Abt Associates Inc.

Current USAID Science and Technology Activities in West Africa and How They Might Be Augmented: A contribution to the West Africa Regional Program Initiative Action Plan for the Initiative End Hunger in Africa.

Agricultural Policy Development Program

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1. Agricultural Research in West and Central Africa

1.1 Institutional Landscape

The agricultural research structure within West and Central Africa (WCA) consists of national agricultural research systems (NARS), international agricultural research centers (IARCs) or sub-centers of IARCS and a sub-regional agricultural organization (SRO) charged with coordinating regional research efforts within West and Central Africa. The NARS of all the countries in the region except Equatorial Guinea (where a NARS may not even exist on paper) are members of the SRO, CORAF (The West and Central African Council for Agriculture Research and Development). Like its counterparts in East and Central Africa (ASARECA) and Southern Africa (SACCAR), CORAF is responsible for coordinating, facilitating and strengthening the NARS' engagement in regional research programs.

Two IARCs (also called CG centers or institutions) are headquartered in the region: the International Institute for Tropical Agriculture (IITA) at Ibadan and the West Africa Rice Development Association (WARDA) near Bouake, Ivory Coast (now temporarily also in Abidjan and ICRISAT, Bamako). The following IARCs are involved in the region: International Center for Research in Agroforestry (ICRAF), the International Livestock Research Institute (ILRI), ICRISAT (Institute for Crops Research for the Semi-Arid Tropics), the International Livestock Research Institute (ILRI) and CIMMYT (International Maize and Wheat Improvement Center) IARCs are also referred to as CG institutions. This refers to their relationship to the CGIAR (Consultative Group on International Agricultural Research), which coordinates relations between the IARCs and the donors and other bodies on whose support they depend.

The International Fertilizer Development Center (IFDC) located in Togo is not a CG institution since it is an American body headquartered at Mussel Shoals, Alabama. The Sahel Institute (INSAH) of the CILSS (Inter-State Committee for Drought Control in the Sahel) is not part of the CGIAR-IARC nexus, but it does coordinate and support certain research-related functions for the nine member states and their NARS.

Other bodies and programs relevant to agricultural research within the region are SPAAR (Special Program for African Agricultural Research) and FARA (Forum for Agricultural Research in Africa). SPAAR is a body that concerns itself with the problems of the NARS and serves as a clearinghouse for donor ideas and efforts directed toward strengthening them. The World Bank provides its secretariat. FARA is a newer body for representing African research institutions vis á vis SPAAR.

USAID Africa Bureau-funded regional agricultural research networks are a significant feature of the landscape throughout West and Central Africa. Some are focused on commodities and some are focused on relieving constraints on production. Four U.S.-supported commodity networks active in West and Central Africa are WECAMAN (West and Central Africa Collaborative Research Network), WCASRN (West and Central Africa Sorghum Research Network), ROCARIZ (West and Central Africa Rice Research and Development Network) and the NRM InterCRSP. The latter draws on the resources of seven CRSPs (see below) in conducting research aimed at adapting and increasing the adoption of appropriate NRM technologies in much of West and Central Africa.

CRSPs (Collaborative Research Support Programs) are carried out by U.S. university-researchers in collaboration with African researchers using USAID central funding. Those most relevant to West and Central Africa are: the Peanut CRSP, the Bean/Cowpea CRSP, INTSORMIL (the International Sorghum and Millet) CRSP, The IPM CRSP, the SANREM (Sustainable Agriculture and Natural Resource Management) CRSP and the Soil Management CRSP. Some USAID programs have reportedly obtained services from CRSPs through buy-ins. CRSPs seldom if ever have Africa-based coordination units.

1.2 Evolution, Strengths and Weaknesses

The NARS, though in many cases once strong and productive, have mostly declined in capability and output. Due to governments' budgetary constraints and tendency during the structural adjustments of the 80s and 90s to under-appreciate agricultural research, the NARS now typically find themselves unable to fund operating budgets for their researchers and their support staff. Salaries for researchers have become inadequate, and some of the best have gone to the IARCs and institutions in developed countries. NARS staffs have difficulty in mounting experiments except those that are internationally supported either by donor development projects or through IARC-supported networks or others such as the CRSPs. Many of the NARS have serious information management and communications problems owing to inadequate computer equipment, Internet access and travel budgets. Lacking ready knowledge of their predecessors' past research and that of their colleagues around the region, national research efforts have tended to repeat past work and duplicate that already underway in other bodies.

The IARC-supported regional research networks have offered a means of addressing the highest priority needs with the active support of NARS scientists and facilities. In some networks a recent approach to activating NARS capabilities and directing them to priority needs has involved competitive grants in response to proposals from teams of researchers. This collaboration is necessary for the IARCs because their agricultural research programs cannot succeed without the NARS' scientists, facilities and networks. Taken as a whole these bodies seem to operate purposefully. They give reasonable priority to transferring and disseminating the technology they develop, including efforts to support the development of new and more valuable end uses for their commodities.

Because the NARS' weaknesses constrain the regional system in the West and Central region as elsewhere in Africa, SROs like CORAF – whose mission is to facilitate, strengthen and coordinate the NARS' common efforts at the regional level - have been encouraged by the SPAAR and the international agriculture research community. However, CORAF has come to this role only recently. (It started as a body responsible for coordinating cooperation between French agricultural research institutions and the NARS of the francophone countries.) Because its member NARS have had difficulty fulfilling their responsibility to cover core budget of its Secretariat, CORAF is financially constrained and not fully functional. Its strategic plan, being largely a compendium of the CORAF-coordinated networks that does not reflect a systems approach to establishing and realizing regional priority needs, is not well regarded. The culture and operating style of the secretariat sometimes seems more appropriate to a regional authority than that of an organization owned by its members.

