

Working Draft for SCOER
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**AN INVENTORY OF CGIAR DELIVERY MECHANISMS
IN WEST AFRICA**

A Progress Report

**TAC SECRETARIAT
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS**

March 1994

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AN INVENTORY OF CGIAR DELIVERY MECHANISMS IN WEST AFRICA

Executive Summary

TAC's review and analysis of the Medium Term Plans (1994-98) of CGIAR Centres highlighted the increasing number of CGIAR activities, facilities and programmes that exist side by side in many regions, a phenomenon which first attracted system-wide attention and concerns in 1986. In West Africa alone, four Centres (IITA, ICRISAT, WARDA and ILCA) operate major research programmes, and ten other Centres have varying degrees of research activities in the sub-region. Collectively and severally, those Centres make severe demands on the associated NARS.

The main purpose of the desk study was to undertake an inventory of CGIAR investments in West Africa. The main findings summarized below are based on the analysis of the returns from 14 Centres:

- (i) A little over 2,000 Senior Staff Months involving an expenditure of US\$ 50.3 million were devoted to operational programmes in West Africa in 1992. Seventy-five percent of the human resources were employed in research and institution building.
- (ii) Deployment of the human resources in the humid/sub-humid zone accounted for 74 percent of total research effort compared to 26 percent in the semi-arid zone.
- (iii) Research activities in Nigeria and Niger accounted for 54 percent and 17 percent respectively of the total research effort in the sub-region.
- (iv) Four Centres (IITA, ICRISAT, WARDA and ILCA) accounted for 85 percent of the total human resources deployed with IITA contributing about 50 percent.
- (v) Taking the four major Centres together, 49 percent of their human resources were devoted to Production Systems Development and Management Research (CGIAR Activity Category 3), 20 percent on Germplasm Enhancement and Breeding Research (Category 2), 14 percent and 10 percent on Conservation and Management of Natural Resources (Category 1) and Institution Building (Category 5) respectively.
- (vi) The net book value of the System's fixed assets in West Africa amounted to about US\$ 64 million with IITA, ICRISAT, WARDA and ILCA accounting for 99 percent of these assets.

(iii)

- (vii) Buildings and Infrastructure made up 76% of the fixed assets in 1992, while laboratory equipment (8%), vehicles (4%) and office equipment (4%) together accounted for just over 15 percent of the net book value of the assets.
- (viii) A review of system-wide training activities in sub-Saharan Africa in 1989 showed an average annual number of trainees (1985-89) of 1,764 of which at least 1,123 or 64 percent were from West Africa. IITA accounted for over half of the total trainees.
- (ix) Short duration group training made up 88 percent of all training courses.
- (x) Issues highlighted on training and information at recent meetings of the Centres Training Officers (Nairobi, Kenya, November 1993) and of the Centre Directors General (ICW 93) which are of relevance to West Africa merit serious consideration.
- (xi) Networks constitute a major instrument of collaboration between Centres and NARS. There may be a need for rationalization and coordination of networks in the sub-region.
- (xii) A large number of other international and regional research organizations support agricultural research in West Africa. Similarly, a number of advanced countries, particularly France, have established special research institutes or agencies within their home countries to facilitate effective cooperation in agricultural research and development in Africa, with a particular focus on agricultural research in West Africa.
- (xiii) CGIAR Centres appear to have good working relationships with the international and regional research organizations operating in the region and engage them in collaborative research and network activities.
- (xiv) On the basis of the desk analysis it was not possible to determine the efficiency and effectiveness of the total CGIAR effort in the sub-region.

AN INVENTORY OF CGIAR DELIVERY MECHANISMS IN WEST AFRICA

1. INTRODUCTION

1.1 Objectives of the Study

The 1993 Medium Term Resource Allocation Process, which included a review of all CGIAR Centres' Medium Term Plans (MTPs), 1994-98, has given an indication of the increasing number of CGIAR activities, facilities and programmes that exist side by side in many regions, leading to a multiplicity of demands on NARS. The main objective of this study is to undertake an inventory of CGIAR inputs, programmes and outputs in West Africa with the purpose of identifying ways to increase the efficiency and effectiveness of CGIAR delivery mechanisms in the sub-region. The terms of reference are as follows:

- (i) To inventory and assess CGIAR facilities, personnel, programmes and activities, programme expenditure and level of capital investment in the West Africa sub-region.
- (ii) To identify and propose cost-effective options for organizing and operating the CGIAR presence in the sub-region in the future; and indicate whether the study should be expanded to other regions, based on the assessment of usefulness of the West Africa study to the System.

The first part of the review is a desk study undertaken at the TAC Secretariat which focused on the countries in the Sahel and the coastal states of West Africa grouped roughly into the semi-arid agro-ecological and humid/subhumid zones. They comprise Benin, Burkina-Faso, Cameroon, Cape Verde, Chad, Côte d'Ivoire, Equatorial Guinea, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Sao Tomé and Togo (See Fig. 1).

The main points that will be addressed in this preliminary study are as follows:

- (i) Scale of CGIAR Research in West Africa
- (ii) Geographic spread
- (iii) Interaction between Centres
- (iv) Research Thrusts
- (v) Totality of Investment:
 - Capital
 - Infrastructure
 - Operational Funds

- (vi) Efficiency and effectiveness in the application of funds
 - Within Centres
 - Across Centres
 - IARC/NARS Interphase
- (vii) Relations with other international research organizations.

1.2 Scope of Study and Limitations

In this preliminary phase of the study, information needed was to be largely extracted from Centres' publications (Strategic Plans, MTPs, External Programme and Management Reviews, and Annual Reports) available at the TAC Secretariat. However, a quick review showed that these documents were of limited value as most Centres do not provide reports and data at sub-regional or country level. Similarly, details of investment are rarely published in these reports. Therefore, in mid-January a circular letter was written to all the Centres asking for a break-down of the estimates of expenditure for the sub-Saharan Africa in 1992 in terms of the amount expended in West Africa under the headings shown in **Annex I**.

Responses to the circular letter have been coming in slowly. By the end of February 12 Centres had responded. These included IITA, WARDA and ICRISAT, the three Centres which were shown by an ISNAR¹ survey in 1986 to account for a little over 70 percent of CGIAR research activities in West Africa. As a consequence, only tentative inferences could be drawn from the preliminary analysis reported below.

1.3 A Historical Perspective

An analysis of the data base compiled by ISNAR on CGIAR Research in sub-Saharan Africa, showed that IITA and WARDA accounted for over 60% of the System's investment in West Africa in 1986. IITA, WARDA, ILCA and ICRISAT combined were responsible for well over 80% of CGIAR research activities in the sub-region.

IITA received its charter in 1967 and was one of the first IARCs to be established with an explicit agro-ecological mandate. It was set up to address the research problems and increase the productivity of the key agricultural crops in the humid and sub-humid zones of the tropics. With the establishment of the CGIAR system in 1971, IITA's research programmes were redefined to focus on fewer crops and limited geographic coverage.

¹ Inventory of CGIAR Activities in Sub-Saharan Africa (1986). ISNAR, The Hague, April 1987.

WARDA was founded in 1970 through the cooperation of 11 West African countries (later expanded to 17) in recognition of the growing gap between rice demand and production in the sub-region. At the initial stage WARDa was seen as a staging post for the adaptation and transmission of appropriate research technology developed by IRRI, IITA and other relevant international research institutions. WARDa programme operated within the framework of a sub-regional network, using the national research programmes of the Member States as key parts in the network to ensure complementarity and avoid duplication. On becoming a fully-fledged member of the CGIAR in 1987, WARDa was mandated to conduct research on rice improvement and rice-based farming systems in West Africa.

ILCA was established in 1974 to help African countries develop and improve livestock production. Although ILCA's headquarters and laboratories are located in Addis Ababa, Ethiopia, the Centre has major research sites in other countries including Kenya, Mali, Niger and Nigeria. ILCA's primary research focus is to increase the output of milk and meat from cattle, goats and sheep produced in mixed crop-livestock small farming systems in the highlands, the humid, sub-humid and semi-arid zones in sub-Saharan Africa.

ICRISAT, based in India was set up in 1972 to conduct research into the genetic improvement of sorghum, millet, pigeonpea, chickpea and groundnut which are the major subsistence crops in semi-arid regions of the tropics. ICRISAT has sub-regional offices in Niger, Mali and Nigeria. Its activities in West Africa are coordinated through the ICRISAT Sahelian Centre (ISC) in Niger. Completed in 1988, the ISC serves as the base for the development of improved pearl millet and groundnut and the farming systems to sustain these and other crops in the Sahel.

The brief sketches given above provide the historical background on the origins and mandates of IITA, WARDa, ILCA and ICRISAT. At least 11 other Centres (CIAT, CIMMYT, CIP, IPGRI/ INIBAP, ICLARM, ICRAF, IFPRI, IIMI, ILRAD, IRRI and ISNAR) have varying degrees of research activities in West Africa. As CGIAR activities in sub-Saharan Africa expanded, the need for more sharply defined operational mandates to avoid unnecessary duplication among the Centres became urgent. The development of the strategic plan by IITA in 1985 led to a restructuring of its programmes as follows:

- IITA's global mandate for sweet potato improvement was transferred to CIP.
- IITA's total rice improvement programme has been transferred to WARDa, and there is close collaboration between the two Centres on resource and crop management research for the inland valleys, where rice is grown in complex multi-crop farming systems.

- A collaborative arrangement with CIMMYT for maize improvement was to be maintained, whereby IITA would be the lead institution in West and Central Africa, while CIMMYT would provide a parallel leadership role in Eastern and Southern Africa, and the two Centres would exchange germplasms.

1.4 Institutional Framework

In spite of the divergent historical developments, all CGIAR Centres operating in West Africa function as a system partly because of the commonality of the sources of funding and partly as a result of the changes brought about by the activities of TAC. Studies on CGIAR priorities and strategies undertaken in 1973, 1976, 1979 and 1986 contributed to programmatic and structural developments in the Centres. The expansion study which was initiated in 1989 has led to a further broadening of the scope and diversity of the CGIAR System, incorporating mandates involving conservation of natural resources, productivity issues of forestry, fisheries and irrigation and their integration into sustainable production systems.

Another determinant of the evolutionary process at the Centres is the external programme and management reviews undertaken at fixed intervals. A prime objective of external reviews is to provide Centres with options on how they could focus their activities more effectively to meet their goals and mandates within the CGIAR system, and, at the same time, satisfy the requirements of associated NARS and donors. Stripe studies and inter-centre reviews perform the same function at System level.

The 1990 Expansion Study and the 1992 TAC review of CGIAR priorities and strategies have resulted in the recognition of the ecoregional approach as the unifying factor which may bind the activities of Centres into a coherent and viable enterprise within a given agro-ecological zone in close collaboration with NARS. Under ideal conditions, it should lead to a sharpening of research focus within and between Centres, emphasize complementarity, minimize inter-centre competition, generate synergy, and achieve overall cost-effectiveness of the System's investments in a particular region.

