2008 ANNUAL REPORT
OF CORAF/WECARD
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Building a Sustainable Agriculture for the Development of West and Central Africa

Producers and End Users at the Centre of Agricultural Research
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The West and Central African Council for Agricultural Research and Development (CORAF/WECARD) made the most out of the year 2008, through its main bodies which are the General Assembly, the Governing Board, the Scientific and Technical Committee and the Executive Secretariat, to carry out many varied and concrete activities. Through these activities, which fall within the framework of its Strategic Plan for 2007-2016, CORAF/WECARD is gradually opening up the ridges of a sustainable agriculture in West and Central Africa.

The year 2008 saw CORAF/WECARD increasing the initiatives which strengthened the cooperation between all the stakeholders of research and agricultural development in West and Central Africa.

Several activities were carried out in the area of building the institutional capacity of the organization, broadening and strengthening its scientific and financial cooperation, generation and transfer of agricultural technologies, and conducting initiatives that would enable stakeholders in the sub-region be in tune with the Strategic and Operational activities of the Association.

This has led to a broader political recognition of our Association by the sub-region’s Regional Economic Communities which has laid the foundation for a successful implementation of the Operational Plan for 2008-2013.

In the face of such appreciable advancements, it must be noted, above all, that this progress made simultaneous contributions to the normal functioning of the CORAF/WECARD bodies. This in particular, has been expressed by the organization of the Eighth General Assembly, the ordinary sessions of the Governing Board and the Scientific and Technical Committee, as well as that of the Group of Development Partners who have been of remarkable supportive.

The building and maintaining of such partnerships, to a large extent, have helped to guarantee the attainment of the goals of the Comprehensive Africa Agriculture Development Programme, executed under the leadership of NEPAD, which the new Strategic Plan for 2007-2016 falls in line with.

Among the most outstanding advancements of the year 2008, is the celebration of the Eighth General Assembly of CORAF/WECARD held in Yaounde from 11 to 13 June 2008, coupled with the 1st West & Central African Agricultural Science Week under the theme: Producers and users at the centre of agricultural research.

This celebration enabled the scientists and their partners to exchange information with the users of the research findings (NGOs, Private sector and Producers Organisations) on current issues and problems to help improve agriculture in the sub-region.

Following the eighth General Assembly, Dr. Simon Zok became elected the new incoming Chairman of the Governing Board and the Board to replace the outgoing Chairman, Dr. Emmanuel Owusu-Bennoah and the renewal of Board at more than 60%. New representatives included members of the Regional Economic Communities, the scientific and development partners, representing a significant evolution for the sub-region.
The diversification of our scientific and financial partnerships continued and materialized with the signing of the Agreement with the Economic Community of Central African States, (ECCAS), thus giving CORAF/WECARD the opportunity to fully play its role of the technical wing of the RECs in the West and Central Africa Sub-region.

An agreement has also been signed with the Permanent Inter-State Committee for Drought Control in the Sahel (CILSS), a structure which CORAF/WECARD will support for the execution of its Biotechnology and Biosafety initiatives.

In order to rehabilitate agriculture in the semi-arid zones of the sub-region, an agreement was signed with the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT). A cooperation agreement was also signed with the international Centre for Research in Agro-Forestry (ICRAF) with a view to promoting research on systems of innovation in agro-forestry in the sub-region.

Four programmes, namely the Staple Crops, the Biotechnology and Biosafety, the Capacity Strengthening and Knowledge Management took off successfully by carrying out various activities. The Staple Crops and Biotechnology Programmes developed project themes from consultative surveys and validation workshops. Project calls developed are expected to be launched in 2009.

The regional initiatives coordinated by the CORAF/WECARD have been launched. These include (i) the Programme for Strengthening Capacity for Agricultural Research and Development in Africa (SCARDA) in Mali, Congo, Gambia and Ghana; (ii) the West Africa Agricultural Productivity Programme (WAAPIP) in Ghana, Senegal and in Mali; (iii) the Dissemination of New Agricultural Technologies in Africa (DONATA) in eight countries; (iv) the Regional Agricultural Information and Learning System (RAILS) in 20 countries and (v) the Challenge Programme at the Kano-Katsina-Maradi pilot sites (KKM-PLS) in Nigeria and Niger. The year 2008 marked the completion of 12 projects of the CORAF/WECARD Competitive grant scheme initiated in 2005.

In the area of financing, advocacy for resource mobilization is continuing. The consultations in Brussels, Nairobi and Dakar with the Group of the institutions’s Development Partners helped to identify the necessary requirements and set the timeframe for establishing the Multi-Donor Trust Fund intended for financing the Operational Plan. The certification of accounts for the 2008 financial year testifies to the discipline in the management of the CORAF/WECARD resources.

The visibility of the Association was increased with the strengthening of relations with the media. A partnership agreement has been signed with the Senegalese News Agency (APS) for a wide dissemination of the Institution’s activities through the website www.aps.sn. It is worth noting the strengthening of the internet site of CORAF/WECARD, the building of the computer network and the creation of an online monthly news bulletin to report and disseminate the activities of advocacy, cooperation and the scientific meetings.

As in the past years for the other NARS, this annual report highlights the National Agricultural Research System of Mauritania which is made up to two main centres: the National Centre for Livestock and Veterinary Research (CNERV) and the National Centre for Agricultural Research and Development (CNRADA).

The year 2008 was a year full of advances which helped CORAF/WECARD to outline the ridges for a sustainable agriculture for the sub-region. The prospects that had emerged at the end of the year 2008 suggest that 2009 will be a year which will enable CORAF/WECARD to maintain fruitful partnership ties with the outside world through its actions aimed at increased resource mobilisation and for a greater involvement of the different bodies of Institutional Governance. ☺

Dr. Paco SEREME
EIGHTH GENERAL ASSEMBLY

Dr. Simon Zok, New Chairman of the Governing Board

At the 2006 General Assembly held in The Gambia, the stakeholders and partners of CORAF/WECARD made the decision to meet every two years. In 2008, the Eighth General Assembly was held in Yaounde from 12 to 13 June, right after the 1st West & Central African Agricultural Science Week was organized from 9 to 11 June. These two events brought together representatives of national institutions of agricultural research, farmers, NGOs, the universities, private sector, donors, as well as scientific and technical partners.

Dr. Simon Zok, Director-General of the Agricultural Research and Development Institute (IRAD) in Cameroon, was elected Chairman of the Governing Board, a body whose membership was renewed at more than 60%.

Thirteen out of the 21 representatives of the National Agricultural Research Systems (NARS) were present. With the quorum formed, the Assembly, in accordance with the statutes, could begin deliberations legitimately. At the end of the deliberations it came out with seven resolutions, adopted five motions and recorded two statements from the scientific and technical as well as the development partners.

RESOLUTIONS

The first four resolutions related to the adoption of the report of the Governing Board, adoption of the activity report, recording of Liberia’s request for membership (and the recommendation made by the Executive Secretariat to deal with this request) and the adoption of the revised

7 resolutions and 5 votes of thanks

Dr. Joel Beassem, Coordinator of the Regional Food Security Programme of the Economic Community of Central Africa States (ECCAS), presided over the Eighth General Assembly which covered the following issues: adoption of the report of the Governing Board, adoption of the activity reports, adoption of revised statutes, renewal of membership of the Board of Directors, election of the Chairman of the Governing Board, and the selection of venue for the Ninth General Assembly.

Stakeholders and partners of CORAF/WECARD together for the development of agriculture in the sub-region.
VOTE OF THANKS

The General Assembly presented five votes of thanks. The first was addressed to the former members of the Governing Board. With regard to the progress made by the Institution in the past two years -- especially the increased visibility of CORAF/WECARD in the sub-region and internationally -- and for the diversification of its partnerships particularly with development partners -- congratulatory messages were sent out to Prof. Emmanuel Owusu-Bennoah, (outgoing Board Chairman), Dr. Gregoire Bani (outgoing Vice Chairman) and Mrs. Gisele d’Almeida (outgoing Board member) for the efforts and successes recorded throughout their terms of office.

The second vote of thanks was addressed to the scientific and technical partners, as well as the development partners for their support to CORAF/WECARD, notably through the preparation and implementation of the Strategic and Operational Plans, and also for the level of mobilisation of the financial resources needed for the execution of the plans. The partners were thus congratulated for their financial support and their involvement in the implementation of the new programmes.

The third vote of thanks congratulated the Regional Economic Communities (RECs) for their excellent partnership which has improved the recognition of CORAF/WECARD, through support in advocacy for resource mobilisation and for the institution’s new programmes.

The fourth vote of thanks, addressed to the Agricultural Research and Development Institute, CIRAD of Cameroon, congratulated the Director-General of IRAD, his collaborators and the entire National Agricultural Research System of Cameroon for the excellent organization of the 1st West & Central African Agricultural Science Week and the Eighth General Assembly of CORAF/WECARD.

