

**REPORT OF THE
CGIAR SUB-SAHARAN AFRICA TASK FORCES**

-The Tervuren Consensus -

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Acronyms and Abbreviations

AgGDP	Agricultural Gross Domestic Product
AGM	Annual General Meeting
ARC	African Rice Center
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
CAADP	Comprehensive Africa Agriculture Development Programme
CBC	Committee of Board Chairs
CDC	Centers Directors Committee
CDMT	Change Design and Management Team
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CGIAR	Consultative Group for International Agricultural Research
CIAT	Centro Internacional de Agricultura Tropical (International Center for Tropical Agriculture)
CIFOR	Center for International Forestry Research
CIMMYT	Centro Internacional de Mejoramiento de Maiz y Trigo (International Maize and Wheat Improvement Center)
CIP	Centro Internacional de la Papa (International Potato Center)
CIRAD	Centre de Cooperation Internationale en Recherche Agronomique pour le Developpement
CMD	Cassava Mosaic Disease
COO	Chief Operation Officer
CORAF/ WECARD	Le Conseil Ouest et Centre Africain pour la Recherche et le Developpement Agricoles / West and Central African Council for Agricultural Research and Development
CP	Challenge Program
CY	Calendar Year
EACMV	East African Cassava Mosaic Virus
ESA	East and Southern Africa (ASARECA and SADC countries)
ExCo	Executive Council
FARA	Forum for Agricultural Research in Africa
GMOs	Genetically Modified Organisms

GPG	Global Public Goods
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
HQ	Headquarters
IAC	Inter-Academy Council
IARC	International Agricultural Research Center
ICARDA	International Center for Agricultural Research in the Dry Areas
ICRAF	International Center for Research in Agroforestry (now called World Agroforestry Center)
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
ICW	International Centers Week
IFPRI	International Food Policy Research Institute
IFS	International Foundation for Science
IITA	International Institute for Tropical Agriculture
ILCA	International Livestock Centre for Africa
ILRAD	International Laboratory for Research on Animal Diseases
ILRI	International Livestock Research Institute
INIBAP	International Network for the Improvement of Banana and Plantain
INRM	Integrated Natural Resources Management
IPGRI	International Plant Genetic Resources Institute
IRD	Institut de Recherché pour le Developpement
IRRI	International Rice Research Institute
IRS	Internationally Recruited Staff
ISNAR	International Service for National Agricultural Research (now a division of IFPRI)
IWMI	International Water Management Institute
KARI	Kenya Agricultural Research Institute
LS	Local Staff
MTM	Mid-Term Meeting
MTPs	Medium Term Plans
NARI	National Agricultural Research Institute
NARO	National Agricultural Research Organization of Uganda
NARS	National Agricultural Research Systems

NEPAD	New Partnership for Africa's Development
OED	Operations Evaluation Department of the World Bank
R&D	Research and Development
RRS	Regionally Recruited Staff
SACCAR	Southern African Center for Coordination of Agricultural Research
SADC-FANR	Southern African Development Community-Food, Agriculture and Natural Resources
SPAAR	Special Programme for African Agricultural Research
SROs	Sub-Regional Organizations
SSA	Sub-Saharan Africa
TAC	Technical Advisory Committee
TFs	CGIAR Sub-Saharan Africa Task Forces
TOR	Terms of Reference
TWAS	Third World Academy of Sciences
USAID	United States Agency for International Development
VAD	Vitamin A Deficiency
WARDA	West Africa Rice Development Association (now known as African Rice Center)
WCA	West and Central Africa (CORAF/WECARD countries)

Summary and Recommendations

The CGIAR created two Task Forces (TFs) to conduct a study on rationalization of CGIAR operations across the System, starting with Sub-Saharan Africa (SSA). TF1 was asked to examine CGIAR's work in terms of its programmatic coherence with and relevance to the CGIAR's vision, goals and its clients' needs, with a view to identifying opportunities for integration and synergies. TF2 was given the task of reviewing the strengths and weaknesses of the existing System arrangements and identify opportunities for organizational adjustments towards increasing effectiveness and efficiency of CGIAR research. The two TFs decided to work closely together, hold joint meetings, and prepare a joint report.

The observations and conclusions presented in this report were drawn based on data or information collected from available published documents/reports and using instruments which included the following: 1) a survey of the perceptions of the CGIAR stakeholders in SSA; 2) a survey of the CGIAR Centers infrastructure, staff resources, funding, program focus, and interaction with partners (mode and product of cooperation) in the region; and 3) field consultations/visits undertaken by consultants engaged by the TFs.

SSA Agriculture: Challenges and Opportunities

A good understanding of SSA agriculture — its problems and potentials — is essential in assessing what role the CGIAR should play and the contributions it should make in the region. The Inter-Academy Council's Panel presented a comprehensive diagnosis of the problems in SSA agriculture, a summary of which is given in this report.

At the farm level, agricultural production systems in SSA are generally diverse and complex involving numerous crop and animal species in mixed systems. They are mostly small-scale subsistence farms worked largely by women. The following are the key challenges facing agriculture in the region: 1) degradation of the natural resource base which includes severe soil erosion, soil nutrient depletion, loss of forests and marshlands, loss of biodiversity, overgrazed grasslands, and silted rivers; 2) natural and man-made disasters which are recurring events on the continent over a long period of time. These include the HIV/AIDS pandemic and malaria, numerous animal and plant diseases, and insect pests which significantly reduce farm productivity, recurring droughts and floods, and civil strife or internal conflicts; 3) weak agricultural knowledge and technology institutions; and 4) a policy environment which is generally not supportive of agriculture.

There is, however, a clear recognition of an enormous potential to improve the existing situation and achieve strong agricultural growth. A key factor of this potential is the increased recognition by the region's leaders of the importance of agriculture and their higher level of commitment to support it. Under the NEPAD framework, leaders committed to implement the Comprehensive African Agriculture Development Program (CAADP) which called for an average of 6% annual agricultural growth through 2015. Although the main responsibility for addressing the problems rests on the individual governments in SSA, assistance from the international donor community

will continue to be needed, and agricultural research remains a critical area for support. Such assistance should be provided in the most effective and efficient manner.

Agricultural Research in Sub-Saharan Africa: Issues and Concerns

The CGIAR has a strong presence and extensive operations in SSA. There are a total of 70 Center offices/sites in SSA, most of which were established in the past two decades. They are distributed in 21 countries and concentrated in Western, Eastern and Southern sub-regions.

The CGIAR budget for SSA in 2003 was US\$ 173.3 million, of which US\$ 89.7 million was allocated to the four SSA-based Centers (ICRAF, IITA, ILRI, and WARDA) representing 52% of total CGIAR expenditures in SSA; and US\$ 83.6 million was allocated to activities of the non-SSA Centers, representing 48% of total CGIAR expenditures in SSA. A wide range of other public and private sector institutions have also made significant investments in agricultural research in SSA. Private sector investment is still a small component representing only about 2% of the total investment of \$1.1 billion made by all donors in 2000.

In 2003, there were a total of 162 CGIAR Centers' programs/projects in SSA, of which 82 were conducted by the SSA-based Centers. The Centers reported 117 SSA programs/projects which they carried out in partnership with other institutions. To implement these programs/projects, the Centers engaged a total of 389 internationally recruited staff (IRS), 121 regionally recruited staff (RRS), and 2607 local staff (LS).

CGIAR research has made significant contributions to SSA agriculture. Some recent examples are the Nericas, drought tolerant maize varieties, improved sorghum varieties, improved tilapia for integrated aquaculture-agriculture, Vitamin A-rich orange-flesh sweet potato, cassava mosaic disease resistant varieties, promotion of agroforestry, and control of trypanosomiasis in cattle.

Notwithstanding the high priority attached to SSA by the CGIAR and the important contributions it has made to advance African agriculture, there are a number of issues raised by stakeholders in regard to the Centers' research priorities, programs, and modes of operation in SSA. Earlier reviews of the CGIAR activities in SSA consistently concluded that one of the main reasons for the limited impact of the Centers in SSA was the apparent lack of connection between the priorities of the NARS and those of the Centers. With the establishment of Sub-Regional Organizations (SROs) which has stimulated the member countries/organizations to develop national plans as a basis for the development of sub-regional strategic plans, there appears to be good opportunities now for the CGIAR System to build its priorities consistent with those set by the national and regional partners. A comparison of the research priorities drawn up by the SROs and FARA with the CGIAR System Priorities identified through a process led by the Science Council showed broad similarities, particularly in terms of research themes and also some specific differences.

A survey of stakeholders' perceptions identified areas of strengths and weaknesses of CGIAR work as well as opportunities and threats. Strong features include doing good research, publishing research findings, generating research outputs, defining research priorities, and coordinating networks. Weak areas include delivering research outputs to users, overlap in

mandates of Centers, assessing impact realistically, utilizing resources efficiently, and working with other CGIAR and non-CGIAR Centers. Stakeholders see the following as opportunities for the System: NEPAD, FARA/SROs, stronger National Agricultural Research Institutes and Universities, presence of Advanced Research Institutes, a more system-wide perspective for the CGIAR in SSA, greater sharing of information, resources and expertise by the Centers, and Centers developing more partnerships. Threats to the System include current downward trends in unrestricted funding, increasing trends in levels of overheads of CGIAR Centers, and competition between Centers.

Complementing the stakeholders survey, field visits and consultations conducted by the TF consultants identified a number of issues and concerns, the most important of which were:

- Weak mechanisms for effective and constructive interaction among Centers;
- High level of competition among Centers and duplication of efforts, including with NARS, on a range of activities in SSA;
- Lack of a cohesive strategy for CGIAR work in SSA.

The foregoing issues on research priorities and programmatic and structural/organizational concerns provide the basis and principles for programmatic and structural/organizational alignment of CGIAR's work in SSA.

Programmatic Alignment

The CGIAR has done, and continues to do, high quality research in SSA, generating many useful research outputs appreciated by stakeholders. However, significant programmatic weaknesses remain, especially relating to:

- Programmatic alignment between the CGIAR Centers and SROs/NARS;
- Programmatic alignment and collaboration between the CGIAR Centers.

Much of the CGIAR research in SSA is undertaken in close partnership with the NARS and SROs. However, some CGIAR research activities are largely in response to specific local/sub-national problems that are unlikely to produce regional or global public goods, while other high priority activities are yet to be fully incorporated to the CGIAR research agenda. Also, the collaboration among the CG Centers working in SSA could be improved. (For example, the survey of Centers conducted by the TFs shows that, out of 117 reported projects in SSA, only 38 involved significant cooperation with another Center.)

Four types of programmatic overlap between CGIAR Centers in SSA have been identified:

1. Overlaps in Center mandates: for example, between IPGRI and IITA on banana, and IITA and CIAT on cassava.
2. Overlaps in Center activities: for example, where two or more Centres carrying out research on the same commodity. Of the 61 CGIAR research locations in SSA responding to the question of the current research focus of activities from that location in terms of major CGIAR commodities, 70% reported research on the same commodity as at least one other Center.
3. Overlaps in location: where two or more Centers have activities in the same country. The

Centres have offices or research sites in 21 SSA countries. The largest concentration occurs in Kenya where 9 Centers have a presence. Other countries, such as Ethiopia, Cameroon, Uganda, and Zimbabwe, each host offices/sites from five or more Centers.

4. Overlaps in geographical range of intended impact: these occur when projects of two or more Centers have the same target area within SSA. For example, Tanzania is targeted for impact by 53 CGIAR projects.

For the CGIAR activities in SSA to be aligned with CGIAR System Priorities, and at the same time contribute, to the maximum appropriate extent, to the priorities of the NARS and SROs, there is need for:

- A coherent vision and strategy for the CGIAR in SSA, based on the new System Priorities, and developed in close association with all stakeholders;
- Coherent Medium Term Plans (MTPs) for East and Southern Africa (ESA), and West and Central Africa (WCA), prepared and implemented by all CGIAR Centers working in SSA (regardless of their headquarters' location);
- Effective structural arrangements for oversight and implementation of the MTPs, ensuring that all types of unnecessary overlap are avoided; and,
- Effective arrangements for monitoring, evaluating and improving the quality, appropriateness and impact of the research activities of the CGIAR Centers in SSA.

Structural Alignment

The information collected by the TF suggests that there is no System vision for CGIAR in SSA, a large portfolio of un-coordinated CGIAR efforts, over-burdening of NARS, overlap of some Center activities, lack of integration mechanisms for Centers, a large number of projects that would have difficulty in qualifying as global public good (GPG)-producing research, and inter-Center dispute on mandates. In short, the problem faced is less programmatic; the core of the problem is structural. Even if one looks at programmatic alignment, the key concern is how to achieve alignment within the CGIAR itself.

Preferred Long-term Global CGIAR Structure. The CGIAR must first ask the question: what kind of a CGIAR structure would serve the CGIAR best, and then work its way backwards to figure out what changes in organization would be needed to reach that end state. The consensus view of the members of both TFs is that, in the long-term, the CGIAR should consolidate its operations under **one Board and one CEO** and manage the System through a **corporate governance model**. A new global legal entity would be established. Each of the existing Centers would become a subsidiary of the global entity. The entity would be governed by a single board, appointed by the CGIAR, with one CEO for the entire operation. *All* management authority in the existing Center Boards would be transferred to the single System Board.

Structural Alignment of CGIAR Operations in SSA. In view of the recommended long-term global structure for the CGIAR, the TFs consider that there are two options for adjusting the internal structure of the CGIAR in SSA:

- Consolidate the work of the Centers whose work predominantly focus on SSA into one regional entity;

- Consolidate the same Centers into two sub-regional entities: one for West and Central Africa (WCA), and the other for East and Southern Africa (ESA).

While the single SSA entity option is attractive, the TFs consider that it should be seen as an intermediate-term goal, and that over the short-term it would be more practical to proceed stepwise and initiate the CGIAR restructuring effort by creating two sub-regional entities. The sub-regional entities in SSA would serve as the CGIAR focal points in each sub-region, bringing in and facilitating inputs, as necessary, from the other CGIAR centers and other research actors.

For **WCA**, the most practical approach would be for the Centers involved to appoint the same individuals to a single Board that would manage all the involved Centers (as was done in the IPGRI-INIBAP arrangement), with the necessary adjustments in Board size to accommodate the host country or regional representation requirements. In the case of WARDA and IITA, the WARDA Governing Council could continue to serve as the umbrella entity for the consolidated operation. Given that the entity would continue to carry global responsibilities, in addition to serving as the focal point of the CGIAR in WCA, the TFs envision that the entity could be called ***CGIAR WCA Global Center***.

The TFs propose a novel organizational model for the **ESA** entity — the ***CGIAR ESA Global Center***—. This model would also serve as a pilot for the preferred long-term structure of the CGIAR and would involve using the “one Board, one CEO” corporate governance model at a smaller scale for managing the System’s activities based in ESA. The key constituent units of the ESA Global Center would be a *livestock research unit* (successor to ILRI), an *agroforestry research unit* (successor to ICRAF), and a *semi-arid tropics/ESA unit* (established as a joint venture with ICRISAT). These operating units could have separate small program advisory committees helping the CEO and the COOs. While the corporate strategy would be developed by the CEO and the Board, the subsidiary units would prepare their own vision/strategy and operating plans in the context of the corporate strategy.

There is need for a short-term arrangement to ensure that the operations of the CGIAR and the SROs are well-aligned during the 18-month term the TFs envisage might be needed for the formation of the two sub-regional entities. The most important need is an arrangement for program planning and management for SSA or its sub-regions to improve the synergy between the programs of the 15 Centers and the SROs.

Recommendations

Recommendation 1: *The TFs recommend that the CGIAR agree in principle, and put in place a process, to consolidate all CGIAR Centers and activities into one global corporate entity.*

Recommendation 2: *The TFs recommend that over the next 18 months and as a first step towards global restructuring of the System’s operations, the CGIAR consolidate the Centers headquartered in SSA into two global entities: one in West and Central Africa, and the other in East and Southern Africa.*

Recommendation 3: The TFs recommend that the CGIAR plan and implement its research activities focused on SSA through two MTPs, one for WCA and the other for ESA.