Using the ecoregional concept as the basis of reviewing the System's activities in West Africa the conclusions from TAC's analysis and review include the following:

- (i) West Africa falls within two consolidated agroecological zones (AEZs): Warm arid and semi-arid tropics and sub-tropics with summer rainfall (AEZs 1 + 5); and Warm humid tropics and sub-humid tropics with summer rainfall (AEZs 3 + 7).

- (ii) Possible ecoregional initiatives relevant to West Africa include:
- (a) Forest/Savanna continuum research initiative as part of the systemwide ecoregional programme for the warm and sub-humid tropics in sub-Saharan Africa.
 - (b) Research consortium arrangement for the inland valleys of West Africa.
 - (c) Sahelian ecoregional mechanism.
 - (d) Alternatives to slash and burn initiatives.

Ecoregional activities in West Africa are executed by a number of Centres as described below:

IITA: The Centre's mandate crops are banana/ plantain, yam, cassava, cowpea, soybean and maize. The research is organized around six elements: an agro-ecosystem focus; an ecoregional approach; sustainability research; adaptable technologies; partnership with NARS; and collaboration with other international research organizations. In each agro-ecosystem IITA's priority pertains to characterization of the farming systems, their constraints and the chances for sustainable improvements. In the humid forest zone, the main emphasis is on improved cropping systems and fallow practices, accomplished mainly through the Alley Farming Network for Tropical Africa (AFNETA), in collaboration with NARS and other Centres (e.g. ICRAF and ILCA). In the moist savanna zone, soil improvement is a top priority aimed at increasing the nutrient-use efficiency and yields of maize; and cropping systems diversification by the introduction of grain legumes and cassava. Reduction in pest damage is achieved through integrated pest management.

WARDA: The Centre's research is focused on three rice growing environments in West Africa - the upland/inland-swamp continuum, the Sahel and the mangrove swamps. Research is organized to develop improved rice varieties in collaboration with IRRI and improved production methods (with IITA and IIMI); to reduce post-harvest losses; evaluate and increase the acceptability and impact of new technology, and study issues affecting technology adoption and analyse national policy options in collaboration with IFPRI and ISNAR.

ILCA: ILCA is a major research player in the semi-arid zone of West Africa and accounted for 20% of the senior staff months invested by the System in this agro-ecological zone in 1986. ILCA research gives high priority to three animal species (cattle, sheep and goats), two target groups (small-farm holders and agropastoralists) and four products (meat, milk, traction and manure). A better understanding of the agro-ecological zones in West Africa has enabled ILCA to identify production and marketing constraints that are amenable to change, and to design appropriate research and development programmes to help

modify them, in collaboration with other IARCS. ILCA is also cooperating with ICRAF and IITA in evaluating various multi-purpose trees and shrubs as sources of fodder in agroforestry trials across the sub-region.

ICRISAT: ICRISAT is the convening Centre for a systemwide ecoregional programme for the arid and semi-arid zones in sub-Saharan Africa, particularly in West Africa. Its Sahelian Centre in Niamey, Niger, provides a base for major collaborative research efforts between IARCs operating in the zone. ICRISAT's priority is to develop improved farming systems for the Sahelian zone, identify constraints to agricultural development and evaluate the means of alleviating them. The Centre's Resource Management Programme include agro- climatology, agroforestry, land and soil management and microeconomics, the main objective being to make efficient use of limited rainfall and nutrients, provide farmers with multiple outputs and avoid degrading the fragile environment.

2. STRUCTURE AND MANAGEMENT OF CGIAR ACTIVITIES

2.1 Introduction

Table 1 shows that US\$ 81.6 million core funds were allocated by CGIAR to research in sub-Saharan Africa (SSA) in 1992. This represents 42% of the world-wide investment of US\$ 191.6 million in the activities of 14 IARCs. The expenditure in West Africa amounted to US\$52.6 million or 64 percent of the share allotted to research in SSA, and approximately 27 percent of total CGIAR core resources for fourteen Centres in 1992.

This highly favourable resource allocation profile is mainly due to the presence in the sub-region of IITA, one of the four biggest Centres in the System, WARDA, and the ICRISAT Sahelian Centre. It is also a reflection of donors' response to the enormous economic difficulties experienced by most countries in the sub-region where, consistently, production has failed to match demand due to policy distortions and natural causes like high climatic variability, extremes of aridity, large areas of difficult soils, and a low proportion of adequately irrigated land. Increasing population pressure on natural resources has caused widespread deforestation, overgrazing and soil degradation.

An analysis of the reports from twelve Centres shows that a total of 2,031 Senior Staff Months (SSM) or US\$ 50.3 million were devoted to operational expenses, in West Africa in 1992 (see Annexes 1A and 1B). They were distributed as follows :

Programme	Senior Staff Months		Amount	
	Number	%	US\$'000	%
1. Research	1239.3	61	23,390.51	47
2. Research Support	197.3	10	3,996.00	8
3. Inst. Building	290.7	14	6,328.30	13
4. Admin & Operations	304.1	15	16,606.64	33
<u>Total</u>	2031.4	100	50,321.49	101

Research and Institution Building (CGIAR Activity Categories 1-5) accounted for 75 percent of the Senior Staff Months employed in operational programmes in West Africa in 1992. In cost this amounted to 60 percent of total expenditure. Four Centres, IITA, ICRISAT, WARDA and ILCA, were responsible for three-quarters of the total SSM and 87 percent of the financial resources expended on operational programmes (**Annex 1**). The other eight Centres made up 24% and 13% of SSM and financial resources respectively. IITA accounted for over half of total human resources involved in the operational programmes and 45% of the financial outlay. **Annex 1** also shows that 63 percent, and 52 percent of the System's deployment of human and financial resources respectively on Administration and General Operations are by IITA.

The above table also shows that relatively high proportion of the core expenditure is devoted to Administration and General Operations compared to the amount spent on Research. Less than 50 percent was spent on the latter in contrast to over 30 percent for Administration and Operations. The System's allocations in 1992 for this item varied from ISNAR's 12 percent to INIBAP's 31 percent with a system-wide average of 24 percent.

The concentration of CGIAR investments in the four major Centres (IITA, ICRISAT, WARDA and ILCA) is demonstrated in **Table 2** which shows that 99 percent of the Net Capital Investment (that is, Net Book Value, of Fixed Assets) is attributed to these Centres.

2.2 Research Programmes

The inventory of CGIAR activities in sub-Saharan Africa undertaken by ISNAR in 1986 was a valuable source of information for the present study. To make the results of that survey comparable to the data obtained in 1994,

the statistics relevant to countries in West Africa were extracted and analysed. In particular, the 12 activity codes listed in **Annex III** of the 1987 report were regrouped into the current 5 CGIAR Activity Categories.

Annex 2A shows the analysis of Senior Staff Months expended on core research activities in the 19 countries of West Africa as obtained from the Centres. A major problem during the collation of the data was the inconsistencies in the way data on research were presented by the Centres. While a majority of the Centres provided the information requested in accordance with the format specified, others gave only the monetary values of research activities. Some others distributed non-research personnel data and costs among the 5 CGIAR Activity Categories and yet gave a breakdown of costs of operational programmes which equalled the costs indicated for research activities alone. There was insufficient time to reconcile these differences. Adjustments were sometimes made using indirect quantitative evidence in the Centre response. These account for some discrepancies between the tables and annexes.

A comparison of the spread of CGIAR research activities across the sub-region shows a substantial reduction in SSMs deployed in 1992 (**Annex 2A**) compared to the total figure in 1986 (**Annex 2B**). However, more detailed data are shown in **Annexes 3A and 3B**, which give the distribution of Centre research activities in the agro-ecological zones (Semi-arid and Humid Forest in 1986, and Savanna, Inland Valleys and Humid Forest in 1992). These tables show that in 1986 1,307 and 687 senior staff months were deployed in Humid and Semi-arid zones respectively (**Annex 3B**), while the distribution in 1992 was 746, 164 and 821 senior staff months for Humid, Inland Valleys and Savanna zones respectively (**Annex 3A**).

In both 1986 and 1992 the most important activity was research on Production Systems Development and Management (CGIAR Activity Category 3), though in 1992 greater effort was placed on Activity Category 1 (Conservation and Management of Natural Resources) in the Inland Valleys, a classification mainly designated by IITA. Similarly, four Centres (IITA, ICRISAT, ILCA and WARDA) accounted for over 80 percent of research activities in the sub-region in both 1986 and 1992. In these two years countries with high intensity of CGIAR research were as follows:

	<u>SSM (1986)</u>	<u>Rank</u>	<u>SSM (1992)</u>	<u>Rank</u>
<u>Humid Zone</u>				
Benin	2	6	111	3
Cameroon	304	2	77	4
Ghana	175	3	65	5
Ivory Coast	155	4	163	2
Nigeria	429	1	785	1
Sierra Leone	105	5	75	6
<u>Semi-Arid Zone</u>				
Burkina-Faso	124	3	76	3
Gambia	119	4	3	5
Mali	134	2	100	2
Niger	112	5	258	1
Senegal	164	1	48	4

The statistics shown above indicate some significant readjustments in the System's research activities in West Africa. In 1986, the prime focus of research intensity in the humid zone was Nigeria (IITA's Headquarters), while Senegal was a major base in the semi-arid zone. However, in 1992, Nigeria's position in the humid zone was greatly strengthened partly because of the consolidation of IITA's research programmes and their extension beyond the ecosystem (Forest/Savanna Transition) surrounding its immediate environ. Work in the inland valleys system had gained prominence and the Kano station in the semi-arid zone of Nigeria was under development. Similarly, work had started at Onne representing one of the two stations in West Africa for peri-humid research. The second is at Mbalmayo in Cameroon. Additionally, ILCA's programme in Nigeria was being expanded and ICRISAT had started to develop its station in Kano with an increase from 15 SSM in 1986 to 36 SSM in 1992. IRRI, with only a token presence in the country in 1986, deployed 21 SSM in the country in 1992 mainly by out-posting a scientist to IITA to operate the INGER programme in West Africa.

In the humid zone, 1992 also witnessed the growing importance of Ivory Coast whose ranking changed from the 4th position in 1986 to second position in 1992, though with only a marginal increase in the human resources deployed in the latter year. This development may be attributed to the significance of WARDA as a major focus of the System's research and collaboration in the rice-growing ecosystems of West Africa. A further review of the statistics shows a move away from excessive dispersion of the System's research efforts which was noted in the 1986 survey, towards the attainment of critical mass in fewer locations which were then serving as a base for research intervention in other countries of the sub-region.

Benin's high visibility in 1992 was probably wholly due to the establishment of IITA's centre for Biological Control in the country, and the expansion of its plant health management programme which emphasizes collaboration with CIAT (cassava, germplasm and disease control) and CIMMYT (plant health management in maize).

A similar realignment of the System's research is discernible in the sub-humid/semi-arid zone of West Africa. What is immediately obvious is the substantial fall in overall research effort in the agroecological zone. From Annexes 2A and 2B the difference of 200 SSMs between 1986 and 1992 represents a reduction of 29% in research enterprise in the zone. On the other hand, the humid zone experienced a downturn of only 4% in research effort. Nevertheless, the tendency towards consolidation and concentration of research effort in fewer locations described for the humid zone is also in evidence.

