EXPECTED OUTPUTS: Decision-making tools, prototype database, GIS vegetation cover data classified according to grasshopper population patterns, models of spatial and temporal patterns of grasshoppers and vegetation and reports.

COMPLETION DATE: 3/96.

94 ENV-1c: "Environmental Guidelines for NGO/PVO Project Design and Implementation"

RESEARCH DESIGN: Revision and production of NGO/PVO guidelines to environmentally sound design and implementation of development projects. ARTS/FARA/ENV has already produced a rough draft of a manual for NGOs and PVOs involved in the Southern Africa drought emergency, in order to provide guidelines to environmentally sound design and implementation of development projects. This Manual in rough draft has been circulated to Southern Africa Missions, and users have been requested to provide feedback to be used in the final draft. The Manual will also be expanded to include Natural resource Management issues.

ACTIVITY MANAGER: Walter Knausenberger, John Gaudet, Tim Resch.

EXPECTED OUTPUTS: Final guidelines, series of analyses to provide Missions and host countries with guidance on formal and informal environmental education.

COMPLETION DATE: 3/96.

THEME 2: Monitoring to Better Understand Environmental Change and Development Impact

94 ENV-2a: "Natural Resources Information Consultative Group"

RESEARCH DESIGN: The NRICG will continue to fund an expert to coordinate the effort. It will hold two general meetings a year and meetings on special topics; accept buyins from Missions to review plans for developing information systems; liaise with other bilaterals and the multilaterals working in information technology; and serve as a peer reviewer of efforts involving GIS/EIS. It has carried out activities in a number of Missions; provided advice on centralized information centers, and provided technical advice to GIS centers. Its activities are regularly summarized in the "GIS Corner," a regular feature of the ARTS/FARA newsletter, *FARA Notes*. These activities will continue.

ACTIVITY MANAGER: Dan Dworkin.

EXPECTED OUTPUTS: A report, *Environmental Information Systems in Sub-Saharan Africa*; periodic reports on technology, such as use of satellite data to produce low-cost contour maps; peer reviews; two workshops in FY 1993; two meetings of experts groups in CY 1993; scopes of work as requested by Missions; ongoing collaboration with other bilateral and multilateral donors.

COMPLETION DATE: 3/96.

THEME 3: Improving Long-Run Environmental Analysis**94 ENV-3a: "Regional Support for the Environmental Protection Process in Africa"**

RESEARCH DESIGN: Guidance will be provided in FY 1994 to Missions and REDSOs in this sector, but what is needed is a series of in-house, hands-on sessions to reinforce the guidelines provided. To develop Mission expertise on assessing environmental impacts of NPA and in drafting IEEs, especially in new NPA programs, this research will include use of the interactive hypertext program to be developed in FY 1994.

ACTIVITY MANAGER: Walter I. Knausenberger, John J. Gaudet.

EXPECTED OUTPUTS: Several regional working sessions to train selected Mission Environmental Officers.

COMPLETION DATE: 3/96.

94 ENV-3b: "Environmental Implications of Agricultural Trade and Policy Reform Programs"

RESEARCH DESIGN: Guidance will be provided in FY 1994 to Missions and REDSOs in this sector, but what is needed is a series of in-house, hands-on sessions to reinforce the guidelines provided. To develop Mission expertise on assessing environmental impacts of NPA and in drafting IEEs, especially in new NPA programs, this research will include use of the interactive hypertext program to be developed in FY 1994.

ACTIVITY MANAGER: Walter I. Knausenberger, John J. Gaudet.

EXPECTED OUTPUTS: Several regional working sessions to train selected Mission Environmental Officers.

COMPLETION DATES: 3/96.

94 ENV-3c: "Environmental Implications of Privatization"

RESEARCH DESIGN: A case study will be completed which will draw heavily on such studies already underway, or completed in Zambia, but will include material from countries where privatization is being put in place (e.g., Ethiopia, Mozambique, etc.) The case study will consider the points raised about, as well other options such as: (1) encouragement of the host country in following through on the NEAP process (the NEAP should and could be the vehicle for regulations and policy reform that often is badly needed); (2) encouragement of purchasers to set up new machinery/plants to deal more effective/efficiently with impacts, with the central idea of having working reasonable model companies in operation (encouraged by tax breaks, good international and in-Africa public relations, etc.); (3) use of the results of the assessment by the Zambia Privatization Project as a basis for regulations and/or policy framework recommendations in other countries.

ACTIVITY MANAGER: Walter I. Knausenberger, John J. Gaudet.

EXPECTED OUTPUTS: A case study for distribution and dissemination to USAID Missions.

COMPLETION DATE: end: 3/96.

C. Food Security and Productivity (FSP)

Objective

The overall objective of the Food Security and Productivity (FSP) unit is to analyze how best to improve sustainable agricultural productivity through individual or combined investments in technology development and transfer, agricultural marketing and agribusiness, and natural resources management. The focus is on sustainable increases in agricultural productivity, but recognizes that the increase of agricultural productivity is not an end in itself, but rather a means to increases in economic growth and food security.

The FSP unit works in close collaboration with the other analytical units of ARTS/FARA to help Missions and host countries (1) maximize the impact of their investments in the agricultural and natural resources sector to achieve sustainable increases in agricultural productivity, and (2) develop policies and investments that enable the sector to contribute more to both economic growth and food security. These analytical efforts are incorporated in the unit's three themes.

Theme 1: Agricultural Sector Productivity and Its Contribution to Sustainable Economic Growth

The agricultural sector contributes to sustainable, broad-based, market-oriented growth through: (1) release of excess labor to other sectors, (2) supply of agricultural outputs as inputs to the manufacturing sector, (3) increased demand for manufactured goods and services, (4) increased savings and investment that result from the higher incomes achieved with increases in agricultural productivity, and/or (5) increased ability to import manufacturing sector inputs as a result of increases in foreign exchange earnings (or savings). The issues within this domain are complex and interrelated, thus necessitating incremental inquiry. In the last two years, the FSP unit has financed partial productivity measures using national account data (Abt / Harvard Institute for International Development) and household data (Michigan State University), as well as a growth linkages study with the International Food Policy Research Institute (IFPRI). The results of these studies support Mission efforts to improve their indicators of agricultural sector performance and provide insights to development-planning decision makers in terms of what investments and policies can best facilitate the transformation of the agricultural sector.

These analyses will be furthered by the list of activities being examined in FY 1994. These ongoing activities include: (1) *"Methodology Development for Measuring Productivity of the Total Farm in Africa"* (94 FSP-1a); (2) *"Growth Modeling Pilot Study"* (94 FSP-1c) to determine growth modeling's viability with African data and to inform decision makers of potential strategies to improve the agricultural sector's impact; and (3) *"Managing Productivity Increases and Sustainability in African Agriculture"* (94 FSP-1d), which examines tradeoffs between short-term bursts in productivity and longer-term sustainability issues. No new activities are planned for commencement in 1994.