Recommendation 4: The TFs recommend that the CGIAR commission other task forces to identify programmatic and structural alignment needs and opportunities in the remaining regions

Recommendation 5: The TFs recommend that the CGIAR take the following actions for implementing the stepwise structural reform suggested in this report:

- i. During the interim period until the formation of the above recommended SSA based global entities, request CDC/CBC to develop in partnership with the SROs and NARS sub-regional MTPs for SSA, starting with CY2006.***
- ii. Request the SC to review the MTPs and submit commentaries to the ExCo which will perform oversight function on their implementation;***
- iii. Request the Boards of IITA and WARDA to form a CGIAR global entity in West and Central Africa, starting with the establishment of a single Board;***
- iv. Establish, in cooperation with ICRAF and ILRI Boards, a CGIAR global entity in East and Southern Africa, following a corporate model and with ILRI and ICRAF as its initial constituent units.***

Chapter 1. Introduction

At its meeting in Nairobi in 2003, the CGIAR agreed to the Executive Council's (ExCo's) recommendation that the CGIAR should conduct a broader study on rationalization of CGIAR operations across the System, starting with Sub-Saharan Africa (SSA). The opportunity to discuss the programmatic directions and future structure of the CGIAR was widely welcomed, particularly in the context of changes in the external environment, which included multiple demands on official development assistance. The study would also provide an opportunity to identify and discuss ways to make the use of research funds more cost-effective. The following points were made to provide some guidelines in conducting the study:

- Programmatic issues should be identified before structure is considered;
- Change within the CGIAR should be meaningful, deliberate, timely and home-grown; it must be practical and doable. Marginal and incremental changes will not suffice;
- It was considered opportune to balance home-grown reform with external ideas, which could also include viewpoints from the private sector. In terms of change management, it was considered very important to get the strategic ideas right first;
- There is a great need to align the CGIAR activities with other efforts going on in Africa.

The CGIAR created two Task Forces (TFs) to conduct the study. TF1 would specifically look at the CGIAR's work in terms of its programmatic coherence with and relevance to the CGIAR's vision and goals, as well as its clients' needs, with a view to identifying opportunities for integration and synergies. TF2 would review the strengths and weaknesses of the existing System arrangements and identify opportunities for organizational adjustments towards increasing effectiveness and efficiency of CGIAR research. The terms of reference and membership composition of the two Task Forces are given in Appendices A1 and A2.

The TFs began work at their first meeting in May 2004 where they formulated their work plans. It became clear at the meeting that it would be best for the two task forces to work closely together, hold joint meetings, and prepare a joint report. Three consultants, who are all familiar with agricultural research issues in SSA and have had long experiences in addressing them, were engaged to help the TFs in data collection and analysis. The TFs also conducted two surveys: 1) on CGIAR Centers' infrastructure, staff, program focus, funding, and interaction with partners in SSA; and 2) on stakeholders' perceptions of CGIAR work in SSA.

The TFs met two more times in 2004 and also gave a brief progress report to the CGIAR at its AGM04 Business Meeting. The TFs held its last meeting at the Royal Museum for Central Africa in Tervuren, Belgium on March 1-2, 2005.

In carrying out their work and formulating their recommendations, the TFs are cognizant of many past studies/reviews dealing with most of the same issues they have been asked to look at, i.e. the ways and means of making the CGIAR more effective and efficient in implementing international agricultural research in SSA. A desk review of the work done over the past 20 years was undertaken by the TF consultants, starting with a study conducted by the CGIAR Task Force on Sub-Saharan Africa created in 1986. A summary of the desk review, "Two Decades of

Recommendations for Change”, done by the consultants is given in Appendix B. The key recommendations drawn from the various studies/reviews were summarized as follows:

- Priority setting for CGIAR Centers should be based on the priorities of the national systems;
- The research agenda for the Centers should be developed and implemented jointly with the national and regional partners;
- The sustainable development and strengthening of the capacity of national agricultural research systems to effectively address their agricultural research challenges is a major role of the CGIAR; and
- Appropriately coordinated action at sub-regional levels would enhance the effectiveness and efficiency of the work of the CGIAR System in SSA, and considerably facilitate and strengthen the interface with the national systems.

There are lessons to be learned from previous work, including the fact that many of the accepted recommendations never reached the implementation stage. The current SSA Task Forces have taken them into consideration in their analysis of the issues and in drawing up their own recommendations.

Chapter 2. Sub-Saharan African Agriculture: Challenges and Opportunities

The Inter-Academy Council's (IAC)¹ panel describes Africa as a continent rich in natural and human resources, full of promise and potential, and inhabited by more than 700 million people on a land mass of 24.3 million square kilometers covered by immense rainforests, grasslands and deserts. However, it also points out that Africa is a continent where almost 200 million people are undernourished and 33 million children are famished. Of the 29 countries affected by food emergencies in 2001/2002, 16 were in Africa². Sub-Saharan Africa is not likely to achieve the target of halving the proportion of its people suffering from hunger by 2015.

Poverty is widespread, with about half of the population living on less than a dollar a day. While other developing regions (e.g. East Asia and South Asia) experienced a significant reduction in poverty incidence between 1981 and 2001, many countries in SSA had either an increased level of poverty or were able to cut it down only slightly.³

About 70% of SSA's population are rural dwellers making a living out of small-scale farms. The region's agriculture is characterized by complex and mostly subsistence farming systems on a natural resource base that is highly vulnerable to degradation caused by inappropriate crop and land management practices. Significantly contributing to the problems are weak institutions, lack of infrastructure and links to market, and general lack of enabling policies for higher and sustainable productivity. Although frequent and rife natural and man-made disasters have contributed to the calamities faced by the region's inhabitants, the main culprit is a failed agriculture. The IAC Panel's diagnosis of the problems and challenges is outlined in Box 1.

2.1 Characteristics of Agriculture in Sub-Saharan Africa

African agriculture has been driven by the goal of achieving and sustaining food security at the household level and at the national level. The diversity and complexity of SSA farming and production systems derive from this goal. The growing of numerous crop and animal species in mixed systems at the individual farm level is a coping, risk-reducing strategy intended to protect farmers from calamities, such as drought and pest infestations. This strategy is up-scaled to the national level.

It is not easy to give a full description of African agriculture. Notwithstanding the many differences in production systems some general characteristics appear⁴ :

¹ Inter-Academy Council, 2004. Realizing the promise and potential of African agriculture. Science and technology strategies for improving agricultural productivity and food security in Africa. Inter-Academy Council, Amsterdam, the Netherlands.

² World Bank, 2004. The CGIAR at 31: An Independent Meta-evaluation of the Consultative Group on International Agricultural Research. World Bank, Washington D.C., USA. Volume 1: Overview Report, Volume 2: Technical Report.

³ EIARD Strategy 2005-2010.

⁴ Hugon P. L'agriculture en Afrique sub-saharienne: enjeux et perspectives. OCL, Vol. 9, No. 6, November-December 2002.

- Agriculture is mostly small-scale subsistence farming done largely by women. Commercial agriculture is important in some areas.
- Agricultural products represent 40% of export returns. Six agricultural commodities (cocoa, coffee, cotton, tea, sugar, and tobacco) represent two thirds of agricultural exports with an increased concentration on a few products. These products are often in competition with new synthetic, or artificial products. There is limited success for cocoa and cotton. Export agriculture is also dominated by small farms.
- High rates of nutrient depletion of soils are common in many countries and are considered one of the biggest threats to agricultural productivity. On the average, between 9 and 11 kg/ha of fertilizers are used. Only 4 to 6% of cultivated land area is irrigated.
- Work productivity is limited due to little mechanization and inputs utilization.
- Climatic risks are high and poorly controlled in many areas. African agriculture suffers from the effects of drought (e.g. in Sahel and Southern Africa). The risks of degradation of ecosystems are high and, as a consequence, population migration pressure is high.
- Laws regarding land access and use of natural resources are complex. Individual property rights are either weak or non-existent.

Box 1: Diagnosis of problems and challenges in SSA agriculture.

- Absence of dominating food crops
- Weathered soils with low fertility
- Erratic rainfall
- Endemic plant and animal diseases
- Multitude of farming systems
- Low productivity of land/labor
- Dominant role for women but with limited access to resources
- Insufficient investment in agricultural research
- Weak knowledge infrastructure
- Brain drain
- Scarcity of functioning academic institutions
- Poorly functioning markets
- Inappropriate land entitlement
- No stimulating political and economic environment
- Inadequate capacity to impact global policy formulation
- Lack of good governance

Source: Inter-Academy Council, 2004. Realizing the potential of African agriculture.

2.1.1 Degradation of the Natural Resource Base

Agricultural production in Africa is increasing at slightly over 2 per cent per annum, while the annual population increase is over 3 percent. Consequently, productivity per capita is decreasing. The production increases are being achieved mainly by increasing the area under production. As new land is brought under cultivation, land under fallow is decreasing and fallow periods are becoming shorter. As high potential land becomes less available and the rural human population increases, farming is extending into more fragile lands. The result is severe soil erosion, soil nutrient depletion, loss of forests and marshlands, loss of biodiversity, overgrazed grasslands, and silted rivers. This situation is clearly evident in the African Highlands e.g. Rwanda, the Humid and Sub-Humid Tropics, and the Semi-Arid Tropics. Without a substantial amount of external inputs and appropriate policies, the degradation of the natural resource base is bound to become worse with time. The problems associated with the health of Africa's natural resource endowment will require significant investments in human and financial resources.

2.1.2 Natural and Man-Made Disasters

Disasters—natural and man-made—have been recurring events on the continent over a long period of time. Currently, the HIV/AIDS pandemic is perhaps the most serious disaster affecting people in SSA. During a period of only twenty years, this disease has killed more than 40 million people in SSA. There are at present, nearly 30 million people living with AIDS and infection rates range from 3 to 10 per cent in some countries⁵. Malaria is another important natural disaster which is responsible for high infant mortality and morbidity among adults. Diarrhea diseases, sleeping sickness, river blindness, and nutritional deficiencies are some of the other diseases affecting large human populations. Diseases reduce the number of productive people and affect the productivity of people in general thus reducing farm outputs. The number of professionals and skilled personnel that service various sectors of the economy including agriculture has also been affected by these diseases.

Animal and plant diseases and pests continue to reduce the productivity and profitability of farming in SSA. East Coast Fever, trypanosomosis, foot and mouth disease, contagious pleuropneumonia, Newcastle Disease, and African Swine Fever are but a few of the animal diseases that either kill large numbers of farm animals every year or seriously reduce the marketability of animal products. Similarly, a wide range of major crop pests and diseases cause heavy losses to agricultural production. During the past five years, there have been two major outbreaks of wilt diseases affecting coffee and bananas in Central and East Africa for which there are no current control measures. Desert locust infestation is also a perennial problem. The pest and disease problems are periodically confounded by droughts and floods. Post-harvest crop losses may add up to 30 per cent of total harvest. Overall, the reduction in agricultural productivity and profitability attributable to human, animal and plant pests, and diseases in SSA significantly reduces animal and plant production, which in turn results in considerable human suffering.

Besides pests and diseases, conflicts have been a major contributor to human and economic misery in SSA resulting in millions of deaths and internal displacement or emigration of people who would otherwise be agriculturally productive. Angola, Burundi, and the Democratic Republic of Congo, which together cover 3.5 million square kilometers of high potential land, have not experienced real peace since independence. There are millions of internally displaced

⁵ World Bank, 2004. African Development Indicators. Washington DC.

people in northern Uganda, and southern and western Sudan. Rwanda, Sierra Leone, Ethiopia, Eritrea, Somalia, Mozambique, Liberia, Côte d'Ivoire, and even South Africa are yet to recover from vicious internal conflicts. The impact of internal conflict on African agriculture is simply inestimable.

2.1.3 Agricultural Knowledge and Technology Institutions

The natural and man-made disasters in SSA and the resultant economic stagnation or regression has exerted a severe toll on the growth and health of African knowledge and technology institutions. While educational institutions have expanded enormously, they have done so, to a large measure, at the expense of quality and standards. Also, a significant number of qualified and competent personnel have been seeking job satisfaction and opportunities outside the continent. The IAC Panel estimated that as many as 30,000 African professionals leave SSA every year—a significant contributory factor to the weakness of African agricultural technology institutions.

African NARI's and faculties of agricultural sciences have, on balance, grown considerably in terms of numbers of qualified staff⁶. As a result there are at present several African NARS capable of providing scientific leadership and effective partnership especially in downstream research. However, the problems of poor research infrastructure and low operational budgets remain major drawbacks. In addition, more than 50 per cent of African NARS are small, and are unable to undertake effective research on their own to address the many challenges within their borders. The emergence of the SRO's and FARA was occasioned by the need to create synergies between the NARS and to address in part the problem of low operational budgets of nearly all African NARS—both large and small—and the critical mass difficulties of small NARS.

2.1.4 Policy Environment for Agriculture

The mismanagement of political affairs, the intrusion of the Cold War in African political, cultural and economic affairs, and globalization, in large measure, prevented or interfered with the emergence of a home grown African policy environment. Thus policy initiatives developed more as a reaction to external stimuli, rather than to internal stimuli. African governments, almost without exception, stress that agriculture is “the engine of growth” of their respective countries but resources to keep that engine running and to play that role are generally lacking. Most African governments have been spending less than two percent of their total budget on agriculture. If governments would fulfill their undertaking under the Comprehensive African Agriculture Development Program (CAADP) arrangement, the level of agricultural expenditures should increase to 10 percent of AgGDP by the year 2015.

2.2 Potential for Agricultural Growth

⁶ Eicher Carl K. and Mandivamba Rukuni, 2003. The CGIAR at 31: an independent meta-evaluation of the Consultative Group on International Agricultural Research. Thematic Working Paper. The World Bank Operations Evaluation Department. Washington D.C., USA.

The foregoing description of the problems and challenges facing SSA agriculture is not meant to convey a state of total hopelessness. There is recognition of an enormous potential to improve the existing situation and achieve strong agricultural growth. Some changes that augur well for improved agriculture have started to take place in some countries. A key factor in this upturn is the increased recognition by the region's leaders of the importance of agriculture and the higher level of commitment to support it. Under the NEPAD framework, regional leaders committed to implement the CAADP which calls for an average of 6% annual agricultural growth through 2015.

The goals and emphasis are evolving from subsistence to commercial agriculture as described in the NEPAD CAADP, and the strategies of a number of African countries e.g. Uganda's Plan for the Modernization of Agriculture⁷, Ghana's Food and Agriculture Development Policy⁸, and South Africa's Strategic Plan for Agriculture "Consolidating the Partnership for Poverty Eradication through Accelerated Growth and Wealth Creation"⁹, to mention a few. These countries are beginning to realize that industrialization and economic development in SSA are likely to follow the path of agriculture-based light industries such as what happened in some Asian countries.

The problems and challenges facing African agriculture are numerous and often enormous in magnitude. Although the main responsibility for addressing the problems rests on the individual governments in SSA, assistance from the international donor community will continue to be needed, and agricultural research remains a critical area for support. Such assistance should be provided in the most effective and efficient manner.

⁷ NARO, 2004. Revised Research Strategy 2003-2010., addressing the challenges of poverty eradication and sustainable economic growth. National Agricultural Research Organization, Entebbe, Uganda.

⁸ Ministry of Food and Agriculture, Republic of Ghana, 2002. Food and agriculture sector development policy. Accra, Ghana.

⁹ Department of Agriculture, South Africa, 2004. Strategic Plan for the Department of Agriculture: Consolidating the partnership for poverty eradication through accelerated growth and wealth creation. Department of Agriculture, Pretoria, South Africa.

Chapter 3. Agricultural Research in Sub-Saharan Africa: Issues and Concerns

3.1 CGIAR in SSA

Even before the establishment of the CGIAR, Sub-Saharan Africa has been a major focus of interest for international agricultural research. The Ford and Rockefeller Foundations established the International Institute of Tropical Agriculture (IITA) in 1967 as a regional Center for the lowland tropics of Africa, which became one of the four founding Centers of the CGIAR.

The founding objective of the CGIAR was to "increase the pile of rice" – in reality, food – in tropical countries that faced serious scarcity. The earliest successes of the Centers were in cereals (rice, wheat, and maize) but before long, the research portfolio of the Centers was broadened to include potato, cassava, pastures and, thereafter, “orphan commodities” such as chickpea, sorghum, and millets, most of which are important food crops in SSA. Increasing production of these crops was a dominant theme in the CGIAR research agenda in its first two decades. It has remained as a major objective at least in the context of SSA.