1.3 Agriculture and Agricultural Research within the WCA IEHA Action Plan

Regional agricultural research programs have a crucial role to play in any regional program for providing farmers and other economic actors with the technology and information to enable them to raise their productivity and incomes. Unless the present level of research activity is maintained and appropriately focused, the existing flow of benefits from research will fall off in the years to come. If it is increased and if its focus is improved, the flow of benefits should increase. Available analysis suggests that the return on increased investment in agricultural research will yield high returns. For the IEHA program in West and Central Africa this calls for deploying USAID resources, as necessary. to ensure:

1. that USAID-financed activities are focused on commodities and constraints whose priority has been rigorously established;

2. that the volume of research directed to the generation of new technology for priority crops in USAID-financed networks is increased, to the extent practical, through augmented mobilization of NARS scientists within collaborative regional efforts;

3. that these networks also allocate more resources and attention to the transfer and dissemination of on-the-shelf or nearly-on-the-shelf technology, including research on organizational and institutional issues affecting farmers abilities to obtain other needed inputs for the application of new technology; and

4. that the CORAF Secretariat, when receptive and ready, is assisted in reassessing its governing structure, its statutes, operating procedures, organizational structure, financial strategy and strategic plan in light of its responsibilities and role as an instrumentality of the member NARS for the facilitation of research on legitimate regional priorities, with the Secretariat's and Executive Committee's energies mainly deployed to strengthen that focus and enable the member NARS to become effective partners.

2. Vision for WARP's Science and Technology Agenda

The Initiative to End Hunger in Africa (IEHA) will address the causes of hunger, the most fundamental of which is poverty. Reducing poverty in Africa will be approached primarily through efforts to increase productivity and incomes in the agricultural sector where, directly or indirectly, the vast majority of the population derives its livelihood. The focus will be broad and inclusive so that smallholder income is raised and availability of essential food products is maintained even as opportunities for traditional and non-traditional exports available through globalization are seized.

From a systems perspective, agriculture may be viewed as a process for combining labor, natural resources and purchased inputs to produce products that are stored, transformed and marketed at multiple points between the cultivator and the final consumer. The experience of the past decade and more, has led to a widely shared consensus - known as the "Washington consensus" – that views

agriculture not merely as a platform for "dynamic" modern industrial and commercial sectors, but instead as the potential engine of global and domestic market-oriented, private sector-led growth. In this vision, the chief role of government was a) to create a favorable investment climate by withdrawing in favor of the private sector from potentially commercial spheres of activity and b) to safeguard the openness and competitiveness of markets.

Pursuit of this vision has shown, however, that government must also actively work in partnership with the private sector to realize the full potential of market opportunities. This has been demonstrated dramatically in countries engaged in trying to capture non-traditional export opportunities. Areas in which active government support was needed included promulgating and enforcing phyto-sanitary laws, reforming laws pertaining to land-use and tenure, adjusting macro-economic policies, investing in transport infrastructure, strengthening export institutions and even establishing university training programs.

Among the public goods that virtually all governments have long furnished in support of agriculture is research and the transfer and dissemination of the resulting new technologies. During the nineties funding of agricultural research suffered due to budgetary strictures coupled with skepticism about its priority compared to other investments. Perhaps for this reason, considerable research has focused on the impact of agricultural research. It shows that agricultural research has generated high economic rates of return in most countries. Farmers avidly adapt and adopt new technology when its profitability is apparent. Lukas Brader in a recent paper commissioned by the CGIAR noted that virtually all maize cultivated in West and Central Africa consists improved varieties from research programs. The development of early maturing varieties has led to the expansion of maize cultivation into semi-arid zones hitherto reserved to sorghum. Progress in breeding for Striga resistance has been a major factor in farmer adoption of new sorghum as well as maize varieties. Masters and others found that returns to agricultural research were typically well above the opportunity cost of capital with rates of 20 percent and above common. Problems with the adoption of new technology from research often revolve around the access to fertilizer, pest control and other inputs as well as generally poor government extension and ineffective or inconsistent government policies.

3. Proposed S&T Elements for WARP IEHA Action Plan

Increases in agriculture sector production and income will become more dependent on technology from research as time passes. As the availability of cultivable new land decreases and rural population growth continues, yields and value-added along the chain from grower to final consumer must increase per unit of cultivated land in order even to maintain current levels of welfare. Agricultural research must not only improve its output of technology in response to farmer needs, but also address the market-derived demands of economic actors all along the processing chain. At the same time more investigation and investment is needed to identify and mitigate barriers to effective transfer and dissemination of new technologies. Much of this research must focus on ways that farmers and other actors can act together to secure needed inputs, financing, production support services normally provided by governments and government policy responses to their needs. Important strides made in improving communications and collaboration between the agricultural research community and its many stakeholders must continue and improve.

The Action Plan (AP) is to cover a six-year period from 2003 to 2008. However, it will not be possible to formulate concrete elements for the AP's later years based on the understandings available during the sixty or so days available for its preparation. Therefore, the most practical course available is to lay out steps toward realization of the Vision within two timeframes: Phase I, covering the remainder of 2003-04, and Phase II, covering the remainder of the period. Much of the activity during Phase I will be directed toward defining the scope and content of activities for Phase II. The Vision sets forth a potential agenda to be addressed by the actions comprising Phase II, but some of these may prove to be unnecessary (e.g., given the actions of other donors) or infeasible as a result of decisions or non-decisions of potential partners or budgetary parameters.