Theme 2: Agricultural Sector Productivity and Its Contribution to Food Security (Availability, Access, and Utilization)

The concept of food security includes important elements of health, education, nonagricultural employment, and infrastructure, but the agricultural sector is a major contributor to food security. The agricultural sector's contribution to food security is realized through increased availability of domestic food commodities; increased income, which may be allocated for food purchases; and foreign exchange earnings (savings), which allow for increased imports of food commodities. Many countries are reporting in their CPSPs that

food insecurity is a critical constraint to the development of commercial agriculture and the achievement of increases in agricultural productivity. Previous analyses have found that, while food availability is a concern during times of drought, war, or market failure, food access (lack of purchasing power) is an ongoing limitation, often affected by foreign exchange considerations that limit the import of desired or necessary food commodities.

One of the most significant events for Africa in the late 20th century is the emergence of post-apartheid South Africa, its impact on international trade, and the consequences for the continent's productive comparative advantage and food security. Through the ongoing analytic activity "*Regional Trade, Comparative Advantage, and Food Security in Eastern and Southern Africa*" (94 FSP-2a), the FSP unit is studying these changes in an effort to inform the Bureau and interested Missions of likely consequences.

A second ongoing Theme 2 activity -- "*Improving Household Access to Food by Vulnerable Groups*" (94 FSP-2b) -- emerges from previous analyses and lessons learned during the 1991/92 drought. If broad-based impact is to be achieved, cost-effective mechanisms must be found for improving food access by vulnerable groups. Failure to increase food access is more than a humanitarian concern in that it influences both farm-level decisions and the ability to physically improve upon current productivity levels. Current research is expected to help Missions more effectively address the relevant issues in the portfolio design. The unit is proposing no additional Theme 2 activities for initiation in 1994.

Theme 3: Agricultural Policy Reform and Dissemination Efforts

The FSP unit is proposing continued funding for the African Rural Social Sciences Network by Winrock ("*Innovative Research Grants for African Analysts*," 94 FSP-3a). This program, which funds research by African analysts, has historically been partially funded by the Africa Bureau. Encompassing this within the PARTS project mechanism encourages greater complementarity between analyses conducted by Africans and U.S. collaborators, and individual Missions' analytical agendas.

To promote the sound analysis and implementation of agricultural policy and investments, USAID must improve its ability to articulate the issues and consequences. To develop appropriate policy/investment interventions, it is even more critical that both in USAID/W and in the field personnel improve their ability to listen. Workshops facilitate both dissemination and listening. It is to this end that the unit is continuing "*Workshop on Improving the Effectiveness of Policy Reform in Africa*" (94 FSP-3b). The Workshop on African Agricultural Transformation enabled approximately 30 African analysts and decision makers and 5 leading U.S. analysts to develop a shared vision and workplan for examining the transformation process in years to come. A forthcoming Growth Linkages Workshop will permit a discussion of the IFPRI findings (financed under the FY 1992/93 Analytical Agenda) with the critical decision makers in USAID/W.

Finally, the unit has been financing the cross-cutting examination of "*Improving the Effectiveness of Agricultural Policy Reform*," which is being implemented by Abt Associates under the Agricultural Policy Analysis Project II (APAP II). This study is expected to produce a journal article, a guidebook for those involved in agricultural policy reform (both U.S. and African), and training materials. Further analyses on the impact of policy reform has been deferred until this initial report has been completed.

1994 ONGOING ANALYTICAL ACTIVITIES
Food Security and Productivity (FSP)

THEME 1: Agricultural Sector Productivity and Its Contribution to Sustainable Economic Growth

94 FSP-1a: *"Methodology Development for Measuring Productivity of the Total Farm in Africa"*

RESEARCH DESIGN: Examining household budget information previously collected but unanalyzed in terms of factor productivity by MSU and IFPRI. Focus is on the development of cost-effective indicators which can be utilized to better inform host-country and USAID Mission of the respective returns to individual factors of production with a view to identifying constraints that may be addressed by project or policy interventions.

ACTIVITY MANAGER: George Gardner, FSP Unit Leader

EXPECTED OUTPUTS: Two working papers are completed, one forthcoming; synthesis paper of new insights from working papers on concepts, methods, and policy implications; final report; collaboration between MSU and study country research institutions; presentation of findings at workshop and conferences in Africa.

COMPLETION DATE: 9/94.

94 FSP-1c: *"Growth Modeling Pilot Study"*

RESEARCH DESIGN: Relies largely on aggregated data generated by the Government of Kenya. These data are being complemented by household data generated by the cooperative agreement with Stanford University (Policy Analysis Matrix) and the World Bank's Multi-Market Modeling exercise. A system of simultaneous regression equations are being developed to test the interrelationships and predictive capacity. Sensitivity analyses will be used to define the parameters for the predictive qualities.

ACTIVITY MANAGER: George Gardner, Tom Olson.

EXPECTED OUTPUTS: Working papers; "methodological lessons learned" paper and presentation for agricultural sector and cross-sectoral planners; predictive model useful for the Government of Kenya and USAID/Kenya planners, with implications on how to maximize agricultural sector's impact.

COMPLETION DATE: 9/94.

94 FSP-1d: *"Managing Productivity Increases and Sustainability in African Agriculture"*

RESEARCH DESIGN: Utilizes case-study approaches, using time-series farm-level data, to investigate hypotheses on crop diversification, land use, and labor productivity in systems under stress (e.g., Rwanda).

ACTIVITY MANAGER: Brian D'Silva, Mike McGahuey, George Gardner.

EXPECTED OUTPUTS: Conceptual paper on measuring sustainability in systems under stress; at least two country studies; synthesis piece.

COMPLETION DATE: 9/95.

94 FSP-1e: *"Comparative Study of Policies to Enhance the Impact on Income Growth of Rural Household Spending Patterns in Africa"*

RESEARCH DESIGN: Focus on two countries of previous ARTS/FARA growth linkage work (Niger and Zambia) and build on IFPRI and USAID's prior investment in generating data to address these issues. Analyze policy and nonpolicy determinants of the elasticity of supply of nontradable items characterized by high rural household marginal budget shares, and the implications for promoting faster rural employment growth in countries undergoing structural adjustment.

ACTIVITY MANAGER: George Gardner, Tom Olson.

EXPECTED OUTPUTS: Comparative reports for the two countries and a workshop in Washington, with discussants from analytical and policy-making sectors in Niger and Zambia.

COMPLETION DATE: 3/96.

THEME 2: Agricultural Sector Productivity and Its Contribution to Food Security (Availability, Access, and Utilization

94 FSP-2a: "Regional Trade, Comparative Advantage, and Food Security in Eastern Africa"

RESEARCH DESIGN: Cross-country specific studies that, within a regional perspective, both analyze comparative advantage and quantify informal and formal trade.

ACTIVITY MANAGER: Brian D'Silva, Tom Olson.