Subsequently, as it became clear that improved production of basic commodities alone could not meet the goal of harnessing science-based technology to feed the poor, the CGIAR branched out into several other areas of activity such as livestock research, farming systems, conservation of genetic resources, policy research, and services to NARS in developing countries. As the scope of research widened, the number of centers in the CGIAR network grew. In the 1990s, the CGIAR extended its research focus to include agroforestry, forestry, fisheries, water management, and banana/plantain. The evolution of the CGIAR global agenda is depicted in Figure 1.

Figure 1. CGIAR’s Evolving Research Agenda

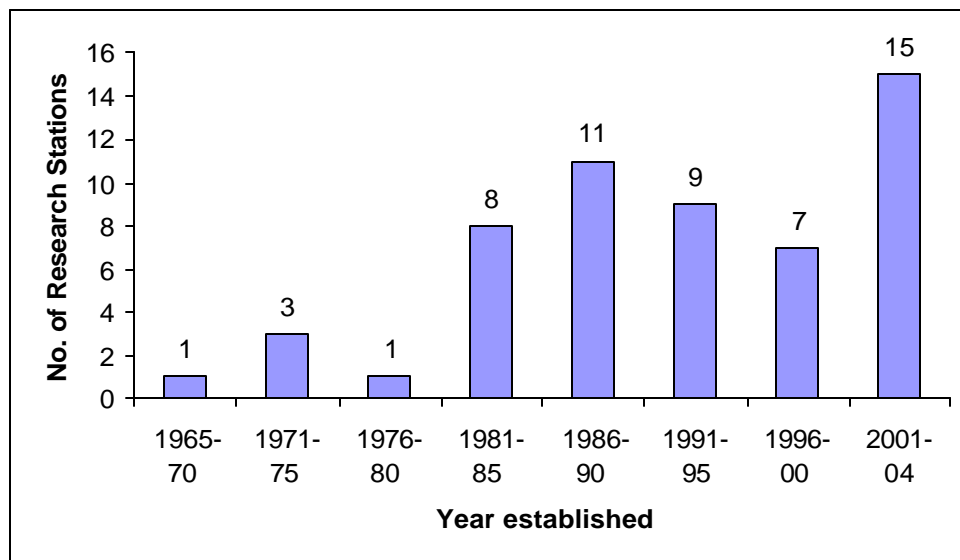


Source: http://www.cgiar.org/pdf/cg_partnership_english_final_feb2004.pdf

Today, there are 15 CGIAR-supported Centers operating globally, four of which have their headquarters located in SSA – IITA, International Livestock Research Institute (ILRI), West Africa Rice Development Association (WARDA, now known as the African Rice Centre (ARC)), and World Agroforestry Center (ICRAF). The remaining 11 Centers, though not SSA-based, have small to sizeable activities, offices, and/or field sites in the region.

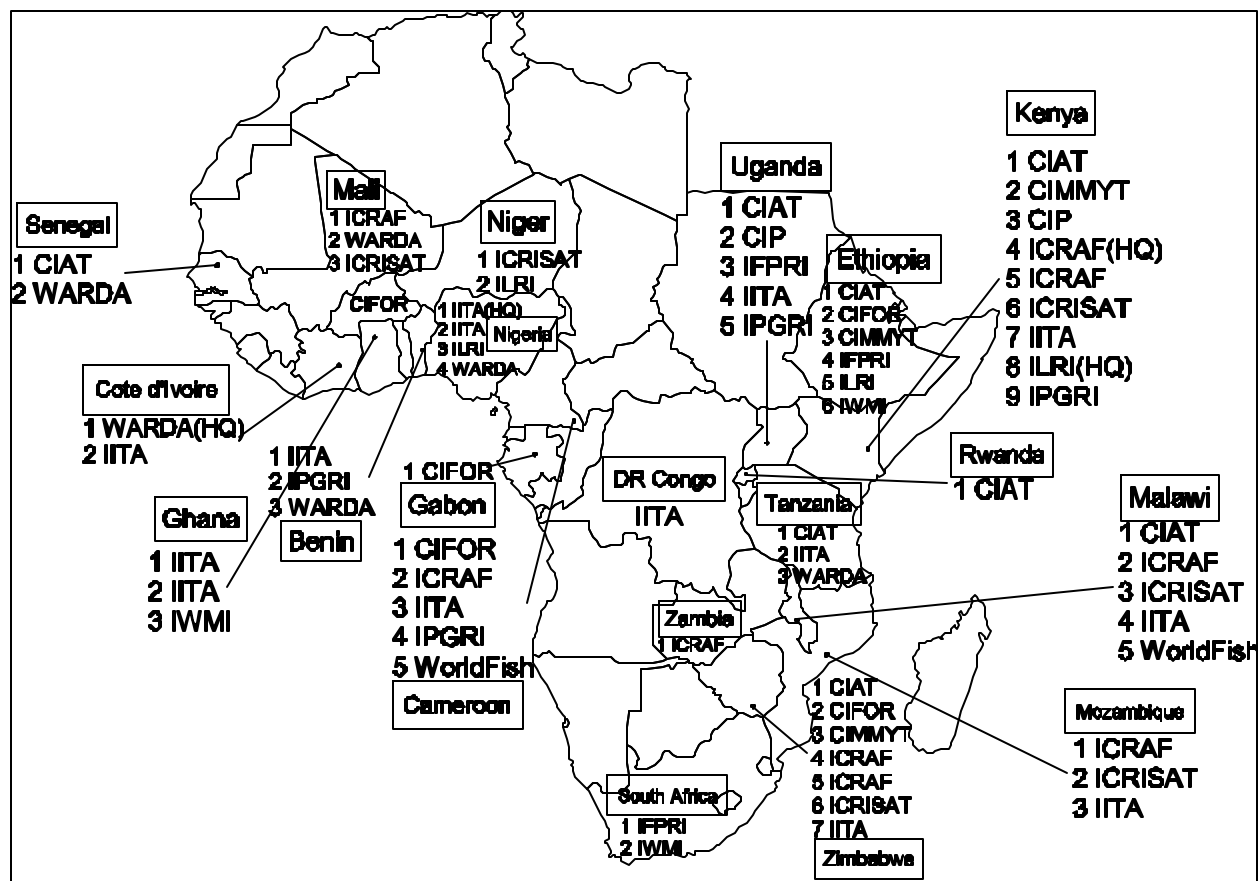
There are a total of 70 Center offices/sites in SSA and most of them were established in the past two decades (Figure 2). They are distributed in 21 countries and concentrated in Eastern, Western, and Southern sub-regions (Figure 3).

Figure 2. Number of offices/research sites of CGIAR Centers established in SSA*



*Only 55 offices/sites are included in this figure. The cut-off year for the survey is 2003. Year of establishment for other 15 offices/sites is either unavailable or they were established after 2003.

Figure 3. Offices/project sites of CGIAR Centers in SSA*



* A Center is listed more than once when it has more than one office or project site in a country.

The CGIAR budget for SSA in 2003 was US\$ 173.3 million, of which US\$ 89.7 million was allocated to the SSA-based Centers representing 52% of total CGIAR expenditures in SSA; and US\$ 83.6 million was allocated to activities of the non-SSA Centers, representing 48% of total CGIAR expenditures in SSA¹⁰.

There were a total of 162 CGIAR Centers' programs/projects in SSA, of which 82 were conducted by the SSA-based Centers. The Centers reported detailed information on 117 SSA programs/projects that they carried out in partnership with other institutions.

In terms of person-years of staffing, the Centers engaged a total of 389 internationally recruited staff (IRS), 121 regionally recruited staff (RRS), and 2607 local (LS) staff. The staff members of the SSA-based Centers were distributed among HQs and other locations respectively as follows: IRS – 57% and 43%; RRS – 54% and 46%; and for LS – 51% and 49%. With regard to the non-SSA Centers the distribution of the above categories of staff in person-years, as part of total

¹⁰ CGIAR 2003 Financial Report.

CGIAR staff in the various categories, were as follows: IRS – 28% (110); RRS – 26% (32); and LS – 12% (321).

It is clear from the above that the CGIAR has a strong presence and extensive operations in SSA.

3.2 Investments by Other Institutions and the Private Sector in SSA Agricultural Research

A wide range of other public and private sector institutions have made significant contributions to the economic development of SSA, primarily through their efforts in agricultural research. Table 1 provides an overview of these investments. It shows a total investment in 2000 of US\$1.11 billion, of which US\$1.08 billion was invested by the public sector, and US \$26 million by the private sector¹¹.

The agricultural research infrastructure in most SSA countries was established by the former colonial powers. They left specialized institutes that did not necessarily address production needs. In some countries, financial resources and expatriate research staff continued for some years, while in others they withdrew more quickly leaving many countries with minimal physical, human resource or organizational research capacity. In the years after independence, most countries focused on building capacity, specifically in terms of replacing expatriate staff with national researchers and enhancing research infrastructure—a process that was often hindered by political unrest and institutional instability (Roseboom, Pardey, and Beintema, 1998). This meant that their relationship with the former colonial powers slowly evolved and that relationships with other institutions were created. A certain number of national universities and agricultural research institutions from Europe, North America, and Japan developed work with African agricultural research institutions with new and different types of modalities.

Some institutions like the International Foundation for Science (IFS) and the Third World Academy of Sciences (TWAS) supported many African scientists. For example, since 1974 IFS has supported more than 1,000 African scientists in most countries in Africa.

Universities in the North were active in training students at post-graduate levels and in carrying out joint research projects, as well as in contributing to the construction of African universities. For example, U.S. universities, with USAID support, helped set up a number of new universities in Africa that embodied some of the Land Grant ideas.

Former colonial powers, especially France, have kept special linkages and still have permanent staff working on joint projects and out-posted in different countries, as well as many others going on missions for networking and support. In 2004, CIRAD (Centre de Coopération Internationale en Recherche Agronomique pour le Développement) and IRD (Institut de Recherche pour le Développement) had about 250 researchers working with African agricultural research institutions. Several research poles regrouping researchers from national research institutions, universities and advanced research institutions have also been set up.

¹¹ Beintema, N.M. and G.J. Stads, 2004. Investing in sub-Saharan African agricultural research: recent trends. 2020 Africa conference brief 8. IFPRI, Washington D.C., USA.

Beyond this scientific support, agricultural research in Africa has become increasingly dependent on donor funding towards 2000; yet the share of donor contributions in total funding declined in the latter half of the 1990s. In 1995, close to half the funding to principal agricultural research agencies in 20 SSA countries was derived from donor contributions (including loans). This figure was reduced to 35% in 2000. Such declines result in part from the termination of a large number of World Bank projects in support of agricultural R&D or the agricultural sector at large.

Private-sector involvement in SSA is largely in terms of supplying agricultural input technologies or technological services. Table 1 shows that in 2000, US \$26 million (in 1993 international dollars) was invested in 27 SSA countries in agricultural R&D, representing only 2% of total public and private research investments in that year. Private sector investment in South Africa accounted for about two thirds (\$16 million) of the total for the 27 countries. The figure represented the amount invested by private companies actually engaged in research. It did not cover the amount used in funding research projects which were contracted with government and higher education institutions.

There are constraints to obtaining accurate data on private sector investment in research. The total amount indicated above was probably lower than what was actually invested. However, the actual figure was not expected to be substantially higher. The proportion of private sector funding relative to public funding is not expected to change much in most developing countries and change even less in SSA countries in the foreseeable future.

Table 1. Public and Private Agricultural Research Investments, 2000

Region/Country	Total spending			Shares	
	Public	Private	Total	Public	Private
	<i>(million 1993 International dollars)</i>			<i>(percentage)</i>	
East Africa (7)	341.4	5.4	346.8	98.4	1.6
South Africa	365.6	15.6	381.2	95.9	4.1
Other Southern Africa (5)	62.4	2.8	65.2	95.7	4.3
Nigeria	106.0	-	106.0	100.	-
				0	
Other West Africa (13)	209.3	1.8	211.1	99.1	0.9
Total (27)	1,084.7	25.6	1,110.3	97.7	2.3

Source: Beintema, N.M. and G.J. Stads, Agricultural R&D in Africa: an era of stagnating growth (forthcoming IFPRI publication).

3.3 Examples of Recent Contributions of CGIAR Research

CGIAR research has had significant effect on agricultural development in SSA, although opinions vary about whether more could have been achieved. The following are some examples:

Rice revolution for Africa: WARDA and its partners have developed NERICA, the New Rice for Africa that combine the ruggedness of the indigenous African rice species (*Oryza glaberima*) with the high productivity traits of the Asian rice species (*Oryza sativa*) that were the mainstay of the Green Revolution. This effort is transforming agriculture in the humid West Africa region,

where rice imports total more than 3.5 million tons. In Guinea alone, the NERICAs have saved the country an estimated \$13 million in rice import bills¹².

Drought-resistant maize (Zea mays L.) varieties: Adapted for harsh ecologies of southern Africa, these maize varieties developed by CIMMYT¹³ with partners in the sub-region are planted on over 250,000 hectares, providing farmers with 30 percent higher yields.

Aquaculture for food and income security: The World Fish Center and partners have developed new varieties of Tilapia fish that grow 60% faster, yielding 3 harvests annually while increasing the productivity of integrated aquaculture-agriculture in SSA¹⁴.

Improved sorghum boosts food and income security: ICRISAT sorghum breeders and partners have developed a new sorghum variety S-35 that is being widely adopted in Cameroon and Chad. Currently, S-35 occupies some 33% of the total rain-fed sorghum area in Cameroon, and 27% in Chad. Grain yields are on average 51% higher than farmers' best traditional varieties in Chad, and 27% higher in Cameroon. Production costs were reduced by 33 and 20% respectively¹⁵.

More food and higher income from improved beans: Over the past 16 years CIAT's¹⁶ collaborative bean program for Africa has generated many high-yielding and stress-resistant varieties. Developed using participatory methods of plant breeding, these varieties are highly suited for small-scale farming. Recent impact study showed that many farmers in Western Kenya have adopted new varieties of beans which are resistant to root rot disease and whose yields are double than those of the local varieties. For example, the new bush bean variety KK15 was found to have been adopted by about 80% of farmers surveyed in one district. The study also found a significant increase in farmers' earnings from growing this new variety.

Vitamin A for Africa (VITAA) Partnership: This CIP¹⁷-coordinated program is helping tackle one of the most pressing health and nutrition problems in Sub-Saharan Africa: Vitamin A deficiency (VAD). New, orange-fleshed sweet potato varieties with enhanced beta-carotene are proving valuable in the fight against VAD that affects some 3 million children in Sub-Saharan Africa who are under the age of five.

Host plant resistance breeding for sustainable control of Cassava Mosaic Disease (CMD): IITA researchers and their national program partners have successfully developed a breeding program for the control of East African Cassava Mosaic (EACMV), which is the most widespread and economically damaging disease in Africa. With the discovery of new variants of the virus, the search for, and utilization of, additional sources of CMD resistance among African landraces was vigorously pursued. The researchers have now confirmed that by pyramiding new sources of CMD resistance with resistance genes of earlier resistant varieties, countries affected

¹² www.warda.org

¹³ www.cimmyt.org

¹⁴ www.worldfishcenter.org

¹⁵ www.icrisat.org

¹⁶ www.ciat.cgiar.org

¹⁷ www.cipotato.org

by various combinations of strains of the cassava mosaic virus now have access to greater and more durable resistance¹⁸. Introduction of these new varieties have saved cassava production in Uganda and neighboring countries; they are also multiplied to overcome the spread of the new CMD strains in the Democratic Republic of Congo and Nigeria¹⁹.

Multiple benefits from planting trees on farms: Researchers at the World Agroforestry Center are collaborating with farmers to promote agroforestry – the planting of trees on farms – as a means of balancing the often conflicting goals of environmental sustainability, poverty reduction and food security. In Western Kenya, several thousand smallholders are using short-term leguminous fallows and biomass transfer to improve the fertility of nutrient-depleted soils. In Embu district of eastern Kenya, more than 3,000 farmers are planting tree legumes in fodder banks for use as an inexpensive protein supplement for their dairy cows. In Zambia, more than 10,000 farmers are using short-rotation improved fallows to restore fertility and raise maize crop yields²⁰.

Building forestry research capacity: CIFOR²¹ has contributed significantly to capacity building of national forestry research systems particularly in geographical zones where the Center has been involved in collaborative research. These include Cameroon’s Humid Forest Zone and the Miombo Woodlands of Malawi, Mozambique, Tanzania, and Zimbabwe. Training activities and participation in CIFOR research projects have enabled developing country researchers (200-300 at any given time) to improve their skills, access more information, and implement more research. These have also enabled them to articulate their own perspectives and contribute more to national and international consultations on forest issues.