Niger changed from the fifth position in 1986 to the first position in 1992 with a 130% increase in human resources deployed in the country. ICRISAT is mainly responsible for the emergence of Niger as a major location for CGIAR research in the semi-arid zone. The ICRISAT Sahelian Centre is based in Niamey, and it is already attracting a high degree of collaborative research from IFPRI, ILCA, ICRAF, IIMI and other non-CGIAR research organizations. Mali and Burkina-Faso maintained their positions as important locations of CGIAR research effort in the zone.

The Centres' country statistics discussed above should be interpreted with caution. Research at the Centres is mainly strategic, upstream and not country-specific. Technologies developed at the headquarters usually find much wider application in localities beyond the target agro-ecological zone or sub-region.

Reference has been made to the fact that the thrust of CGIAR research in West Africa is in the area of Production Systems Development and Management (Activity Category 3). Centres operating in West Africa have shown a notable sensitivity to the changing System's global research priorities. The table below is a summary of the statistics in **Table 3A and 3C** and **Annex 7** which put together the information on research activities in 1992 and 1986 of IITA, ILCA, WARDA and ICRISAT, the four Centres already shown to be responsible for over 80% of the CGIAR research endeavours in the sub-region.

For West Africa the activities of the four major Centres in 1986 and 1992 were as follows:

CGIAR ACTIVITY CATEGORY	1 9 8 6			1 9 9 2		
	SSM	%	Rank	SSM	%	Rank
1	249	14	3	264	21	3
2	365	20	2	286	22	2
3	912	49	1	456	34	1
4	142	8	5	47	4	5
5	180	10	4	247	19	4

The emphasis given to Production Systems Development and Management in 1986 was maintained in 1992 but on a highly reduced scale, with the percentage share of Senior Staff Months falling from 49% in 1986 to 34% in 1992, a 15% difference. A similar scaling down is observed when the 1991 distribution of activity categories is compared to the distribution of TAC-recommended system-wide allocation for 1998. In this instance Activity Category 3 is being reduced from 33% in 1991 to a recommended 27% in 1998.

In the Humid zone, the second most important research activity for both 1986 and 1992 was in Activity Category 2 (Germplasm Enhancement and Breeding) which has maintained a 23% share of the human resources deployed in both years. But for the Semi-arid zone Activity Category 1 (Conservation and Management of Natural Resources) was consistently the second priority in the two years with a 10% gain in 1992 over the share of activities in 1986.

The conclusion from the review of research in West Africa is that activities across Centres and across the sub-region appear to have been better focused in 1992 compared to 1986. The Centres seem to have responded to system-wide need for efficiency and economy by rationalizing their country-based activities, thereby reducing the duplication of programmes which was observed in the ISNAR 1986 survey. As an example, in 1986 (Annex 2B), 9 and 11 Centres were active in Nigeria and Senegal respectively. But by 1992 (Annex 2A) the numbers had been reduced to 7 and 2 Centres for Nigeria and Senegal respectively. There has been an increasing emphasis on inter-centre collaboration.

A major gap in the statistics compiled for the present study is the absence of direct information on the number and value of non-core research activities. This gap should be filled in the next phase of the study in view of the substantial number of special projects being operated by CGIAR Centres in West Africa. As an example, the ISNAR 1986 survey indicated that over 42 percent of Centres' activities in sub-Saharan Africa were supported through non-core funding, and further observed that special project funding was one of

the crucial strengths of the CGIAR system, as it gave the Centres the flexibility to respond quickly to identified problem areas, while core funding provided the long-term sustained commitment that successful agricultural research demanded. The ISNAR survey found that the Centres with sub-Saharan Africa mandates supported a higher proportion of their activities in the region from core funds. Centres with no long term research programmes in Africa had responded to the needs of Africa through special project funded activities, leaving their main research programmes intact. Moreover, the presence of so many non African-based Centres in West Africa may be attributed to special project funding which have served to bring these Centres closer to NARS in the sub-region and which emphasizes close collaboration with host Centres.

2.3 Facilities and Investments

It was pointed out earlier that the CGIAR System's operational programmes in West Africa in 1992, cost US\$ 50.3 million (Table 2). This was sustained by a net capital investment of about US\$ 64 million. Annex 5 gives the value of the investment in individual countries while Annex 6 shows the distribution of the seven categories of assets by Centres.

Asset Category 1 (Buildings/Infrastructure) had a net value of US\$ 48.7 million in 1992 dollars, representing 76% of the Systems holdings in West Africa (Table 4A). Two-thirds of this particular asset was held in the humid zone. Laboratory Equipment (Asset Category 4) owned by Centres in the sub-region was valued at about US\$ 4.8 million and three-quarters were deployed in the humid zone. Vehicles (Category 2) and Office Equipment (Category 5) were each worth about 4% of the total net assets.

Almost half of all fixed assets (48.6%) were controlled by IITA followed closely by ICRISAT (30.9%) and WARDA (18.4%). These three Centres were in charge of 98% of the CGIAR investments in the sub-region (Annex 6). The above statistics is the strongest indication yet that most Centres operating in West Africa avoided investing scarce financial resources in facilities and equipment, preferring to use facilities developed by Centres based in the sub-region. ICRISAT would appear to be the main exception. Though its headquarters is not based in the sub-region, its capital resources in West Africa were almost twice those of WARDA.

From Table 4B 43% of the total net fixed assets were located in Nigeria, virtually all under the control of IITA. However, six other Centres (ICRISAT, ILCA, IRRI, WARDA, IIMI and CIAT) owned some non-significant assets in Nigeria. With the exception of ICRISAT which operates an independent sub-station in Kano, in spite of the presence of IITA's sub-station in virtually the same vicinity, other Centres' holdings represent a token supplement to the much larger IITA resources to which collaborating Centres have access.

Cameroon accounted for 1.6% of the value of net fixed assets invested in West Africa in 1992. This country is fast developing as a major focus of ICRAF research in humid West Africa. As IITA and ICRAF develop their facilities at Mbalmayo there is a clear case for greater integration in spite of independent sources of funding, since both Centres emphasize the role of agroforestry research in this zone, and both are involved in the TAC-supported ecoregional programme for the warm and sub-humid tropics.

Niger was the repository of well over 80% of the net fixed assets deployed in the semi-arid zone and second only to Nigeria with 25% (US\$ 16.1 million) of the net fixed assets in West Africa. The facilities in Niamey are being designed to serve the needs of other Centres operating in the semi-arid zone of West Africa and is a good example of how careful planning can lead to maximum effectiveness in the use of available facilities.

2.4 Inter-Centre Collaborations

All CGIAR Centres that work in West Africa have developed collaborative arrangements relating to areas of research of common interest that overlap their mandated responsibilities. The Centres have drawn up and signed *memoranda of agreement* on the collaboration envisaged. Beyond this step the modes of collaboration take a number of forms such as: (i) conduct of jointly planned (funded) and co-authored activities; (ii) exchange and/or joint evaluation of germplasm; (iii) joint network/information exchange activities; (iv) informal collaboration based on office sharing arrangements; (v) jointly organized training activities; and (vi) joint publication/information dissemination activities.

IITA has close working relationships with CIAT (cassava breeding and physiology), CIMMYT (maize germplasm) and CIP (sweet potato research) in specific aspects of their research programmes relating to West Africa. Linkages between IITA and ICRISAT focus on the dry Savanna where the environment and crop mandates of the two Centres overlap. In 1990, the EPMR of IITA commented positively on the growing collaboration between IITA and ICRISAT but also expressed concern about the Centres' duplication of resources at the KANO station.

Based on a Memorandum of Understanding (MOU) drawn up in 1991 IITA has established close working relationships with WARDA and facilitated WARDA in using the Centre's rice research facilities at its Ibadan headquarters. The Centres also collaborate in ecosystem characterization research in West Africa. IITA is collaborating with ILCA on multipurpose forage trees and crop residues as animal feed and provides office facilities for ILCA staff at its Ibadan headquarters. ICRAF has direct collaboration with IITA on alley farming research and along with ILCA and IITA jointly participates in AFNETA (Alley Farming Network for Tropical Africa).

IITA, WARDA, ICRISAT and ILCA collaborate with other CGIAR Centres such as ISNAR and IFPRI in the context of their activities in West Africa; this collaboration is generally subject matter or activity (training) specific.

3. CGIAR CENTRES' RELATIONS WITH NARS

3.1 Training

System wide statistics on CGIAR training outputs were last reviewed in 1989. The data were tabulated by region but were not presented at sub-regional levels. Data on CGIAR training of African scientists are presented in the Table below. The survey data show considerable variation in trainee numbers from year to year, and from Centre to Centre but on aggregate indicate that the CGIAR Centres annually provided training to more than 1,750 scientists in sub-Saharan Africa over the period 1985 to 1989. Pro-rata with a breakdown of overall Centre expenditures within sub-Saharan Africa it may be estimated that the CG Centres annually offered training to approximately 1,100 NAR scientists in West Africa over the same five year period (1985-1989). IITA accounted for more than half of the total trainees but ICRISAT, WARDA, CIP, ILRAD and ILCA also provided substantial (> 75 trainees/ annum) training each year.

AVERAGE ANNUAL NUMBER OF TRAINEES BY CGIAR CENTRES: 1985 - 1989.

Centre	Sub-Saharan Africa	West Africa *
CIAT	9	1
CIMMYT	47	5
CIP	182	107
ICARDA	210	?
ICRISAT	134	105
IPGRI	22	?
IITA	632	632
ILCA	161	66
ILRAD	76	3
IRRI	39	27
ISNAR	151	76
WARDA	101	101
ALL CENTRES	1,764	1,123

* Numbers estimated on basis of pro-rata Centre expenditure in West Africa; the estimates for IITA and ILRAD in particular require Centre verification.

A breakdown of the type of training offered by the Centres shows that short duration group training accounted for 88% of all training courses. The Centres offering longer term more specialized training to African scientists (MSc, PhD or visiting scientists) were IITA (59.4 trainees p.a.) ILRAD (43.4 trainees p.a.) and ICRISAT (34.8 trainees p.a.).

Usually Centres arrange their training programmes independently of each other in consultation with their NARS clients. Occasionally, the Centres arrange joint training courses for NARS within specific networks (e.g. Trypanotolerance network) or on specific research techniques. For example, ICRISAT and ILCA cooperate in providing training in biometrics at the ICRISAT Sahelian centre. In more general terms, the Centres exchange information on their training activities through the annual circulation of the calendar of Centre events at Centre Week.

More recently the subject of inter centre collaboration in training and information across the IARCs in Africa was addressed at a meeting of IARC training officers, 8/9 November 1993, Nairobi, Kenya. The subject was also discussed by the Director Generals at ICW 93, based on a presentation by R. Ayling and D. Minnick titled "A Strategy to Enhance the Cost Effectiveness of Training at the International Agricultural Research Centres (IARC's) of the CGIAR". Among the issues raised were (i) "Different IARCs (in addition to other institutions) offer the same or similar training in the same geographical region without coordination"; (ii) "IARCs compete with each other for the attention of NARS, causing confusion at the national level"; (iii) "IARCs compete similarly, first for donor funds, then for trainees; (iv) "the same ("professional") trainees travel from course to course and (v) "training materials offices of different IARCs produce (often identical or overlapping) material in an uncoordinated way". These discussion statements reflect concerns that there may be a need to integrate training programmes in West Africa.