3.1 Activities during Phase I: Determine priorities for WARP/IEHA investments in agricultural research.

Partners' and Stakeholders' Workshop: One approach would be to hold a Partners and Stakeholders Workshop with researchers from the major regional research networks, CORAF, selected NARS, other national government representatives, CILSS/INSAH, international NGOs (e.g. World Vision International), regional NGOs, farmers', traders' and processors' organizations, bilateral USAID Missions (with IEHA programs) and major other agriculture sector donors to consider, discuss and make recommendations concerning the following agenda:

i. Review and discuss the regional research implications of the non-S&T elements of the planned WARP IEHA and other actors' planned investment programs to increase productivity and incomes from agriculture;

ii. Based on i. above and available analyses from IFPRI and others, consider which commodities, technologies and other needs should be given priority by agricultural research in support of agricultural development throughout the region;

iii. Hear from the NGOs, farmers' and other agriculture sector operators' groups their views concerning research support needs to address constraints in all areas, whether pertaining to the agricultural sciences or institutional, organizational and social science issues;

iv. Hear from the research community representatives the extent to which potential users' expressed research support needs are understood, are or are not being addressed, and are susceptible to treatment by the research community.

> Discussion: Such a conference should provide the information needed for the formulation of the priorities to be pursued by the IEHA regional research program and lay the basis for easy future communications among attendees. The participants in such a conference must be carefully selected for their personal knowledge and experience as well as for the constituencies they represent. Women should represent the user groups where they are important or predominate. Those from whom most is expected – such as experts to assess commodity priorities and other technical issues – may require payment for their participation and the preparation of papers. Other participants – such as those from the other donors will be attracted mainly to the extent that they see it as potentially useful. One of the advantages to this approach is that it could facilitate collaboration with other donors. If regarded as successful by

the majority of participants, consideration should be given to sponsoring such a meeting annually or biennially. This workshop will probably require a lead-time of around 90 days. The INSAH may offer a good venue and might be able to provide support in preparing and conducting it. It would probably be necessary to give CORAF joint sponsor status.

In-House Priorities Setting Exercise: An alternative approach to a. above would be to draw on work by others (IFPRI's dream model) plus the outcome of analyses (e.g., by Abt) that WARP is presently funding plus informal consultations with other USAID units and donors to determine the commodities, other technologies and other needs that the WARP program should emphasize in supporting regional agricultural research.

Discussion: This approach would be considerably less productive of information and ideas, but it would also cost less and generate fewer expectations. It may be the more appropriate path to choose if expected IEHA funding for regional agricultural research is expected to build only slowly and not to rise above $5-6 million over the AP period. This approach to priority determination can probably be accomplished by WARP staff.

Estimated Cost: $0

Evaluation of the Regional Research Networks: Based on 1 above as well as other factors such as need for additional funding and ability to entertain USAID's agenda, select from among existing research networks active in West and Central Africa those that potentially can serve as vehicles for research in support of WARP priorities. The Maize (WECAMAN), Sorghum (WCASRN), Rice (ROCARIZ) and Natural Resource Management (NRM InterCRSP) all appear to be strong candidates and have a history of partnership with USAID. The evaluation team should be comprised of an agricultural economist, an agronomist, a technology transfer and dissemination expert and a rural sociologist–all with extensive experience in West and Central Africa. The focus of the evaluation should be on each candidate networks' operational strengths and weaknesses, whether the scale and scope of research is appropriate and how the focus and approach of each could be modified to best accommodate WARP's IEHA priorities. The evaluators should also assess a sample of the activities carried out with the FY 02 TARGET grants made through the West Africa IARCs.

Discussion: This evaluation should be pursued either jointly with other interested donors or, as minimum, take their interests into account. It should provide both donors and the WCA research community with a roadmap for future partnership.

Minimum Support of Regional Network Coordination: As indicated by the outcome of the priority commodities selection process and until the evaluation of the networks provides the basis for an informed decision, provide the WECAMAN, WCASRN, ROCARIZ and NRM InterCRSP networks at least enough in funds FY 03 and 04 for each to maintain its viability (i.e. retain essential coordination staff and maintain the currency of files and archives).

Discussion: Maintaining this level of support should preserve the networks' future ability to resume active collaboration when fuller funding is available and should that be warranted.

Technology Transfer and Dissemination (TTD) TARGET Grants: Launch another round of TARGET-type competitive funding of regional proposals for transfer and dissemination of on-the-shelf or nearly on-the-shelf research technology to farmers. The criteria should be favor activities directed to the needs of small holders, gender equity and other identified priorities.

> Discussion: Some of these funds should be again programmed with INSAH's cooperation as INSAH's unless the O2 experience indicates otherwise.

Incorporate IEHA into WARP Strategic Plan: Based on the Partners' and Stakeholders' Workshop, the evaluation of the networks and the emerging IEHA regional program vision, revise the existing WARP Strategic Plan to encompass the IEHA Action Plan.

> Discussion: This should be doable in-house or with the help of one short-term consultant for a few weeks.

CORAF Secretariat Operations: Absent an indication that it is no longer needed or expected, continue annual contribution to the CORAF Secretariat's operational needs.

> Discussion: This is mainly a question of working in a collaborative spirit with the other donors and the West African agricultural research community, including CORAF. Without it, USAID may have little opportunity to influence CORAF's evolution in the next few years.

Activities under Phase II:

In this section it is assumed that IEHA allocations to WARP for support regional agriculture research priorities will be in the range of $ 6 to $12 million. The character of most of the activities proposed for consideration is such that they their annual funding can be varied increased or decreased as circumstances warrant.

It appears likely that coming years will see increased funding from a variety of sources for agricultural research in Africa. Some of this funding will flow through the CGIAR Challenge Programs whose content is only beginning to be formulated. This underscores the need, mentioned frequently below, to maintain good communications and coordination with donor and other partners of the West Africa Regional agricultural research community. Responsiveness to changing needs and other donor responses will help to ensure that USAID agricultural investments add real value. Others are treating biotechnology issues and opportunities.

Partners' and Stakeholders' Workshop: Make this a biennial event.