Finally, a special vote of thanks, the fifth, was addressed to the Government and people of Cameroon. The General Assembly expressed its sincere gratitude to His Excellency Mr. Paul Biya, President of the Republic of Cameroon, to...
Mrs Madeleine Tchuinte, Minister of Scientific Research and Innovation, the entire Government and people of Cameroon for their hospitality and the assistance they gave throughout the period of the occasion. At the end of the General Assembly, the Development Partners as well as the Scientific and Technical Partners, in turns, presented their statements.

**STATEMENT BY THE DEVELOPMENT PARTNERS**

The Development Partners expressed their satisfaction with the progress made by CORAF/WECARD during the past two years, especially in its administration and the transparency in its financial management; it appreciates the work done by the governing bodies of CORAF/WECARD; draws the attention of CORAF/WECARD to the need to carry out the appropriate institutional changes to increase its management capacity, a necessary condition for the smooth execution of its Operational Plan; encourages CORAF/WECARD to get involved in organizing national roundtable meetings for a greater ownership of CAADP and for more coherence in its application; reiterates their willingness to maintain their partnership with CORAF/WECARD.

**STATEMENT BY THE SCIENTIFIC PARTNERS**

The Scientific and Technical Partners expressed their satisfaction with the dynamic progress made by CORAF/WECARD in the past two years thanks to its participatory approach; it praised the involvement at higher levels of the Regional Economic Communities, as well as the good governance and the diversity of the Technical and Development Partners; it congratulated and thanked CORAF/WECARD for accepting to open up the membership of its Governing Board to all stakeholders and for the position given them in this body; recommended that it carries out the necessary institutional reforms to improve its management and to strengthen its partnerships with the universities or faculties of agriculture; encouraged CORAF/WECARD to redouble its efforts to strengthen the NARS by helping them notably to mobilise additional resources; renewed their desire to continue the cooperation with CORAF/WECARD and its stakeholders for the implementation of its Operational Plan.

Several participants in the Eighth General Assembly took the conference hall of Hotel Mont Febe by storm.
For CORAF/WECARD the year 2008 was mainly one for organising the 1st West & Central African Agricultural Science Week. This important event took place in Yaounde, Cameroon from 9 to 11 June 2009, parallel to the eighth General Assembly of the institution. It was enlivened by fruitful discussions and presentations on research findings.

For the organisers of the First Agricultural Science Week, it was a question of establishing an arena for discussions that it enabled the members of CORAF/WECARD to meet to evaluate the progress made since the Special General Assembly of May 2007. From the lessons drawn from this Agricultural Science Week, it thus became possible to draw up an agenda for a development-oriented agricultural research in West and Central Africa. The Agricultural Science Week set aside a day dedicated to Cameroon, during which agricultural innovations were presented.

This Agricultural Science Week was aimed at awakening the conscience of the participants and the public on the pertinence of research in resolving problems of poverty through the promotion of food security and environmental protection.

Among the main topics discussed during this Science Week, one can note: Agricultural productivity in West and Central Africa in the context of the challenges of climate change, biotechnology and biosafety, marketing...
agricultural research, management of knowledge in agriculture, plant reproduction and the challenges of the fight against poverty.

At the opening ceremony, after the welcome statement by Dr. Simon Zok, Director General of the Agricultural Research and Development Institute in Cameroon (IRAD) and Prof. Emmanuel Owusu-Bennoah, Chairman of the Governing Board of CORAF/WECARD and Director General of CSIR (Ghana), representatives of CEEAC, CEMAC and WAEMU stressed on the progress accomplished and praised the ongoing reforms within CORAF/WECARD to make it an Institution of quality. Cameroon’s Minister of Scientific Research and Innovation, the Honourable Dr. Madeleine Tchuinte, welcomed the participants.

She notably emphasized the relevance of the topics for the occasion, recalling that, just a few months earlier, several African countries had been shaken by hunger riots and that a wave of violence and protests hit the entire African continent due to shortages and the sharp increases in the prices of food items. Confronted with the global food crisis, which is quite real as it calls for the attention of all of us, she added: “it is up to us therefore to find the suitable solutions to guarantee each citizen the minimum essentials which guarantee social peace.” She also emphasized that these deliberations “have come to make a contribution to the global reflection and the choice of programmes and research priorities” selected by CORAF/WECARD.

The central theme of the Week, on which all the presentations were centered was: “Producers and end-users of agricultural research and development challenges.” The presentation that introduced the events of the Week was made by Dr. Kanayo Nwanze, Vice President of IFAD. Recalling the pertinence and impact of research for development, he considered that “sustainable growth in agricultural productivity is necessary for improving food security.” In this connection, investments must be increased for a sustainable agricultural development.

Organised in seven sessions, the Week, for each session, helped to reflect on a specific topic:

Session 1: Improving agricultural productivity in Africa: shifting to a new paradigm,
Session 2: The role of agricultural biotechnology and biosafety,
Session 3: Agricultural productivity in West and Central Africa in the context of climate change,
Session 4: Agricultural research marketing,
Session 5: Agricultural knowledge management
Session 6: The role of livestock in poverty reduction,
Session 7: Science Day on Cameroon.

The main presentation of this session was made by Dr. Monty Jones, Executive Director of FARA, who treated the “Subsidiarity principles in regional and sub-regional agricultural research cooperation.”
After recalling the four pillars of the Comprehensive Africa Agriculture Development Programme (CAADP) -- land and water management; rural infrastructure and trade-related capacities for market access; increasing food supply and reducing hunger; agricultural research, technology dissemination and adoption -- the speaker invited the institutions in Sub-Saharan Africa to work within the context of these pillars. FARA’s activities, he explained, have been based essentially on these four pillars following broad national, regional and international consultations.

In conclusion, Dr. Monty Jones stressed on the fact that the subsidiarity principles offer several advantages through sharing responsibilities and resources. It must be considered as a means of strengthening democracy at the local level. Finally, far from being isolated, it must take into consideration other general principles of building up institutions such as unity of action, efficiency, unity of application and solidarity.

The presentation was followed by rich discussions and commentaries.

The stands were always full: members of the public were happy to discover the fruits of research.

This session was introduced by Prof. Abdourahamane Sangare, Director of the PBB at CORAF/WECARD. After dwelling on the issues of biotechnology and biosafety (inexorable development in the world, fragility in less developed countries, challenge of biosafety, controversies), Prof. Sangare dwelt on the paradigms to be considered to ensure the preservation of natural resources and facilitate knowledge acquisition and development: need to adopt quick strategies to fight poverty, malnutrition, hunger, diseases, damage to the environment, climate change, from where the dilemma: “Must one engage in quick actions with the GMOs and be criticized for lack of precaution or must one ask for more in-depth studies on the risks and be criticized for not acting with promptness or discernment?”

However, Prof. Abdourahmane Sangare considered that “if only on the the inconveniences, there would not even be
debates for, the GMO would not be produced, even more so distributed or consumed.”

Confronted with biotechnologies, Africa has specific problems, Prof. Sangare hammered. Does she have enough human resources in this area? Are there mechanisms that are transparent enough to permit the user to make his choice with full knowledge of the facts? How, within the context of regulations, is the precautionary approach applied in the process of authorization for import or production of MGOs? Confronted with these specific problems, Africa must engage in in-depth discussions to find the most suitable responses.

For Prof. Sangare, a strategy must be adopted, which he sums up in a few points:

- Formulate and implement regulation in the area of biosafety;
- Develop a legislative, scientific and technical environment to put in place suitable mechanisms for consultation on the introduction of MGOs and monitor their effects on health, the environment and biodiversity;
- Put in place a system which permits the integration of small farmers into decision making to promote the use of the MGOs with full knowledge of the facts and in all security;
- Develop an African vision in the area of MGOs to respond to the specific problems of food security, sustainable production and poverty reduction.

Several other issues were also tackled during the session: the constraints in the implementation of biosafety programmes (scientific and technical constraints, inadequate expertise), administrative constraints (inadequate top level human and technical resources to handle administrative issues), constraints of ownership (regulatory framework to facilitate application of procedures), regional approach in the implementation of biosafety programmes (ECOWAS Plan of Action), etc.

Several contributions were made to complement Prof. Sangare’s presentation.

Dr. Issa Martin Bikienga, Deputy Secretary-General of CILSS, made the lead presentation of this session on: “Agricultural Productivity in West and Central Africa in the context of climate change, biofuels and food insecurity.”

After recalling some principles on climate change, their impact and the types of control of this phenomenon, Mr Bikienga dwelt on the new deal that the advent of biofuels will introduce and then made practical recommendations to deal with climate change, while emphasizing the role of scientific research. For the speaker, “climate change, in our days, constitutes an important topical issue and also of major concern for the sustainable development of countries in West and Central Africa.” Because this phenomenon “represents a serious threat to food security due to its...
negative impact on agricultural productivity,” he considered it “indispensable that policy makers must integrate it in the preparation of strategies on policies and development strategies or on poverty reduction.”

Finally, according to him, “the strategies to control climate change exist, but they need to be reinforced.” In this regard, scientific research must be supported more than ever.

Contributions were made to enrich this session.