Protecting livestock assets in Africa: ILRI scientists working in Ethiopia’s remote Ghibe Valley are tackling a trypanosomiasis epidemic that has affected hundreds of zebu cattle—the local breed. Every month, from 1986 to 2001, approximately 800 cows were weighed and their blood sampled; when parasites were detected, the cows were treated. Data sets from Ghibe were compared with those from trypano-tolerant cattle in Central and West Africa. In addition, tsetse flies were trapped monthly to gauge severity of attacks. To counter drug resistance, an innovative methodology for the safe use of the insecticide, was developed. It involved the application of permethrin to the backs of cattle. This research has contributed to the decrease of trypanosomiasis rates, and increased calf birth and animal survival rates. ILRI’s efforts are at the forefront of epidemiological and socio-economic research to improve livelihoods of resource-poor livestock owners in Africa²².

3.4 Issues and Concerns

Notwithstanding the high priority attached to SSA by the CGIAR and the important contributions it has made to advance African agriculture, there are a number of issues raised by

¹⁸ Dixon *et al* 2004. Abstract – 9th Triennial Symposium of the International Society of Tropical Root Crops-Africa Branch (ISTRAC-AB), Mombassa, Kenya.

¹⁹ www.iita.org

²⁰ www.worldagroforestrycentre.org

²¹ www.cifor.cgiar.org

²² www.ilri.org

stakeholders in regard to the Centers' research priorities, programs, and modes of operation in SSA. Insights on these issues were drawn by the task forces from results of past reviews, recent surveys and consultations.

3.4.1 Agricultural Research Priorities in SSA

Earlier reviews of the CGIAR activities in SSA consistently concluded that one of the main reasons for the limited impact of the Centers in SSA was the apparent lack of connection between the priorities of the NARS and those of the Centers. With the establishment of Sub-Regional Organizations (SROs), which has stimulated the member countries/organizations to develop national plans as a basis for the development of sub-regional strategic plans, there appears to be good opportunities now for the CGIAR System to build its priorities consistent with those set by the national and regional partners.

Linking agricultural research priorities and strategies of SSA with those of the CGIAR Centers may be addressed at two levels—namely, at the level of FARA and at the level of sub-regional strategies and priorities derived from the respective national priorities and strategies. As specified in their current strategic plans, the research priorities of FARA and the three SROs are outlined in Table 2.

Table 2. Agricultural Research Priorities of SROs/NARS and FARA in SSA

ASARECA	CORAF/WECARD	SADC-FANR	FARA
<ol style="list-style-type: none"> 1. Adaptation to climate change 2. Support to policy reform 3. Agriculture, health and nutrition 4. Management of agrobiodiversity 5. Integrated natural resource management (INRM) 6. Analysis of problems, priorities and impacts 7. Market chains 8. Improving learning mechanisms, capacities and spread of 	<ol style="list-style-type: none"> 1. Commodities: cotton, Grain legumes, oil palm, meat, milk, fish, maize, rice, millet, sorghum, coffee, cocoa, para-rubber, wood, banana/ plantain, fruits and vegetables, roots & tubers. 2. Farming systems: rainfed cereal farming systems, rainfed cotton farming systems, irrigated systems, peri-urban systems, forest systems, agro-pastoral systems, agro-forestry systems. 3. Cross disciplinary themes: genetic resources management 4. Research support: 	<ol style="list-style-type: none"> 1. Improvement of nutritional value of food 2. Reduction of food losses, 3. Food safety issues 4. Genetically modified organisms (GMOs) 5. Commodity chains research 6. Natural resources management (soil and water); drought mitigation 7. Biodiversity management 8. Integrated livestock- 	<ol style="list-style-type: none"> 1. Development and dissemination of new technologies and methodologies in: <ol style="list-style-type: none"> a. natural resource management, b. genetic resource management and c. biotechnology; 2. Policy and market development

knowledge.	information and communication, biotechnology, agricultural policy, biometrics, and aspects of technology transfer	wildlife management 9. Forestry 10. Fisheries	
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The strategic plans of ASARECA are organized by research networks. It is at the level of the networks where interactions between the CGIAR centers and SROs/NARS are expected to take place.

In consultation with all stakeholder groups, the CGIAR Science Council is in the process of identifying System Priorities for the CGIAR, to guide the research of all the CGIAR Centers. This priority-setting exercise has identified the following high priority areas for the CGIAR:²³:

1. Sustaining biodiversity for current and future generations;
2. Producing more food at lower cost through genetic improvements;
3. Creating wealth among the rural poor through high-value commodities and products;
4. Combining poverty alleviation and sustainable management of water, land, and forest resources;
5. Improving policies and facilitating institutional innovation to support sustainable reduction of poverty and hunger.

There are broad similarities, particularly in terms of research themes, between the priorities identified by the SROs/FARA and the CGIAR system priorities as outlined above. However, there are also some specific differences between the priorities of the sub-regions on one hand and those of the CGIAR on the other. Centers, particularly those based in SSA, have been increasingly involved in research projects that cover commodities beyond their so-called portfolio of “mandate commodities” (for example, vegetables and other horticultural crops). The proposed research on production and processing systems for high-value commodities as a CGIAR system priority is, to some extent, in response to regional and sub-regional needs.

Research priorities remain one major area where opportunities for alignment between the CGIAR Centers and SROs need to be explored. This is further discussed in the next chapter.

3.4.2 Programmatic and Structural/Organizational Concerns

A questionnaire was sent to a wide range of stakeholders to get their views on programmatic and organizational issues related to CGIAR’s work in SSA. The survey was complemented by field visits/consultations conducted by consultants on behalf of the task forces.

Strengths and weaknesses of CGIAR work. The survey respondents considered the following aspects of CGIAR activities as strong to very strong: doing good research; publishing research findings; generating research outputs; defining research priorities; and coordinating networks.

²³ CGIAR Research Priorities 2005-2015 (Draft report for consideration by the Executive Council in May 2005)

Considered of moderate strength were: responding to users' needs; developing partnerships; and capacity building/strengthening NARS.

Areas of work considered weak or very weak were: delivering research outputs to users; overlap in mandates of Centers; assessing impact realistically; utilizing resources efficiently; and working with other CGIAR and non-CGIAR Centers.

Opportunities and threats. The following developments were identified as strongly favorable for the System: NEPAD; FARA/SROs; stronger NARS, National Agricultural Research Institutes and Universities; presence of Advanced Research Institutes in SSA; a more system-wide perspective for the CGIAR in SSA; greater sharing of information, resources, and expertise by the Centers; and Centers developing more partnerships. Those considered moderate to strong opportunities for the System were: development of farmers' organizations; development of the private sector in SSA; and creation of Challenge Programs.

On the other hand, the following were considered as threats to the System: current downward trends in unrestricted funding for the CGIAR; current trends in levels of overheads of CGIAR Centers; and competition between Centers.

Issues and concerns raised during field visits. From their field visits, the TF consultants identified the following concerns which are considered the root causes of the inefficiencies and ineffectiveness of the CGIAR operations in SSA:

- **Weak mechanisms for effective and constructive interaction among Centers.** Centers lack of appropriate incentive structures to promote collaboration and teamwork and to stimulate the integration of Center activities. This was also highlighted in the CDC retreat held in Addis Ababa in August 2004. There is an urgent need to effectively address this matter.
- **High level of competition among Centers and duplication of efforts on a range of activities in SSA.** Over the years competition between Centers has increased in order for each of them to be seen as the key player to address research activities in SSA, and with the intention of gaining stronger donor support. Typical examples, frequently mentioned include: (i) parallel research activities undertaken by different Centers at the same location, and (ii) seeking endorsement from the same national authorities for similar project activities in a particular country.
- **Lack of a cohesive strategy for CGIAR work in SSA.** Rationalized operational plans for the activities undertaken by the System in the region are missing. Various partners have commented that currently the CGIAR seems to have 15 different strategic plans for SSA. The lack of overall guidance for the System's operations in the region leads to inefficient and ineffective use of the resources.
- **Lack of a structured communication mechanism among Centers to keep each other informed of their activities in countries and sub-regions.** No effort has been made thus far by Centers working in the same country to inform each other and their scientists on

the various activities they have undertaken. Scientists oftentimes discover by accident that colleagues from other Centers are working on agricultural development problems in similar locations. There is no doubt that much more progress would be made if such individual efforts were planned and implemented in a well coordinated manner.

- **Project development and fund raising activities translate into significantly reduced time available for research.** Many Center staff repeatedly expressed this problem to the consultants. In certain cases scientists feel that their annual performance appraisal is based much more on the amount of resources they have mobilized for the Center, than on the quality of their research efforts.
- **Increasing sense of competition between CGIAR Centers and NARS.** In the past, the relationship between Centers and NARS were founded on strong partnerships to reach the farming community. This has gradually changed and increasingly they are becoming competitors for declining resources as well as for recognition by stakeholders. Various NARS representatives stated explicitly that on-farm research was their responsibility and that the Centers had no comparative advantage in this respect. It was considered a very cost-ineffective manner of technology transfer.
- **Lack of a robust priority setting capacity in many NARS.** This has hampered the objective to make Centers' priorities consistent with those common to most NARS. The setting of comprehensive national agricultural research priorities have in most cases been undertaken only in recent years in a systematic and effective manner.
- **Limited commitment to agricultural research and development.** The resulting failure on the part of many African governments to make adequate investments in agricultural research is a major concern. The low level of investment is seriously affecting the NARS in carrying out effective research programs. On average, about 40 percent of the current activities are funded by various donors. This situation is threatening the development and implementation of well-balanced national and regional research agendas.
- **Inability or failure of NARS to recruit, develop and retain appropriate human resources.** This problem is linked to inadequate operational budgets, lack of appropriate research facilities, and low remuneration and it affects all NARS in SSA. It is highlighted by the Inter Academy Council Panel as one of the key concerns affecting the development of agricultural research in SSA. Structural adjustment programs have contributed partly to the limited opportunities for recruitment of new staff in most national systems.
- **Less flexibility in the development of a forward looking and well-balanced research agenda.** The significant increase in donor-driven activities through restricted-core funding has been pointed out as a key contributing factor to this problem. It results in Centers increasingly undertaking more and more short-term research activities. This reduces the amount of investment in strategic research and, over time, threatens the availability of effective technologies for agricultural development in SSA.

- **Unrealistic expectations for impact within very short timeframes by donors, national leaders, and other stakeholders.** This is leading to a shift in CGIAR research activities towards the development component of the research to development continuum. The emphasis on impact drives the Centers to go for quick fixes, and results in the reduction of long-term strategic research activities. It also drives the Center scientists increasingly into costly on-farm demonstrations and resultant potential conflicts with their NARS partners.
- **The establishment of fully effective SROs is still an incomplete process.** This creates uncertainties about the networks as effective instruments for program development and implementation. Networks are undoubtedly a key element for effective collaboration between the Centers and their NARS partners. At the request of some donors the SROs are increasingly taking the necessary leadership in the planning and management of the networks. This fits well into their overall responsibilities, but care must be taken that adequate conditions are created to maintain the positive performance of networks.
- **Lack of strategy to benefit from and utilize the resources, best practices and expertise of the private sector.** The lack of adequate incentives for the private sector to invest in agricultural development activities is a major impediment for the introduction and effective use of national and international research results in SSA. It seriously limits the opportunities to derive the full benefit from research for sustained agricultural development and economic growth. Leadership by the CGIAR in this area will have positive effects.
- **Changes in the funding situation for Centers.** These have a negative effect on the morale and job security of Center staff. There are concerns that funding changes will result in decreased performance and quality of work by the Centers.

The above issues and concerns provide the basis and principles for programmatic and structural/organizational alignment of CGIAR's work in SSA. Arguments are further developed and recommendations are discussed in the two succeeding chapters of this report.

Chapter 4. Programmatic Alignment

In addition to distilling key messages from previous reviews of CGIAR work in SSA (see Appendix B), feedbacks on current CGIAR activities were collected from stakeholders in three ways:

- A questionnaire on CGIAR stakeholders' perceptions of the strengths and weaknesses of the CGIAR's activities in SSA, and potential opportunities for improvement;
- A questionnaire on the activities and capacities of CGIAR Centers in SSA;
- Face to face interviews with stakeholders in SSA by three consultants.

This feedback clearly demonstrated that the CGIAR has done, and continues to do, high quality research in SSA, generating many useful research outputs appreciated by stakeholders. However, significant programmatic weaknesses were also identified, relating to:

- Programmatic alignment between the CGIAR Centers and SROs/NARS;
- Programmatic alignment, and collaboration, between the CGIAR Centers.

4.1 Programmatic Alignment of the CGIAR Centers and the SSA SRO/NARS

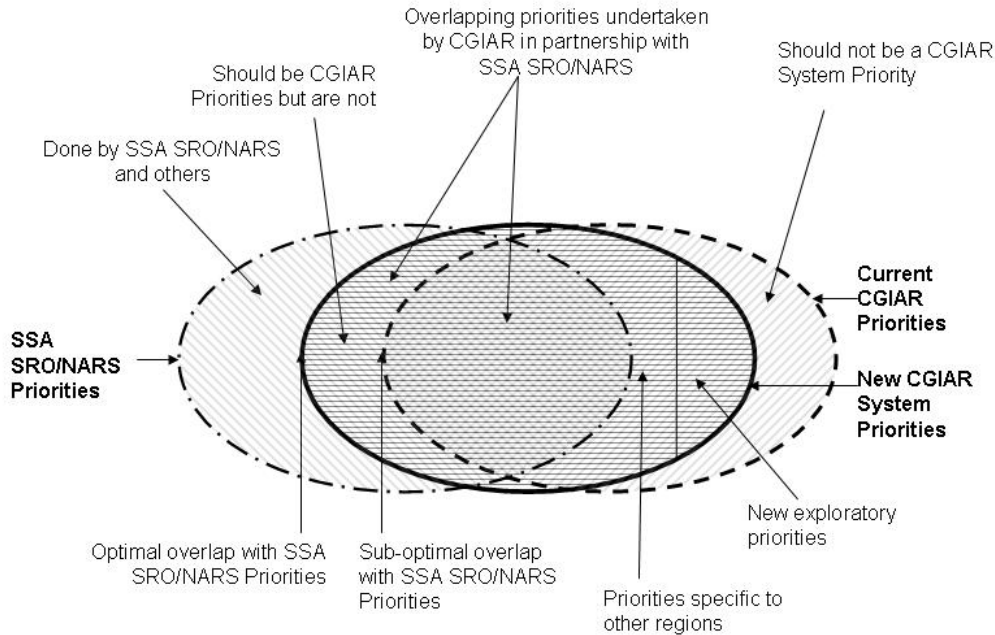
Each of the CGIAR Centers has its own research strategy, including its priorities for research in SSA. Although these strategies are all based on the CGIAR mission statement and objectives, when taken together they are not as coherent, complementary, or effective, as they could be. The current CGIAR priorities are reflected by the sum of the agreed priorities (through MTPs) of the individual Centers on SSA. The new CGIAR System Priorities, as described in Chapter 3, will provide a framework on which a more coherent CGIAR effort in SSA could be built.

The information and feedback compiled by the TFs revealed a high degree of overlap between the priorities of the SRO/NARS and those of the CGIAR Centers. Although this is very satisfying, and demonstrates that much of the CGIAR research in SSA is undertaken in close partnership with the NARS and SROs, there is no doubt that some CGIAR priorities should no longer be priorities, while some necessary priorities are yet to be fully recognized by the CGIAR (Figure 4).

Figure 4 also shows schematically the optimal alignment between the priorities of the SRO/NARS and the CGIAR. This represents the situation where the priorities of the CGIAR overlap to the maximum extent possible with the priorities of the SRO/NARS, and the CGIAR restricts itself to those issues and activities for which it has the comparative advantage. It is assumed that this situation will be reflected in the new CGIAR System Priorities.

Many of the new CGIAR System Priorities will correspond with the priorities of the SSA SRO/NARS, and will be addressed by the Centers working in partnership with the NARS and SROs, each undertaking those activities for which it has the comparative advantage. As their resources and capacities grow, the SROs and NARS will assume responsibility for an ever-increasing proportion of this research.