> Discussion: This, like the Regional Outlook Meetings, offers the opportunity to hear from those in touch with grassroots economic actors concerning the constraints they struggle to overcome. The alternative is to mount expensive surveys, to try to attend the field days and other exchanges sponsored by networks or be guided by such

documents as may emanate from donor and recipient government agencies, which are too often out of date and focused on more general developments and trends.

Active Support of Regional Network Coordination: Augment support of the coordination costs of the regional networks for IEHA priority crops and constraints to their "normal" levels of around $ 500,000 each.

Discussion: Active coordination, facilitation of professional exchanges, adequate archiving and highly targeted training will enable the selected networks to accomplish more with funds provided for actual research on regional priorities through competitive grants, etc.

Regional Network Research Challenge Grants: Monitor the adequacy of funds for conduct of research on regional priorities within the research networks and, if needed, provide additional support for it through challenge grants. These funds would augment the Challenge Grant funding already in use in some of the networks. Unlike TARGET grants, which were for application of research technology, these would be for agricultural research per se. Because of this, the approval of proposals should be left to the normal decision-making processes of each network.

Discussion: Straightforward research needs to continue and perhaps increase incrementally to furnish new technology responsive to regional needs. Funds available from other sources may prove sufficient. If not, however, the flow of new technology to users will be decrease and efforts to facilitate transfer and dissemination will, with time, prove less and less fruitful.

Technology Transfer and Dissemination (TTD) TARGET Grants: Support technology transfer and dissemination through IARCs, INSAH and other partners, as indicated by previous experience, with challenge grants geared specifically to this purpose.

Discussion: These would be a continuation of the USAID TARGET grants both as to focus and the reserving final approval of proposals to USAID.

Address TTD Constraints: Assess the experience with 4 above and fund research and development that addresses the identified interface and off-station problems that constrain application of proven technology through one or both of the following means:

a. Constraints to TTD InterNetwork: This would operate along the lines of the NRM InterCRSP. Thus it would tap the expertise and knowledge available within the regional networks and actively direct those and additional resources to identify and test solutions to the problems that challenge farmers and other users in their efforts to make use of research technology;

Discussion: Traditionally donors have worked with ministries of agriculture in hopes that the extension services would become effective in bridging the gap between farmers and researchers and would either effectively deliver agriculture inputs or would encourage and empower the private commercial sector to do so. With a very few exceptions, governments have neither become effective themselves nor adopted

clear policies of leaving the field to the private sector. For this and perhaps other reasons as well, the private commercial sector has mostly not invested in agricultural input distribution. This initiative would identify and evaluate approaches whereby farmers and other operators, no doubt mostly in groups, have tried to "go out and get" the goods, services and financing they need to apply improved technology. Successful models would be documented and disseminated. This would probably be a bit more expensive than the NRM InterCRSP because the social science researchers needed may not be available within the networks.

b. Micro-Enterprise/Micro-Finance Support for TTD: To the extent indicated by the experience with b. above, provide grants to one or more NGOs to conduct micro-enterprise/micro-finance development programs aimed at implementing promising solutions to the problems encountered by farmers and other users of technology. Examples might include supporting the establishment of farmer organizations for the purpose of securing fertilizer, other inputs and credit as well as information concerning new technologies, training in their use, transport and storage.

Discussion: This would be a matter of funding action by NGOs that provide farmers and other operators the technical assistance and training they need to set up and manage organizations, to deal with commercial interests and financial institutions. It would also offer financing for their initial financial needs through associated revolving credit facilities. The assumption is that this activity can be undertaken at relatively low cost through add-ons to NGO programs already active in West and Central Africa. Thus, it would operate in only a few countries.

CORAF Reform: Maintain contact with CORAF and the other donors, such as the European Union and the French, who are interested in the productivity and cost-effectiveness of the West and Central Africa regional agricultural system. When CORAF is prepared to reassess its governing structure, statutes, operating procedures, organizational structure, financial strategy and strategic plan, USAID should consult with other interested donors and, if it appears that U.S. input would add value, support these efforts with technical assistance as necessary for some or all of the following:

i. Reviewing and, as appropriate, revising its governing structure, statutes, operating procedures and organizational structure to fit its character as an instrumentality of the member NARS.
ii. Developing a sustainable financing strategy for itself and extending such assistance to the member NARS.
iii. Engaging the membership in the participatory review and reformulation of its strategic plan so that it reflects priority goals and targets for the development (as opposed to the functioning) of the regional research system as well as choices among program options for addressing them within available resources.

Discussion: The aim is for CORAF to become effective and dependable in serving and representing its membership and in engaging on their behalf as a partner with the donors and the CG system. This will require that the staff time, resources and facilities of the secretariat be strictly reserved for uses that add real value in serving their mandate from the membership. This means that the Secretariat will need to serve

as a repository of information and a clearinghouse, rather than an active force, in some matters. The membership will be little motivated to allocate funds to CORAF unless they are satisfied that it is their organization and it realistically serves their collective interests. Developing realistic a strategic plan and a sustainable financing strategy will help to assure realism and purposefulness in pursuit of regional agricultural research priorities.

CORAF Secretariat Operations: Maintain support to CORAF Secretatiat operations:

Discussion: See point 6 under I above.