Contextualising the management of knowledge in CORAF/WECARD’s Operational Plan, Prof. Anthony Youdeowei, a FARA consultant, recalled that it is one of the eight key programmes of the Strategic Plan. It is also one of the major tools of the new strategy of CORAF/WECARD that must help to improve productivity, competitiveness and the markets with the view to opening up to a high growth of the agricultural sector and, consequently, on poverty reduction in West and Central Africa.

Knowledge management, for CORAF/WECARD, complies to the principles of the FAAP. It concerns the systematic use of improved information management systems, in particular for planning, financial management, report writing, programme monitoring and evaluation.

According to him, the effectiveness in the knowledge management for agricultural development in West and Central Africa can come from the response to two complex questions: why does agricultural research play such a limited role in the field of innovation in West and Central Africa? What is wrong with the delivery of agricultural research and the manner in which its outputs are packaged, positioned, financially taxed and promoted?

Prof. Youdeowei’s presentation was enriched by a contribution from ROPPA which drew a conclusion that
“indigenous and scientific knowledge are complementary and can go hand in hand and that “research would gain more by capitalizing on and developing indigenous knowledge for, presently, we all agree that research must be based on the demand expressed by the farmer.”

The presentation by Prof. Yusuf Abubakar, Executive Secretary of the ARCN, raised the following issues: trend of demand in the area of livestock, livestock farming as the way to reduce poverty, and pro-poor livestock policies.

After highlighting the importance of livestock in the rural areas of developing countries (important source of income, one of the rare assets accessible to the poor, usefulness for soil fertility and conservation, etc), Prof. Abubakar dwelt on the possible opportunities (from increasing demand for livestock products) the conditions under which these opportunities can be realized. Decision makers and researchers must, however, find means which are better market-oriented to ensure that the small-scale livestock farmers benefit from the growth in the sector. In particular, a vertical coordination of the small operators against the policies which distort the livestock development in favour of the large-scale livestock farmers has proved to be necessary if we do not want these small-scale livestock farmers to miss the revolution in livestock farming.

The presentation by Prof. Yusuf Abubakar was followed by a contribution from Hubert Guerin from CIRAD, who identified areas for research which, according to him, must revisit its processes and methods for development that brings hope to end users.. The examples of the research areas mentioned are livestock farming, the health protection, cultivation of fodder and aquaculture.

A second contribution, that of Dr. Lamire Dia, Director of CNERV in Mauritania presented was devoted to “the role of livestock farming in poverty reduction.”

The Agricultural Research and Development Institute, a government-owned establishment of an administrative nature was set up in 1996, and succeeded the former establishments of IRA and IRVZ. IRAD is under the technical supervision of the Ministry of Scientific Research and Innovation and the financial supervision of the Ministry of Finance. Its mission is to respond to the concerns of the stakeholders in agricultural development in Cameroon through five areas of research (annual crops, perennial crops, animal and fishery production, forestry, environment and biodiversity, production systems, rural economy and sociology) and 20 programmes.

The Institute has about 950 employees, among which are 244 researchers and 250 technical experts. It manages 10 laboratories of national and sub-regional status and maintains partnerships both at the national (universities, ministries, etc) and international levels.

The Cameroon Day was the occasion for the authorities of IRAD to present, programme by programme, the major achievements which fascinated the public.
Apart from the official presentations made during the sessions, the Agricultural Science Week was an occasion for several parallel events – exactly six in number – which facilitated deep understanding of the topics treated by the various organizations and highlighted many opportunities. These were achieved through an exhibition of research products from national agricultural research institutes and some scientific and technical partners.

The first parallel event was the presentation of the African Network of Experts in Biosecurity by Prof. Diran Makinde, Director of NEPAD-WABnet. The network is aimed at serving as focal points to the African scientific community to support the activities of the national, regional and international entities for poverty reduction and wealth creation. In addition, the network has an ambition of creating and improving human resource in bioscience, by attracting notably, the young scientists. The initiative is also aimed at promoting scientific excellence by placing at the disposal of a critical mass of scientists modern working conditions. The network also facilitates access to information and training on intellectual property, biosafety and other regulatory issues. Its areas of priority are food security, nutrition, health and environment.

The second parallel event was video documentary show produced by the former US Vice President, Al Gore, An inconvenient truth. This 94-minute documentary treats the realities of climate warming and its dangers to the future of humanity.

The third event was the presentation by Lucy Muchoky from the Naturally African Platform. It is a forum which through research, information and policies, seeks to promote opportunities for small African farmers. The objective is also to develop the economic potential of fruit trees and medicinal plants and disseminate information and resources to get the small farmers, traders, private sector investors, exporters and decision-makers communicate among themselves.
In the fourth parallel event, Mr. Etienne Hainzelin, Director of Research and Strategies at CIRAD, looked into “The strategic orientations of CIRAD,” presented as an essential component of agricultural research in France, with a rich and complex history, multidisciplinary competence, a research mission finalised for development, based on partnerships with the South and a long-time involvement with the national and regional systems in Africa. With 1800 employees (including 850 scientific experts) and a budget of 230 million Euros, the organization has about 50 research units and a global network of partners.

The fifth parallel event helped to learn more about the initiative to promote horticulture for health and the prosperity of the Global Horticulture Initiative/World Vegetable Centre. Presented by Dr. Remi Kahane, its Executive Secretary, the Global Horticulture Initiative promotes the health security of horticulture products and resources, their nutritional aspects, the conservation of the environment and the improvement of living conditions, and also their aptitude to create jobs and generate income.

Finally, the sixth parallel event presented an opportunity for Dr. Lamine Seiny Boukar Coordinator of PRASAC—the Regional Centre for Applied Research for Developing Agricultural Systems in Central Africa—to present his institution in a paper entitled: Regional Research in Central Africa: PRASAC at the crossroads of CEMAC and CORAF/WECARD.

At the end of the First West and Central Africa Agricultural Science Week, 10 main recommendations were made by the participants:

1. Particular attention must be paid to the resolution of the constraints in the value chains and capitalize on the opportunities by involving all stakeholders in the production-consumption process.

2. Apply the principle of subsidiarity for the effective implementation of national and regional agricultural research.

3. Ensure the development and implementation of the legal framework for the realization of a real biotechnology in West and Central Africa.

4. Ensure that the biofuel initiatives do not compete with the production system for subsistence crops.

5. Assist CORAF/WECARD to remain the leader in issues relating to climate change and ensure that they are integrated into research programmes in the sub-region.

6. Ensure that agricultural research programmes are capable of demonstrating to decision-makers the impact of their socio-economic potential.

7. Resolve in an appropriate manner policy issues so that livestock attains its potential in poverty reduction.

8. Guarantee an efficient use of systems based on agricultural research knowledge.

9. Exploit the potential of forest products to improve the living conditions of rural populations.

10. Promote the development of the fruit and vegetable sector as a means to reduce poverty and improve health.
Between January and December 2008, CORAF/WECARD carried out various activities which fall in line with the Strategic Plan (2007-2016) and the Operational Plan (2008-2013). The Institution’s activities in 2008 are in two segments: the first phase running from December 2007 to May 2008, and the second, from June to November 2008. The first phase was marked by the preparation and organization of the Eighth General Assembly and the First West and Central Africa Agricultural Science Week held in Yaounde, Cameroon from 9-13 June 2008.

The second phase was marked by activities geared towards Resource Mobilization for the implementation of the Operational Plan, and various meetings of financial partners were held in this regard. It was also characterized by activities meant to lead to the establishment of the Multi-Donor Trust Fund to finance the Operational Plan, as well as other advocacy and cooperation activities.
ADVOCACY AND COOPERATION

The year 2008 was characterized by numerous advocacy activities aimed at making operational the new Operational Plan for 2008-2013 of CORAF/WECARD with the effective launching of the activities related to two of its eight programmes (Staple Crops, Biotechnology and Biosafety).

This advocacy which involved activities to mobilize development and scientific partners helped to organize several consultations CORAF/WECARD and its different partners.

Institutional Partners: With regard to the Strategic and Operational Plans, the advocacy was directed towards the Regional Economic Communities and the Intergovernmental Organizations in agriculture (ECOWAS, CEMAC, CILSS...)

With ECOWAS, a management agreement was signed between ECOWAS and the Executive Secretariat of CORAF/WECARD relative to the priority measures for implementing in 2008 the biotechnology and biosafety development Action Plans within the ECOWAS zone. Also, ECOWAS was actively involved in the discussions held on 30-31 January 2008 between CORAF/WECARD and its development partners, which aimed at improving the content of the Operational Plan 2008-2013.

CEMAC participated actively in these consultations.

A framework protocol agreement for scientific and technical cooperation was signed with CILSS. It defined the modalities for collaboration, complementarity and synergy of the activities of CORAF/WECARD through its Operational Plan, as well as the activities of CILSS through its three entities (Executive Secretariat, Sahel Institute and the AGRHYMET Regional Centre).

Development Partners: Through various approaches, the

The efforts made by the Executive Secretariat to mobilize development partners were materialized through several meetings.
Executive Secretariat was able to hold consultations with development partners. From 30-31 January in Dakar, 29 March in Accra, 19-23 May in Brussels, and 25 September in Nairobi, the following partners, among others, were met: the World Bank, the International Development Research Center (IDRC), the French Cooperation, the European Commission, the Department for International Development (DFID), the UN Food and Agriculture Organization (FAO), the International Fund for Agricultural Development (IFAD), the USAID, the Arab Development Bank (ADB), the Canadian International Development Agency (CIDA).