3.2 Documentation and Information Services

In the most recent external reviews of IITA, WARDA, ICRISAT and ILCA, all four Panels concluded that the respective African NARS attach very high priority to the Centres information dissemination activities. Generally, Centres provide two types of information services, (i) widespread distribution, free of charge, of the Centres own publications and (ii) information searches and limited distribution of scientific literature as requested by NARS scientists. Some Centres provide specialized information services such as the Semi-Arid Tropical Crops Information Service (SATCIS) developed by ICRISAT. This data base draws from AGRIS and CAB International abstracts and has almost 20,000 entries. It is available to NARS in West Africa through ISC. Similarly, IITA has developed CD-ROM data bases which are being down loaded at its regional stations and thereby more easily accessed by the NARS in West Africa. ILCA, in addition to its extensive library (28,000 books and 1,800 journals) has developed a non-conventional or "gray" literature data base that

by 1992 included 18,000 items of information collected from 27 countries in SSA. Based on these data sources ILCA provides a monthly current awareness service to more than 350 NARS in 37 African countries; these services are widely used by NARS scientists in West Africa. In recent years WARDA has significantly strengthened its library and information services to NARS and has expanded its information data base contracts. WARDA's mailing list now numbers 2,500 addresses, mainly in West Africa; in 1992 the Centre distributed to NARS in West Africa 150 copies of *Current Contents*, 350 publications and 33,356 photocopied papers of journal articles.

3.3 Publications

The number of research papers published in 1992 by the four major CGIAR Centres in West Africa are listed below:

Published in	IITA	WARDA	ILCA	ICRISAT
<i>Research Journals</i>	72	11	67	24
<i>Proceedings/Other</i>	63	7	45	5

Information was not available to classify the publication lists as to the relevance and importance to the West African region. Broadly speaking most of IITA and WARDA publications have relevance to the region, and perhaps 50% of ILCA's publications. The only papers counted off ICRISAT's very extensive list of publications were those that specifically referred to West Africa in the title of the publication.

3.4 Networks

As might be expected, IITA supports and/or engages in the largest number of Networks in West Africa. Central to IITA's research on maize, and on roots and tubers, are the COMBS (Collaborative Group on Maize based Systems) and CORTIS (Collaborative Group for Roots and Tuber Improvement Systems Research) networks. Additionally, IITA supports (complementary funds) AFNETA (Alley Farming Network for Tropical Africa), the RENACO (cowpea) and WECAMAN (maize) networks operating under the umbrella of SAGRAD, and the West African Farming Systems Research Network (WAFSRN). The Centre is a participant in INGER (International Network for the Genetic Evaluation of Rice) and PASCON (Pan Africa and Striga Control Network). The Centre also supports SPALNA, a soil and plant analysis network for Africa. IITA participates in a Cassava Germplasm Network in close collaboration with CIAT and IPGRI; most of the activities of this network are focused on West Africa.

In general terms, the ICRISAT Sahelian Centre might be considered as an international network of research and development organizations which share a common facility to address the major critical research challenges that

face the advancement of agriculture in the Sahel. From this Centre, ICRISAT supports a number of commodity specific networks in the region, e.g., WASIP (West African Sorghum Improvement Programme), ROCAFREMI (Réseau ouest et centre Africain de recherche sur le mil) and CCRN (Cooperative Cereals Research Network). The Centre also participates in WCAMRN, the West and Central African Millet Research Network supported by USAID through the SAFGRAD programme.

ILCA actively supports research networks that have relevance to West Africa, viz., (i) the CARNET (Cattle Research Network), (ii) the SRNET (Small Ruminant Research Network) and (iii) the AFRNET (the African Feed Resources Network). All three networks are pan African (SSA) in scope, but their activities are heavily focused on the West African region. ILCA participates in WAATN, a West African Animal Traction Network. Generally speaking, these networks are operated by the participating NARS with ILCA providing technical support and strategic funding (complementary). At the other end of the spectrum, ILCA and ILRAD lead a research focused network on Trypanotolerance which embraces the non-associated international livestock research centres in Africa (ITC, CIRDES and ICIPE) as well as relevant NARS engaged in research on trypanosomiasis.

WARDA's collaborative networking activities with NARS in West Africa take the form of working groups and task forces. The Centre currently participates in two broadly based working groups, one focused on varietal improvement research and one on crop and resource management research. More recently, WARDA is promoting collaborative research activities through Task Forces on (i) Mangrove swamp rice; (ii) Upland rice improvement; (iii) Lowland rice improvement; (iv) Sahel rice improvement and (v) Integrated pest management. Additional task forces on problem soils and sustainable cropping systems are being established.

4. RESEARCH BY OTHER INSTITUTIONS

Alongside the CGIAR Centres a number of international and regional research organizations engage in, or support, agricultural research in West Africa. These organizations aim to complement the functions of NARS and generally collaborate closely with the CGIAR centres. Among the international organizations, three are located in West Africa, viz., (i) The International Trypanotolerance Centre (ITC), based in The Gambia, (ii) Centre International de Recherche - Développement sur l'Élevage en Zone subhumide (CIRDES) with headquarters in Burkina-Faso, and (iii) Institut International de Recherche Scientifique pour le Développement en Afrique (IIRA), Abidjan, Côte d'Ivoire. Other research centres such as IBSRAM (International Board for Soil Research and Management), IFDC (International Fertilizer Development Centre) and INTSOY (International Soybean Programme) engage in and/or support research in West Africa, albeit they are located outside the regions.

A number of regional research organizations focus their efforts directly on West Africa. These include SAFGRAD (Semi-Arid Food Grains Research and Development), CILSS/INSAH (Comité inter-état de lutte de la sécheresse du Sahel/Institut du Sahel), CIEH (Centre inter-état des études hydrauliques) and EIER (Ecole inter-état des ingénieurs de l'équipement rural) based in Burkina-Faso. Additionally, groupings such as CDA (Consultation for Development of Africa) and SPAAR (Special Programme for African Agricultural Research) aim to strengthen the research capacity of African agricultural research systems, including those of West Africa.

Foundations, such as Ford, Rockefeller and the International Foundation for Science (IFS) also actively support agricultural research in West Africa. Much of the support of these foundations is directed at specific activities proposed and undertaken by national research systems, but in the case of IFS, grants are awarded to individual scientists on the basis of specific research proposals which are internationally refereed.

4.1 International Organizations

International organizations such as the World Bank, IFAD, FAO, UNDP, and the European Community provide very substantial support to research on the development of agriculture, fisheries and forestry in West Africa. The World Bank is by far the largest supporter of West African agricultural research if due cognizance is taken of the research component of Bank loans to the member states in the region,. However, these funds generally emerge in the National Exchequer votes to Agricultural Research and often are not denominated as World Bank Support.

4.2 Bilateral Agencies

A number of industrial countries have established special research institutes or agencies within their home countries to facilitate effective cooperation in agricultural research and development in Africa. Some of these focus heavily on agricultural research in West Africa. They include: CIRAD (France), ODA (Britain), CIDA and IDRC (Canada), BMZ and GTZ (Germany), ADAB and ACIAR (Australia), and IAC and the Royal Tropical Institute in the Netherlands. CIRAD, the largest bilateral research organization (1992 Annual Budget: FFr 945.3 million) engaged 259 senior scientists in agricultural research in Africa in 1992, approximately two thirds of them located in West Africa. CIRAD's research programmes embrace annual food and cash crops (e.g., tubers, cotton, cereals, legumes), tree crops (e.g., cocoa, coffee, coconut, natural rubber and oil palm), fruit and horticultural crops (e.g., citrus, pineapple, banana and plantain), livestock production (including micro-livestock, aquaculture and fisheries), forestry (including agroforestry), food technology and rural systems management. The Centre also supports specialized research services in biotechnology, plant and crop architecture, agricultural policy and socio-economics. In 1992, CIRAD together with three other European research Institutes (NRI, Britain; KIT, the

Netherlands; and IICT, Portugal) established the European consortium for Agricultural Research in the Tropics (ECART) which will focus on Environment and Natural Resource Management research in the tropics; the four member institutes have a combined strength of more than 2,000 scientists.

4.3 Collaboration with CGIAR centres

In general terms the CGIAR centres engaged in research in West Africa have good working relationships with the international and regional research organizations listed above. Collaborative arrangements take many forms ranging from joint (co-funded) research projects to collaborative participation in networks and scientific meetings. The CGIAR centres have formal *memoranda of agreement* with most of the non-CGIAR international and regional research organizations. CGIAR involvement in the ICRISAT Sahelian Centre (ISC) is, perhaps, the best example of the open collaboration that exists among the international and regional research organizations engaged in the advancement of agricultural research in West Africa. In 1992, for example, the Resource Management Division of ISC was staffed by 6 ICRISAT scientists, by international staff from IFDC (1 SSY) and the Universities of Wageningen (1 SSY) and Hohenheim (1 SSY) and by sister CGIAR centre scientists, e.g., 3 scientists from ILCA and one scientist each from IPGRI (formally IBPGR), ICRAF and IFPRI. Resident research staff from ORSTOM, SAFGRAD, IRAT and CIRAD also contributed to the work of ISC in 1992.

Perhaps the most extensive mode of collaboration among the many international and regional organizations engaged in agricultural research in West Africa is their joint participation in conferences, seminars and in network activities. Perusal of conference proceedings and memberships of the many research networks that operate across West Africa would suggest that there is a high degree of interaction among the different organizations. However, the rapidly growing number of networks and communication arenas (conferences, seminars, research planning workshops and training activities) might suggest the need for an "Oversight Network" to adjudicate on the benefits, demands and better coordination of these many consultation activities.