EXPECTED OUTPUTS: At least one workshop per year; series of cross-country studies; user-friendly data bases; synthesis pieces on Eastern and Southern Africa; electronic network for communication and dissemination of results in both Eastern and Southern Africa.

COMPLETION DATE: 9/97.

94 FSP-2b: "Improving Household Access to Food by Vulnerable Groups"

RESEARCH DESIGN: Review and synthesis of existing research conducted by MSU, IFPRI, and others in Africa; analysis of primary data from selected countries.

ACTIVITY MANAGER: Brian D'Silva.

EXPECTED OUTPUTS: Preliminary and final report; seminar/workshop to disseminate findings.

COMPLETION DATE: 9/95.

THEME 3: Agricultural Policy Reform and Dissemination Efforts

94 FSP-3a: "Innovative Research Grants for African Analysts"

RESEARCH DESIGN: Uses a competitive grant process that considers: (1) the relevance of the issue to be examined; (2) complementarities with the existing and planned analytical agenda; and (3) quality of the research proposal.

ACTIVITY MANAGER: George Gardner, Tom Olson.

EXPECTED OUTPUTS: An estimated 30 country-specific research grants to African researchers for proposals related to agricultural productivity, food security, or the transformation of African agriculture. Each grantee will submit the final report for publication by the program. Two seminars, which will ensure quality of research. Input into a planned 1995 African Workshop on Agricultural Transformation.

COMPLETION DATE: 9/96.

94 FSP-3b: "Workshop on Improving the Effectiveness of Policy Reform in Africa"

RESEARCH DESIGN: The role of policy leadership, the political impact of key technical assistance staff, and strategies for institutional change have been examined in several countries using a common analytical framework. Several tools for political analysis of reform are to be discussed, including: stake-holder analysis, political mapping, etc. A three- to four-day workshop will be coordinated around the policy synthesis "Improving the Effectiveness of Policy Reform in Africa," and the seven case studies completed under the G/EG/AGR Agricultural Policy Analysis Project. The workshop will also include a review of the ADO Training Manual on "Improving the Effectiveness of Agricultural Policy Reform in Africa."

ACTIVITY MANAGER: George Gardner, Tom Olson.

EXPECTED OUTPUTS: Workshop in a West African country.

COMPLETION DATE: FY 1995, exact dates to be determined.

D. Natural Resources Management (NRM)

Objective

The Natural Resources Management (NRM) unit conducts and facilitates analysis by and for Missions to enable the development of NRM programs that contribute to sustainable increases in rural productivity. This contributes to Africa Bureau and USAID objectives of supporting sustainable rural development through improved management of natural resources and the attainment of global environmental objectives (e.g., biodiversity conservation and mitigating global climate change) while promoting sustainable rural development.

The overall objectives for this coming year are to: (1) make use of the insights gained so far; (2) assist Missions in improving programs and taking credit for putting in place conditions for adoption of NRM; (3) develop approaches to tracking and monitoring change and people-level impact, and (4) improve the understanding in key analytic areas not fully covered in previous years.

Theme 1: Establishing Conditions for Improved Natural Resources Management

This theme concentrates on those key conditions that affect adoption of improved NRM practices, on the guidance and analysis needed by Missions in analyzing strategies for developing these conditions, and on coordination of donor and research effort on these key areas. In the coming year, work under this theme will complete the analytic cycle for two key areas -- attitudes and implementing policy reform programs. This work will also take advantage of previous years' support to analytic components of biodiversity projects and review fundamental assumptions and hypotheses related to the sustainability of biodiversity-related interventions.

In addition, the theme will initiate explorations of key areas that have not been covered in previous years but that are being addressed increasingly by field Missions: the role of gender in terms of NRM adaptation, and the relationship between population, environment, and NRM. Work on this theme will also expand and deepen the unit's peer review and advisory support activities -- the Consultative Group on Natural Resources Policy (PCG) and Multi-Donor Secretariat (MDS) -- and link them more directly to African counterparts.

In 1994, the NRM unit is continuing three already-initiated Theme 1 activities: *"Integrating Biodiversity Conservation and Development"* (94 NRM-1a), *"Review of NRM Conditionalities in Terms of Their Implementation"* (94 NRM-1c), and *"Consultative Group on Natural Resources Policy"* (94 NRM-1d). In addition, the unit is proposing one new activity for this theme this year:

- *"Gender and Equity Issues as Conditions"* (94 NRM-1b).

The unit also is continuing five innovative grant activities -- *"PVO/NGO NRMS--Phase II"* (94 NRM-G1); *"PARCS Training Program--Phase II"* (94 NRM-G2); *"GCC--Sustainable Development Impact"* (94 NRM-G3); *"Network for Environmentally Sustained Development in Africa (NESDA)"* (94 NRM-G4); and *"Biodiversity Conservation"* (94 NRM-G5).

Theme 2: Collection and Use of Knowledge on Natural Resources Management

This theme addresses two complementary sets of issues: the collection and ordering of information relevant to NRM adaptation (a continuation of activities initiated in last year's analytical agenda), and the analysis and critique of that data. The question for the first issue is how to establish a data system that better capitalizes on the massive amount of

available field data to understand and act upon knowledge about cause-and-effect relationships. Work under this theme also looks at the question of which variables are critical. The tasks in this activity in 1994 will include collaboration with Missions, African Institutions, and other donors in two primary areas: (1) setting up of data bases that are focused on the variables that influence land-use management decisions and on the environmental and economic variables that are affected by these decisions; and (2) conducting of field work and analysis to identify the variables that are most relevant to developing and implementing effective programs.

In terms of analysis, this theme works closely with Missions in improving analytic approaches related to NRM data. Beginning with the work undertaken on the NRM Organizing Framework over the last five years, this theme reviews the relevance of other issues not yet addressed, such as nonlinear relationships between conditions and variables. This theme also includes a review of the results achieved so far by NRM programs in the field that were designed around the NRM Organizing Framework to assess whether these programs have improved the lives of Africans.

The NRM unit is continuing two ongoing Theme 2 activities in 1994 -- "*Collation of Knowledge on Impact / Diffusion of Sustainable Agriculture Practices*" (94 NRM-2a) and "*Methodologies for Collecting and Diffusing NRM Information*" (94 NRM-2b). No new Theme 2 activities are proposed for initiation this year.

ANALYTICAL ACTIVITY SUMMARY

Gender and Equity Issues as Conditions

THEME: Establishing Conditions for Improved Natural Resources Management
(94 NRM-1b)

QUESTION: Would the prospects for achieving the DFA Strategic Objective 3 (and USAID's environmental and economic development goals) be increased if women and other disadvantaged groups played a greater role in making land-use management decisions?