Scientific Partners: The advocacy was also directed towards scientific partners such as IFPRI, ICRAF and ICRISAT. A draft cooperation agreement between CORAF/WECARD and these two institutions have been prepared. With ICRAF, the collaboration aims at the development of science and innovations in the area of agroforestry in West and Central Africa. With IFPRI, the partnership took a form of commitment with a Consortium for modeling of growth and development policies in Africa, including ASARECA, FANRPAN, and IFPRI.

With ICRISAT, it involves undertaking common research activities for the development of the semi-arid zone in the sub-region.

The scientific partnership has been extended to FARA and the OSR centres. The subregional workshop held in Dakar in February 2008 for the West and Central Africa zone, in collaboration with FARA, made it possible to define the mechanisms for creating the Platform for Africa-Europe Partnership on Agriculture Research for Development (PAEPARD).

In addition, the 2008 annual retreat of FARA and its sub-regional organizations (ASARECA, SADC-FARN, NASRO), held in March, was attended by the Chairman of the Governing Board and the Executive Director of CORAF/WECARD.

Constituents of CORAF/WECARD: In order to strengthen the partnership with its constituents, notably with universities, the Executive Secretariat with the support of the chairperson of the Sub-committee on Partnership and Strategy of the CORAF/WECARD Board of Directors, embarked on a sensitisation mission to the Gaston Berger University, in Saint-Louis, Senegal, for it to be involved in the Association’s activities.

The year 2008 was a year for the implementation of a number of research activities in the following areas: Biotechnology and Biosafety, Subsistence Crops, the West Africa Agricultural Productivity Programme (WAAPP), Capacity Building (SCARDA), Knowledge Management (DONATA RAILS, KKM, PLS), Competitive Fund Projects, Planning and Monitoring/Evaluation.
A great deal of effort was made in 2008, in terms of information and communication, to make the institution known within the CORAF/WECARD zone, as well as internationally.

In order to ensure greater circulation of information within the zone, the Information and Communication Department ensures the coordination of the Regional Agricultural Information and Learning System (RAILS). The year 2008, witnessed launching of activities of this project which involves 20 countries in the sub-region. On the field, learning teams are being set up and each focal point has supported the process to acquire computer equipment for a smooth running of the project.

The CTA-CORAF/WECARD project on “Capitalization and exchange of innovations and results in West and Central Africa”, which is also being coordinated by the Information and Communication Department has undergone a first phase of implementation through studies conducted in West and Central Africa, and result validation workshops. Consequently, all the achievements have been compiled on a CD-Rom. With regards to Information and Communication Technologies, the process to reactivate the website has begun with the rehabilitation of the computer network by a technical expert recruited by the Executive Secretariat. In the area of publication, the Strategic Plan 2007-2016 document was edited and published in French and English. The annual reports for 2006 and 2007 were edited and published in French and English. The brochure entitled “CORAF/WECARD in 10 Points” was drafted, edited, formatted and printed. It presents a general overview of the history of CORAF/WECARD, of the members of the institution, its organization, the areas of intervention of the Association, as well as the rationale and content of the Strategic Plan. The quarterly newsletter entitled “Coraf Action” was published regularly. The 45th, 46th, 47th and 48th editions were published. The newsletter introduced appreciable innovations in the presentation of cooperation and scientific activities. The 48th edition was printed and distributed within the CORAF/WECARD zone, as well as to the various partners.

The year 2008 saw the introduction of the monthly electronic newsletter entitled “Coraf Echo” distributed to over a thousand people (stakeholders and partners of CORAF/WECARD).

Numerous activities were carried out to increase the visibility of the Association. Contacts with the Senegalese media helped to conceive a ‘media contract book’ including press agencies in Senegal and abroad. An agreement was signed with the Senegalese News Agency (APS) to promote the activities of CORAF/WECARD at the following website: www.aps.sn. Various workshops and seminars were covered and widely broadcast by the media. ◆
CORAF/WECARD IN 2008

GOVERNANCE

The year 2008 saw the organization of the Eighth General Assembly which was combined, this year, with the First West and Central Africa Agricultural Science Week. These events took place in Yaounde, Cameroon on 3-13 June.

The statutory meetings of the Governing Board and the Technical and Scientific Committee were also held. The two sessions of the Board were held in Yaounde on 5-7 June 2008, and in Dakar on 24-28 November 2008 respectively.

An extraordinary session of the Scientific and Technical Committee was held in Yaounde on 6 June 2008, and the ordinary session took place at Saly Portudal, Senegal on 29-31 October 2008.

The Executive Secretariat operated in 2008 with a staff strength of 26 including 5 on the Management team, 9 executives, 10 from the Support staff and 2 consultants. This staff, headed by the Executive Director, ensured the coordination of the implementation of the Strategic Plan 2007-2016. It implemented decisions from the General Assembly, as well as from the Board of Directors. It provided the necessary support for the development, implementation and coordination of the various research programmes of CORAF/WECARD and the Operational Units.

There were also numerous advocacy and cooperation activities, as well as activities related to the preparation of statutory meetings.

The 2008 annual programme and the related budget were prepared based on the four types of results of the Operational Plan: (i) appropriate technologies and innovations developed; (ii) decision-making on policies, institutions, and markets developed; (iii) the Sub-region’s Agricultural Research System is enhanced and coordinated; (iv) the demand for knowledge in agriculture from users is met.

The Executive Secretariat served as a focal point to partners and stakeholders of the Association; it also ensured and coordinated exchange and sharing of information among member countries and institutions.

In 2008, CORAF/WECARD organized or participated in 80 workshops and meetings in the sub-region, Africa and the world. These activities helped to increase the visibility of the Institution. With respect to infrastructure, CORAF/WECARD has taken delivery of the new office building which will host staff of the Executive Secretariat.

FINANCIAL RESOURCE MOBILIZATION

Resource mobilization is a continuing process as far as the secretariat is concerned. The Institution did not spare any effort in these regard, especially in the execution of the Medium Term Operational Plan for 2008-2013 (MTOP). Meetings held in this respect also made it possible to consider the establishment of a Multi-Donor Trust Fund (MDTF). On September 27, the Group of Development Partners, together with CORAF/WECARD, put finishing touches to the practical modalities for the establishment of the MDTF. The implementation of this MDTF called for a review of the Operational Plan. A timeframe was prepared for that.
## CORAF/WECARD IN 2008

### CORAF/WECARD EXECUTIVE SECRETARIAT

#### OPERATION ACCOUNTS (IN THOUSANDS OF CFA FRANCS)

### 2008

Certified Accounts

<table>
<thead>
<tr>
<th>RESOURCES</th>
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<tbody>
<tr>
<td>Operation grants</td>
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<td>Contribution of NARS</td>
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<td>Other incomes</td>
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<td><strong>Total Resources</strong></td>
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<th>INVESTMENTS AND CHARGES</th>
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<td><strong>Programmes</strong></td>
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<td>Activities of programmes</td>
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<tr>
<td>Investments</td>
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<tr>
<td><strong>Total Programmes</strong></td>
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<td><strong>Governance and Management</strong></td>
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<td>Governance bodies</td>
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<td>Functioning of the Executive Secretariat</td>
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<td>Investments</td>
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<td>Depreciation allowances</td>
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<tr>
<td><strong>Total other Charges</strong></td>
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<td><strong>Total of Investments and Charges</strong></td>
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<th>ANNUAL OUTPUT</th>
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<tbody>
<tr>
<td></td>
<td><strong>59 738</strong></td>
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</table>
CORAF/WECARD IN 2008

Analysis of the Operation Accounts

The implementation of the 2008-2013 operational plan started with the 2008 financial year. The main activities are as follow:

1. The set up of a new configuration for the financial management system in order to facilitate the processing of information in accordance with the cost centre (programme, output, governance and management) and in compliance with the 2007 adopted Strategic plan.

2. The extension of the office space of the Executive Secretariat aimed at improving the working conditions of the staff and accommodating the 8 programme managers.

3. The increase in the volume of operations due to the diversification of the financial partnership.

4. The contribution of Regional Economic Communities (CEMAC, CEEAC, UEMOA) to the organisation of the eighth General Assembly of CORAF/WECARD thus showing their commitment in supporting the Institution in the implementation of its operational plan.

The new scheme of the operations account allows to have an annual insight of the quantity of resources mobilised and the costs engaged for the programmes on the one hand and the governance and management on the other hand.

Resources mobilised for 2008 financial year amount to 1,7 billion CFA against 1,2 billions in 2007, thus a 42 % increase.

These resources were used to fund the launching of activities of the new programmes, the launching of the change management process, the activities of the governing bodies and the running of the Executive Secretariat to enable it ensure a smooth execution of its mandate. The upcoming financial year will be characterized by the recruitment of human resources and the training of the already recruited staff.
CORAF/WECARD IN 2008

FISCAL YEAR 2008 AUDIT AND CERTIFICATION OF CORAF/WECARD

Accounts for the 2008 fiscal year, from January 1 to December 31, were audited and certified by the accounting firm MAZARS located in Dakar, Senegal.