5. CONCLUDING REMARKS

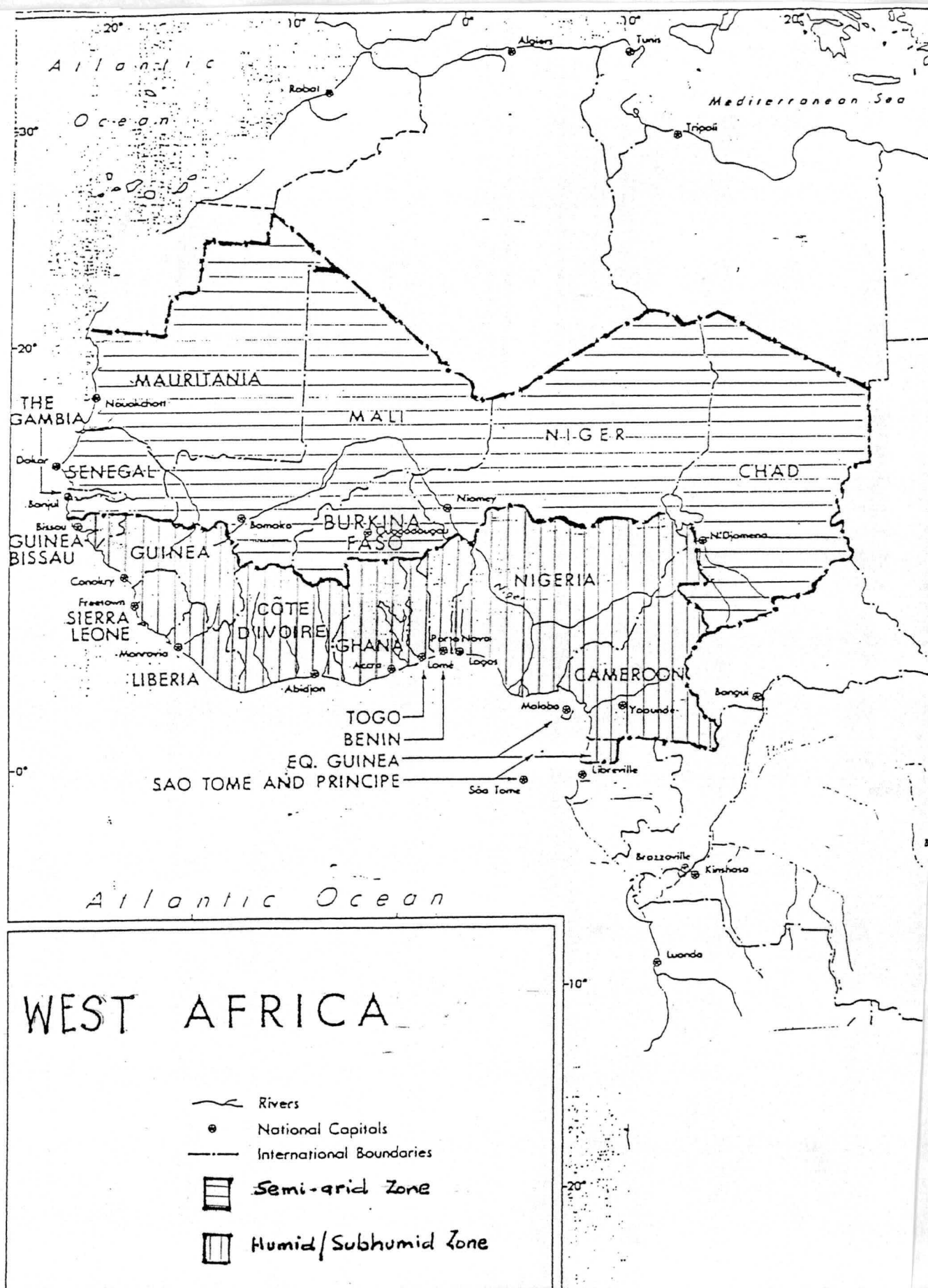
Compared to the situation in 1986, activities of Centres in 1992 were less dispersed and seemed to lead to greater efficiency, economy and the attainment of critical mass in fewer research areas and fewer localities. Inter-Centre collaboration is growing, but should be further strengthened in key areas of training, networking and information dissemination. There was no obvious evidence of duplication of facilities and programmes, though the survey was not sufficiently sensitive to detect duplication even if it existed. Field visits would be essential for a realistic evaluation of this issue. Such field visits may be confined to the main locations controlled by IITA, ICRISAT and WARDA.

In addition to obtaining data on complementary programmes and the resources available for executing them, the next phase of the survey should lead to a compilation of standard measures of outputs from the Centres over a defined period (1990-1993) such as: (i) the types, relevance, and potential impact of technologies developed; (ii) the number of research publications and their relevance to the region; (iii) the number of NARS scientists actually trained and a measure of the efficacy of the training; (iv) the number of conferences and workshops held within the region and (v) the amount of germplasm and other materials developed, released and used in the region.

The next phase should also address the issue of how the Centres assess their research impact in the sub-region. There are strong indications that Centres' research programmes have had a major leverage on the agricultural productivity in mandate crops in the sub-region. As an example, two of the six King Baudouin International Development Prizes awarded between 1980 and 1992 were received by IITA (1986) for the development of maize varieties resistant to maize streak virus, offering opportunities for substantial gains in production in sub-Saharan Africa; and CIAT/IITA (1990) for the biological control of cassava mealybug in Africa. The research leading to these two major awards was undertaken and developed mainly in the sub-region.

Another major break-through is the development in IITA, with the collaboration of INIBAP, of hybrid varieties of banana/plantain resistant to the Black Sigatoka disease which decimated stands of the crop in sub-Saharan Africa a few years ago. Other less spectacular, but economically very important research achievements are available in the sub-region. What is needed is to overcome the statistical constraints in undertaking agricultural research impact assessments in order to obtain a true picture of the returns on CGIAR research investments in the sub-region.

Fig. 1 Map of West Africa Showing the Study Area



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Table 1. ALLOCATION OF CGIAR CORE BUDGETS IN 1992

CENTRES	Total ¹ Allocations US\$ million	Allocation to SSA ²		Expenditure in West Africa			Remarks
		%	Amt. US\$ million	Amt. US\$ million	% of SSA	% of Total Allocation	
CIAT	27.1	21	5.691	0.416	7	2	
CIMMYT	28.4	18	5.112	0.566	11	2	
CIP	16.1	19	3.059	1.800	59	11	
IPGRI	8.2	27	2.214				
ICLARM	4.2	10	0.420	0.150	36	4	
ICRAF	11.8	98	11.564				
ICRISAT	26.2	46	12.052	9.372	78	36	
IFPRI	9.6	41	3.936	2.400	61	25	
IIMI	7.0	23	1.610	0.462	29	7	
IITA	22.7	100	22.700	22.625	100	100	
ILCA	19.0	75	14.250	4.803	41	31	
ILRAD	13.7	53	7.261	0.246	3	2	
INIBAP	2.5	37	0.925	0.357	39	14	
IRRI	28.8	4	1.152	0.789	68	3	
ISNAR	7.1	40	2.840	1.420	50	20	
WARDA	6.3	100	6.300	7.200	114	114	
ICARDA	20.1	27	5.427	-	-		
ALL CENTRES	258.8	41	106.513				
Total less 3 Centres	191.6	43	81.617	52.606	64	27	20% of all Centres

Source:

¹ CGIAR Annual Report 1992, CGIAR Secretariat, Washington, D.C., September 1993

² Review and Appraisal of Centre Medium Term Plans 1994-98 CGIAR Secretariat, Washington, D.C., AGRC/TAC: IAR/93/11. September 1993.

Table 2. CGIAR MAJOR INVESTMENTS IN WEST AFRICA (1992)

Major Centres	Operational Programme ^{1/}				Net Capital Investment ^{2/}	
	Senior Person Months	%	Amount US\$'000	%	Amount US\$'000	%
IITA	1,044	51	22,445	45	31,099	49
ICRISAT	306	15	9,372	19	19,757	31
WARDA	228	11	7,200	14	11,741	18
ILCA	167	8	4,803	10	1,009	1
TOTAL 4 CENTRES	1,745	85	43,820	88	63,606	99
TOTAL ALL CENTRES	2,031	100	50,321	100	63,976 ^{3/}	100

^{1/} Operational Programmes comprise: Research, Research Support, Institution Building and Administration and General Operations.

^{2/} Net Capital Investment is equivalent to the Net Book Value of Fixed Assets.

^{3/} Total for the 8 Centres (CIAT, CIP, ICRISAT, IIMI, IITA, ILCA, IRRI and WARDA) with capital investments in West Africa.

Table 3A. **ACTIVITIES OF MAJOR CGIAR CENTRES IN WEST AFRICA ***

(Senior Staff Months in Country Under the CGIAR Activity Categories, 1992)

CGIAR ACTIVITY CATEGORY	Cons/Mangtof Natural Resources	Germpl. Enhance. and Breeding	Prod. Systems and Mangt.	Socio-Econ/ Pub.Pol/Pub Mangt. Res.	Inst. Building	TOTAL SSM	% of AEZ	% of W. Africa
COUNTRY	1	2	3	4	5			
Benin	24.0	-	60.0	-	-	84.0	8.8	6.5
Cameroon	30.0	-	-	-	-	30.0	3.1	2.3
Ghana	-	-	-	-	12.0	12.0	1.3	0.9
I. Coast	10.8	25.9	38.4	4.9	36.0	116.0	12.1	8.9
Nigeria	107.9	192.7	244.0	13.5	146.1	704.2	73.4	54.2
S. Leone	1.8	4.3	5.2	0.7	-	12.0	1.3	0.9
Sub-Total HULWA (%)	174.5 (18.2)	222.9 (23.3)	347.6 (36.3)	19.1 (2.0)	194.1 (20.2)	958.2	(100)	73.7
B. Faso	-	-	12.0	-	-	12.0	3.5	1.3
Gambia	-	-	2.2	0.9	-	3.1	0.9	0.2
Mali	36.7	8.4	6.0	12.0	18.4	81.5	23.9	6.3
Niger	49.2	45.8	77.7	14.0	34.4	221.1	64.7	17.0
Senegal	3.6	8.6	10.4	1.4	-	24.0	7.0	1.8
Sub-Total SALWA (%)	89.5 (28.1)	62.8 (19.7)	108.3 (31.7)	28.3 (8.9)	52.8 (16.5)	341.7	(100)	(26.3)
TOTAL W.AFRICA (%)	264 (20.7)	285.7 (22.4)	455.9 (33.9)	47.4 (3.7)	246.9 (19.3)	1299.9	(100)	(100)

* IITA, ILCA , WARDA and ICRISAT

Table 3B.

ACTIVITIES OF CGIAR CENTRES IN WEST AFRICA

(Senior Staff Months in Country Under the CGIAR Activity Categories, 1986)

CGIAR ACTIVITY CATEGORY COUNTRY	Cons/Mangt. of Natural Resources 1	Germpl.Enhanc. & Breeding 2	Prodn. Systems & Mangt. 3	Socio-Econ/ PPub.Pol./Pub. Mangt. Res. 4	Inst. Building 5	TOTAL	%
BENIN	8.27	4.0	6.51	0.15	9.09	28.02	2.1
CAMEROON	13.76	107.77	140.82	12.92	29.10	304.37	23.3
EQUATORIAL GUINEA	-	0.56	-	0.14	0.70	1.40	0.1
GHANA	15.55	53.09	54.41	7.36	44.27	174.68	13.4
GUINEA	5.26	6.06	36.83	3.40	-	51.55	3.9
GUINEA BISSAU	-	0.50	-	1.22	-	1.72	0.1
IVORY COAST	39.29	7.97	82.92	18.33	6.21	154.72	11.8
LIBERIA	4.37	4.75	17.76	5.66	3.00	35.54	2.7
NIGERIA	37.59	99.28	202.23	29.28	60.45	428.83	32.8
SIERRA LEONE	20.62	-	81.13	0.50	2.71	104.96	8.0
TOGO	9.21	4.28	5.08	0.14	2.96	21.67	1.7
Sub-Total HULWA	153.92	288.26	627.69	79.10	158.49	1307.46	
%	11.8	22.0	48.0	6.0	12.1		99.9
BURKINA- FASO	39.69	33.82	36.56	2.63	10.81	123.51	18.0
CAPE VERDE	-	0.56	0.56	0.28	1.40	2.80	0.4
CHAD	1.20	6.21	7.33	1.01	-	15.75	2.3
GAMBIA	1.20	6.21	75.25	35.21	1.54	119.41	17.4
MALI	14.93	11.68	99.01	0.88	7.71	134.21	19.5
MAURITANIA	2.07	5.93	6.97	0.88	-	15.85	2.3
NIGER	23.58	27.36	46.71	12.95	0.97	111.57	16.2
SENEGAL	34.83	13.95	86.50	21.64	7.29	164.21	23.9
Sub-Total SALWA	117.50	105.72	358.89	75.48	29.72	687.31	
%	17.1	15.4	52.2	11.0	4.3		100
TOTAL WEST AFRICA	271.42	393.98	986.58	154.58	188.21	1994.77	
%	13.6	19.8	49.5	7.7	9.41		100

Table 3C.