4. USAID/Washington Funded Science and Technology Programs in West Africa

4.1 CGIAR - Consultative Group for International Agricultural Research

1. Objectives and justification: To contribute to food security and poverty eradication in developing countries through research, partnerships, capacity building, and policy support, promoting sustainable agricultural development based on the environmentally sound management of natural resources.
2. Nature of activity: Brings together and coordinates public donors, private bodies and 16 IARCs (international agricultural research centers, lately styled "Future Harvest Centers") in support of the IARCs' programs of strategic and applied research. Non-IARC members are all financial contributors. The CGIAR has no constitution, no statutes, no regulations, and no membership laws. Its decisions are taken by consensus.
3. Physical location(s): Secretariat at the World Bank in Washington, D.C. Headquarters for the 16 centers of the CGIAR are distributed all over the world. Satellite offices are often lodged at sister headquarters, although some are free-standing.
4. Institutional attributes: The Secretariat is hosted and supported by the World Bank. IARCs headquartered in West Africa are: International Institute for Tropical Agriculture (IITA) in Ibadan and the West African Rice Development Authority in Bouake. Those with presences and activities in West Africa are the International Center for Research in Agro-Forestry (ICRAF) in Mali, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in Mali and International Livestock Research Institute (ILRI) in Mali.
5. Links to private sector groups, other donor or national programs: Multiple.
6. Programmatic: The U.S. provides core funding of $27million annually. This money is goes into a pool without further attribution. Missions can pass funds to IARCS in support of special activities by funding Public International Organization (PIO) grants through EGAT. In such cases the IARC is answerable to the Missions concerning its role in the supported activity. In such cases the CGIAR charges no overhead, but the IARC gets 20%.
7. Assessments or Evaluations: Highly regarded for its effectiveness.
8. Names of key contact persons: Meredith Soule, EGAT (202-712-1058)

4.2 CORAF/WECARD -West and Central African Council for Agriculture Research and Development

1. Objectives and justification: According to the CORAF website: established as a framework for coordination and exchange of information and lessons learned. Its mission is to encourage South-South exchanges and North-South collaboration in facilitating partnerships, in training, in the identification of common research goals, in carrying out projects and in organizing research teams that serve the sub-region. It has become over time the sub-regional institution representing the national agricultural research systems of West and Central Africa.
2. Nature of activity (including link to IEHA Pillar): Its main function is to make sure that agricultural research priorities are established in a regional fashion and to foster and strengthen the NARS in the collaborative pursuit of a regional agenda. It does this through communications, meetings and other information exchanges. Little information could be found concerning the specific mechanisms and approaches employed, except that CORAF has funds for Competitive Grants and Encouragement Grants provided by the EU. These have been used.
3. Physical location/Organizational Features: The headquarters is in Dakar. It is governed by a General Assembly that meets annually and an Executive Committee that meets several times per year. A Scientific and Technical Committee exists in principal.
4. Institutional location, partners, and affiliations, etc.: Its main partners are the member NARS. It has secondary partnership relations with the IARCs represented in the region (IITA, WARDA, ICRISAT, ICRAF, ILRI, etc), CGIAR, ISNAR, GFAR, AFDB, SPAAR/FARA, donor agencies, etc. Member countries include all the countries of West and Central Africa except Equatorial Guinea.
5. Links to private sector groups, other donor or national programs: It aims to include producers groups and NGOs.
6. Programmatic: The member countries support the core costs of the Secretariat while other activities require support from donors or private other funding sources. The EU has provided $20 million mainly for CORAF's Competitive Grant program and an Encouragement (Incentive?) Fund, but that also supports non-core costs of Secretariat operations. (CORAF website advises that Encouragement Fund must be used for projects involving the NARS of more than one country plus French research institutions.) The French contribute about $3-400,000 annually. The U.S. has contributed some $50,000 annually to CORAF and is helping with the development of guidelines for the Competitive Grant program.
7. Assessments or Evaluations: Unknown.
8. Reading through materials mostly drawn from the CORAF website, one gets the strong impression that it has been going through start-up problems involving: financial problems owing in part to too few "financial partners", difficulties in getting some of the processes - e.g. its Scientific and Technical Committee - up an running, inadequate or unclear operating rules and methods (issues concerned the role of the Executive Committee, rules of engagement with the NARS, communicating clear rules and standards concerning the competitive grants with the result that only Francophone NARS applied for Competitive Grants, lack of criteria and indicators for judging the value-added by CORAF) and lack of an adequate strategic plan. Some of the above problems may have been overcome since reports of the 2001 General Assembly meeting were posted on the website. Observers consider the current Secretariat insufficiently systems-orientation in its approach to planning and management.
9. Names of key contact persons: CORAF Secretary General: Dr. Ndiaga Mbaye; USAID: Bahiru Duguma, AFR/SD/ANRE (EGAT).

4.3 NRM Inter-CRSP in West Africa

1. Objectives and justification: The strategic long-term goal of this network activity is to build a sustainable regional response to changing natural resource management (NRM) needs by reinforcing regional research integration. It aims to address priority regional NRM problems in the West Africa region, building on the expertise and experience of the individual CRSPs and their host partner institutions. It provides support for the Africa Bureau's SO 3 Results Package: increasing the "adoption of improved agricultural policies, programs and strategies." It contributes by increasing broad-based access to technology for selected commodity systems and deploying selected regional and national public and private sector services in support of their adaptation and adoption by resource users.