ADRESSEE: Board of Directors

Opinion Letter

We have audited the companying financial statements of West and Central African Council for Agricultural Research and Development (WECARD) which comprise the balance sheet as of December 31, 2008, and the income statement, statement of expenses by category for the year ended, and a summary of significant accounting policies and other explanatory notes.

WECARD Management is responsible for the preparation and fair presentation of these financial statements in accordance with the OHADA accounting standards in force in Senegal. This responsibility includes designing, implementing and maintaining internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error; selecting and applying appropriate accounting policies and making accounting estimates that are reasonable in the circumstances.

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with International Standards on Auditing (ISA). These standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statement. The procedures selected depend on the auditor’s judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity’s preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of entity’s internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.
CORAF/WECARD IN 2008

Accounts Certification

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

The reconciliation, (manual and automatic) we made between the of fixed assets file and the trial balance revealed differences both in terms of gross value and depreciation. According to Management, these differences result from the unreliability of the asset file.

Due to lack of a reliable asset file, we were unable to validate the tangible and intangible assets amounting to 14 903 KFCFA and 160 123 KFCFA at December 31, 2008.

In our opinion, excluding the impact of the point above, the financial statements present fairly, in all material respects the financial position of West and Central African Council for Agricultural Research and Development (WECARD) as of December 31, 2008, and its financial performance for the year ended in accordance with the OHADA accounting standards in force in Senegal.

Without impacting our opinion expressed above, we wish to bring to your attention the following information:

In last year’s report, the former auditor mentioned the existence of receivables amounting to 106.5 million over the NARS of member countries of WECARD, whose recovery was uncertain. The recovery of these claims has been discussed at the Board meeting of WECARD for the year ended 31 December 2007 and a resolution granting a maximum of two years to debtor countries to reduce their debts was allowed.

Following the resolution, Guinea Conakry and Nigeria have settled their debts vis-à-vis the WECARD for 20 millions FCFA.

MAZARS Sénégal : Taïbou MBAYE

Partner

Dakar, May 8th, 2009
CORAF/WECARD IN 2008

Major Workshops, Meetings and Missions
organized by CORAF/WECARD or in which it participated in 2008

ADVOCACY AND COOPERATION

19-21 February, Saint-Louis (Senegal)
Working visit by the Executive Director to the Gaston Berger University of Saint-Louis and to WARDA.

15-22 March, Lansing, Michigan (USA)
Working visit by the Director of Finance and Administrative to the Michigan State University as part of the management process of the 1st phase of the WABnet project titled “African Bioscience Network Expertise”.

26-28 March, Accra (Ghana)
Participation of CORAF/WECARD in the donors meeting organized by FARA.

27-28 March, Accra (Ghana)
Participation of CORAF/WECARD in the USAID Partners’ meeting: review of planned results, discussions for broader consensus on the definition of agriculture indicators.

16-17 April, Saint Louis (Senegal)
Mission of the Executive Director and the Head of Monitoring/Evaluation: Presentation of CORAF/WECARD programmes to Lectures/researchers of the Gaston Berger University of Saint Louis.

5-9 May, Douala (Cameroon)
European Development Fund workshop to develop operational mechanisms for staple food production in Central Africa.

17-21 May, Brussels (Belgium)
Consultation between Development Partners, FARA and OSRs on the implementation of the new Operational Plan, organized by the European Commission.

29 June-6 July, Ouagadougou (Burkina Faso)
Working visit to UEMOA, CILSS and USAID.

14-15 July, Abuja (Nigeria)
Consultation meeting for heads, technical branches and partners organized by ECOWAS.

20-23 July, Ouagadougou (Burkina Faso)
Working visit by CORAF/WECARD to the Government of Burkina Faso within the framework of the preparations for the 5th GA of FARA to be held in Burkina Faso in June, 2010.

28-29 July, Kinshasa (Democratic Republic of Congo)
Mission of the Executive Director for the signing of the Cooperation Agreement between CORAF/WECARD and the CEEAC, alongside the MINAGRI conference.

25 September, Nairobi (Kenya)
Meeting of CORAF Development Partners.

3-7 November, Abuja (Nigeria)
Working visit by the Executive Director to the ECOWAS chairman.

1-5 December, Maputo (Mozambique)
Participation of CORAF/WECARD in the Annual Assembly of the Consultative Group on International Agricultural Research.

19-21 December, Accra (Ghana)
Completion of CORAF/WECARD proposals to USAID and Discussions on modalities for working with USAID at institutional and implementation levels.

STATUTORY MEETINGS

5-7 June, Yaounde (Cameroon)
First session of the Governing Board of CORAF/WECARD.

6 June, Yaounde (Cameroon)
Extraordinary meeting of the Technical and Scientific Committee of CORAF/WECARD.

9-11 June, Yaounde (Cameroon)
First West and Central Africa Agricultural Science Week.

12-13 June, Yaounde (Cameroon)
Ordinary session of the Technical and Scientific Committee of CORAF/WECARD.
CORAF/WECARD IN 2008

29-31 October, Saly Portudal (Senegal)
Ordinary session of CORAF/WECARD Scientific and Technical Committee.

25-26 November, Dakar (Senegal)
Second session of the Governing Board of CORAF/WECARD.

TECHNICAL AND SCIENTIFIC MEETINGS

23-25 January, Addis-Ababa (Ethiopia)
Workshop on “Climate change, Agriculture and Food Security”

23-24 January, Cotonou (Benin)
Workshop on the launch of the RAILS project, organized by CORAF/WECARD in collaboration with FARA.

3 February-2 March
Participative study in seven countries selected from West and Central Africa in preparation towards the implementation of activities related to subsistence crops.

5-8 March, Saly (Senegal)
Seminar on biosafety and national capacity building in the Ummah countries organized by ANSTS.

28 April-5 May Salzburg (Austria)
Conference titled “Toward a green revolution in Africa” co-organized by the Salzbury Global Seminar, the Institute of Development Studies and Future Agricultures Consortium.

6-14 July, Kumasi (Ghana)
Regional meeting on the Harvest Plus Program to formulate strategies for enhancing maize resistance in Africa.

23-26 September, Bamako (Mali)
Workshop on study validation on Capitalization on results of research conducted in West and Central Africa, organized by CORAF/WECARD.

4-7 November, Accra (Ghana)
Workshop on farmers need for seed (Integrating the formal seed sector and the formal seed system), organized by WASA.

6-8 November, Dakar (Senegal)
Planning workshop by the Consortium for Modeling Growth and development policies in Africa, organized by IFPRI in collaboration with ASARECA, CORAF/WECARD and FANRPAN of SADC.

10-15 November, Wageningen (Holland)
Launch of the 2008 e-Consultation (7th CTA Advisory Committee meeting on S&T for ACP Agriculture Development). Main topic: “Building a critical mass of scientists in ACP countries.”

23-25 January, Addis-Ababa (Ethiopia)
Workshop on "Climate change, Agriculture and Food Security"

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5-8 March, Saly (Senegal)
Seminar on biosafety and national capacity building in the Ummah countries organized by ANSTS.

7-8 March, Dakar (Senegal)
Forum on Science and Technology, held alongside the 11th session of the OCI, on the theme: “Developing a science culture and technology innovation in Africa.”

10-14 March, Accra (Ghana)
Training workshop on Management, Leadership and Team Management, organized by FARA.

12-14 March, Bonn (Germany)
Workshop organized by the Oasis Writing Group at the UNCOD (United Nations Conference on Desertification) headquarters, organized by ICRISAT and ICARDA.

1-5 October, Kumasi and Accra (Ghana)
Discussions with authorities of two Universities in Ghana (KNUST in Kumasi and University of Ghana, Legon in Accra for completion of the registration process of 14 Ghanaian and Gambian nationals on SCARDA/CORAF/WECARD scholarship to pursue MSc. studies.

27-30 April, Addis Ababa (Ethiopia)
Meeting on development of rural livelihoods in semi-arid zones in Africa, Organized by UASA/FRAD.
Research Highlights

Intense coordination activities were carried out in relation to research programmes, research projects, and regional initiatives at the Executive Secretariat and the Operational Units.

Research programs and regional initiatives implementation has mobilized CORAF/WECARD Executive Secretariat and Operational Units staffs.
Research Highlights

BIOTECHNOLOGY AND BIOSAFETY

Improving agricultural productivity and competitiveness

First programme to be implemented under the Operational Plan, the Action Plan for biotechnology and biosafety development in the ECOWAS subregion was finalized in March 2006 within the context of the follow-up of the recommendations of the Ministerial Conference held in June 2005.

The program specifically aims to develop biotechnology in the ECOWAS zone for greater productivity in agriculture as well as sustainable natural resource management. While advocating a regional approach to biosafety, it also seeks to implement a mechanism for guiding and evaluating the execution of the programme. CILSS and CORAF/WECARD are responsible for supervising the biotechnology and biosafety components respectively.