WHY IS THIS QUESTION IMPORTANT?: A substantial body of evidence indicates that women and other disadvantaged groups are constrained from playing a greater role because of policies, institutions, economic systems, and attitudes in these countries. In addition, there is a growing number of cases where women, through various strategies, have overcome the constraints and gained greater control over land-use management decisions. According to specialists in the field, the above question has not been addressed in a coherent, focused manner. Most gender issues deal with equity; few deal with the consequences of inequity on the environment and economic development. Moreover, most gender analyses deal with the factors that produce inequality, but few use the cases where progress has been made to formulate empirically based options for establishing the enabling conditions. Part of the analyses will identify the decision makers who would be responsible for making appropriate policy, institutional, and attitudinal changes and, using case-study analysis, identify strategies that have resulted in these decision makers making appropriate changes.

RESEARCH DESIGN: The research will include the following steps: (1) Literature search to develop an inventory of cases where women play predominate roles in land-use management decisions, (2) case-study analysis to identify the natural resources and economic outcomes and to identify the factors that distinguish cases where women make decisions from cases where they play a less major role, (3) economic analyses comparing the benefits and costs (both financial and social) of women playing greater roles in making land-use management decision, and (4) development of working hypotheses that would be tested in NRM programs being implemented by USAID Missions.

WHO IS GOING TO DO IT?: SARSA (EcoGen) and DESFIL.

ACTIVITY MANAGER: Mike McGahuey.

EXPECTED OUTPUTS: (1) An inventory of cases and development of a working hypotheses about the conditions where women play major roles in land-use management decisions, that favor greater roles for women in these decisions; (2) analyses on the benefits and costs of women playing greater roles in land-use management decisions; (3) a set of hypotheses to be tested by Missions; (4) a set of actions aimed at helping Missions to help host countries overcome constraints to greater participation by women.

PRIMARY AUDIENCES: Missions, public and private sector in host countries, USAID/W.

FUNDING SOURCES: PARTS OYB transfer to SARSA and DESFIL.

STARTING AND COMPLETION DATES: Start: 5/94; end: 12/95.

1994 ONGOING ANALYTICAL ACTIVITIES
Natural Resources Management (NRM)

THEME 1: Establishing Conditions for Improved Natural Resources Management

94 NRM-1a: *"Integrating Biodiversity Conservation and Development"*

RESEARCH DESIGN: Review of initial work by EPAT/Winrock, which studied the economics of integrated conservation and development projects, in light of the analysis by the African Biodiversity Advisors Group. Coupled with the analytic grants funded under the first year of the PARTS Project, the analysts will consider the economic variables and issues affecting biodiversity in a broader developmental context. Secondary and primary source material will be reviewed, and will be supplemented with a TDY to one of the primary USAID Missions funding biodiversity-related grants.

ACTIVITY MANAGER: Tim Resch, C. A. Pryor.

EXPECTED OUTPUTS: Biological diversity in Africa conserved concurrent with human livelihood improvement; 20 interventions evaluated; attitude and activity change research results disseminated; practice, technology, and ecotype-specific publications produced; dissemination via workshops and conferences, networking and information sharing, and joint analytical efforts among field implementors.

COMPLETION DATE: 9/95.

94 NRM-1c: *"Consultative Group on Natural Resources Policy"*

RESEARCH DESIGN: The PCG was to have three major purposes: to provide a peer review mechanism for the Bureau, its Missions, and host-country personnel; to carry out or oversee specialized studies; and to develop long-term advisory relationships with Missions involved with NRM policy programs. The group's formative period is nearing an end and is expected by the completion of this year's support to have a structure, identity, and agenda of its own.

ACTIVITY MANAGER: C. A. Pryor.

EXPECTED OUTPUTS: Annual report by the PCG; country reports based on Mission buyin activities; conference report; expansion of groups of experts knowledgeable about NRM policy matters in Africa; peer review of NRM policy programs, special studies, and core support to permit Mission buyins; synthesis of NRMAA outputs.

COMPLETION DATE: 6/95.

94 NRM-1d: *"Review of NRM Conditionalities in Terms of Their Implementation"*

RESEARCH DESIGN: Many of the NRM-related USAID field programs in Africa have incorporated similar strategies and address similar conditions. Over the last two years under ARTS/FARA/NRM, the Implementing Policy Change (IPC) project has reviewed several key conditions related to NRM programs, especially nonproject assistance programs. Under this final year of funding, IPC will complete its review of key conditions.

ACTIVITY MANAGER: C. A. Pryor, Mike McGahuey.

EXPECTED OUTPUTS: Papers on specific case example; summary report.

COMPLETION DATE: 9/95.

94 NRM-G1: *"PVO/NGO NRMS--Phase II"*

RESEARCH DESIGN: Analytical and strategic assessment of the PVO-NGO/NRMS cooperative agreement experiences over the last three years in building awareness and NGO programming capacity in Africa.

ACTIVITY MANAGER: Tim Resch.

EXPECTED OUTPUTS: Proposed activities include (1) a retrospective analysis of lessons learned; (2) developing an appropriate strategy for a PVO-NGO/NRMS Project follow-on phase; (3) support for assessing mechanisms through which USAID could access varied services available through the Consortium. Reports, studies, and seminars/workshops on above activities. Interaction with various Missions on proposed activities.

COMPLETION DATE: 10/96.

94 NRM-G2: "PARCS Training Program--Phase II"

RESEARCH DESIGN: Develop appropriate pilot programs for training of parks and protected area professionals in six countries representing each of three regions of Africa. Pilot programs will test models of effective approaches, program structures, and teaching methods for imparting the diversity of skills identified as necessary for effective protected area management.

ACTIVITY MANAGER: Tim Resch.

EXPECTED OUTPUTS: National training plans and capacity to implement those plans in six countries. Plans developed through a participatory process where responsibility for skill building responsive to identified needs is inculcated by protected areas managers and their supervisors and by technical staff.

COMPLETION DATE: 10/96.

94 NRM-G3: "GCC -- Sustainable Development Impact"

RESEARCH DESIGN: Workshop of African team members of USG-funded GCC country studies, with NESDA, PCG members, and other collaborators to share information, approaches, and methodologies on how to evaluate and develop adaptive developmental strategies in light of global climate change impacts.

ACTIVITY MANAGER: C. A. Pryor, Tim Resch.

EXPECTED OUTPUTS: Workshop; workshop findings and proceedings; development of network of researchers; report on how to incorporate global climate change impacts analyses into NEAPs.

COMPLETION DATE: 10/96.

94 NRM-G4: "Network for Environmentally Sustained Development in Africa (NESDA)"

RESEARCH DESIGN: The grant supports an analytical agenda to be developed independently by NESDA. The PCG shall provide oversight, peer review, and quality control. The PCG will report to the Bureau at the end of the grant, and evaluate the effectiveness of an analytical agenda on NRM policy based in NESDA. This study will be directly linked to similar grants being presented by ARTS/FARA/ENV in the area of environmental and NRM information systems.

ACTIVITY MANAGER: C. A. Pryor, Walter Knausenberger.