2. Nature of activity:
    a. This is a network research program, not a CRSP. However, it draws on the resources of seven CRSPs in the pursuit of its agenda, which focuses on adapting and increasing the adoption of appropriate NRM technologies throughout the Sahel. Three sub-activities were activated (parenthetical notations refer in part to material in b below):
        i. Restoration and Maintenance of Degraded Range and Farmlands for Increased Productivity in the Sudano-Sahelian Zones of West and Central Africa. (Soil/Water East Group. Participating Countries: Niger -INRAN; Burkina Faso – INERA; Chad – ITRAD; Cameroon – IRAD. US Principal Investigators (PIs) from Alabama A&M, Purdue, Iowa State)
        ii. Improving and Sustaining Food and Raw Material Production in West Africa: Reversing Soil Acidification, Loss of Organic Matter and Erosive Runoff in Food Production Systems. (Soil/Water West Group. Participating countries: Mali – IER; Senegal – ISRA; Cape Verde – INIDA; The Gambia – NARI. PIs from Hawaii and Virginia Tech).
        iii. Adaptive Research with Inter CRSP Natural Resource Management Technologies for Regional Transfer in West Africa. (The Regional Technology Transfer Group. Participating Countries: Ghana – SARI;, Niger – INRAN; Mali – IER; Chad – ITRAD; Senegal – ISRA. PIs from Michigan State and Nebraska).
    b. The InterCRSP program structure is designed to test alternative means to link regional researchers, technology transfer agents and farmers. It tested three regional models for integrating adaptive NRM research and technology transfer:
        i. The East Group Model ties to capitalize of the comparative research and development advantage of each participating country with technologies selected based on each country's relative level of advancement in developing, testing and extending various technologies. Promising technologies from "Adaptive" sites within country are tested for production system compatibility and demonstrated in an "integrative" site. The more successful are candidates for testing in other countries integrative sites;
        ii. The West Group features the formation of an international interdisciplinary team of researchers to work on solving and transferring solutions to priority NRM problems common to its sub-region. Researchers on particular aspects of a common adaptive NRM problem, sharing results and lessons learned through frequent group interaction. Inter-country site study visits are undertaken and preparation of scientific communications are stressed.

iii. The Regional Technology Transfer Model is characterized by its direct link between CRSP technology development and NGO technology transfer expertise. The Bean/Cowpea and INTSORMIL CRSPs collaborate with World Vision International (WVI). As lead NGO, WVI facilitated the establishment of interdisciplinary "Technology Transfer Teams" for each country comprising representatives of CRSP researchers, NARS, NAES, WVI and other NGOS. For selected technologies, the CRSP and NARS team members implement adaptive research measures while WVI, the NAES and other NGOs carry out transfer activities.

3. Physical location(s)/Organizational Features: U.S. Coordination at the headquarters of the IPM CRSP at Virginia Polytechnic and State University (Virginia Tech) in Blacksburg. The Sahelian NRM/Production Systems Research Pole is coordinated from at INERA.
4. Institutional attributes:INSAH, the NARS and some NAES of the Cape Verde, Senegal, The Gambia, Mali, Burkina Faso, Ghana, Niger, Chad and Cameroon. The participating CRSPs are: Bean/Cowpea, INTSORMIL(sorghum/millet), IPM, Peanut, Pond Dynamics/Aquaculture, SANREM (Sustainable Agriculture and Natural Resource Management) and Soil Management.
5. Links to private sector groups, other donor or national programs: World Vision International (WVI), other NGOs.
6. Programmatic: The InterCRSP has been funded by AFR/SD/ANRE at an annual level approximating that of the other Commodity Research Networks: $250-350,000. WVI apparently "leverages" some funds. The CRSPs non-InterCRSP activities are centrally funded.
7. Assessments or Evaluations: The two documents chiefly consulted (The West Africa NRM InterCRSP of unknown provenance and the NRM InterCRSP Project in West Africa: a Synthesis of Four and One-Half Years of Field work) depict a rigorously conceived and executed collaborative effort of adaptive research both on technologies and methods of supporting adaptation and adoption by farmers. The former provides a list of positive and negative lessons learned in the process as well as proposed improvements to be built into future efforts following on the conclusion of the current phase in March 2003.
8. Names of key contact persons: Virginia Tech: Mike Bertelson (540-231-6338, bertel@vt.edu); NRM/Production Systems Research Pole at INERA, in Ouagadougo: Francois LOMPO.

4.4 TARGET (Technology Applications for Rural Growth and Economic Transformation)/IARC

1. Objectives and justification: To get profitable, productivity enhancing, agricultural technologies, which are now in the pipeline or on the shelf, into the hands of farmers or other end-users.
2. Nature of activity: IARCs were invited to submit Concept Notes (CN) describing opportunities and approaches to realizing them in Africa. This produced 35 CNs from 16 IARCS, of which 11 belonged to CGIAR. These were reviewed first by the Sub-Regional Organizations (SRO = CORAF for West Africa) and send back the IARC with comments. The revised CNs were reviewed in Washington in April – May. Final approvals were granted on May 31, 2002. Six were finally chosen for funding.
3. Physical location(s): The three approved CNs for West Africa were for: Peri-Urban Dairy Production Ghana, Nigeria and Niger); Micro-Dosing Fertilizer (Burkina Faso, Mali and Niger) and Increasing Productivity and Market Opportunities for Banana and Plantain (Ghana, Cameroon, Mozambique and Tanzania).

4. Institutional attributes:Peri-Urban Dairy involved ILRI and the Faculties of Food Science and Technology of Obafemi Awolowo University, Nigeria and University of Science and Technology, Ghana. Micro-Dosing Fertilizer involved ICRISAT, CIAT, and IFDC and the Niger NARS. Increasing Productivity and Market Opportunities for Banana and Plantain involved IPGRI (International Plant Genetic Resources Institute), INIBAP (International Network for the Improvement of Banana and Plantain) and IITA. CORAF ran first round of reviews.
5. Links to private sector groups, other donor or national programs: Micro-dosing involved three NGOs in Mali and three in Burkina Faso plus Project Intrants of FAO and ICRISAT.
6. Programmatic: This was an AFR initiative undertaken at Natsios' behest to demonstrate early pay-offs from investments in S&T. EGAT was involved, possibly because the invitation to submit proposals was directed to IARCs, though not all were CGIAR institutions. USAID funds committed were $3.6 million out of a total of some $ 4m allocated from recalled unused S&T funds.
7. Assessments or Evaluations: One reviewer thought the quality of the CNs was fairly good overall. There were more that merited funding than could be accommodated. CORAF's comments, which were forwarded along with most of the final CNs, were valuable.
8. Names of key contact persons. Bahiru Duguma, 712-0491