A regulatory framework was first put in place by CORAF/WECARD relative to biosecurity in West Africa; the document which was prepared in that regard was reviewed in August 2008 in Accra by a panel of experts.

In the third quarter of 2008, CORAF/WECARD signed an agreement with WARDA to distribute varieties of rice that could resist the rice yellow mottle virus (RYMV). The virus which poses serious problems to farmers is controlled through the development of resistant varieties under the selection scheme. The resistant varieties currently available are to be tested in the Gambia, Mali, Guinea and Burkina Faso, in accordance with the terms of the agreement. Some tests are being carried out and the results are expected soon.

CORAF/WECARD is currently working to introduce the African bio-fortified sorghum in Burkina Faso which was chosen for adopting biosafety regulations. Various workshops were organized in Burkina Faso on 21 July 2005 and 28 July, 20 August 2008 in Ouagadougou as well as on 15-20 September in Mombasa. It is now incumbent on CORAF to identify experts capable of developing training modules as well as ensuring sensitization and training. Some preliminary studies are being planned to introduce the African bio-fortified sorghum in West African countries. Finally, an Information and Communication Strategy will be put in place in relation to this project.

A working group on biotechnology made up of 14 members from the NARS and 14 scientific partners was constituted in 2008. It is tasked with ensuring that issues regarding biotechnology and biosafety are complied by a select Committee of Experts and that they conform with the policy defined beforehand.

CORAF/WECARD and CIRAD signed an agreement on the implementation of the FSP cotton project in September 2008. The project which is financed by the French Ministry of Foreign Affairs, seeks to promote greater collaboration on biosafety relative to cotton cultivation. These activities are expected to be undertaken with the support of several partners among whom FSP, CIRAD, UEMOA ECOWAS, WACIP, etc.

The fourth ECOWAS ministerial conference on Biotechnology will take place in the second quarter of 2009. CORAF/WECARD, which is involved in the preparation of the event, took part in various meetings with the Ivorian Ministry of Agriculture and Natural Resource Management.
Furthermore, Biotechnology and Biosafety Programme of CORAF/WECARD is in touch with the Ivorian Authorities to facilitate the adoption by the National Assembly of the biosafety law. Though the law was drafted since 1999, it has still not been passed by Ivorian parliamentarians despite the fact that the National Biosafety infrastructure

**STAPLE CROPS**

*Promoting agricultural inputs and post-harvest technologies*

The Staple Crops programme is the second to be implemented in 2008. This implementation was preceded by a participative and consultative survey meant to identify the major constraints and needs of end-users of agriculture-related technologies and innovations.

To ensure greater adoption of technologies, the Strategic Plan lays emphasis on a holistic approach by effectively engaging stakeholders in the value chain in every aspect of planning and implementation of research activities. To this end, a participative study involving stakeholders in the value chain was initiated in the first quarter of 2008.

The study revealed the limitations of the various processes and stakeholders in the value chain (farmers, stakeholders in the private and public sectors, international research centres NGOs and NARS). The outcome of the study was the main issue on the agenda at the workshop held at WARDA in Cotonou on 26-28 June.

Overall, the main topics on staple crops discussed by stakeholders dealt with productivity improvement, agricultural inputs and post-harvest technology promotion. Issues related to capacity building are integrated into all the projects, the objective being to ensure increased productivity and market access for the major produce from the sub-region. Also included are invitations for proposals for grants to pursue research in Agriculture, advocacy on policy reforms, awareness creation for the adoption of new

Development Capacity Building project initiated by the Global Environment Fund (GEF) and managed by the UN environmental Programme (UNEP) is making significant progress. ☑

Post-harvest technologies relating to maize at the centre of activities of the Staple Crops Programme.
**Research Highlights**

**WEST AFRICA**

*On-going coordination of twelve programmes*

In the context of the competitive research programmes launched in 2003 and 2004, CORAF/WECARD pursued the coordination of the implementation of twelve projects in nine West African countries.

These projects were in the following areas: fodder resources management for a sustainable use of rangelands in the Sahel; impact of inoculation by rhizobia on the productivity of planted or natural gum trees, and the number of factors related to the biologic functioning of underlined soils; environmentally sustainable development for the production of yam for consumption; integrated management of food resources for the development of agropastoral zones in West Africa; botanical extracts on vegetables as an alternative to chemical pesticides in peri-urban zones in Benin, Cote d’Ivoire, Ghana and Togo; regional integration, access to markets and diversification of agriculture in the UEMOA zone; policy options for competitive and sustainable dairy channels; market surveillance and analysis of vegetable production sub-sector in West Africa; sensitization of farmers on the risks of pesticides and the advantages of producing and consuming organic vegetables. Concerning technology transfers: livestock improvement techniques dissemination and extension network; promotion of processing technologies of agricultural products in Benin, Togo and Burkina Faso; combination of water harvest and food management for sustainable food production in arid lands in West Africa; micro-dose fertilizers and drought resistant technologies for the prosperity of small farmers in the Sahel; promotional use of local rock phosphate for the ‘recapitalization’ of soil fertility in the Sahel.

These projects were implemented in Benin, Burkina Faso, Ghana, Mali, Niger, Cote d’Ivoire, Mauritania, Senegal and Togo and ended in 2008. ☺
A Unit for planning and monitoring/evaluation was established at the Executive Secretariat of CORAF/WECARD early in 2007. The long-term objective of this instrument is to contribute to the efficiency of agricultural research in West and Central Africa in accordance with the Strategic Plan. The Unit is involved in all activities of the programmes and projects of which it monitors their implementation and impact.

Current activities of the Unit are articulated around the development and extension of impact orientation approaches and methods in agricultural research in West and Central Africa for the development of activities. The Unit also aims at building the individual capacities of researchers and managers in order to orientate research towards an institutionalization of impact orientation in agricultural research conducted in the sub-region.

In 2008, the Unit was involved in the elaboration of the Secretariat annual action plan and the Monitoring and evaluation framework of its activities. The document for strategy planning, monitoring and evaluation was formulated. It contains details about monitoring/evaluation procedures in the context of the first five years of the Strategic Plan (2007-2016).

In July, a mid-term review of the 2008 Action plan was conducted. It aimed at readjusting and adapting it to the remaining of the year in order to ensure the realization of objectives. The Planning and Monitoring/evaluation Unit launched a study to assess the capacities of NARS to organize and implement an efficient control system. The outcomes of this study are being collected; it is hoped that they will be useful in the decision making process in the areas of planning, monitoring and evaluation within the NARS.
LAUNCHING OF WAAP

Towards an improved agricultural productivity in West Africa

The implementation of the West African Agricultural Productivity Programme (WAAPP) for a total cost of 45 million US Dollars was entrusted to CORAF/WECARD by the ECOWAS. Initiated in December 2005 following an agreement between ECOWAS and the World Bank’s International Association for Development (IAD), its concept is based on the integration and harmonization of national agricultural policies and it advocates for the establishment of direct links between research, producers and private operators. The first phase of WAAP commenced on 21st March 2008 in Ghana, Mali and Senegal with the launching of action plans in each country.

Monitoring mission: In July 2008, a first evaluation mission conducted by the World Bank visited the three countries. The mission reviewed planned activities, implementations stages, coordination with local units, financial resources availability and management, readjustment of indicators for 2009 and explored the possibility of including other countries in the programme. Moreover, the visit enabled the development modalities for the preparation of an annual coordination work and its submission by 30 November each year to the World Bank. The recruitment of an external auditor was also mentioned.

After meeting with the CORAF/WECARD team, the World Bank delegation made certain number of recommendations.

The World Bank recommended that CORAF/WECARD, in view of its coordinating role for the programme, should be actively involved in monitoring missions at regional level. This will take effect during the next monitoring missions scheduled for June and December 2009.

Rules and Procedures: It is recommended by the World Bank to take into account the environmental aspect and monitor environmental indicators in the assessment document of the project. It also recommends that the training programme be improved, taking into account the institutions, the costs and the coherence of activities.

From 22 to 24 July 2008, a workshop for the official launching of WAAP organized in Dakar, examined the action plan both at national and regional levels, and the terms for extending the programme to other countries in West Africa. In the mean time, arrangements are being made to conduct the necessary baseline studies in these countries.

From 12 to 14 November 2008, Dakar hosted the first session of WAAP Regional Steering Committee. The meeting established rules and procedures for the operation of the Committee, discussed indicators of the programme and their monitoring, examined the plan of activities and the annual budget for 2009 and procedures for tenders. The meeting also examined the format and periodicity of technical and financial reports to be produced as well as issues regarding communication between CORAF/WECARD and the countries in the sub-region.

From 11 to 13 December 2008, monitoring and evaluation experts met in Bamako to discuss WAAPP monitoring and evaluation indicators. This meeting is the result of recommendations made during the meeting of the Regional
Steering Committee held from 12 to 14 November 2008 in Dakar. The Session in Bamako enabled to harmonize the project indicators, to adopt a format for technical reports and annual budgets. The content of the format for the regional policy manual and for monitoring/evaluation were also validated.