ACTIVITIES OF MAJOR CENTRES IN WEST AFRICA ***(Senior Staff Months in Country Under the CGIAR Activity Categories, 1986)**

CGIAR ACTIVITY CATEGORY	Cons/Mangt of Natural Resources	Germpl. Enhance and Breeding	Prodn. Systems and Mangt.	Socio-Econ/ Pub.Pol/Pub Mangt. Res.	Inst. Building	TOTAL SSM	% of AEZ	% of W. Africa
Country	1	2	3	4	5			
Benin	8.27	4.0	6.51	0.15	9.09	28.02	2.3	1.5
Cameroon	13.76	107.77	140.82	12.92	29.10	304.37	25.5	16.5
I. Coast	39.29	7.97	82.92	18.33	6.21	154.72	12.9	8.4
Nigeria	37.59	99.28	202.23	29.28	60.45	428.83	35.9	23.2
S. Leone	20.62	-	81.13	0.50	2.71	104.96	8.8	5.7
Ghana	15.55	53.09	54.41	7.36	44.27	174.68	14.6	9.4
Sub-Total HULWA	135.08	272.11	568.02	68.54	151.83	1195.58		64.7
%	11.3	22.8	47.5	5.7	12.7		100	
B. Faso	39.69	33.82	36.56	2.63	10.81	123.51	18.9	6.7
Gambia	1.20	6.21	75.25	35.21	1.54	119.41	18.3	6.5
Mali	14.93	11.68	99.01	0.88	7.71	134.21	20.6	7.3
Niger	23.58	27.36	46.71	12.95	0.97	111.57	17.1	6.0
Senegal	34.83	13.95	86.50	21.64	7.29	164.21	25.1	8.8
Sub-Total SALWA	114.23	93.02	344.03	73.31	28.32	652.91		35.3
%	17.5	14.2	52.8	11.2	4.3		100	
TOTAL W. AFRICA	249.31	365.13	912.05	141.85	180.15	1848.49		
%	13.5	19.8	49.3	7.7	9.7			100

* IITA, ILCA, WARDA and ICRISAT

TABLE 4A. ACTIVITIES OF CGIAR CENTRES IN WEST AFRICA
(Summary of Fixed Assets in 1992)
(NET BOOK VALUE)

ECOZONE ASSET CATEGORY	HUMID ZONE		SEMI-ARID ZONE		WEST AFRICA	
	US\$'000	%	US\$'000	%	US\$'000	%
1. Buildings/Infrastructure	33,370.01	78.1	15,319.00	72	48,689.01	76.1
2. Vehicles (Excluding Farm Vehicles)	2,275.84	5.3	323.00	1.5	2,598.84	4.1
3. Farm Equipment (Including Farm Vehicles)	1,644.00	3.8	511.00	2.4	2,155.00	3.4
4. Lab. Equipment	3,567.42	8.4	1,228.08	5.8	4,795.50	7.5
5. Office Equipment	1,185.66	2.8	1,080.42	5.1	2,266.08	3.5
6. Housing Equipment	669.00	1.6	26.00	0.1	695.00	1.1
Mis.: Site Development and others *	-	-	2,776.00	13.1	2,776.00	4.3
TOTAL	42,711.93	100	21,263.50	100	63,975.43	100

* Mainly site development of the ICRISAT Sahelian Centre based in Niamey, Niger

TABLE 4B.

ACTIVITIES OF CGIAR CENTRES IN WEST AFRICA

(Value of Fixed Assets in Country, 1992)

COUNTRY	VALUE OF ASSETS US\$'000	% OF AEZ	% OF WEST AFRICA	REMARKS *
BENIN	4,268.00	9.5	6.7	IITA
CAMEROON	1,035.05	2.3	1.6	IITA, CIP
EQUATORIAL GUINEA	-	-	-	
GHANA	-	-	-	
GUINEA	-	-	-	
GUINEA BISSAU	-	-	-	
IVORY COAST	11,531.00	25.7	18.0	WARDA, IITA
LIBERIA	-	-	-	
NIGERIA	27,659.88	61.8	43.2	IITA, ICRISTAT, ILCA, IRRI, WARDA, IIMI, CIAT
SIERRA LEONE	293.00	0.7	0.5	WARDA
TOGO	-	-		
Sub-Total HULWA	44,786.93	100	70.0	
BURKINA- FASO	57.00	0.3	0.1	IIMI
CAPE VERDE	-	-	-	
CHAD	-	-	-	
GAMBIA	-	-	-	
MALI	2,719.00	14.2	4.3	ICRISAT, ILCA
MAURITANIA	-	-	-	
NIGER	16,161.55	84.2	25.2	ICRISAT, ILCA, IIMI
SENEGAL	251.00	1.3	0.4	WARDA
Sub-Total SALWA	19,188.55	100	30.0	
TOTAL WEST AFRICA	63,975.88			

* Investing Centres in order of magnitude with the largest listed first.

A N N E X E S

- Annex I BREAK-DOWN OF ESTIMATES OF EXPENDITURE IN WEST AFRICA FOR 1992 REQUESTED FROM CGIAR CENTRES**
- Annex 1A CGIAR OPERATIONAL PROGRAMMES IN WEST AFRICA IN 1992**
(Senior Staff Months)
- Annex 1B COST OF OPERATIONAL PROGRAMMES IN WEST AFRICA IN 1992**
- Annex 2A ACTIVITIES OF CGIAR CENTRES IN WEST AFRICA**
(Core Research. Senior Staff Months in Country, 1992)
- Annex 2B ACTIVITIES OF CGIAR CENTRES IN WEST AFRICA**
(Senior Staff Months in Country, 1986)
- Annex 3A ACTIVITIES OF CGIAR CENTRES IN WEST AFRICA**
(Core Research, Senior Staff Months in CGIAR Activity Categories, 1992)
- Annex 3B ACTIVITIES IN CGIAR CENTRES IN AGRO-ECOLOGICAL ZONES OF WEST AFRICA**
(Senior Staff Months in CGIAR Activity Codes, 1986)
- Annex 4 ACTIVITIES OF CGIAR CENTRES IN WEST AFRICA**
(Research Support - Admin/Operations, 1992)
- Annex 5 ACTIVITIES OF CGIAR CENTRES IN WEST AFRICA**
(Net Book Value of Fixed Assets, 1992
Country Distribution)
- Annex 6 ACTIVITIES OF CGIAR CENTRES IN WEST AFRICA**
(Net Book Value of Fixed Assets in 1992):
Distribution of Agro-Ecological zones)
- Annex 7 ACTIVITIES OF MAJOR CGIAR CENTRES IN WEST AFRICA**
(Senior Staff Months in Country Under the CGIAR Activity Categories, 1992)

BREAK-DOWN OF ESTIMATES OF EXPENDITURE IN WEST AFRICA
FOR 1992 REQUESTED FROM CGIAR CENTRES

1. By Cost Centre

Research
Research Support
Training and Information
Management and Administration

2. By CGIAR Category of Activity

1. Conservation/Management of Natural Resources
2. Germplasm Enhancement and Breeding
3. Production System and Management
4. Socio-Econ/Pub. Policy/Public Management Research
5. Institution Building

3. By Commodity

Estimates of Senior Staff Months devoted to research, research support, training and information on each of the major commodities being addressed by the Centres in West Africa.

4. Book Value (end of 1992) of fixed assets for West African programmes, including assets held in other Centres in the sub-region in terms of the following categories:

- Building and infrastructure
- Vehicles, excluding specialized farm vehicles
- Other research, research support and laboratory equipment
- Office equipment, including computer and external telecommunications facilities
- Training programme equipment/facilities
- Housing facilities.

CGIAR OPERATIONAL PROGRAMMES IN WEST AFRICA IN 1992

ANNEX 1A

(Senior Staff Months)

	CIMMYT	CIP	ICLARM	ICRISAT	IFPRI	IIMI	IITA	ILCA	ILRAD	INIBAP	IRRI	WARDA	TRIAL TOTAL 18/2	%
Research	24.4	16.3	8.8	216	55.1	59.6	57.6	140.4		10.7	12	120	1239.3	61
Research Support	2.9	3.3	-	24	-		120	11.1				36	197.5	9.7
Institution Building	0.3	3.3	10.6	42	22.2		156	15.0		5.3		36	290.7	14.3
Admin. and Operational	2.4	6.5	4.5	24	38.7		192			-		36	304.1	14.9
TOTAL OPERATIONAL PROGRAMME	30.0	29.4	23.9	306	116.0	59.6	1044	166.5		16	12	228	2031.4	
%	1.5	1.4	1.2	15.1	5.7	2.4	51.4	8.2		0.8	0.6	11.2		

CGIAR OPERATIONAL PROGRAMMES IN WEST AFRICA IN 1992

ANNEX 1B

(US\$'000's)

	CIMMYT	CIP	ICLARM	ICRISAT	IFPRI	IIMI	IITA	ILCA	ILRAD	INIBAP	IRRI	WARDA	TRIAL TOTAL 18/2	%
Research	460.11	1,000	55.04	3,713 (7.3) *	1,140	412.39	9,974 (19.7)	2,890 (5.7)	70.0	238	558	3,100 (6.1)	23,390.51	46.5
Research Support	55.00	200	-	719	-	-	1,680	542		-	-	800	3,996.0	7.9
Institution Building	5.03	200	66.61	908	460	-	2,172	743	175.7	119	179	1,300	6,328.34	12.6
Admin. and Operation	46.19	400	28.45	4,032 (7.9)	800	-	8,620 (17.0)	628		-	52	2,000 (3.9)	16,606.64	33.0
TOTAL OPERATIONAL PROGRAMME	566.33	1,800	150.10	9,372	2,400	462.39	22,446	4,803	245.7	357	789	7,200	50,321.49	
%	1.1	3.6	0.3	18.6	4.8	0.9	44.6	9.5	0.5	0.7	1.6	14.3		

* Figures in parentheses are percentage values of total investment in West Africa for major Centres.