4.5 TARGET (Technology Applications for Rural Growth and Economic Transformation)/WARP

1. Objectives and justification: To get profitable, productivity enhancing, agricultural technologies, which are now in the pipeline or on the shelf, into the hands of farmers or other end users.
2. Nature of activity: Funds were allocated to WARP for "Quick Start" activities in Niger, Burkina Faso and Senegal. The activities were selected based on visits by combined CILSS/INSAH and ROPPA (West Africa Network of Peasant Farmers) to identify national partners and technologies in each country for increasing production of sorghum, millet, maize and cowpeas. The process led to a regional conference where a scientist, an extensionist and a farmer from each country presented, discussed and improved national plans. The interventions featured improved seed, better management of inputs (including fertilizer and pesticides) and improved cultivating practices. The plans were put into action in June.
3. Physical location(s): Niger, Burkina Faso and Senegal
4. Institutional attributes: located at INSAH
5. Links to private sector groups, other donor or national programs: ROPPA (West African Network of Peasant Farmers)
6. Programmatic: This was an AFR initiative undertaken at Natsios' behest to demonstrate early pay-offs from investments in S&T. Out of some $ 4m allocated to TARGET, of which most were allocated to the IARCs through CGIAR, $212,000 were allocated to WARP for projects developed with its partners. Each national project received $50,000 and the remainder was allocated to planning.
7. Assessments or Evaluations: An SO-6 success story indicates that the average yield increases achieved for sorghum, maize and cowpeas were 25%, 26% and 23%, respectively, and that some 700 farmers benefited, including some who qualified as food insecure.
8. Names of key contact persons: Ryan Washburn, 223-334-6828.

4.6 West and Central Africa Maize Collaborative Research Network (WECAMAN)

1. Objectives and justification: To strengthen the capacity and capability of the NARS to undertake and coordinate maize research and to combine their resources to address regional constraints to maize production through the the generation and transfer of appropriate technologies. The strategy has been to exploit the strength of the strong NARS (lead centers) in research personnel, infrastructure, and ecological potentialities for the generation of technologies that can be shared with the other network member countries, particularly the weaker NARS. Major emphasis is placed on the screening and development of technologies that can alleviate the major constraints to production. A recent the emphasis has been on promoting the diffusion and adoption of sustainable technologies through the competitive grant system.
2. Nature of activity:
    a. Conducts coordinated development of maize varieties with resistance or tolerance to stresses limiting production and sustainable agronomic practices to enhance maize productivity and production.
    b. Promotes technology transfer and dissemination through strengthening research-extension-farmer linkages (by supporting field days), on-farm tests and demonstrations and sharing information among member countries.
    c. Encourages and supports sustainable seed production and distribution systems.
    d. Enhances the capacity of the NARS through consultation visits, a visiting scientist scheme, a regular five-month technician training course and workshops.
    e. Promotes expansion of the demand for maize by supporting the development of new maize-based food products.
3. Physical location/Organizational Features(s): Coordination at IITA, Ibadan.
4. Institutional attributes:IITA, CIMMYT, OAU/STRC (Scientific and Technical Commission), SAFGRAD (Semi-Arid Food Grains Research and Development).
5. Links to private sector groups, other donor or national programs: NGOs: Sayakawa Global 2000, Sahel Solidarity. The NARS of Nigeria, Cote d'Ivoire, Ghana, Togo, Benin, Cameroon, Burkina Faso, Chad, Senegal, Mali and Guinea are members. UNDP and IFAD are mentioned as providing support "through the UNDP AMS (African Maize Stress) Project."
6. Programmatic: USAID funding through the office of Agriculture, Bureau of Research and Development under grant no. LAC 4111-G-00-3043-00. WECAMAN seems to have been recently funded at about $350,000 per year by USAID.
7. Assessments or Evaluations: AR covers year ending 9/30/02 and most results are for 2001. Field days held in Nigeria, Togo, Chad and Cameroon; On-farm tests and demonstrations held in Ghana, Nigeria, Mali, Togo, Benin, Burkina Faso, Nigeria, Senegal, Chad and Cameroon. This led to release or the earmarking for release of new varieties in Togo and Nigeria and to significant sounding findings in most of the other cases. WECAMAN funds community seed production schemes. Despite cited problems in performance and NARS reporting, these produced 4, 084 kg of breeder seed, 23, 547 kg of foundation seed and 202,054 kg of Certified seed in Nigeria, Ghana, Senegal, Mali, Cameroon, Chad and Benin. These need to be converted into micro-enterprises of the participating farmers. The AR calls for an impact assessment of this program element. Two each lead member countries were designated for research on four constraints, and the results achieved by each are summarized. Regional uniform variety trials of four varieties in 12 countries are reported in terse detail. Competitive grants funded agronomic practices. Trials by four of the seven designated lead NARS are summarized in useful detail. NARS capacity

building involved 5 consultation visits, three visiting scientist trainings, attendance by six technicians at a five month course at IITA Ferkessedougou, Cote d'Ivoire and (with special USAID funding of $30,000) a workshop on biotechnology. Demand expansion was pursued with sensory tests for suitability for use in biscuits, beignets, pancakes and "soumbian". Scientists in Mali supported the development of a maize syrup and a composite flour.