EXPECTED OUTPUTS: Establishment of NESDA as African institution capable of providing technical support to African nations engaged in national level planning activities.

COMPLETION DATES: 5/95.

94 NRM-G5: "Biodiversity Conservation"

RESEARCH DESIGN: Directed Innovative Research grants will be provided to test these new and improved approaches to accomplishing development objectives while conserving biological diversity. Monitoring and evaluation of experience will be a key component in these grants and will be biased to increasing the effectiveness of existing interventions.

ACTIVITY MANAGER: Tim Resch.

EXPECTED OUTPUTS: Ten grants testing approaches to conservation of biological diversity consistent with the Framework for Biological Diversity Conservation and Sustainable Development.

COMPLETION DATE: 10/96.

THEME 2: Collection and Use of Knowledge on Natural Resources Management

94 NRM-2a: "Collation of Knowledge on Impact/Diffusion of Sustainable Agriculture Practices"

RESEARCH DESIGN: Collate existing data in such a way that Missions can more effectively use the data to achieve their goals. Data will be organized according to the NRM Organizing Framework to more easily discern cause-and-effect relationships. To obtain the data, collaborators will contact numerous research institutions, such as ICRAF, ICRISAT, IITA, CIMMYT, and ORSTOM, as well as NGOs and PVOs. Activity will have the following components: (1) build an inventory of practices; (2) establish a data base; (3) conduct analysis of enabling variables; (4) diffuse information.

ACTIVITY MANAGER: Mike McGahuey.

EXPECTED OUTPUTS: Inventory of practices for each agroecological zone with data on ecological and economic impacts, enabling conditions, and programmatic options for establishing conditions;

matrix cataloguing conditions associated with short-, medium-, and long-term practices; data base organized according to the NRM Organizing Framework that is continually updated; diffusion of information on each of the above outputs; and work with selected Missions and African institutions to set up program-wide data and information systems.

COMPLETION DATES: 10/95.

94 NRM-2b: "Methodologies for Collecting and Diffusing NRM Information"

RESEARCH DESIGN: Literature review of various participatory rural appraisal cases to identify the types of data collected and the causal relationships that can be inferred from these data; in-field testing using the NRM Organizing Framework and other instruments in the application of PRA.

ACTIVITY MANAGER: Mike McGahuey.

EXPECTED OUTPUTS: Literature review, testing of findings in three countries, refined research methodology.

COMPLETION DATES: 10/95.

E. Technology Development and Transfer (TDT)

Objective

The Technology Development and Transfer (TDT) unit's three analytical themes support the objective of assisting national and regional research systems, USAID field Missions, and the Africa Bureau to develop African technology systems in order to increase the generation and use of profitable and sustainable technology, which is necessary to achieve sustainable increases in agricultural productivity.

Theme 1: Demand for and Supply of Technology

This theme focuses on developing sustainable agricultural technology systems in Africa that will enable Africans to achieve increased productivity and economic growth. Such growth will be necessary to meet the continent's food needs in the coming decades. The major challenge for African institutions is to make research systems more demand driven, enabling them to respond to market demands with profitable, sustainable, and environmentally sound technologies that lead to sustained increases in productivity, income, and economic growth. Through this theme, the TDT unit helps African research institutions, policy makers, and Missions to develop strategies that foster technologies.

In line with TDT's Strategic Framework, this theme addresses the establishment of effective regional cooperation among the national research systems to enhance the development and utilization of technologies, and it supports the establishment of a food systems approach to deal with binding on- and off-farm constraints.

This regionalization approach not only addresses the advancement of technologies at the ecoregional level but also calls for the establishment of effective management and decision-making mechanisms of regional research networks to support and link back to the national systems. This theme involves the participation of national, regional, and international organizations, including the National Agricultural Research Systems (NARS), International Agricultural Research Centers (IARCs), universities, policy makers, private sector agents, nongovernmental organizations (NGOs), and donors.

To address this theme, the unit is continuing work in 1994 on the following activities: "*Technology Frontiers*" (94 TDT-1a); "*Collaborators Advisory Group*" (94 TDT-1b); and "*Regional Research Networks*" (94 TDT-1c). Two proposed new activities for this theme for FY 1995 are:

- "*Natural Resources Management Research Network*" (94 TDT-1d); and
- "*Sustainable African Agricultural Technology Systems (SAATS)*" (94 TDT-1e).

Theme 2: Policy and Institutional Environment for TDT

This theme concentrates on the enabling conditions required for effective research to take place and the reforms necessary to establish these conditions. It involves working with NARS, IARCs, Special Program for African Agricultural Research (SPAAR), and Missions to identify and implement major policy and institutional reforms needed so that technology systems in participating countries can become more open, sustainable, productive, and accountable. This theme also deals with identifying conditions/incentives for effective collaboration between the public and private sectors to stimulate the development and transfer of profitable and sustainable technologies. Establishment of these incentives may involve changing policies, regulations, and legal practices that will lead to the improvement

of the input market system, the transformation of technologies into profitable products, and the commercialization and transfer of these technologies/products.

The TDT unit is continuing work on three analytical activities related to Theme 2: "*Research and Institutional Reform of National Agricultural Research Systems (NARS)*" (94 TDT-2a), "*Policy and Regulatory Factors Affecting Private-Sector Investment in Technology Development and Transfer*" (94 TDT-2b) and "*Frameworks for Action*" (94 TDT-2c). In addition, the unit proposes to begin a focus this year on a third Theme 2 activity:

- "*Commercialization and Transfer of Technology*" (94 TDT-2d).

Theme 3: Performance Monitoring and Impact Assessment

This theme focuses on assisting national and regional research systems, and Missions, to establish analytical capacity and impact indicators for the technology systems in their countries so that research can be effectively focused and prioritized, progress monitored, and impact assessed. The theme builds on research findings showing that the returns to research investments in agricultural research are quite high. It offers Missions a means of gaining access through buyins to technical expertise in priority setting and impact assessment of TDT activities.

TDT activities for this theme included rate-of-return (ROR) and impact studies in over 15 African countries, a continent-wide study on maize, and an impact symposium. In 1994, the unit plans to continue work on two ongoing activities related to Theme 3: "*Impacts of TDT in Africa*" (94 TDT-3a), a follow-on from the ROR studies, and "*Priority Setting and Economic Impact Assessment*" (94 TDT-3b). No new activity is proposed for this theme in FY 1995.

ANALYTICAL ACTIVITY SUMMARY

Natural Resources Management Research Network

THEME: Demand for and Supply of Technology (94 TDT-1d)

QUESTION: What improved technologies and policies can be developed and used to promote sustainable production and conservation of land and water resources? How can these advances be integrated at the regional and national levels? What would the benefits be of enhancing sustainability of principal production systems, both directly and for the conservation of more fragile aspects of the environment?