Figure 4. Alignment Between CGIAR and SSA SRO/NARS Priorities



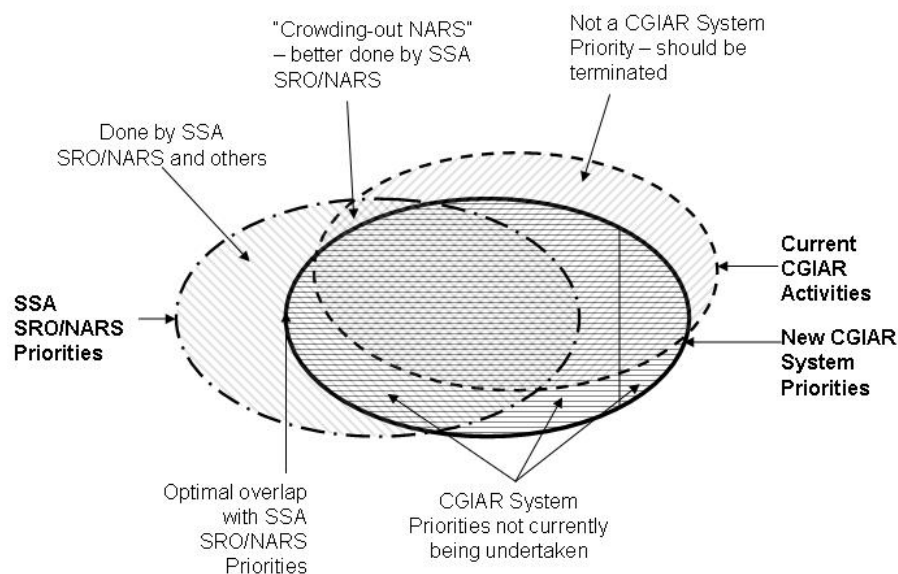
A significant part of the new CGIAR System Priorities will refer to global public goods research that also has relevance for regions other than SSA; a further component will represent new exploratory research undertaken by the Centers alone, or in collaboration with other partners.

4.2 Programmatic Alignment and Collaboration between the CGIAR Centers

Even when the CGIAR System Priorities are optimally aligned with the priorities of the SRO/NARS, there will still be misalignment between the CGIAR System Priorities and the activities actually undertaken by the CGIAR Centers. This misalignment is due to the CGIAR Centers working independently of each other with the SROs and individual NARS (as shown in Appendix C1), and by undertaking some research activities that are inappropriate for an organization producing international public goods (for example, research in response to specific local/sub-national problems that are unlikely to produce regional or global public goods).

This is illustrated in Figure 5, which shows that the current activities of the CGIAR in SSA include some research which should be terminated as they are no longer a priority, and some which are “crowding-out NARS” and would be better undertaken by the SRO/NARS.

Figure 5. Misalignment Between CGIAR System Priorities and Current CGIAR Activities



Apart from the Challenge Programs and Systemwide Programs which by definition are partnership programs, significant collaboration between CGIAR Centers does not exist at the project level. This is illustrated by Appendix C1 which shows that, out of 117 reported projects in SSA, only 38 involved significant cooperation with another Center. While it is true that Centers have been encouraged to broaden their partnerships, with so little apparent collaboration between Centers, some redundancy and duplication in the projects undertaken is inevitable.

CGIAR Centers working independently of each other, while chasing the same limited funding opportunities, has led to an increased competition between Centers, and even between Centers and some NARS. This has resulted in a further important dimension of the misalignment of CGIAR Center activities in SSA—namely, the inefficient utilization of resources. Four types of programmatic overlap between CGIAR Centers in SSA have been identified to illustrate this inefficiency:

1. Overlaps in Center mandates. Appendix C2 shows the principal overlaps in CGIAR-assigned mandate among the Centers operating in SSA; for example, between IPGRI and IITA on banana, and IITA and CIAT on cassava. The origin of many of the overlaps relate to the existence of global, regional and eco-regional Centers.

The current alignment exercise provides an excellent opportunity for the CGIAR to address overlaps in Center mandates. Rather than accepting what the Centers are doing now, one should ask what is important to do, based on the CGIAR System Priorities, and then ask who is best placed to do it.

2. Overlaps in Center activities. Appendix C3 shows the overlap of where two or more

Centers carry out research on the same commodity. Of the 61 CGIAR research locations in SSA responding to the question of the current research focus of activities from that location in terms of major CGIAR commodities, 70% reported research on a commodity that was also reported by at least one other Center. For example, in maize, besides CIMMYT and IITA which have mandates on that commodity, ICRAF and CIAT locations also reported research on maize. Similarly, in sorghum, besides ICRISAT (which carries the global mandate), some IITA, ILRI and CIAT locations also reported to have research projects on sorghum. (ILRI works in close coordination with ICRISAT on improving the feeding value of sorghum straw.) Eight other commodities (forestry/forest products, groundnut, milk, millet, pigeon pea, sweet potato, banana, and plantain) are being researched by at least three Centers.

While it is realized that it is perfectly reasonable for Centers to focus on different research aspects of the same commodity (such as soils, cropping systems, breeding, etc.), this requires regular communication between the researchers; unfortunately, the needed communication does not always appear to exist.

3. Overlaps in location, where two or more Centers have activities in the same country. While these may not be seen as overlaps by the individual Centers, they may be perceived differently by the host country, not least because of the demands each separate Center operation places on its limited resources. Appendix C4 shows that the Centers have offices or research sites in 21 SSA countries. The largest concentration occurs in Kenya where 9 Centers have a presence. Other countries, such as Ethiopia, Cameroon, Uganda, and Zimbabwe host offices/sites from five or more Centers. All Centers working in Ethiopia share offices and services on the ILRI campus.

While such a distribution may make sense to the individual Centers, in order to put them close to their client base, it does not reflect the most efficient allocation of resources when viewed from a System perspective and could compound the coordination burden that is placed on the individual SSA countries.

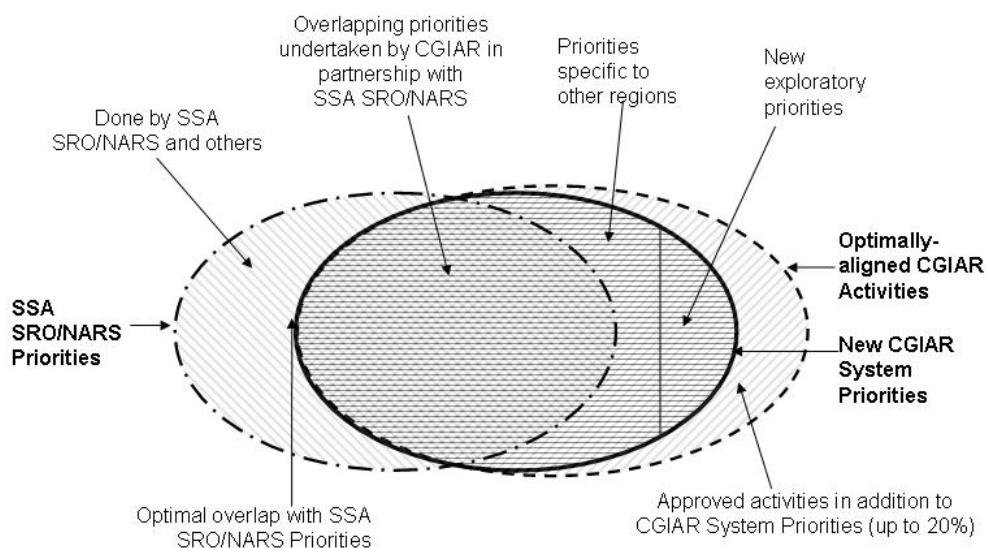
4. Overlaps in geographical range of intended impact occur when projects of two or more Centers have the same target area within SSA. Such overlaps are clearly unavoidable, and are even desirable when they constitute a multi-dimensional attack on priority problems.

However, they often point to potential synergies from greater collaboration between Centers. Appendices C5 and C6 show that Tanzania, for example, is targeted for impact by 53 CGIAR projects (24 multi-country projects, 6 sub-regional projects, 17 regional projects, and 6 global projects). Some of these projects may draw no resources from Tanzanian NARS, as they are conducted afar, but most would require some linkage with the Tanzanian research system. This may tax the resources of the Tanzanian NARS beyond what the individual Centers planning projects may imagine. From the standpoint of the System, at the least, better information sharing among the principals of the 53 projects intending to impact Tanzania (which is used here only as an example) could lead to greater cooperation, synergy and simplification, for the benefit of all.

Misalignments between the CGIAR System Priorities and the actual CGIAR activities, lack of collaboration at project level, and overlaps between Centers in mandates, activities, location, and geographical range of intended impacts mean that the CGIAR is not contributing in the most optimal manner to the research needs of SSA, and that it is not operating in the most cost-effective and efficient way for itself or for its partners.

CGIAR activities in SSA must be aligned with CGIAR System Priorities, and at the same time contribute—to the maximum appropriate extent—to the priorities of the NARS and SROs, as illustrated in Figure 6. Note that the figure recognizes the Science Council’s recommendation to allow for some additional, non-System Priority activities, representing up to 20% of the total budget.

Figure 6. Optimal Alignment between SSA SRO/NARS Priorities, CGIAR System Priorities, and CGIAR Activities



4.3 Towards Improved CGIAR Programmatic Alignment in SSA

The TFs recognize that NEPAD, FARA and its SROs are striving to enhance the effectiveness and efficiency of agricultural research systems in Africa, so as to contribute to agricultural development, economic growth and sustainable use of natural resources. This requires negotiation and cooperation between all stakeholders.

The CGIAR Centers are key stakeholders in this process, yet despite considerable efforts to work in closer partnership with the SROs and NARS in recent years, their engagement in this process remains less than optimal. This is partly due to shortcomings in programmatic alignment, as described above.

For the CGIAR activities in SSA to be aligned with CGIAR System Priorities, and at the same time contribute—to the maximum appropriate extent—to the priorities of the NARS and SROs, there is need for:

- A coherent vision and strategy for the CGIAR in SSA, based on the new System Priorities, and developed in close association with all stakeholders;
- Coherent Medium Term Plans (MTPs) for East and Southern Africa (ESA), and West and Central Africa (WCA), prepared and implemented by all CGIAR Centres working in SSA (regardless of their headquarter location);
- Effective structural arrangements for oversight and implementation of the MTPs, ensuring that all types of unnecessary overlap are avoided; and,
- Effective arrangements for monitoring, evaluating and improving the quality, appropriateness and impact of the research activities of the CGIAR Centers in SSA.

The TFs consider that these needs should be met through institutional mechanisms that already exist in the CGIAR (e.g. ExCo, SC) rather than establishing new mechanisms.

Chapter 5. Structural Alignment

The present structure of the CGIAR reflects how the System has responded to demands and pressures from its members and other stakeholders over time. New institutions have been added (for example during the expansion of the CGIAR in 1990) to respond to changes in its overall mission (incorporation of natural resource management as a goal) or mergers/alliances have been forged in order to increase efficiency (ILCA-ILRAD, INIBAP-IPGRI, ISNAR-IFPRI). Throughout these structural changes, the System's basic organizational form has remained the same: a set of independent centers, each governed by a separate Board of Trustees.

Each Center has a mandate and tries to address it in the most effective manner. Because each Center's accountability is primarily to its own Board, the actions it takes are guided by its own mandate and mission—not by those of its sister institutions. Therein lies one of the underlying structural issues faced by the CGIAR in SSA: how does the CGIAR reshape itself to be more collectively relevant, in a world with competing competencies and with rapid change in strengths of the NARS and SROs? The TFs feel that the CGIAR must first ask the question: what kind of a CGIAR structure would serve the CGIAR best, and then work its way backwards to figure out what kinds of changes in organization would be needed to reach that end state.

As the discussion in the preceding section illustrates, one problem is that the system does not necessarily engage NARS sufficiently in the prioritization of what is done, where work is done and how responsibilities are allocated (and implementation is coordinated) between them (CGIAR Centers) and between CGIAR and NARS/SRO, based on comparative advantage.

Lacking the above, there is a huge portfolio of un-coordinated CGIAR efforts, over-burdening of NARS, overlap of some center activities, lack of integration mechanisms for centers, undefined System vision for CGIAR in Africa, a large number of projects that would have difficulty in qualifying as GPG-producing research, and inter-Center dispute on mandates.

In short, in many ways the problem faced is less programmatic; the core of the problem is structural. Even if one looks at programmatic alignment, the key concern is on how to achieve alignment within the CGIAR itself.

But the responsibility for reform does not lie only with the CGIAR. One should avoid a trap of thinking that all that needs to be reformed for effectiveness in SSA is the CGIAR. Some fundamental changes are equally needed in the NARS, SROs, and FARA. African countries must play their role. The CGIAR cannot substitute for weak NARS that arise because governments don't take agriculture or agricultural R&D seriously. The donors too have an important role to play in discouraging inappropriate competition and duplication and encouraging centers to focus mainly on the System priorities.

5.1 Premises

The preceding chapter outlined some actions that should be taken by the CGIAR to improve programmatic alignment. These serve as pre-conditions for structural alignment. In addition, structural alignment must meet a number of additional conditions and satisfy key principles:

1. Centers' outputs should continue to be in the form of global public goods (or regional public goods);
2. Centers should be involved with an activity (producing GPGs) only if they have a clear comparative advantage and capacity for undertaking that activity;
3. Centers should be engaged only with research that has a high probability of success (i.e., high potential for creating significant impact);
4. Regional activities of Centers should lead to generation of regional, as well as, global public goods;
5. Future CGIAR operations should be guided by maintaining a minimum critical mass and taking advantage of economies of scale;
6. The loci of focus in SSA are the sub-regions (including the SROs and the NARS within them) and this should be explicitly recognized by the CGIAR;
7. CGIAR's work in SSA should complement (not substitute) the work of 6,000 NARS scientists (through the work of its 510 Center scientists);
8. Integrated and collaborative approaches between Centers and between Centers and NARS should be a norm (i.e., chances for misalignment are higher when there is competition rather than cooperation).

These premises imply that the CGIAR's portfolio of research programs should be global in significance, if not scope, and combined or otherwise integrated with ecosystems research programs. (It is important to note that the two types of programs often co-exist/co-mingle in a single Center.) Ecosystem-oriented programs tap into and integrate globally relevant activities (e.g., genetic enhancement, socio-economic-environmental policy) into improved production systems management and impacts and often produce new international public goods.

In most respects, the System has grown in ways that more or less reflect the juxtaposition of global science supply with demands for problem solving that ultimately emanate from farms, forests, or other aspects of the landscape, or from food, feed and fiber systems. Premises number 1, 3, and 4 feature prominently in this view of the System. They stress global public goods (1), impact (3), and the potentially global role of regionally oriented activities (4).

Although the CGIAR System may appear and act differently in different regions of the world, as a whole the System needs to move in the same direction, towards strategic global public goods generation.

In parts of Asia, strong NARS increasingly shoulder responsibilities once shared heavily with Centers; the same is true in parts of Latin America. In Africa, the demands on the Centers remain of a greater variety, spilling over into many areas (e.g., technology delivery, seed systems, etc.). Such activities are extremely important to generating impact and to an understanding of societal transformation. On the other hand, while they are also in the form of public goods (mostly national public goods), such activities are costly and are not necessarily in the long-term comparative advantage of the CGIAR. Yet, for the time being, they remain critically important to achieving impacts and to assisting the development of national programs. This illustrates that the CGIAR as a system may not look the same everywhere at a particular point in time. Moreover, some Centers based outside of Africa work differently in their headquarters' regions than in Africa's sub-regions.

5.2 The CGIAR and SROs in SSA

The CGIAR's overall direction in Africa must be guided by its global priorities as set out by the Science Council and adopted by the members and centers. In Africa, achieving CGIAR goals requires that the responsibilities currently born by the System should shift gradually to SROs, NARS, and other local institutions. A major issue facing the CGIAR is how this larger set of responsibilities is managed in the short and medium term and how the balance between the CGIAR and NARS/SROs should change over time. It is also very important that the system not take on tasks that can be better or more efficiently handled by NARS/SROs or other institutions. The CGIAR is fortunate that now, with the presence of SROs, such decisions can reflect collective, sub-regional planning by NARS and centers partners.