ACTIVITIES OF CGIAR CENTRES IN WEST AFRICA (Core Research)

ANNEX 2A

(Senior Staff Months in Country, 1992)

CENTRES COUNTRIES	CIAT	CIMMYT	CIP	IPGRI	ICLARM	ICRAF	ICRISAT	IPRI	IIMI	IITA	ILCA	ILRAD	INIBAP	IRRI	ISNAR	WARDA	NO OF CENTRES	TOTAL
BENIN		2.2								108	0.8						1	111.0
CAMEROON		2.2	20.4							54	0.8						4	77.4
EQUATORIAL GUINEA		2.2															-	2.2
GHANA		2.2	1.8		9.7			15.0		36	0.8						4	65.5
GUINEA		2.2									0.8							3.0
GUINEA- BISSAU		2.2									0.8							3.0
IVORY COAST		2.2						9.0			8.0					144	3	163.2
LIBERIA		2.2																2.2
NIGERIA		2.2	1.8				36.0		15.8	618	62.5		16.00	21.2		12.0	7	785.5
SIERRA LEONE		2.2			9.7						0.8					12.0	2	24.7
TOGO		2.2						19.0			0.8						1	22.0
Sub-Total HULWA		24.2	24.0		19.4		36.0	43.0	15.8	816	76.1		16.0	21.2		168	10	1259.7
BURKINA- FASO								11.0	28.20	36	0.8						3	76.0
CAPE VERDE											0.8							0.8
CHAD											0.8							0.8
GAMBIA											3.1							3.1
MALI							36.0	18.0			45.5						3	90.5
MAURITANIA											0.8							0.8
NIGER							186	21.0	15.60		35.1						4	257.7
SENEGAL								23.0			0.8					24.0	2	47.8
Sub-Total SALWA							222	73.0	43.8	36	87.7					24.0	6	486.5
TOTAL WEST AFRICA		24.2	24.0		19.4		258	116.0	59.6	852.0	163.8		16.0	21.2		192		1746.2

ACTIVITIES OF CGIAR CENTRES IN WEST AFRICA

ANNEX 2B

(Senior Staff Months in Country, 1986)

CENTRES COUNTRIES	CIAT	CIMMYT	CIP	IBPGR	ICLARM	ICRAF	ICRISAT	IFPRI	IIMI	IITA	ILCA	ILRAD	INIBAP	IRRI	ISNAR	WARDA	NO. OF CENTRES	TOTAL
BENIN		4.25	-	-	-	-	-	-	-	15.90	-	-	-	-	-	7.87	3	28.02
CAMEROON	-	-	9.8	3.26	-	-	-	3.00	-	274.66	8.40	-	-	-	5.25	-	6	304.37
EQUATORIAL GUINEA	-	-	1.40	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.40
GHANA	-	32.00	-	1.48	-	-	16.12	3.70	-	100.79	-	-	-	3.28	-	17.31	7	174.68
GUINEA	-	-	-	-	-	-	15.74	-	-	-	-	-	-	-	-	35.81	2	51.55
GUINEA2- BISSAU	-	0.61	-	-	-	-	-	-	-	1.11	-	-	-	-	-	-	2	1.72
IVORY COAST	-	6.00	-	25.63	-	-	-	16.90	-	15.90	-	4.80	-	-	1.25	84.24	7	154.72
LIBERIA	-	-	-	-	-	-	-	0.20	-	7.55	-	-	-	0.56	-	27.23	4	35.54
NIGERIA	-	33.09	-	2.02	-	-	14.95	10.20	-	278.63	76.20	4.80	-	1.32	-	7.62	9	428.83
SIERRA LEONE	-	-	-	0.20	-	-	-	-	-	7.53	-	-	-	0.32	-	96.91	4	104.96
TOGO	-	6.00	1.40	1.49	-	-	-	-	-	0.26	-	4.80	-	-	-	7.72	6	21.67
SUB-TOTAL HULWA	-	81.95	2.60	34.08	-	-	46.81	34.00	-	702.33	84.60	14.40	-	5.48	6.50	284.71	12	1,307.46
BURKINA- FASO	-	6.00	-	5.54	-	-	27.11	14.90	-	60.35	-	-	-	0.36	9.25	-	7	123.51
CAPE VERDE	-	-	2.80	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2.80
CHAD	-	-	-	-	-	-	15.75	-	-	-	-	-	-	-	-	-	1	15.75
GAMBIA	-	-	-	-	-	-	15.75	27.00	-	-	22.00	26.60	-	-	1.00	27.06	6	119.41
MALI	-	3.60	-	6.10	-	-	27.66	-	-	8.35	86.70	-	-	-	-	1.80	6	134.21
MAURITANIA	-	-	-	-	-	-	15.85	-	-	-	-	-	-	-	-	-	1	15.85
NIGER	-	-	-	4.89	-	-	39.73	-	-	25.22	23.10	-	-	-	10.50	8.13	6	111.57
SENEGAL	-	1.79	12.60	0.14	-	-	15.85	16.80	-	6.64	7.20	11.40	-	0.72	4.75	86.32	11	164.21
SUB-TOTAL SALWA	-	11.39	15.40	16.67	-	-	157.70	58.70	-	100.56	139.00	38.00	-	1.08	25.50	123.31	11	687.31
TOTAL WEST AFRICA	-	93.94	28.00	50.75	-	-	204.51	92.70	-	802.89	223.60	52.40	-	6.56	32.00	408.02	12	1,994.77

ACTIVITIES OF CGIAR CENTRES IN WEST AFRICA (Core Research)

ANNEX 3A

(Senior Staff Months in CGIAR Activity Categories, 1992)

ECO-ZONE	ACTIVITY CATEGORY	CIAT	CIMMYT	CIP	IPGRI	ICLARM	ICRAF	ICRISAT	IFPRI	IIMI	IITA	ILCA	ILRAD	INIBAP	IRRI	ISNAR	WARDA	NO. OF CENTRES	TOTAL
HUMID FOREST	1		-	-		8.8		7.8	-	3.7	66.0	8.3		4.6	-		13.2		112.4
	2		24.4	12.9		-		8.4	-	-	96.0	-		6.1	8.3		31.6		187.7
	3		-	6.0		-		19.8	-	-	90.0	46.4		-	-		38.3		200.5
	4		-	2.1		-		-	30.8	8.9	-	13.4		-	-		5.3		60.5
	5		0.3	2.9		10.6		-	12.2	3.2	92.0	2.1		5.3	12.9		43.6		185.1
	SUB-TOT (%)		24.7	23.9		19.4		36.0 (14.0)	43.0	15.8	344.0 (40.4)	70.2 (47.1)		16.0	21.2		132.0 (68.8)		746.2
INLAND VALLEYS	1										48.0								48.0
	2										6.0								6.0
	3										18.0								18.0
	4										-								-
	5										92.0								92.0
	SUB-TOT (%)					-					164.0 (19.2)						?		164.0
SAVANNA	1							49.8	-	10.3	30.0	31.1					6.0		127.2
	2							54.2	-	-	78.0	-					14.4		146.6
	3							57.4	-	-	144.0	28.8					17.4		247.6
	4							18.6	52.3	24.5	-	8.3					2.4		106.1
	5							42.0	20.7	9.0	92.0	10.8					19.8		194.3
	SUB-TOT					-		222.0	73.0	43.8	344.0	79.0					60.0		821.8
	(%)							(86.0)			(40.4)	(53.3)					(31.2)		
	GR. TOT		24.7	23.9 **		19.4		258	116.0 **	59.6	852.0 **	149.2 ***		16.0	21.2 **		192.0 ***		1732.0
	%							100			100.0						100.0		

- * 1 = Cons/Management of Natural Resources
 2 = Germplasm Enhancement and Breeding
 3 = Production System and Management
 4 = Socio/Econ/Policy Public Mangt. Research
 5 = Institution Building

** = Anomaly in Centre's statistics
 *** = Conversion from dollar values given.

ACTIVITIES OF CGIAR CENTRES IN AGRO-ECOREGIONAL ZONES OF WEST AFRICA

ANNEX 3B

(Senior Staff Months in CGIAR Activity Codes, 1986)

SUB-REGION	CGIAR ACTIVITY CATEGORY *	CIMMYT	CIP	IBPGR	ICLARM	ICRISAT	IFPRI	IIMI	IITA	ILCA	ILRAD	IRRI	ISNAR	WARDA	TOTAL	%
	1	-	1.96	34.08		3.54	-		48.45	-	-	-	-	65.89	153.92	11.8
	2 (%)	40.43	0.84	-		18.57	-		224.74 (17.1)	-	-	3.68	-	-	288.26	22.0
	3 (%)	3.0	2.24	-		21.81	-		301.18 (23.0)	81.60	14.40	-	-	203.46 (15.6)	627.69	48.0
	4	-	1.26	-		2.89	32.60		29.32	-	-	-	1.25	10.56	77.88	6.0
	5 (%)	38.52	6.30	-		-	1.40		98.64 (7.5)	3.00	-	1.80	5.25	4.80	159.71	12.2
	Sub-total	81.95	12.60	34.08		46.81	34.00		702.33	84.60	14.40	5.48	6.50	284.71	1,307.46	
	%	6.3	1.0	2.6		3.6	2.6		53.7	6.5	1.1	0.4	0.5	21.8		100
	1 (%)	5.0	-	16.67		14.52	14.70		19.48	9.00	-	-	-	38.13 (5.5)	117.50	17.1
	2 (%)	4.50	3.08	-		56.58 (8.2)	-		41.16 (6.0)	-	-	0.40	-	-	105.72	15.4
	3 (%)	-	3.08	-		77.88 (11.3)	-		36.64	124.00 (18.0)	38.00	-	4.75	74.54 (10.8)	358.89	52.2
	4 (%)	-	1.54	-		8.72	43.60 (6.3)		1.02	-	-	-	10.50	10.10	75.48	11.0
	5	1.89	7.70	-		-	0.40		2.26	6.00	-	0.68	10.25	0.54	29.72	4.3
	Sub-Total	11.39	15.40	16.67		157.70	58.70		100.56	139.00	38.00	1.08	25.50	123.31	687.31	
	%	1.7	2.2	2.4		22.9	8.5		14.6	20.2	5.5	0.2	3.7	17.9		100
	GRAND TOTAL	93.34	28.00	50.75		204.51	92.70		802.89	223.60	52.40	6.56	32.00	408.02	1,994.77	
	%	4.7	1.4	2.5		10.3	4.6		40.2	11.2	2.6	0.3	1.6	20.5		99.9

* 1 = Cons/Management
of Natural Resources

2 = Germplasm
Enhancement and Breeding

3 = Production System
and Manangement

4 = Socio-Econ/Policy/
Public Mangt. Research

5 = Institution Building

ACTIVITIES OF CGIAR CENTRES IN WEST AFRICA

ANNEX 4

(Research Support - Admin/Operations, 1992)

	CIAT	CIMMYT	CIP	IPGRI	ICLARM	ICRAF	ICRISAT	IFPRI	IIMI	IITA	ILCA	ILRAD	INIBAP	IRRI	ISNAR	WARDA	NO. OF CENTRES	TOTAL
SSM																		-
RESEARCH SUPPORT			3.3		-		24.0	-		120.0								147.3
ADMIN.			6.5		4.5		24.0			108.0								143.0
GEN. OPERATIONS			-				-			84.0								84.0
DEPRECIATION			-		-		-			-								-
TOTAL (%)			9.8 (2.6)		4.5 (1.2)		48 (12.8)			312 (83.4)								374.3
US\$'000																		
RESEARCH SUPPORT		55	200		-		718	-		1,680	542			-		800		3,995
ADMIN.		46.19	400		28.45		2,483	1,050		2,793	635			52		2,000		9487.64
GEN. OPERATIONS		-	-		-		628	-		3,105	-			-		-		3,733
DEPRECIATION		-	-		-		911	-		2,722	-			-		-		3,633
TOTAL		101.19	600		28.45		4,740	1,050		10,300	1,177			52		2,800		20848.64
%		0.5	2.9		0.1		22.8	5.0		49.5	5.6			0.2		13.4		