WHY IS THIS QUESTION IMPORTANT?: As population continues to increase in West Africa, traditional land management systems are increasingly unsustainable. Resulting declines in fertility and productivity, coupled with accelerated degradation of the resource base, undermine human livelihoods and the quality of the environment. A comprehensive approach to land use, incorporating technologies and policies to foster sustainable use of land and water resources, can provide a stronger economic base in rural areas, increased incomes, and lower food prices, while also protecting forests and biological diversity.

RESEARCH DESIGN: The activity will build on and integrate complementary commodity research approaches being undertaken across the major ecoregions of West Africa. It will provide an overlay of policy and technology research initiatives on sustainable resource management focused on improved productivity and protection of the environment. Key areas will include introduction of legumes and other land-improving plants; integrated control methods of weeds in degraded cropping and fallow areas; interface between marginally cultivated and natural lands; and enhanced soil and land management to reduce erosion and enhance the hydrological cycle in multiuse watersheds. Policy interventions to enhance sustainable systems will be developed in tandem with improved technologies.

WHO IS GOING TO DO IT?: National, regional, and international organizations that can contribute to development, testing, and/or dissemination of technology/policy strategies. These organizations include national programs, IARCs conducting subregional crop and resource management research (IITA, ICRISAT, WARDA, IFPRI), university expertise in policy/technology issues (Stanford), and national and international NGOs (e.g., Winrock).

ACTIVITY MANAGER: Jeff Hill, David Songer.

EXPECTED OUTPUTS: Development and application of system-based techniques and policies to increase productivity of cultivated lands through better nutrient cycling and greater soil organic matter content; reduce erosion; improve water percolation; increase quality and supply stability of water; enhance conservation and reduce clearing of wooded lands; decrease erosion of biodiversity; and increase transparency of policy/resource base linkages.

PRIMARY AUDIENCES: National research programs (scientists and policy makers), West African conservation agencies and NGOs, and their collective constituencies.

FUNDING SOURCE: PARTS.

STARTING AND COMPLETION DATES: Start: 10/94; end: 9/99.

ANALYTICAL ACTIVITY SUMMARY

Sustainable African Agricultural Technology Systems (SAATS)

THEME: Demand for and Supply of Technology (94 TDT-1e)

QUESTION: What systems and technology will need to be available to enable Africa to achieve the annual growth in agriculture that will be necessary to meet the continent's economic growth targets necessary for sustainable development?

WHY IS THIS QUESTION IMPORTANT?: African food needs will triple in the next three decades while, during the same period, per capita arable land is projected to decline to less than half of current levels. Sustainable development will not be achieved with less than 4 percent annual growth in agricultural production that is founded on productivity increases. This level of growth will require the development and use of new technologies to address on- and off-farm constraints.

RESEARCH DESIGN: The activity will address three priority areas: Economic Growth, through development of improved sustainable technologies; Environment, by ensuring that new technologies are environmentally sound; and Democracy, by promoting increased participation of producers, processors, marketers, policy makers, and consumers in technology direction decisions. The initiative will promote and support collaboration by subregional national and international research systems. The initiative will encourage selection of research activities based on specific region or locality needs. Collaboration will be based on the shared economic and agroenvironmental needs of the various regions of the continent. The initiative will support technology systems that hold researchers and research systems accountable for their impact on agricultural and economic growth. It will emphasize activities that (1) through markets, increase the access of all consumers to nutritionally adequate diets at reasonable cost; (2) find profitable and sustainable technological solutions to constraints throughout the food system; and (3) foster a demand-driven approach to technology development and transfer.

WHO IS GOING TO DO IT?: Institutions and individuals selected after consultation with Missions, the various regional networks, FFAs, and other collaborators.

ACTIVITY MANAGER: David Songer.

EXPECTED OUTPUTS: The activity will operate at the regional level and will lead to outputs at regional, national, and local levels including: strengthened ag research capacity; increased efficiency in development and transfer of technology; increased use of sustainable technology by agricultural producers; lower staple food prices; release of on-farm labor to participate in high value-added economic activities; and, increased incomes in the ag sector as a result of new technologies.

PRIMARY AUDIENCES: Technology developers and users, policy makers, USAID, other donors/collaborators.

FUNDING SOURCE: PARTS.

STARTING AND COMPLETION DATES: Start: early CY 1994. Initial design timeframe will be five years.

ANALYTICAL ACTIVITY SUMMARY

Commercialization and Transfer of Technology

THEME: Policy and Institutional Environment for TDT (94 TDT-2d)

QUESTION: What institutional, policy, and regulatory barriers hinder the commercialization and transfer of technologies in Africa, and how can new technologies be translated into market-oriented and profitable products? What do we know about input markets that greatly influence commercialization of technology? What are the essential linkages and conditions that facilitate transformation of technology into profitable products?

WHY IS THIS QUESTION IMPORTANT?: This activity will focus on: (1) input markets, (2) transformation of technology into profitable products; and (3) policy/regulatory environment. To stimulate investment in commercializing technology, we must understand the dynamics of input markets and identify the essential factors that link the sources of technology, manufacturers, financiers, marketing agents, and end users. While African entrepreneurs are entering the input market business, formal and informal barriers still inhibit efficiency in the flow of inputs from one entity to another. We have little understanding of the factors that lead to the transformation of a technology into a viable and profitable product. Although we know that intermediate processes are needed to transform a technology into a value-added commercial product, we understand little of how those processes should be integrated/linked and organized to respond to market realities and opportunities. We need to identify ways and means of establishing a unique partnership of the public and private sector to invest not only in commercializing a finished product but also in the intermediate operations that transform raw technology into a commercial and profitable product. We need more knowledge about the policy/regulatory environment that influences licensing, financing, and marketing of a product. Through country case studies and lessons learned from experiences in other regions/continents, a set of guidelines that will assist the efforts of commercialization and transfer of technology will be developed for use by the clientele listed below.

RESEARCH DESIGN: A workshop will bring together collaborators and partners to develop methodology and approaches, analyze case studies, and create a working group to build a process to get people and entities involved.

WHO IS GOING TO DO IT?: Selected institutions and individuals who are knowledgeable about commercializing technology.

ACTIVITY MANAGER: M. Moussie, David Songer.

EXPECTED OUTPUTS: Conference and workshop proceedings, reports from case studies, guidelines on commercialization of technology, creation of an entity that brings together institutions to help in the development and commercialization of a profitable product.

PRIMARY AUDIENCES: Technology developers and users (public and private), policy makers, USAID (Missions and Africa Bureau), other donors.

FUNDING SOURCE: PARTS.

STARTING AND COMPLETION DATES: Start: 10/94; end: 9/96.

**1994 Ongoing Analytical Activities
Technology Development and Transfer (TDT)**

THEME 1: Demand for and Supply of Technology

94 TDT-1a: "Technology Frontiers"

RESEARCH DESIGN: (1) A dialogue and review process involving Missions, national policy makers, and agents involved in developing and transferring technology to identify high-potential subsectors; (2) a study to determine subsector constraints; (3) an inventory of publicly and privately held technology available to address constraints; (4) an examination of follow-up actions and factors to assess what is limiting the increased use of available technology.