It should be noted that 80 percent (4,800) of Africa's agricultural scientists are working for 13 NARS, while the remaining 20 percent (1,200) are employed by the other 35 NARS across the continent²⁴. Many of these other NARS are quite small with about 40 of them having less than 70 scientists (with M.Sc. and above qualifications) and quite a number with less than 40 scientists. The research program of each of these NARS covers as many commodities and factors as possible that its farmers are facing. The NARS efforts are therefore spread too thinly over many commodities and factors to be effective. It is for this reason that consultations on strengthening NARS which took place throughout SSA in the late 1980s and early 1990s culminated in the development of the three sub-regional organizations (ASARECA/CORAF/SACCAR) to foster cooperation in agricultural research at sub-regional level amongst their member NARS.

The vision of the SROs is to gradually influence the NARS to a stage whereby, for example, the National Agricultural Research Organization of Uganda (NARO) reduces its program in highland maize research to a small adaptive team because it is confident that it can get whatever it needs in this area from the neighboring Kenya Agricultural Research Institute (KARI). Likewise, KARI would reduce its banana research program because it is confident of getting all its needs in this area from NARO. In this way, the national systems will then be able to concentrate on few commodities in which, sub-regionally, they have comparative advantage and become Centers of Excellence for the region and can link up with other regional and international players. If NARS continue with the current system whereby each NARI tries to do everything nationally, then they run the risk of creating organizations which are largely ineffective and inefficient. It is unlikely that such NARS are going to take SSA that far in a competitive and global economy.

It is important, therefore, that the SROs are left to focus on the above task rather than being loaded with the task of coordinating the work of the many IARCs with their headquarters in far flung corners of the world and with management and Boards whose focus and priorities are on the mandate commodities/factors of the ir own Centers.

²⁴ Mrema, G.C. 2001. Interaction Between International Centres, National and Regional Agricultural Research Organisations in Africa. Paper presented at Conference on "The Role of Research in the Development of African Agriculture with Special Focus on the International Agricultural Research Centres – CGIAR", Denmark

Equally, it is important for the CGIAR System to decide what it will not do, as well as what it will do in Africa, as well as elsewhere. There are many NARS and SRO priorities and associated activities which should not be handled by the Centers (as illustrated in the preceding section). A key step forward is for the SROs, Centers, and key partners to conduct analytically-based priority-setting, taking into account agreed goals relating to poverty, productivity, income growth and the environment and the agreed CGIAR priorities and strategies.

5.3 Preferred Long-term Global CGIAR Structure

During the course of the TFs work it became clear that any structural option considered for SSA has global implications in terms of the overall architecture of the CGIAR. In view of this, the TFs explored global CGIAR structures that address the issues identified in SSA. Several options were identified and debated, with the objective of arriving at a *preferred long-term structure* for the CGIAR. A consensus on the goal towards which the CGIAR should move, would also facilitate identifying structural options for SSA that could serve as steps towards that goal.

The consensus view of the members of both TFs is that, in the long-term, the CGIAR should consolidate its operations under **one Board and one CEO** and manage the System through a **corporate governance model**. This is similar to what was recommended by the Third System Review and the Meta Evaluation of the CGIAR conducted by the World Bank's Operations Evaluation Department (OED). A new global legal entity would be established. Each of the existing Centers would become a subsidiary of the global entity. The entity would be governed by a single board, appointed by the CGIAR, with one CEO for the entire operation. *All* management authority in the existing Center Boards would be transferred to the single System Board. (Note: This is not the same as a "federation model" where individual units delegate only *some* of their authority to the System Board.) The System Board could decide to set up subsidiary program committees or small boards of management for the operating units of the System. The System Board would have ultimate authority to streamline operations of the subsidiary units as necessary and appoint the key managers for them.

Adopting a corporate governance model for the CGIAR:

- Would consolidate the existing 15 Centers into a single umbrella CGIAR entity (including their Systemwide and Ecoregional Programs);
- Could lead to mergers of existing Centers, in the sense of consolidating them into fewer operating units than at present, with the operating units maintaining separate identities as "subsidiaries" of the larger CGIAR entity. The larger entity would, of course, have ultimate decision authority about the mission, programs and operations of the subsidiary units and their participation in Challenge Programs ;
- Would provide the option to Centers not interested to take part in the re-aligned CGIAR to exit from the System and operate independently.

Recommendation 1: The TFs recommend that the CGIAR agree in principle, and put in place a process, to consolidate all CGIAR Centers and activities into one global corporate entity.

5.4 Structural Alignment of CGIAR Operations in SSA

The TFs consider that the **objectives** of structural alignment of CGIAR activities on SSA should be fourfold:

1. Promoting greater impact of the CGIAR in SSA as the System addresses its goal of achieving sustainable food security and reducing poverty in developing countries;
2. Contributing to the strengthening of NARS and SROs;
3. Ensuring that the operations of the CGIAR System in SSA are more coherent, cost-effective, and efficient;
4. Contributing to the development of an effective science, technology and knowledge management system in SSA.

These objectives can be achieved only if there is a more effective programmatic alignment among the Centers and their partners in SSA. Achieving such alignment requires, in turn:

- A coherent vision and strategy for the CGIAR in SSA;
- A coherent MTP for SSA or its sub-regions; and,
- An effective structural arrangement for oversight and implementation of the MTP and for monitoring/evaluating results.

These needs suggest that two types of structural alignment are needed in SSA:

1. adjusting the organizational arrangements in the CGIAR so as to achieve better synergy between CGIAR priorities and programs for SSA and those of the SROs and NARS (i.e., improving the CGIAR-SRO interface); and,
2. adjusting the internal structure of the CGIAR System so as to improve its overall efficiency and effectiveness in SSA (by minimizing internal overlaps and inefficiencies).

The TFs consider that both types of adjustment are needed. Adjusting only the CGIAR-SRO interface would provide only a partial answer, as it would not address the internal efficiencies, the roots of which are mainly structural. Similarly, adjusting the internal CGIAR structure without a parallel improvement in the CGIAR-SRO interface would lead to sub-optimal impact.

In view of the recommended long-term global structure for the CGIAR, outlined above, the TFs consider that there are two options for adjusting the internal structure of the CGIAR in SSA:

1. Consolidate the work of the Centers whose work predominantly focus on SSA into one regional entity;
2. Consolidate the same Centers into two sub-regional entities: one for West and Central Africa, and the other for East and Southern Africa.

In either case, the CGIAR entity (or entities), although regionally-based and with much of its research agenda focusing on the SSA region or one of the sub-regions, would continue to play a global role--in the sense that they would continue to produce GPGs in their mandate areas.

While the single SSA entity option is attractive, the TFs consider that it should be seen as an intermediate-term goal, and that over the short-term it would be more practical to proceed stepwise and initiate the CGIAR restructuring effort by creating two sub-regional entities. The

two sub-regional entities would work closely with the sub-regional organizations and individual NARS to develop an operational plan for each sub-region, based on the overall global CGIAR strategy and priorities and the priorities and strategies for each sub-region. Thus, when formed, the two sub-regional entities would carry the major responsibility within the CGIAR for improving the CGIAR-SRO interfaces.

The sub-regional entities in SSA would serve as the CGIAR focal points in each sub-region, bringing in and facilitating inputs, as necessary, from the other CGIAR Centers and other research actors. This means that the CGIAR MTP for each sub-region would be prepared by the sub-regional entities, in collaboration with the other CGIAR Centers, the Challenge Programs, and relevant Systemwide and Ecoregional Programs. The operations of other centers in the sub-regions would not be, as is at present, with little or no consultation with the other CGIAR actors. Centers with headquarters outside Africa would need to work closely with the sub-regional entities to ensure that their proposed projects are in line with the agreed regional strategy.

The sub-regional entities would also serve as the “face of the CGIAR” in their sub-regions. They would provide administrative and other services to the Centers outside the sub-region which carry out projects in the sub-region.

Recommendation 2: The TFs recommend that over the next 18 months and as a first step towards global restructuring of the System’s operations, the CGIAR consolidate the Centers headquartered in SSA into two global entities: one in West and Central Africa (WCA), and the other in East and Southern Africa (ESA).

Recommendation 3: The TFs recommend that the CGIAR plan and implement its research activities focused on SSA through two MTPs, one for WCA and the other for ESA.

5.5 Suggested Organizational Model for West and Central Africa

The TFs consider that *pragmatism* and *the preferred long-term structure* of the CGIAR should figure prominently in identifying the specific modality to be used in establishing each sub-regional entity. For WCA, the most practical approach would be for the Centers involved to appoint the same individuals to a single Board that would manage the involved Centers (as was done in the IPGRI-INIBAP arrangement), with the necessary adjustments in Board size to accommodate the host country or regional representation requirements. In the case of WARDA and IITA, the WARDA Governing Council could continue to serve as the umbrella entity for the consolidated operation. The operations could continue to be managed initially by separate managers (i.e., two DGs, with separate responsibilities, reporting to the same board). Given that the entity would continue to carry global responsibilities, in addition to serving as focal point of the CGIAR in WCA, the TFs consider that the entity could be called ***CGIAR WCA Global Center***.

The Board would develop a new vision and strategy (in close consultation with partners in and outside the CGIAR), and associated program, and an internal restructuring plan geared towards consolidating and streamlining operations. Given its regional character, the new entity would enter into a set of new relationships with key partners. For example, it could establish a joint venture with ICRISAT to address problems in the semi-arid tropics of WCA. Similarly, it could

establish a strong alliance with the SSA CP and other CPs and SWPs. These modalities of planning, funding, and relationships with other CGIAR Centers would be the same as what is described below for East and Southern Africa.

5.6. Suggested Organizational Model for East and Southern Africa

The TFs propose a novel organizational model for the ESA entity, the *CGIAR ESA Global Center*—one that would also serve as a pilot for the preferred long-term structure of the CGIAR. This would involve using the “one Board, one CEO” corporate governance model at a smaller scale for managing the System’s activities based in ESA.

A corporate-style Board would differ from the traditional CGIAR-type nonprofit Board in several respects:

- It would be more *engaged* in directing and making major decisions for the center—one implication of which is that the board would meet more frequently than a typical CGIAR board (perhaps six or more times a year, but of shorter duration at each meeting, some of which could be virtual);
- Its responsibilities would be threefold: (1) monitoring the Center and management’s performance, (2) making major decisions, and (3), offering advice and counsel to management;
- The Chair would spend considerably more time (could be up to half-time);
- The CEO would be the Director responsible for managing the Center as member of the Board; discrete business units would have their own Chief Operations Officers (COOs) who would report to the CEO;
- The Board could have other *insider* members (i.e., full-time managers), such as the CFO or the Chief Legal Counsel;
- The *outsider* members of the Board would come from the shareholder and stakeholder communities and would need to cover all needed expertise on the Board. They would be compensated adequately (based on competitive norms);
- The fundamental qualities every Director should have include: intellectual capacity, interpersonal skills, business instinct and judgment, interest, a commitment to contribute, and integrity²⁵;
- Target board size would be about 10. It would have few committees (e.g., audit, governance, compensation.) Corporate strategy would be the responsibility of the entire board.

The first Board of the CGIAR ESA Global Center would be appointed by the CGIAR and it would be accountable to the CGIAR. The TFs have not worked out the legal implications of this arrangement, but the fact that the CGIAR is able to perform many of these functions already (e.g., appointing half the members of the IFPRI Board) suggests that practical solutions could be found to the obstacles to be faced.

²⁵ Colin B. Carter and Jay Lorsch, Back to the Drawing Board—Designing Corporate Boards for a Complex World, Boston: Harvard Business School Press, 2004.

The key constituent units of the ESA Global Center would be a *livestock research unit* (successor to ILRI), an *agroforestry research unit* (successor to ICRAF), and a *semi-arid tropics/ESA unit* (established as a joint venture with ICRISAT). These operating units could have separate small program advisory committees helping the CEO and the COOs. While the corporate strategy would be developed by the CEO and the Board, the subsidiary units would prepare their own vision/strategy and operating plans in the context of the corporate strategy.

In the case of both the ESA and WCA Global Center, these would serve as the *anchor* and *leader* of **consortium of CGIAR Centers** with operations in or on these two regions. The consortium would develop CGIAR strategy and operating plans for the region, including regional MTPs (in cooperation with SROs, NARS and other partners). The strategies and MTPs would be reviewed by the SC and ExCo, who would also monitor their implementation— thus, no new mechanisms would be introduced for oversight or monitoring. CGIAR Members would provide funding to the ESA and WCA Global Centers and other CGIAR Centers separately, based on the approved MTP.

The ESA and WCA Global Centers would serve as the “face of the CGIAR” in their respective regions. They would provide administrative services, as needed, to the other CGIAR Centers operating in the region. Contractual arrangements would guide administrative and programmatic cooperation with the non-SSA Centers, including joint staff appointments.

The two organizational models described above for WCA and ESA are illustrated in Table 3.

Table 3. Description of the Two Organizational Models for ESA and WCA

Features	CGIAR WCA Global Center	CGIAR ESA Global Center
<i>Governance Model</i>	Traditional CGIAR Model	Corporate Model
Name of Board	Board of Trustees	Board of Directors
Board Chair	Part-time (40 days per year)	Half-time (approximately)
Board composition	At-large Board Members CG nominees Host country representatives DG (ex officio; full-time)	Insider Directors (full-time) - CEO, CFO, etc Outsider Directors (part-time) - stakeholder & shareholder reps, other experts
Board member appointment	Most by the Board itself (self-perpetuating)	CGIAR (based on discrete criteria)
Higher level policy/ supervisory body	Council of Ministers	None
Board Accountability	Self-accountable (de jure); to the CG (de facto)	To the CGIAR (to the shareholders)
<i>Units</i>	Constituent centers: - WARDA - IITA ICRISAT/WCA (as a joint venture)	Subsidiary business units headed by Chief Operating Officers (COOs): - Livestock - Agroforestry - Semi-arid tropics/ESA (joint venture with ICRISAT)
Unit management by	DGs or program director	COOs reporting to CEO, advised by separate program committees
Planning by units	Global Center prepares vision/strategy and operating plan	Corporate strategy approved by Board; subsidiaries prepare strategy and operating plans in the context of corporate strategy
<i>Planning for the Sub-Region</i>	WCA Global Center as anchor and leader of consortium of CG Centers for: - setting strategy and operating plans for the region - developing MTP - SC/ExCo monitors/reviews MTP	ESA Global Center as anchor and leader of consortium of CG Centers for: - setting strategy and operating plans for the region - developing MTP - SC/ExCo monitors/reviews MTP
<i>Funding</i>	- Members provide funding for WCA Global Center Board and other centers, based on MTP - WCA Global Center Board allocates resources to the Center's units undertaking global and regional activities - Other center Boards allocate resources to agreed MTP activities undertaken by their center	- Members provide funding for ESA Global Center Board and other centers, based on MTP - ESA Global Center CEO and COOs allocate resources to their units undertaking global and regional activities - Other center Boards allocate resources to agreed MTP activities undertaken by their center
<i>Roles and Relations</i>	- WCA Global Center to serve as the "face of CG" in WCA - WCA Global Center to provide administrative and other services to the other centers - Contractual arrangements between WCA Global Center and other centers on administrative and programmatic cooperation (including joint staff appointments)	- ESA Global Center to serve as the "face of CG" in ESA - ESA Global Center to provide administrative and other services to the other centers - Contractual arrangements between ESA Global Center and other centers on administrative and programmatic cooperation (including joint staff appointments)

5.7 Organizational Models for Other Regions

The TFs do not have a mandate to make recommendations for programmatic and structural alignment of CGIAR operations in other regions. The models proposed for WCA and ESA may be applicable for some of the other regions, but this needs to be studied. The SSA case highlights the significant role played by SROs in this region, which has led to the specific structural formulations suggested here. The situation in other regions could be entirely different (e.g., stronger NARS, weaker SROs, etc.) For this reason, the CGIAR should follow the completion of the SSA exercise with a similar exercise covering all or part of the remaining regions.

Recommendation 4: The TFs recommend that the CGIAR commission other task force(s) to identify programmatic and structural alignment needs and opportunities in the remaining regions.

5.8 Ensuring Alignment in the Short-term

There is need for a short-term arrangement to ensure that the operations of the CGIAR and the SROs are well-aligned during the 18-month term the TFs envisage might be needed for the formation of the two sub-regional entities. The most important need is an arrangement for program planning and management for SSA or its sub-regions to improve the synergy between the programs of the 15 Centers and the SROs. The best vehicle for this is a sub-regional MTP. The MTP would specify in detail which Center(s) would carry out which programs, with appropriate log frames. Sub-regional MTPs would be reviewed by the Science Council, just as in the case of Center or Challenge Program MTPs.