ACTIVITIES OF CGIAR CENTRES IN WEST AFRICA
Fixed Assets; 1992 (US\$'000)
(NET BOOK VALUE)

ANNEX 5

CENTRES COUNTRIES	CIAT	CIMMYT	CIP	IPGRI	ICLARM	ICRAF	IICRISAT	IFPRI	IIMI	IITA	ILCA	ILRAD	INIBAP	IRRI	ISNAR	WARDA	NO OF CENTRES	TOTAL
BENIN										4,268								4,268.00
CAMEROON			73.05							962								1,035.05
EQUATORIAL GUINEA																		
GHANA																		
GUINEA																		
GUINEA-BISSAU																		
IVORY COAST										373						11,158		11,531.00
LIBERIA																		
NIGERIA	8						1,319		31.88	25,496	598			168		39		27,659.88
SIERRA LEONE																293		293
TOGO																		
Sub-Total HULWA	8		73.05				1,319		31.88	31,099	598			168		11,490		44,786.93
BURKINA-FASO									57									57.00
CAPE VERDE																		
CHAD																		
GAMBIA																		
MALI							2,472				247							2,719.00
MAURITANIA																		
NIGER							15,966		31.55		164							16,161.55
SENEGAL																251		251
Sub-Total SALWA							18,438		88.55		411					251		19,188.55
TOTAL WEST AFRICA	8		73.05				19,757		120.43	31,099	1,009			168		11,741		63,975.88

ACTIVITIES OF CGIAR CENTRES IN WEST AFRICA
(Fixed Assets in 1992, US\$'000)
(NET BOOK VALUE)

ANNEX 6

ECO-ZONE	ASSET CATEGORY	CIAT	CIMMYT	CIP	IPGRI	ICLARM	ICRAF	ICRISAT	IFPRI	IIMI	IITA	ILCA	ILRAD	INIBAP	IRRI	ISNAR	WARDA	TOTAL	%
HUMID FOREST	1			10.01						-	24,156	321			37		8,846	33,370.01	78.1
	2			45.26						16.58	1,278	132			66		738	2,275.84	5.3
	3									-	927	57			-		660	1,644.00	3.8
	4			1.87						2.55	2,694	35			21		813	3,567.42	8.4
	5	8		15.91						12.75	1,052	53			44		-	1,185.66	2.8
	6									-	236	-			-		433	669	1.6
	Misc.			-						-	-	-			-		-	-	
	SUB-TOT	8		73.05						31.88	30,343	598			168		11,490	42,711.93	
	%	0.0		0.2						0.1	71.0	1.4			0.4		26.9		100
	-																		
SAVANNA	1							14,550		-	369	260					140	15,319.00	72.0
	2							187		46.05	24	19					47	323.05	1.5
	3							281		-	171	47					12	511	2.4
	4							976		7.08	168	43					34	1,228.08	5.8
	5							987		35.42	16	42					-	1,080.42	5.1
	6									-	8	-					18	26.00	0.1
	Misc.							2,776		-	-	-					-	2,776.00	13.1
	SUB-TOT							19,757		88.55	756	411					251	21,263.55	
	%							92.9		0.4	3.6	1.9					1.2		100
	GR. TOT	8		73.05				19,757		120.43	31,099	1,009			168		11,741	63,975.48	
	%	0.0		0.1				30.9		0.2	48.6	1.6			0.3		18.4		100

- 1 = Buildings/Infrastructure
2 = Vehicles excluding Farm Vehicles
3 = Farm Equipment including Farm Vehicles
4 = Laboratory Equipment
5 = Office Equipment
6 = Housing Equipment
Mis. = Site Development and Others

ACTIVITIES OF MAJOR CGIAR CENTRES IN WEST AFRICA

ANNEX 7

(Senior Staff Months in Country Under the CGIAR Activity Categories, 1992)

	I I T A						I L C A						W A R D A						I C R I S A T						GRAND TOTAL	% OF TOTAL FOR W. AF.
ACTIVITY CATEGORY *	1	2	3	4	5	TOTAL	1	2	3	4	5	TOTAL	1	2	3	4	5	TOTAL	1	2	3	4	5	TOTAL		
COUNTRY																										
BENIN	24	-	60	-	-	84																			84.0	6.5
CAMEROON	30	-	-	-	-	30																			30.0	2.3
GHANA	-	-	-	-	12	12																			12.0	0.9
IVORY COAST							-	-	7.4	0.6	-	8.0	10.8	25.9	31.0	4.3	36	108							116.0	8.9
NIGERIA	90	180	180	-	144	594	8.3	-	39.0	12.8	2.1	62.2	1.8	4.3	5.2	0.7	-	12	7.8	8.4	19.8	-	-	36	704.2	54.3
SIERRA LEONE													1.8	4.3	5.2	0.7	-	12							12.0	0.9
SUB-Total HULWA	144	180	240	-	156	720	8.3	-	46.4	13.4	2.1	70.2	14.4	34.5	41.4	5.7	36	132	7.8	8.4	19.8	-	-	36	958.2	73.7
%						75.1						7.3						13.8						3.8	100	
BURKINA- FASO	-	-	12	-	-	12																			12.0	0.9
GAMBIA							-	-	2.2	0.9	-	3.1													3.1	0.2
MALI							36.1	-	3.0	-	6.4	45.5							0.6	8.4	3	12	12	36	81.5	6.3
NIGER						-	-	-	23.3	7.4	4.4	35.1							49.2	45.84	54.36	6.6	30	186	221.1	17.0
SENEGAL													3.6	8.6	10.4	1.4	-	24							24.0	1.8
Sub-Total SALWA	-	-	12	-	-	12	36.1	-	28.5	8.3	10.8	83.7	3.6	8.6	10.4	1.4	-	24	49.8	54.2	57.4	18.6	42	222	341.7	26.3
%						3.5						24.5						7.0						65.0	100	
TOTAL WEST AFRICA	144	180	252	-	156	732	44.4	-	74.9	21.7	12.9	153.9	18	43.1	51.8	7.1	36	156	57.6	62.6	77.2	18.6	42	258	1,299.9	
%						56.3						11.8						12.0						19.8	100	100

- 1 = Cons/Management of Natural Resources
2 = Germplasm Enhancement and Breeding
3 = Production System and Mangement
4 = Socio-Econ/Policy Public Management Research
5 = Institution Building

ACRONYMS

ACIAR	-	Australian Council for International Agricultural Research
ADAB	-	Australian Development Assistance Bureau
AEZ	-	Agro-Ecological Zone
AFNETA	-	Alley Farming Network for Tropical Africa
AFNETA		
AFRNET	-	African Feed Resources Network
AGRIS	-	International Information System for the Agricultural Sciences and Technology
BMZ	-	Bundesministerium für Zusammenarbeit
CAB	-	Commonwealth Agricultural Bureau
CARNET	-	Cattle Research Network
CCRN	-	Cooperative Cereals Research Network
CDA	-	Consultation for Development of Africa
CGIAR	-	Consultative Group on International Agricultural Research
CIAT	-	Centro Internacional de Agricultura Tropical
CIDA	-	Canadian International Development Agency
CIEH	-	Centre inter-état des études hydrauliques
CILSS	-	Comité inter-état de lutte de la sécheresse du Sahel
CIMMYT	-	Centro Internacional de Mejoramiento de Maíz y Trigo
CIP	-	Centro Internacional de la Papa
CIRAD	-	Centre de coopération internationale en recherche agronomique pour le développement
CIRDES	-	Centre international de Recherche-Développement de l'Élevage dans les Zones sub-humides (formerly CRTA)
COMBS	-	Collaborative Group on Maize Based Systems Research
CORTIS	-	Collaborative Group on Roots and for Roots and Tubers Improvement Systems Research
ECART	-	European Consortium for Agricultural Research in the Tropics
EIER	-	Ecole inter-état des ingénieurs de l'équipement rural
EPMR	-	External Programme and Management Review
FAO	-	Food and Agriculture Organization
GTZ	-	Gesellschaft für Technische Zusammenarbeit
IAC	-	International Agricultural Centre (Netherlands)
IARC	-	International Agriculture Research Centre
IBSRAM	-	International Board for Soils Research and Management
ICIPE	-	International Centre of Insect Physiology and Ecology
ICLARM	-	International Centre for Living Aquatic Resources Management
ICRAF	-	International Centre for Research in Agroforestry
ICRISAT	-	International Crops Research Institute for the Semi-Arid Tropics
IDRC	-	International Development Research Centre, Canada
IFAD	-	International Fund for Agricultural Development
IFDC	-	International Fertilizer Development Centre
IFPRI	-	International Food Policy Research Institute
IFS	-	International Foundation for Science
IIMI	-	International Irrigation Management Institute

IITA	-	International Institute of Tropical Agriculture
IITC	-	Instituto de Investigacao Cientifica Tropical (Portugal)
ILCA	-	International Livestock Centre for Africa
ILRAD	-	International Laboratory for Research on Animal Diseases
INGER	-	International Network for the Genetic Evaluation of Rice
INIBAP	-	International Network for the Improvement of Banana and Plantain
INSAH	-	Institut du Sahel
INTSOY	-	International Soyabean Programme
IPGRI	-	International Plant Genetic Resources Institute (formally IBPGR)
IRAT	-	Institute for Research in Tropical Agronomy (France)
IRRI	-	International Rice Research Institute
ISC	-	ICRISAT Sahelian Centre
ISNAR	-	International Service for Agricultural Research
ITC	-	International Trypanotolerant Centre
KIT	-	Koninklijk Institut voor de Toopen (Netherlands)
MTP	-	Medium Term Plan
NARS	-	National Agriculture Research System
NRI	-	National Resources Institute (U.K.)
ODA	-	Overseas Development Administration (U.K.)
PASCON	-	Pan African Striga Control Network
RENACO	-	West and Central Africa Cowpea Research Network Research Project (IITA)
ROCAFREMI	-	Réseau ouest et centre africain de recherche sur le mil
SAFGRAD	-	Semi-Arid Food Grains Research and Development
SATCIS	-	Semi-Arid Tropical Crops Information Service
SPAAR	-	Special Programme for African Agriculture Research
SPALNA	-	Soil and Plant Analytical Laboratories Network for Africa
SRNET	-	Small Ruminant Research Network
SSA	-	Sub-Saharan Africa
SSM	-	Senior Staff Months
TAC	-	Technical Advisory Committee
UNDP	-	United National Development Programme
USAID	-	United States Agency for International Development
WAFSRN	-	West Africa Farming Systems Research Network
WARDA	-	West Africa Rice Development Association
WASIP	-	West African Sorghum Improvement Programme
WCAMRN	-	West and Central African Millet Research Network
WECAMAN	-	West and Central Africa Maize Network (SAFGRAD)