ACTIVITY MANAGER: Jeff Hill, David Songer.

EXPECTED OUTPUTS: (1) Analysis of the constraints for subsector development in a regional context; (2) inventory of profitable and sustainable technology available to address on- and off-farm constraints; (3) national and regional dialogue on the development of the commodities; (4) details to guide further investment to increase utilization of technology.

COMPLETION DATE: Continuation through FY 1995.

94 TDT-1b: "Collaborators Advisory Group"

RESEARCH DESIGN: Development of a process to bring together senior professionals on a regular basis to advise ARTS/FARA/TDT on (1) available knowledge of factors affecting the demand for and the supply of agricultural technology in sub-Saharan Africa, (2) professional credibility of the findings from the analytical activities, (3) the congruity of the TDT analytical activities and factors limiting the use of profitable and sustainable technology in Africa, and (4) analytical and workshop activities that can be used to effectively disseminate concepts and findings.

ACTIVITY MANAGER: Jeff Hill, David Songer.

EXPECTED OUTPUTS: Inventory of interest and capability to do the type of analyses, designs, and monitoring needed to promote the concepts and elements of the new Strategic Framework.

COMPLETION DATE: 9/95.

94 TDT-1c: "Regional Research Networks"

RESEARCH DESIGN: Seven regional research networks are being supported to sustain the flow of technology for selected commodities and to promote a more efficient use of national and regional research resources. Each network also has a program to strengthen monitoring and impact assessment of research activities; priority setting; and workshops and conferences.

ACTIVITY MANAGER: M. Moussie, Jeff Hill.

EXPECTED OUTPUTS: Improved management, accountability, and efficiency of regional research; increased role, responsibility, and management of NARS in network operations; sustained flow of technology to increase productivity and income.

COMPLETION DATE: 9/95.

Theme 2: Policy and Institutional Environment for TDT

93 TDT-2a: "Research and Institutional Reform of National Agricultural Research Systems (NARS)"

RESEARCH DESIGN: Studies focus on learning from research institutes and centers that are testing new mechanisms and ways of doing business. The studies also draw on experiences in the private sector to examine mechanisms and institutional arrangements used to provide sustainable technology development and to transfer efforts. Initial survey describing the status of enabling legislation, financing mechanisms, and operating procedures; survey also identifies priority areas for follow-up attention and study.

ACTIVITY MANAGER: Jeff Hill, David Songer.

EXPECTED OUTPUTS: Understanding of the institutional innovations available to facilitate and guide the reform of NARS and specific guidance to share with Missions.

COMPLETION DATE: 9/95.

94 TDT-2b: "Policy and Regulatory Factors Affecting Private-Sector Investment in Technology Development and Transfer"

RESEARCH DESIGN: Policy analysis of intellectual property rights (IPRs) and their application to agricultural technology in two ecoregional areas of Africa.

ACTIVITY MANAGER: Jeff Hill, Jerry Brown.

EXPECTED OUTPUTS: (1) Report on lessons with regard to application of IPRs and patents in two ecoregional areas of Africa; (2) indicators to monitor the effectiveness with which IPRs are being used; (3) development of an IPRs collaborator group to help Missions and governments form effective IPRs.

COMPLETION DATE: 9/95.

94 TDT-2c: "Frameworks For Action"

RESEARCH DESIGN: Detailed studies on the type and levels of research being conducted, management procedures, technical issues impeding major commodity systems, research priorities, and resources available to support research. Done in conjunction with NARS directors of research on an ecoregional basis.

ACTIVITY MANAGER: Jeff Hill, David Songer.

EXPECTED OUTPUTS: (1) Framework for Action (FFA) for Coastal and Central Africa; (2) report on the status and impact of reform in NARS, (3) baseline on the productivity of NARS involved in FFAS; (4) guidance for Missions on nonproject assistance for agricultural technology development.

COMPLETION DATE: 9/96.

THEME 3: Performance Monitoring and Impact Assessment

94 TDT-3a: "Impacts of TDT in Africa"

RESEARCH DESIGN: Follow-on to economic rate-of-return case studies that were completed in seven African countries. Individual case study data are to be analyzed to examine cross-country and sub-regional impacts of technology development and transfer to improve understanding of the factors influencing the impact of TDT. Activity will also generate methodology on subsector impact assessment that can be used to support the institutionalization of impact assessment in national research systems. Workshops and seminars will be held in Africa and the United States to review and disseminate the findings.

ACTIVITY MANAGER: Jeff Hill.

EXPECTED OUTPUTS: (1) Improved understanding of the impact of past investments in agricultural technology development and transfer and the justification for investing in TDT; (2) understanding of the key factors influencing impact from TDT, and in turn improved knowledge of indicators to monitor and assess impact; (3) methodology for national impact assessment studies; (4) methodology for regional impact assessment; (5) workshops to review and share the findings and methodology.

COMPLETION DATE: 12/94.

94 TDT-3b: "Priority Setting and Economic Impact Assessment"

RESEARCH DESIGN Each impact study is carried out with national participation to develop national system capacity. Activities include (1) a study to determine what impact policy reforms and structural adjustment have had on the supply and demand of technology; (2) a synthesis of experience in impact assessment to identify and refine analytical tools and examine indicators that have been used to monitor impact and progress toward impact; (3) a series of training sessions and workshops in Africa to extend the tools and experience gained in impact assessment, involving individuals dealing with technology impact assessment in the national systems; and (4) examination of the impacts of regional research networks.

ACTIVITY MANAGER: M. Moussie, David Songer.

EXPECTED OUTPUTS: Country reports for individual studies; strengthened policy units in participating countries; improved understanding of the impacts of regional research networks.

COMPLETION DATE: 9/95.

F. Cross-Unit Topics (CUT)

Reflective of the complexity of agricultural, natural resources, and other development issues facing Africa, PARTS project activities often involve multiple analytical areas. Included in this cross-unit category are one ongoing analytical activity -- "*Financial Sustainability*" (94 CUT-2; lead unit: NRM) -- and one new activity being proposed by ARTS/FARA for 1994:

- "Monitoring to Better Understand Environmental Change and Development" (94 CUT-1; lead unit: ENV)

Cross-unit activities such as these are linked to an analytical theme of one of the five ARTS/FARA analytical units. That analytical unit serves as the lead unit for the specific activity, but each activity involve multiple units in its implementation.

ANALYTICAL ACTIVITY SUMMARY

Network for Environmentally Sustained Development in Africa

THEME: **Monitoring to Better Understand Environmental Change and Development (94 CUT-1)**

QUESTION: The purpose of the grant will be to fund a secretariat for the Network for Environmentally Sustained Development in Africa (NESDA). This is a follow-on to the PCG/NESDA study implemented in FY 1993 (ARTS/FARA/NRM), which is a review of institutional approaches undertaken in implementing national environmental strategies. The overall purpose of the grant will be to encourage the development of NESDA as an analytic partner for the Africa Bureau in the area of environmental and NRM policy programs.