8. Names of key contact persons: Baffour Badu-Apraku, Network Coordinator, IITA/Ibadan

4.7 ROCARIZ (Réseau Ouest et Centre Africain du Riz/ West and Central Africa Rice Research and Development Network)

1. Objectives and justification: ROCARIZ aims to link rice stakeholders in West and Central Africa in order to generate and sustain improved, relevant rice technologies, and to facilitate their transfer and diffusion for rapid adoption by end-users. This is achieved by enhancing NARES' capacity and capability for participatory rice research planning, technology generation, evaluation, and transfer to end-users.
2. Nature of activity: This is a rice research and development network. Formed in April 2000 from WARDA's nine regional Task Forces (TFs) and a network led by CORAF, it links the NARS of most West and Central African countries in a common effort to generate and sustain improved, relevant rice technologies and facilitate their transfer and diffusion for rapid adoption by end-users. Today, ROCARIZ has seven TFs, namely Rice Breeding, Mangrove Swamp Rice, Natural Resource Management, Sahel Natural Resource Management, Integrated Pest Management (IPM), Technology Transfer and Rice Economics. Information is exchanged among member NARS at Bienniel Regional Rice Research Review meetings and by Monitoring Tours as well as, no doubt, by other means, including a recently inaugurated newsletter. Small research projects involving member NARS and scientists are funded. Training is provided to staff of member NARS.
3. Physical location/Organizational/Organizational Features: Coordination is hosted by WARDA from near Bouake, Ivory Coast (but is now also located in Abidjan and at ICRISAT/Bamako until things settle down in Ivory Coast). Both WARDA and CORAF provide institutional support and donor coordination. Operations are spread among 22 West and Central African countries and their NARES. Research is managed by a Steering Committee comprising representatives of NARES scientists, the rice private sector and WARDA.
4. Institutional attributes:WARDA (West Africa Rice Development Association), CORAF, national NARES.
5. Links to private sector groups, other donor or national programs: EU grant covering three years expanded country participation.
6. Programmatic: Rough guess: recently in the range of $250-300,000. Believe it is funded from SO 15 through a centrally funded mechanism.
7. Assessments or Evaluations; The ANRE Annual Report for 2001 notes that the number of "new technologies" promoted in rice declined slightly during recent years. Sidi Samyang document (circa 02) made no mention of technologies released or earmarked for release. The April 02 Newsletter notes that no activity was conducted under the Technology Transfer TF because the Technology Transfer Scientist was "not in place." A total of 78 projects were funded in 2000, but by 2001 only 67 projects were operating. The number of scientists collaborating with ROCARIZ dropped from 68 in 2000 to 59 in 2001. The Monitoring Tour 2001 revealed that there is "generally weak in-country coordination of outreach programs, because of lack of funding."

However it found that "relevant rice-based technologies are being tested/promoted with farmers." Two trainees from NARS completed internships on "anther culture and molecular biology" and ten participants were trained in impact assessment. The Second Biennial Regional Rice Research Review was held during April 9-12, 2002. Over 73 rice research and development papers were presented.

8. Names of key contact persons. USAID: Bahiru Duguma, AFR/SD/ANRE (now EGAT?); WARDA: Sidi Samyang, Network Coordinator.

4.8 West and Central Africa Sorghum Research Network (WCASRN)

1. Objectives and justification: The overall objective of the WCASRN network is to improve the production, productivity, and utilization of sorghum, to contribute to greater food security and to enhance the economic and social well-being of the people of the sorghum-producing countries of West and Central Africa. Its sub-objectives are:
    a. strengthen linkages among sorghum researchers in WCA countries for exchange of plant genetic materials, technologies, and research information
    b. assist network member countries in improving their research and extension services through human resource development
    c. coordinate collaborative research among members of the network in the areas of germplasm development and natural resources management research
    d. facilitate the improvement of sustainable sorghum-based production systems in WCA countries
    e. promote cooperation between network member countries, and national, regional, and international institutions involved and/or interested in sorghum research and development.
2. Nature of activity: Promotes and pursues: partnerships in varietal development, including participatory breeding, partnership for seed production and distribution, regional exchange and testing of promising materials, and on-farm trials; IPM and NRM; market-driven development opportunities for sorghum, particularly addressing lack of efficient sorghum processing machinery and lack of varieties suiting certain end uses; institutional and human resource building though regular training programs, workshops and monitoring tours; technology development, transfer and commercialization.
3. Physical location(s)/Organizational features: Network Coordination Unit at ICRISAT's Samanko station near Bamako. There is a General Assembly and a Steering Committee. Each participating country has a National Coordinator.
4. Institutional attributes:ICRISAT (technical and administrative backstopping), INTSORMIL, CIRAD, INSAH, NARSs, and NGOs (SG 2000, Winrock International), Governments, USAID. USAID is only donor cited on website. Unnamed development projects. The eighteen participating countries are: Benin, Burkina Faso, Cameroon, Cape Verde, Central African Republic, Chad, Côte d'Ivoire, The Gambia, Ghana, Guinea-Bissau, Guinea-Conakry, Mali, Mauritania, Niger, Nigeria, Sierra Leone, Senegal, and Togo.
5. Links to private sector groups, other donor or national programs: Above NGOs plus agor-industries, food processors, market women restaurants, farmers, farmer associations.
6. Programmatic: Annual funding from AID has been running at about $350,000. SO 15 expires in September 03. ANRE has had program management responsibility.

7. Assessments or Evaluations: Document entitled Highlights of Achievements of WCASRN 1998-2002. It reports, in particular, that: on-farm tests have led to the adoption of 31 varieties in nine countries with subsequent yield increases of over 2-3 MT/ha; IPM approaches targeted a head bugs, grain mold, anthracnose and Striga are stabilizing and increasing yields; use of cover crops has improved soil fertility, reduced soil degradation and increased sorghum yields; development of seed production; distribution systems have led to a substantial increase in farmer seed banks of improved varieties; following consumer preference studies three sorghum food products are now commercially available (sorghum biscuit, couscous and "deli'ken"). Most of the specific reports of above results are dated 2000. Report notes that plans had been based on an expected annual budget of $500,000, but that they never received more than $250,000 during the plan period and that this was a problem.

Names of key contact persons: AFR/ANRE (EGAT): Bahiru Duguma (?), Enousa Akintayo, ICRISAT.