The second monitoring mission of the World Bank took place from 21 to 22 December 2008 in Dakar. A report on activities was prepared by the three countries and CORAF/WECARD. The programme of activities for 2009 was presented, amended and validated.

The objective of SCARDA: Capacity building for agricultural research in Africa.

Capacity building was a major concern for CORAF/WECARD in 2008. The issue is: improving the effective delivery of the needed research to enable agriculture attain the annual growth rate of 6%. Capacity building is achieved through the empowerment of institutions. It is not limited to formal training and provision of material resources but also involves the strengthening of CSOs.

In this context, the activities of the Programme for Strengthening Capacity for Agricultural Research and Development in Africa (SCARDA) were launched during a workshop held in Accra from 28 April to 2 May 2008. Four institutions based in West and Central Africa constitute the implementation institutions: IER in Mali, CRI in Ghana, NARI in Gambia and CRAL/DGRST in Congo. CORAF/WECARD designated AGRHYMET as the main service provider for this programme.

Various activities were realized since the launching in May and the planning meeting held from 27 to 29 May to identify the next stages.

The University of Ghana, Legon (Ghana), the Kwame Nkrumah University for Science and Technology (Ghana) the University of Dschang (Cameroon) and the University of Abomey-Calavi (Benin) were designated to implement Masters Degree courses in the following academic disciplines: biotechnology, IPM, plant reproduction, post-harvest technologies, seeds, agricultural engineering, soil physics, animal production, biodiversity, crop modeling and soil conservation. Moreover, the University of Greenwich in the United Kingdom was also identified for training in monitoring/evaluation and post-harvest technologies.

The national research systems benefit from capacity building. Thirteen students (9 Gambians and 4 Ghanaians) gained admission to the Universities of Ghana, Legon and Kwame Nkrumah for the 2008-2009 academic year, while 13 researchers from Congo Brazzaville and Mali were admitted to various Masters programmes in Cameroon and Benin.
DONATA
Disseminating new agricultural technologies

It is through DONATA and RAILS initiatives that CORAF/WECARD carries out its knowledge management programmes. These initiatives seek to ensure identification, creation, representation and dissemination of knowledge to researchers, farmers, private sector, NGOs and all end-users in the agricultural sector.

The DONATA (Dissemination of New Agricultural Technologies in Africa) was launched in November 2007. The progress reports reveal that, out of the eight countries concerned, seven have effectively started the activities. One to three platforms were created per country (a platform for Burkina Faso, two per country for Cameroon, Congo Brazzaville, Cote d’Ivoire, Senegal and Sierra Leone, three for Mali, giving a total of 14 platforms). These platforms contribute to the dissemination of agricultural technologies especially in relation to maize and cassava crops.

In addition, capacity building programmes are envisaged by the DONATA Project. Accordingly, three researchers from the NARS were admitted to the Universities of Pretoria and Kwazulu Natal in South Africa.

Finally, it is important to note that CORAF/WECARD developed, as part of the DONATA project, training modules for the management of agricultural resources. The first session is to begin soon.

RAILS
Training to start in 2009

The RAILS (Regional Agricultural Information and Learning System) constitutes the second phase of the knowledge management programme designed to achieve greater access to knowledge in agriculture. It was launched in January 2008 in Cotonou (Benin) with 18 countries in attendance. Its implementation stages were discussed and drafted. Under the 2008 programme of activities, all countries which participated in the Cotonou meeting shared with other NARS their reports on the results from the workshop launching. It is left with equipping the focal institutions and the people and ensuring training. This has been scheduled for 2009.

MANAGEMENT OF KKM PLS
Coordinating unit to be operational soon

Initially scheduled for June 2008, it was finally in September 2008 that the transfer process of institutions coordinating the KKM PLS program started. A workshop organized especially for this purpose was held in Dakar where all the problems were sifted through (challenges and modalities created by this transfer, review of the capacity needs of CORAF/WECARD in order to take charge of the coordination etc.

As part of this, the procedure to identify a coordinator of the KKM was initiated and an expert recruited in November 2008. He works in a coordination unit which is based at the Agricultural Research Institute of the Ahmadou Bello University in Kano (Nigeria). Agreements have been signed to that effect between CORAF/WECARD, FARA and IITA in December 2008.

Cassava technologies have been chosen by many countries to be disseminated within DONATA Project.
CTA-CORAF/WECARD PROJECT

Capitalisation and sharing of innovations and results

The CTA-CORAF/ WECARD project is a project of capitalization and transfer of agricultural research results for agricultural development in West and Central Africa. It was set up by CORAF/WECARD with technical and financial support from the Rural and Agricultural Cooperation Technical Center with the objective of improving agricultural productivity and competitiveness in the sub-region. Its main target is to facilitate the exchange of information between various stakeholders of agricultural research and development, thus contributing to the transfer of research results to users with the aim of reducing food insecurity and maximizing the income of producers. It is more specifically about identifying the needs of various users of research results, capitalizing on achievements of agricultural research on the basis of identified needs, facilitating access and use of agricultural research results and training various users in the use of research results.

This project took off in 2008 with the identification and recruitment of consultants who were to conduct the study on identifying the needs in each of the three agro-ecological zones of CORAF/WECARD. The locally recruited consultants are members of the NARS. They were supervised and assisted throughout the process by national correspondents of CORAF/WECARD and by the Executive Secretariat as well. This study aimed at identifying end-users’ fundamental needs for agricultural research results so as to help and direct the collection, distribution as well as the extension of technologies available.

CARBAP

Scientific activities, active partnership and support to universities

CARBAP, (the African Centre for Research on Banana and Plantain) has a triple function of research, training and technical support for development. In 2008, the center lead several scientific activities, carried out support missions, took part in workshops and conferences and also assisted university education.

RESEARCH ACTIVITIES

CARBAP has centered its activities on scientific research based on the following themes: The physiochemical classification of banana plants, fruits cultivars and banana hybrids, nutritional valuation of banana fruits, measure of the effect of conservation on the quality of banana flour and dried banana, the relationship between MRN and some characteristics of banana fruits.

Physical and chemical fruit classification of banana plants. Hundreds of hybrids and other cultivars have been tested through several physiochemical parameters. Beside...
that, about ten cultivars of banana plants have been evaluated. As in 2007, the goal was to incorporate genotype environment effects on the physiochemical composition of fruits during harvest and also during post-harvest ripening at room temperature. The comparative results of the first cycle production of the plantain type CRBP 39 hybrids and a plantain variety Mbowcoukou No. 1, measure the hardness and the dry matter rate (TMS). They show that the genotype and the environment have a more or less considerable effect on their physio-chemical component.

**Nutritional evaluation of banana fruits: influence of processing treatment.** The cultivar of the Bastard plantain was evaluated for its nutritional composition during the process of drying or cooking in hot water. The investigation bordered on 3 types of pre-treatment during the production of plantain flour (pulp washed in boiling water, pulp soaked in chemical solution and cooking of the whole fruit). Following the application of these 3 techniques and the study of flour contents obtained in food carotinoids, it seems that the drying process has a huge effect on the nutritional composition of plantain pulp. Besides, considering the absence of the sap, the fact that it is easy to peel and cut up, as well as its capacity to favour the preservation of micronutrients, the pre-cooking process would be more advisable for the production of flour from plantain pulp.

Another study was carried on the effect of cooking on the nutritional quality of the pulp of the plantain cultivar (Batard). Whole pulps with or without peel have been boiled at specific intervals. Even though analysis have confirmed that cooking the pulp causes a significant loss in carotinoids as compared to raw pulp, this mode of processing synthesizes some isomers of which the contents seem to multiply during cooking. The study also shows that the peel or lack thereof significantly impacts the nutritional composition of the pulp.

In order to support the actors of the processing chain for banana fruits, conservation tests have been put in place. A number of the properties of dried bananas and plantain flour have been assessed during a year. During the storage of flour, a significant monthly increase of their weight was observed; it is proportional to the water content. Similarly, flour acidity increases while the rate of dry water-soluble extract decreases. The experiment facilitated the determination of the timeframes and time limits for the utilization of plantain flours conditioned following a specific mode of packaging.

**Relationships between the MRN and physical and chemical characteristics:** The study improved the understanding of the relationship between the seriousness of blackline disease and the export quality dessert bananas. During the harvest of fruits, the main criteria assessed were the color, weight, length and grade of the pulp. Generally, MRN has a more or less significant effect on the physico-chemical characteristics of bananas at constant physiological age close to 900 degrees days.

The effect of leaf removal practices has also been measured. Depending on the levels of severity, leaf removal has a significant effect on the weight of the fruit and its green life cycle determined at 13°C. All these helped show the conditions affecting the export of banana bunches from banana plants which suffered strong attacks from MRN resulting reduced number of leaves at harvest time.

**SCIENTIFIC SUPPORT**

CARBAP collaborated with national institutes (IRAD, Universities) and the agro-industrial private sector in Cameroon. The collaboration were also established or furthered with international organizations (CIRAD, Bioversity-France, Belgian universities, etc.)