WHY IS THIS QUESTION IMPORTANT?: NESDA is an association of coordinators of National Environmental Action Plans, which will cover most African countries. NESDA will be evolving its own institutional structure this coming year, supported through Analytical Agenda activities from FY 1993 and from support from the World Bank and WRI. This group can become the leading African entity concerned with NRM and environmental policy and planning, and a focal point for much of the Bureau's environmental portfolio. If successful, NESDA and its sister entity, the Multi-Donor Secretariat, can become the African counterpart for the Natural Resources Policy and Information Consultative Groups, and a major force in improving the quality of environmental programs throughout Africa.

RESEARCH DESIGN: The grant shall support an analytical agenda to be developed independently by NESDA. ARTS/FARA/ENV, working in collaboration with ARTS/FARA/NRM and /TDT, shall provide oversight, peer review, and quality control; will report to the Africa Bureau at the end of the grant; and will evaluate the effectiveness of an analytical agenda on ENV/NRM policy based in NESDA. The NESDA analytical agenda will be aimed at: direct support to NEAPs; securing African ownership of NEAPs; building African environmental capacity; and improving environmental and natural resource information systems.

WHO IS GOING TO DO IT?: NESDA.

ACTIVITY MANAGER: Walter I. Knausenberger, C. A. Pryor, Dan Dworkin.

EXPECTED OUTPUTS: To be determined.

PRIMARY AUDIENCES: NESDA members, other NRM collaborators, USAID Missions supporting NEAPs.

FUNDING SOURCES: PARTS (ARTS/FARA/NRM) Grant. Two-year approval, but funded incrementally. To be evaluated at end of first year, with second year of funding dependent on positive evaluation.

STARTING AND COMPLETION DATES: Start: 5/94; end: 5/96.

1994 ONGOING ANALYTICAL ACTIVITIES**Cross-Unit Topics (CUT)****Financial Sustainability**

THEME: **Establishing Conditions for Improved Natural Resources Management**

94 CUT-2: *"Financial Sustainability"*

RESEARCH DESIGN: Draws upon analytic work funded under the Natural Resources Management Support (NRMS) and PARTS projects since 1991 to develop an overall analytic framework and action research agenda that cuts across ARTS/FARA units, ARTS divisions, and regional bureaus to ensure that best practices from throughout USAID of relevance to Africa are shared, tested, refined, and reviewed. Two-fold primary approach: (1) to develop an overarching analytic partnership between regional bureaus and their Missions; and (2) within that framework, for the Africa Bureau to promote an action research program, in conjunction with USAID Missions, through two African networks, NESDA and SPAAR.

ACTIVITY MANAGER: Activity 1, the overarching analytic partnership: managed by Inter-Bureau Committee. Activity 2, the Africa Bureau-specific component: C. A. Pryor, Jeff Hill, Walter Knausenberger.

EXPECTED OUTPUTS: Country-specific strategies; expansion and updating of Bureau guidelines; system to encourage sharing of lessons learned across regions.

COMPLETION DATE: 5/95.

New Analytical Activities in Agriculture and Natural Resources in Sub-Saharan Africa -- 1994

Proposed Additions to the ARTS/FARA Analytical Agenda with FY 1994 Funding

Annex

List of Acronyms and Abbreviations

AFR	Bureau for Africa (USAID)
APAP II	Agricultural Policy Analysis Project II
API	Assessment of Program Impact
ARTS/FARA	Office of Analysis, Research, and Technical Support / Division of Food, Agriculture, and Resources Analysis (AFR)
AGR	Office of Agriculture (G/R&D)
AGRHYMET	Agriculture, Hydrology, and Meteorology (regional center in the Sahel)
AMA	Agricultural Marketing and Agribusiness unit (ARTS/FARA)
BSP	Biodiversity Support Program
CBD	Conservation of Biodiversity project
CIMMYT	International Maize and Wheat Improvement Center
CRSP	Collaborative Research Support Program
DESFIL	Development Strategies for Fragile Lands project
DFA	Development Fund for Africa
DOA	delegation of authority
EIS	environmental information system
ENR	Office of Environment and Natural Resources (G/R&D)
ENV	Environmental Protection unit (ARTS/FARA)
EPAT	Environmental and Natural Resources Policy and Training project
EPM II	Environmental Planning and Management II project
FAA	Foreign Assistance Act
FIRM	Financial Resources Management project
FSP	Food Security and Productivity unit (ARTS/FARA)
GCC	Global Climate Change country studies program
GIS	geographic information system
G/R&D	Bureau for Global Programs, Field Support, and Research / portion of new bureau previously called the Bureau for Research and Development (USAID)
HIID	Harvard Institute for International Development
IARC	International Agricultural Research Center
ICRAF	International Council for Research in Agro-Forestry
ICRISAT	International Center for Research in the Semi-Arid Tropics
IEE	initial environmental examination
IFPRI	International Food Policy Research Institute
IITA	International Institute of Tropical Agriculture
IPC	Implementing Policy Change project
IPM	integrated pest management

IPRs	intellectual property rights
MDS	Multi-Donor Secretariat
MSU	Michigan State University
NARS	National Agricultural Research System(s)
NASA	National Aeronautics and Space Administration
NEAP	National Environmental Action Plan
NESDA	Network for Environmentally Sustained Development in Africa
NGO	nongovernmental organization
NPA	nonproject assistance
NRICG	Natural Resources Information Consultative Group
NRM	natural resources management; Natural Resources Management unit (ARTS/FARA)
NRMAA	Natural Resources Management Analytical Agenda
NRMS	Natural Resources Management Support project
ORSTOM	Organisation Française
PARTS	Policy, Analysis, Research, and Technical Support Project
PCG	Consultative Group on Natural Resources Policy
PRA	participatory rural appraisal
PVO	private voluntary organization
REDSO	Regional Economic Development Services Office
/ESA	/ East and Southern Africa
/WCA	/ West and Central Africa
RFI	rural financial institution
ROR	rate of return
SAATS	Sustainable African Agricultural Technology Systems
SADC	Southern African Development Committee
SARSA	Systems Approach to Regional Income and Sustainable Resource Assistance project
SPAAR	Special Program for African Agricultural Research
TDT	Technology Development and Transfer unit (ARTS/FARA)
UNSO	United Nations Sudano-Sahelian Office
USAID	U.S. Agency for International Development
USAID/W	/ Washington, D.C., office
USDA	U.S. Department of Agriculture
/ARS	/ Agricultural Research Service
/OICD	/ Office of International Cooperation and Development
USG	U.S. Government
USGS	U.S. Geological Survey
WARDA	West Africa Rice Development Authority
WRI	World Resources Institute
WWF	World Wildlife Fund