The TFs deliberated considerably on the best arrangement for the preparation and, equally important, monitoring the implementation of the sub-regional MTPs during the 18-month interim period. The preparation of the MTPs was seen as a collective exercise by all the Centers operating in each sub-region and their SRO/NARS partners. Several organizational models were considered for monitoring the implementation the resultant MTPs.

The TFs consider that the most efficient means for the *preparation* of CGIAR MTPs during the 18-month interim period would be through CDC and CBC. Given the short-term nature of the arrangement, the CGIAR should not build a complex structure for *oversight* and *monitoring* of the implementation of MTPs. What is needed is an arrangement that can easily transfer responsibility to the Boards of the new sub-regional entities when they are formed. CDC and CBC have already expressed their readiness to facilitate inter-center planning in SSA.

The recently established Alliance of Future Harvest Centers has embarked on some “Quick Wins for SSA” actions. The TFs are pleased to note that formulation of two sub-regional MTPs in SSA is one of the “quick wins” which the Centers have decided to work on.

5.9 Multi-Step Process for Structural Reform

It should be clear from the above that the TFs recommend a multi-step process for structural reform. The four recommendations listed above form a logical time sequence towards achieving a preferred long-term structure. The actions that can be implemented immediately come first, followed by those that will take time.

Recommendation 5: The TFs recommend that the CGIAR take the following actions for implementing the stepwise structural reform suggested in this report:

- v. During the interim period until the formation of the above recommended SSA based global entities, request CDC/CBC to develop in partnership with the SROs and NARS sub-regional MTPs for SSA, starting with CY2006.***
- vi. Request the SC to review the MTPs and submit commentaries to the ExCo which will perform oversight function on their implementation;***
- vii. Request the Boards of IITA and WARDA to form a CGIAR global entity in West and Central Africa, starting with the establishment of a single Board;***
- viii. Establish, in cooperation with ICRAF and ILRI Boards, a CGIAR global entity in East and Southern Africa, following a corporate model and with ILRI and ICRAF as its initial constituent units.***

5.10 Concluding Comment

The TFs recognize that the restructuring suggested here will consume much energy and carries with it unknown costs. While more work needs to be done to estimate the costs involved, financial cost should not be a reason to delay or postpone the needed restructuring. As noted earlier, countless studies conducted earlier have recommended deep-seated change, but no significant change has taken place in the CGIAR's operations in SSA. This time, the CGIAR should reach a definitive decision on reforming its operations in SSA, and whatever that decision, pursue it with determination and vigor.

Appendix A1. Terms of Reference for CGIAR Task Forces on Programmatic Alignment and Structural Options/Organizational Alignment

Background

At its Annual General Meeting in 2003 (AGM03), the CGIAR initiated a discussion on increased programmatic and structural alignment as part of the ongoing CGIAR reform program. The conduct of a broader study on rationalization of CGIAR operations across the System (starting with Sub-Saharan Africa) was endorsed. It would review the programmatic directions of CGIAR work in the context of the changes in the external environment, formulate recommendations for the needed re-alignment, and propose structural adjustments that would effectively realize the agreed modifications. The Group agreed to establish two Task Forces: one dealing with programmatic alignment in the CGIAR (TF1) and the other addressing structural options/organizational alignment (TF2).

Paco Sereme (Executive Secretary, CORAF/WECARD- West and Central African Council for Agricultural Research and Development) and Per Pinstrup-Andersen (Chair, CGIAR Science Council) were appointed co-chairs of TF1. H.-Jochen de Haas (Chair, European Initiative on Agricultural Research for Development) and Moise Mensah (Benin) were appointed co-chairs of TF2.

Task Force on Programmatic Alignment (TF1)

Expected Outputs

1. Analysis of current CGIAR programs in Sub-Saharan Africa. It should consider not only the core programs of each Center and the inter-center or system-wide activities but also the pilot challenge programs (CP). The analysis should look at programmatic coherence with and relevance to CGIAR's vision and goals and its clients' needs, identifying opportunities for programmatic integration, synergies and elimination of duplication.
2. Recommended options on programmatic re-alignment, scope and modality of operation

In coming up with the foregoing outputs, TF1 will interact closely with TF2.

Task Force on Structural Options and Organizational Alignment (TF2)

Expected Outputs

1. Analysis of the current structure and organization of CGIAR operations in Sub-Saharan Africa. It should consider not only the structural setup of each Center and its sub-stations but also the most important processes in use for managing research and interacting with stakeholders. The analysis should look at the strengths and weaknesses of the existing system arrangements and identify opportunities for increasing the effectiveness and

efficiency of CGIAR research.

2. Recommended options for structural adjustment, scope and modalities of change implementation.

In coming up with the foregoing outputs, TF2 will interact closely with TF1.

Composition

The attached table shows the composition of TF1 and TF2 approved by the Executive Council.

Mode of Operation

The TFs would operate mostly in a virtual mode, through a list server set up by the Secretariat. Face-to-face meetings would be kept to a minimum.

The TF co-chairs would agree on simple procedures to synchronize the work of the task forces. The need to move as quickly as possible would be kept in mind.

Task Force Support

Detailed review and analysis of programmatic re-alignment and structural options/organizational alignment would be conducted by resource persons (including CGIAR Secretariat staff), and consultants under the guidance of the co-chairs.

Timeline

Nomination of candidates for the task forces	April 2004
Co-chairs prepare draft TORs	
Co-chairs select members of TF	
First update to ExCo, ExCo endorses composition	May 10-11
CG approves TORs	June 30
Second update to ExCo	Aug 31
Progress report sent to the CGIAR	Sept 30

Appendix A2. Composition of CGIAR SSA Task Forces²⁶

	Programmatic Alignment (TF1)	Structural Options and Organizational Alignment (TF2)
Co-Chairs	Paco Sereme (Ex. Sec., CORAF/WECARD) Per Pinstrup-Andersen (Chair, Science Council)	H.-Jochen de Haas (Chair, EIARD) Moise Mensah (Benin)
Members	Akin Adesina (Rockefeller Foundation) Ruth Haug (Norway) Romano Kiome (Kenya) Hamid Narjisse (Morocco) Ola Smith (GFAR) Onesmo ole-MoiYoi (Science Council)	Geoffrey Mrema (FAO) Marie de Lattre-Gasquet (France) Franklin Moore (USA) Guido Gryseels (Belgium)
Resource Persons	Manuel Lantin (CGIAR Secretariat)	Paul Harding (Exec. Secretary, EIARD – until March 1, 2005) Selcuk Ozgediz (CGIAR Secretariat)
Team of Consultants	Joseph Mukiibi (Uganda; Former Chair of FARA and former DG of NARO) Lukas Brader (The Netherlands; Former DG of IITA) Eugene Terry (Sierra Leone; Former Director of African Agricultural Technology Foundation and former DG of WARDA)	

²⁶ Composition was approved by the CGIAR Executive Council at its meeting held in Montpellier, France on May 10-11, 2004.

Appendix B. Two Decades of Recommendations for Change

Chronology of Reviews and Summary of Findings and Recommendations

Since 1985 a range of studies have been undertaken and various reports published addressing the specific needs for agricultural research in SSA. Specific recommendations have been developed, but in many instances follow-up action has been lacking. It demonstrates that over the last twenty years there has been no lack of good intentions with respect to the more effective and efficient use of the CGIAR capacity and resources in SSA. However, ways to translate these intentions into concrete actions have not been developed or have failed to lead to change.

In its 36th meeting held in June 1985 TAC considered that Africa deserved special attention²⁷. It discussed various issues with a number of specialists. Strengthening of NARS was considered important. In this meeting the Center Directors suggested the establishment of a foundation type fund, separate from the CGIAR, to operate an action plan. Under the main highlights and recommendations of the 36th meeting TAC noted that “many suggestions for action by the system were examined. Thus the first important step has been taken which paves the way for future interaction with the Centers and national institutions in the identification of priorities and the implementation of strategies appropriate to the System for addressing challenges posed by African agriculture.”

In 1986 the CGIAR Task Force on Sub-Saharan Africa was set up by the System. Its final report was presented to ICW 1989²⁸. The report presented an excellent overview with respect to the issues raised since the early 1980s on the effective implementation of international agricultural research in sub-Saharan Africa. It noted that the rapid expansion of the CGIAR Center’s activities in Africa needed significantly wider collaboration with under-funded national systems and, in general, adopted a supply driven approach in expanding collaboration. This created some frustrations in the national programs and raised issues for the CGIAR. At the CGIAR the idea of a global agricultural research system with interdependent levels and strong national systems as its foundation, found support only relatively recently.

The Task Force noted that the second CGIAR Review in 1981, while acknowledging that loss of control over work programs was a justifiable worry, had emphasized that effective participation in the official national decision making process on research programs far outweighed the negative considerations. The 1981 Review concluded among others that “[A Center] . . . must ensure that its collaborative programs come under the scrutiny of the appropriate national coordinating mechanism.” It also gave weight to informal collaboration between scientists as equals in all aspects of the program.

The Task Force also referred to the discussion of the Priorities Paper at ICW 1985 where the interface with national programs was one of a set of issues concerning Africa which the CGIAR

²⁷ Report of the thirty-sixth meeting of the Technical Advisory Committee. TAC Secretariat June 1985. FAO, Rome, Italy.

²⁸ Final report CGIAR Task Force on sub-Saharan Africa. International Centers Week, October 30 – November 3, 1989. CGIAR Secretariat, World Bank, Washington D.C., USA.

identified for urgent attention. Following this discussion the Chairman of the CGIAR had called a group together in Bellagio in January 1986, which addressed the question of collaborative mechanisms from a wider perspective. The Bellagio Report "identified an urgent need for institutional mechanisms that will:

- determine priorities and plan coherent CGIAR programs for developing improved and sustainable production systems for the small farmer on a sub-regional basis;
- provide adequate oversight of the implementation and progress of such programs that might operate with a series of commodity research networks;
- foster collaboration among staff from different Centers, related international research organizations and national research systems;
- integrate all Center activities on a sub-regional basis so as to avoid the complications and misunderstandings that have arisen when more than one Center operates in a particular country; and
- when invited to do so, facilitate direct support for the national programs”.

To promote effective collaboration between all partners the Task Force proposed the establishment of two regional projects, one for the maize-based systems of the mid-altitude zone of Southern Africa, under the guidance of SACCAR, and one on maize and cassava research and development in humid and sub-humid West Africa. These projects have not been implemented as planned; only the one for West Africa received a contribution of US\$ 2 million from France against a budget of US\$ 12 million. A number of network activities have been funded from the funds received.

The recommendations set out by the Task Force, assumed regional cooperation in research as a working principle. They are well summarized in the final paragraph of the report; systematic action has not been taken on these recommendations and they are still largely valid today. “There remained the urgent need

- to generate, test and transfer technologies that will promote sustainable increases in production within the many different economic, social, political and ecological environments;
- to develop and test mechanisms to promote coordination and collaboration between national, regional and international research institutions with due regard to their comparative advantage, reaction time, value for money and the need to strengthen African institutions; and
- for donors to find ways to coordinate their actions and modalities by which such new mechanisms may be resourced, tested and evaluated”.

In the Review of CGIAR Priorities and Strategies published in 1992, TAC proposed the establishment of ecoregional and global research mechanisms in order to: rationalize overlapping commodity mandates; remove overlapping resource management activities; fill gaps in resource management coverage; delineate clear global responsibilities for strategic research on natural resource management; provide clear focal points for coordinating decentralized activities in many commodities; reduce the difficulties of national programs in dealing with a multiplicity of commodity institutes; and ensure better coordination of the CGIAR strengthening efforts and

donor technical areas and programs²⁹. TAC noted that the biggest challenge facing the international development community in the medium term is to work with national partners in developing countries to strengthen national research programs and trans-national mechanisms of scientific collaboration.

In 1993 during its 61st meeting TAC proposed two ecoregional programs for Sub-Saharan Africa³⁰. A number of ecoregional programs have since then been established resulting in increased natural resource management research and strengthened collaboration with different stakeholders.

In 1994 TAC published its paper “The CGIAR in the 21st Century: Options for Structural Change”³¹. TAC considered that the Sub-Saharan Africa region remained of the highest priority for the CGIAR. The main aim of restructuring should be the way research is conducted, rather than to change what research is done. In West and Central Africa one possible model would comprise a coordinated set of decentralized but focused programs which would make effective use of almost all the existing CGIAR structures in this sub-region. The mechanism could be governed by a single Board of Trustees for CGIAR activities. A similar model could be developed for East and Southern Africa. So far, no action has been taken on these suggestions.

At the request of TAC a study on the CGIAR commitments in West Africa had been carried out in 1995³². With respect to organizational matters the study team proposed a common Board of Trustees for WARDA and IITA with ex-officio representation of ICRISAT, ICRAF, and IRRI, as a means of harmonizing research between the two institutions. Some proposals for joint Board and Program Committee membership were discussed between IITA and WARDA representatives in the course of 2000/2001, but these have been kept pending since then.

In its report of the third System-Wide Review of the CGIAR the Panel noted in 1998 that “a more of the same approach will not make much difference, even if large new resources are deployed”³³. It recommended a special collaborative focus on Africa to create an effective strategy for African agriculture that complements the efforts of other organizations, including Sub-Regional Organizations.

The Center Directors Committee had prepared jointly with African partners a report on a strategy for the CGIAR in Africa, which was presented to ICW 1999³⁴. The following joint mission statement had been developed: the CGIAR Centers, in partnership, see their role in Sub-Saharan Africa by the year 2020 as having contributed to the goals of the African agricultural research community of attaining food security and poverty alleviation through research, policy support and capacity building, based on environmentally sound management of natural resources.

²⁹ TAC, 1992. Review of CGIAR priorities and strategies – part II. TAC Secretariat, FAO, Rome, Italy.

³⁰ TAC, 1993. Report of the sixty-first session of the Technical Advisory Committee. TAC Secretariat, FAO, Rome, Italy.

³¹ TAC, 1994, The CGIAR in the 21st Century: Options for structural change. TAC Secretariat, FAO, Rome, Italy.

³² TAC 1995. Report of the study on CGIAR commitments in West Africa. TAC Secretariat, FAO, Rome, Italy.

³³ Strong, M. *et al.* 1998. Third system review of the Consultative Group on International Agricultural Research (CGIAR). CGIAR System Review Secretariat, Washington D.C., USA.

³⁴ CGIAR, 1999, Focus on Africa – Strategy for the CGIAR in Africa. ICW/99/11, CGIAR Secretariat, Washington D.C., USA.

Mechanisms for improved collaboration included:

- existing collaborative networks for technology development, information transfer and cross-border policy analyses;
- collaboration with relevant stakeholders through theme or agro-ecology based working groups or consortia;
- better integration and sharing of responsibilities through joint planning, project formulation, training and meetings;
- joint activities initiated, led and coordinated by either African partners or the Centers on the basis of comparative advantage for leveraging resources, formulating projects and programs, and collaboration in competitive grant mechanisms at both national and regional levels;
- research contracted from Centers to NARS, and *vice versa*, with joint monitoring and evaluation, shared credit and joint publication of outputs; facilities and expertise shared by Centers and NARS through exchanges of staff on consultancies, outsourcing, secondment of national staff to Centers and through visiting scientist schemes; and
- transferring responsibilities for project and network management and administration to national partners whenever appropriate.

The CDC concluded that the strategy would ensure improved coordination among CGIAR Centers at all levels, Centers, programs and scientists, especially within sub-regions. However, there has been very limited follow-up on these proposals.

The SPAAR/FARA Vision of African Agricultural Research and Development was published in 1999³⁵. It is a vision of a transformed African agriculture and its expanded productive capacity. The necessary changes are predicated on an annual growth of four percent, from the current two percent. This will require an annual growth rate for agriculture of about six percent. A new agricultural system is needed that is demand driven to clients' needs, consolidates and expands traditional markets while exploring and exploiting emerging markets, and is more actively involved in policy formulation, implementation and monitoring and evaluation.

Leaders of African NARS presented their vision on the CGIAR activities in SSA to ICW 2000³⁶. They concluded that the structure of the CGIAR system should be such that the IARC scientists add value to what the NARS are doing. The structure and objectives of the CGIAR Centers in Africa should enable the NARSs and other technology development and transfer institutions operating in the sub-region to become efficient and effective institutions and organizations serving the farmers of the region to increase productivity and production not only to meet national and regional food demands, but also to increase production of export crops to increasingly competitive global markets. It was proposed that the IARCs in Africa should be reorganized into two regional Centers, one for western and central Africa and the other for eastern and southern Africa. Specific action has not been taken on these proposals.

³⁵ SPAAR/FARA Vision of African agricultural research and development. SPAAR Secretariat. SPAAR/FARA Plenary Session, Conakry, Guinea, 9-14 April 2000.

³⁶ CGIAR, 2000. CGIAR 2010 vision and strategy: governance, organization and structure. Views of leaders of African NARS. ICW/00/07-6. CGIAR Secretariat, Washington D.C., USA.

At ICW 2000 the Board Chairs and Center Directors recommended the creation of a Federation of Centers, as a legal entity, that would be comprised of Centers, a Federation Office with a Board for the Federation and a small support staff³⁷. The Board Chairs and DGs strongly believed that the proposed Federation of Centers would create the opportunity for the Centers to function fully as a system of interrelated units, not a loose coalition of independent Centers. In so doing, it would catalyze enhanced performance within the context of its vision and strategy. This proposal was rejected during ICW 2000.

The synthesis report of the FARA/CGIAR consultation on agricultural research in SSA: meeting of minds III towards a common ground, was presented at the CGIAR MTM 2001³⁸. It expressed strong consensus for greater integration among Centers in recognition of significant payoffs. A number of elements for a strategic action plan had been elaborated, but specific proposals for achieving this goal have not been developed.

The Durban Statement was adopted at the CGIAR MTM 2001³⁹. It called for the international agricultural research system, including the CGIAR Centers and advanced research institutions, to forge more effective and efficient partnerships with African NARS and achieve greater programmatic integration.

The report of the Change Design and Management Team (CDMT), which was presented to ICW 2001, has led to (i) the adoption of the Challenge Programs, (ii) the establishment of the Science Council, and (iii) the creation of the Executive Council⁴⁰. The Team stressed the importance of effective National Agricultural Research Systems for the overall success of the work of the Centers and recommended enhancing these systems. It noted that global public goods research must be applied at local level, and local needs must influence the global research agenda.

With respect to restructuring issues the CDMT team stated that there is a widespread but not universal view that the mandate of the CGIAR can be executed by fewer than 16 Centers, creating better science, with easier interface to the national research systems, and with simplified administration for the donors. The CDMT stressed the usefulness of two or more Centers grouping themselves into a cluster with a common supervisory board, and possibly one CEO. For Africa the grouping of ICRISAT, IITA and WARDA was suggested.

In the report “The CGIAR at 31: An Independent Meta-Evaluation of the Consultative Group on International Agricultural Research”, published by the World Bank in 2003, the following two conclusions were drawn⁴¹. Strong NARS are of critical importance to ensure the CGIAR’s

³⁷ CDC, 2000. Report of the CBC/CDC retreat. ISNAR, the Hague, 2-3 September 2000.

³⁸ CGIAR, 2001. Synthesis report of the FARA/CGIAR consultation on agricultural research in SSA: Meeting of minds III towards a common ground. MTM/01/08, CGIAR Secretariat, Washington D.C., USA.

³⁹ The Durban Statement, the way forward for agricultural research and development in sub-Saharan Africa. Durban, 22 May 2001.

⁴⁰ CGIAR, 2001. Designing and managing change in the CGIAR. Report to the mid-term meeting 2001. CGIAR Secretariat, Washington D.C., USA.

⁴¹ World Bank, 2003. The CGIAR at 31: an independent meta-evaluation of the Consultative Group on International Agricultural Research. Volume 1: Overview report, Volume 2: Technical Report. World Bank, Washington D.C., USA.

impact. The CGIAR has made many useful contributions to African agriculture, but there is far greater potential in the region yet to be realized. It is also noted that from Africa's perspective, the current configuration of CGIAR Centers in Africa compounded Africa's technology problems. African countries incurred high transaction costs in dealing with multiple CGIAR Centers, a cost that could be reduced under a service agreement arrangement set up regionally to exploit economies of scale and scope.

As noted in the chapter 1 the developments in Africa were extensively discussed at AGM03, and it was decided to establish two Task Forces on programmatic and institutional alignment respectively.

The Center Directors Committee, following a retreat held from 8-9 July 2004 at Addis Ababa, prepared a report entitled "Towards a Framework for Collective Action"⁴². The report deals with a wide range of matters that are of direct relevance to the work of the task forces. The recommendations adopted by the retreat aim in particular at strengthening collective action between the Centers, and ensuring more effective collaboration. This would be effected through the creation of an Alliance of Centers with the CDC becoming the Alliance Executive, and the CBC the Alliance Board.

Conclusions

As noted at the beginning of this chapter, over the last twenty years there has been no lack of good intentions with respect to the more effective and efficient use of the CGIAR capacity and resources in SSA. The recommendations emanating from the various reviews may be summarized as follows:

- priority setting for CGIAR Centers should be based on the priorities of the national systems;
- the research agenda for the Centers should be developed and implemented jointly with the national and regional partners;
- the sustainable development and strengthening of the capacity of national agricultural research systems to effectively address their agricultural research challenges is a major role of the CGIAR; and
- appropriately coordinated action at sub-regional levels would enhance the effectiveness and efficiency of the work of the CGIAR System in SSA, and considerably facilitate and strengthen the interface with the national systems.

However, ways to translate these recommendations into concrete actions have not been developed or have failed. The Center Directors Committee in its recent retreat raised the following two points explaining the lack of progress with the implementation of the many plans developed since 1999.

- *Territoriality and individuality*. The independence of the Centers, the territoriality promoted by their mandates and the tough funding environment of the last few years have

⁴²CDC, 2004. Report from the collective action retreat, 8-9 July 2004. ILRI, Addis Ababa, Ethiopia.

been major disincentives for collective action even when this is perceived to be more effective for development than individual Center efforts. This is the result of the fact that the primary allegiance of scientists and managers is only to individual Centers, and not the System as a whole.

- *Management of multi-Center initiatives and the need for transparency.* Although multi-center collective action is seen as a desirable goal by the Centers, many of the multi-center initiatives run into difficulties in practice.

In addition to the above, the consultants determined during their field and other studies that:

- almost without exception mechanisms for implementing the recommended changes were not elaborated, most probably due to a lack of wholehearted support for the new directions proposed;
- there is a lack of a clear strategy of the CGIAR for SSA that gives full recognition to the unique set of features of African agriculture, that are so clearly spelled out in the Inter Academy Council report;
- too much emphasis has been put on institutional matters and inadequate attention has been paid to programmatic aspects and goals of change;
- there are divergent interests and agendas of donors, Center Boards and Center Directors; legal status of Centers; the notion that Centers should be there in perpetuity; fear of loss of identity and authority;
- there is a perceived inviolability of Center sovereignty and the notion that Center mandates are cast in stone;
- there are concerns that staff will lose jobs and benefits, as well as, concerns of host governments that major changes will lead to breach of host country agreements; and
- there is a lack of instruments at the CGIAR level to effect significant changes not supported by the Center Boards and Center Directors, and concerns about the transaction costs of change.

Considering in particular the significant changes that have occurred with respect to the agricultural research and development situation in sub-Saharan Africa in recent years it is essential, that this time around, real progress is decided and acted upon.

Appendix C1. No. of SSA Projects that Involve Collaboration Among CGIAR Centers

Center as convener	Center as collaborator															Total No. of projects with inter-Center collaboration	Total No. of projects for which collaboration partners are reported in the Survey and in 4/05 (after "+")	Total No. of Centers collaborated
	CIAT	CIFOR	CIMMYT	CIP	ICARDA	ICRAF	ICRISAT	IFPRI	IITA	ILRI	IPGRI	IRRI	IWMI	WARDA	WorldFish			
CIAT				1		1	1		1	2						6	12+1	5
CIFOR																0	4	0
CIMMYT	1					1	1	2	2	1						8	3+8	6
CIP												1				1	8	1
ICARDA																0	0	0
ICRAF									1							1	16	1
ICRISAT						1				1						2	8	2
IFPRI																3	0+3	3
IITA																0	4	0
ILRI																0	5	0
IPGRI	1			1				1	4	2						9	10	5
IRRI																0	0	0
IWMI										1						1	7	1
WARDA	1			1			1		1			1	1			6	17	6
WorldFish									1							1	5	1
Total No. of Projects	1	0	0	2	0	1	1	1	7	6	0	0	1	0	0	38*	99+18	

1. Based on Centers' responses to Question 20 in Questionnaire 1: name the three main cooperation partners and additional information that Alliance Executive and CBC provided to the TFs in April 2005. The survey asks for information as of 2003. It is unclear whether the information provided in April 2005 is as of 2003 or more recent.

2. * Total No. of projects with inter-center collaboration was 18 before additional information was provided in April 2005.

Appendix C2. Mandate Commodities and Activities of CGIAR Centers in SSA

Commodity/Activity	Involved Centers
Maize	IITA, CIMMYT
Rice	IRRI, WARDA
Cassava	CIAT, IITA
Chickpea	ICRISAT
Banana	IPGRI, IITA
Beans	CIAT
Wheat	CIMMYT
Livestock	ILRI
Forestry/ Forest products	CIFOR, ICRAF
Forage crops	CIAT, ILRI
Water	IWMI
Socio-economic and policy research	All Centers
Enhancing Institutions	All Centers

Appendix C3. Commodities that CGIAR Centers are working on in SSA

Commodity	Center															Total
	ICRAF	IITA	ILRI	WARDA	CIAT	CIFOR	CIMMYT	CIP	ICARDA	ICRISAT	IFPRI	IPGRI	IRRI	IWMI	WorldFish	
Maize	✓	✓			✓		✓									4
Sorghum		✓	✓		✓					✓						4
Forestry/Forest products	✓	✓				✓										3
Groundnut		✓	✓							✓						3
Milk	✓		✓		✓											3
Millet		✓	✓							✓						3
Pigeon pea		✓	✓							✓						3
Sweet Potato		✓			✓		✓									3
Banana		✓			✓							✓				3
Plantain		✓			✓							✓				3
Rice				✓									✓			2
Soil	✓				✓									✓		2
Cassava		✓			✓											2
Potato					✓		✓									2
Sheep and goat meat			✓		✓											2
Chickpea									✓	✓						2
Wheat							✓		✓							2
Vegetables		✓		✓												2
Water														✓		1
Forage crops			✓													1
Beans					✓											1
Wheat									✓							1
Beef and buffalo meat			✓													1
Cowpea		✓														1
Grasspea									✓							1
Fish/aquatic resources															✓	1
Fruits	✓															1
Soybean		✓														1
Coconut												✓				1

Commodity	Center															Total
	ICRAF	IITA	ILRI	WARDA	CIAT	CIFOR	CIMMYT	CIP	ICARDA	ICRISAT	IFPRI	IPGRI	IRRI	IWMI	WorldFish	
Lentil									✓							1
Yam		✓														1
Indigenous fruit trees and medicinal plants	✓															1
Other horticultural crops		✓														1
Chicken			✓													1
Other underutilized crops												✓				1
Total	6	15	9	2	11	1	2	2	4	5	NA	4	1	2	1	64

* Based on Centers' responses to the following question in Questionnaire 1: Indicate the current research focus by commodity.

Appendix C4. No. of Center Offices and Projects each Office Manages in SSA Countries

Country	No. of Centers' offices/research sites	Centers that have offices/research sites	Type of office	No. of projects managed by each office*
Benin	3	IITA	RPS, MPS	4
		IPGRI	RPS, MPS	3
		WARDA (as of 2004)		NA
Burkina Faso	1	CIFOR	CPS	1
Cameroon	5	CIFOR	RPS	1
		ICRAF	RPS, CPS	5
		IITA	RPS, MPS	3
		IPGRI	RPS	1
		WorldFish	CPS	2
Cote d'Ivoire	2	IITA	CPS	2
		WARDA	HQ	NA
DR Congo	1	IITA	CPS	1
Ethiopia	6	CIAT	MPS	2
		CIFOR (as of 2005)	SPS	NA
		CIMMYT	RPS	5
		IFPRI	RPS**	1
		ILRI	RPS	5
		IWMI	SRO	1
Gabon	1	CIFOR	SPS	NA
Ghana	3	IITA	CPS	2
		IITA	RPS	3
		IWMI	SRO	6
Kenya	9	CIAT	CPS	2
		CIMMYT	RPS	13
		CIP	RPS	5
		ICRAF	HQ	1
		ICRAF	RPS	46
		ICRISAT	RPS	5
		IITA	RPS, MPS	2
		ILRI	HQ	5
		IPGRI	RPS	6
Malawi	5	CIAT	MPS	2
		ICRAF	CPS	4*
		ICRISAT	NA	NA
		IITA	RPS	1
		WorldFish	CPS, MPS	3
Mali	3	ICRAF	RPS	NA
		ICRISAT	RPS	1+
		WARDA	RPS	12

Country	No. of Centers' offices/research sites	Centers that have offices/research sites	Type of office	No. of projects managed by each office*
Mozambique	3	ICRAF	CPS	3
		ICRISAT		NA
		IITA		NA
Niger	2	ICRISAT	RPS	5
		ILRI	RPS	NA
Nigeria	4	IITA	HQ	6
		IITA (Kano Station)	RPS	3
		ILRI	RPS	5
		WARDA	CPS	5
Rwanda	1	CIAT	SPS	1
Senegal	2	CIAT	CPT	1
		WARDA	RPS	3
South Africa	2	IFPRI	SPS	1
		IWMI	RPS	7
Tanzania	3	CIAT		
		IITA	MPS	1
		WARDA	Coordinator of ECARRN rice network	NA
Uganda	5	CIAT	MPS	4
		CIP	CPS	4
		IFPRI	SPS	1
		IITA	RPS	4
		IPGRI	RPS	1
Zambia	2	CIFOR (as of 2005)	CPS	
		ICRAF	CPS	4
		CIAT		NA
Zimbabwe	7	CIFOR	RPS	2
		CIMMYT	RPS	11
		ICRAF	RPS	3
		ICRAF	CPS	2
		ICRISAT	RPS	1+
		IITA	RPS	1

- Notes: 1. *Based on the responses to Question 17 in Part A of the Questionnaire. For ICRAF in Malawi, 3 projects reported in Part A, but 4 reported in Part B of the Questionnaire.
2. HQ=Headquarters, RPS=Regional program/project site, CPS=Country program/project site, MPS=multiple project site, SPS=single project site, and SRO=sub-regional office.
3. The ICRISAT offices in Mali and Zimbabwe are not reported in the Questionnaire, but added here.
4. ** The ISNAR Division of IFPRI, located in Addis Ababa, has global and regional functions.

5. This table includes mainly the offices/sites established both before and after 2003 which is the cut-off date for the survey. Additional information was provided for 6 additional offices/sites in April 2005 but the years of establishment for these offices/sites were not indicated.

**Appendix C5. Geographical Range of Intended Impact of CGIAR
Projects/Programs for SSA***

Geographic Range	No. of projects
Single-country (see Table 5 for countries)	10
Multi-country (see Table 5 for countries)	43
Sub-region, total:	12
- <i>Western and Central Africa</i>	<i>1</i>
- <i>Central and Eastern Africa</i>	<i>2</i>
- <i>Eastern and Southern Africa</i>	<i>6</i>
- <i>Warm arid and semi-arid tropics</i>	<i>3</i>
SSA	17
Global	6
Total	88

* Based on Centers' responses to Question 19 in Questionnaire 1: What is the geographical range of intended impact of this research program/project?

Appendix C6. No. of Single- and Multi-country CGIAR Projects in SSA Countries*

Country	No. of single-country projects	No. of multi-country projects
Benin	1	3
Bostswana		1
Burkina Faso		8
Burundi		6
Cameroon	2	6
Congo		1
Cote d'Ivoire		2
DR Congo		5
Equatorial Guinea		2
Eritrea		4
Ethiopia		9
Gabon		4
Gambia		1
Ghana		6
Guinea		3
Kenya	1	12
Madagascar		3
Malawi	1	18
Mali		6
Mozambique	1	19
Niger		3
Nigeria	1	5
Rwanda	1	5
Senegal	1	5
Sierra Leone		2
South Africa		5
Sudan		5
Tanzania		24
Togo		4
Uganda	1	11
Zambia		19
Zimbabwe		16

* Based on Centers' responses to Question 19 in Questionnaire 1: What is the geographical range of intended impact of this research program/project?