From 14 to 18 July, the Centre participated in the ad hoc evaluation of IRAD’s committee of researchers. It also contributed to the scientific activities of CEMAC who initiated four years ago, a harmonization process of research programmes of regional interest. In July 2008, CEMAC identified seven important scientific programmes that will be researched in its member countries.

From 8 to 10 July, CARBAP participated in the operational planning of activities in the Banana chain of Cote d’Ivoire (for the 2009-2010 period). This event of the Interprofessional Funds for Research and Agricultural
Council (FIRCA) was organized in conjunction with banana producers in Cote d’Ivoire.
CARBAP also participated in the activities of the Africa Crop Science Society (ACSS).

CERAAS

Various experiments on plants

In 2008, the scientific team of CERAAS (Regional Study Centre for the Improvement of Adaptation to Drought) conducted a number of activities in laboratory, in stations and in farms. Experiments were conducted in greenhouses at Thiès, at the CNRA Station in Bambey, in Nioro and in farming areas. Activities were related to the main crops studied at CERAAS (cowpea, groundnut, millet sorghum and sesame) and to newly introduced plants (baobab and tamarind tree) as well as to farming practices and technical processes to optimize the use of natural resources. The SARAH-millet Model has been configured, set and validated by CERAAS searchers.
resources (soil and water). The results of these experiments were presented in the form of posters.

**COWPEA**

Phenotyping of cowpea RIL populations (Vigna unguiculata L.) for drought resistance at flowering stage. Studies on cowpea were carried out at the molecular stage using the molecular branding technique developed by the SSR University of Virginia (Timko Laboratory) and “licor” fluorescent primers (AFLP method). The cowpea’s genetic mapping process is ongoing. It would enable to identify regions or genes related to relevant characteristics for drought resistance of cowpea.

Study of the combination of mychorrhizal and cowpea rhyzobium. The Senegalese villages of Potou and Bambey seem to have the same mycorrhizal symbiosis properties. It is highly probable to find the same mycorrhizal fungi genus or species. However, concerning rhizobiums, although the level of efficiency appears the same for these sites, there exist more significant associative specificities between varieties in Potou than in Bambey. This brings out the concept of cross inoculation group. Symbiotic mirco-organisms appear to colonize their hosts depending on the pH and salinity values.

**SESAME**

Radiosensitivity test in 3 sesame varieties (Sesamum indicum L.). The seeds of these varieties showed resistance to gamma rays irradiation. The level of resistance varies depending on the variety. The efficient doses of gamma rays for the 32-15 variety is 625 Gy and 8000 Gy for the 38-1-7 variety which showed a greater resistance. However, usual mutants were obtained even at doses lower than the efficient dose. Consequently, it is not necessary to reach that dose which results in morphological and physiological damages.

**MILLET**

Configuration, setting and validation of a growth and productivity model for millet: the SARAH-millet model. The collection and entry of data both for tests and studies, is in its final stage. Statistical analyses and various simulations with the SARRAH Model will follow.

**TAMARIND TREE**

Evaluation of the entropic effect on the tamarind tree (Tamarindus indica L.) population density in Senegal. Results show the contribution of man in the domestication and preservation of species as opposed to the social beliefs that confer an evil role to the tree (home of djinns (demons)). This could be explained by the fact that the tamarind tree is a species that enjoys integral protection by the Senegalese Law on the protection of nature.

Analysis of the tamarind tree of Senegal (Tamarindus indica), AFLP ecotypes utilization, technique and autoradiography. This study uses the AFLP technique, presents an innovative character and helped to identify good AFLP primer combinations for the genetic characterization of the tamarind tree. However, these results are still insufficient to enable an efficient genetic characterization of the collection. Thus, the study will continue in order to identify more polymorphic combinations to be analyzed on a greater number of species.

**BAOBAB**

Morpho-physiological reaction of the baobab at seedling stage in a controlled water-stressed environment. This study with the objective of determining drought adaptation mechanisms of different baobabs collected in the different agro-climatic zones of Senegal, should be reconducted in a better environment. This would enable a better characterization of physiological reactions of these various origins and to identify the more resistant and/or tolerant species to a controlled water-stressed environment.

**MAIZE**

Study of the different yields of maize in farming areas and comparison with simulated results using a farming method. This study indicates that maize is the most traded
commodity in the region and that the fertilization depends on the type of farming. However, the best yields are obtained with high rainfalls. It was also observed that there exists a positive relation between soil preparation method and yield. Finally a photoperiodicity of cultivated varieties was observed.

Research Highlights

CERAAS activities focused on the main plants studied by CERAAS, among which groundnut.
**Research Highlights**

**PRASAC**

**Key activities in 2008**

The PRASAC hosts the project entitled « Support to Regional Research aimed at the Sustainable Development of the Savannahs of Central Africa » (ARDESAC). This project mobilizes the NARS in Cameroon, the Central Africa Republic and Chad. It is funded by the French Cooperation. It has been the subject of a draft agreement between the CEMAC and the French Foreign and European Affairs Ministry.

The ARDESAC project started its activities in 2004 and is to end in July 2009. PRASAC activities in 2008 mainly dealt with the synthesis of the work achieved in the framework of the ARDESAC project. This synthesis was the main technical support to the international colloquium that was convened, from 20th through 23th April, 2009, more than 150 people in Garoua (Cameroon), met around the following theme : « Developing African Savannahs: sustainable innovation. ». PRASAC activities in 2008 also consisted of finalizing the programming of priority research and development projects in the CEMAC region. This activity was conducted in the six community countries (Cameroon, the Central Africa Republic, Congo, Gabon, Equatorial Guinea and Chad) and took into account all these countries’ ecologies. PRASAC also hosts six other projects that were still being implemented in 2008.

**Valorization of the ARDESAC project’s results**

The project authorities met (the Scientific Committee in April 2008, and the Pilot Committee in May 2008) in order to define strategy for the valorization of results with a view to prepare for the final colloquium scheduled from 20th to 23rd April 2009.

Specific workshops were held in order to strengthen scientists’ capacity in valuing their results. The regional thematic meetings represented the opportunity for scientists to integrate and finalize their regional articles. Specific trainings were held during the three workshops on the following themes: data analysis, scientific writing, and the concerted definition of the valorization strategy (July 2008). As far as the thematic regional meetings were concerned, they mainly dealt with natural resources management (September 2008), geomatics (November 2008), livestock (November 2008), production and cultivation (December 2008) systems.

**Priority research and development projects**

The programming of priority research and development projects started in 2007 through the mobilization of six CEMAC countries scientists and lecturers. A document of identified projects was published in October 2007. In 2008, two regional workshops were organized (in July and October) in order to complement this document for the finalization of the initial document during a meeting held in January 2009.

**Other projects**

Various other projects are in the process of implementation: ACACIAGUM (The European Commission, 2007-2010, The Gum Arabic Sector, Cameroon), FONCIER (The French Cooperation, IRAM management, 2007-2009, Soil Marketability, Central Africa Grasslands : CMR, RCA, TCH), CORUS (the French Cooperation, IRD management, 2007-2010, Towns’ supply, Chad) New projects started in 2008: PEDILUVE (SCAC Ndjamena, 2008-2010, the pedilivium was tested in rural areas, South Chad), PLANTADIV (ANR, 2008-2010, the biodiversity of cultivated plants, Cameroon and Chad). Besides, answers to some European Commission calls for tenders were also drafted: ACRA-PRASAC (essential oils, Chad-Cameroon), PRASAC-CIRAD: food industry, the six CEMAC countries.

The finalization of the long-term training programme was also among the 2008 activities: 30 training programmes are in progress, 2 PhD theses were completed in 2008 (milk and pork industries), 16 long training-term programmes are to be completed in 2009 (8 for Cameroon, 3 for the Republic of Central Africa and 5 for Chad).
**Research Highlights**

**Change of name**

Among 2008 activities, the participation in the assizes of the CEMAC in June 2008 in Yaoundé (Cameroon) should be underlined. The UEAC Council of Ministers and the Heads of States Conference allowed PRASAC’s change of name to «Regional Pole of Applied Research to the Development of Central Africa agricultural systems». The acronym remains the same. The assizes of the CEMAC also adopted the statutes of PRASAC and appointed its Director General.

The valorization of the ARDESAC project’s results as well as the publication of various other supports aimed at valorization will continue in 2009 (scientific articles, technical forms, etc.). The French Foreign and European Affairs Ministry will be responsible for the project’s assessment.

PRASAC’s future projects will be extended to a larger and more diverse geographical and ecological region. These projects will continue to be presented to many international partners (scientific, financial ..) in 2009. And at the same time, fundraising activities are to be effectively conducted, and the opportunities offered through calls for projects to be grabbed.

**CIRDES**

**Various research activities undertaken by the three operational units**

CIRDES started new projects in 2008 through the Unité de recherche sur les bases biologiques de la lutte intégrée (URBIO), the Animal Production Research Unit (URPAN) and the Research Unit on Livestock and Environnement (UREEN). Cross-cutting projects have also been implemented and the training, documentation and computer units have also benefited from these important achievements.

**Researches at URBIO**

Researches on the tsetse fly and on glossins’ anti-saliva antibodies have been conducted by the URBIO.

The project on the tsetse fly (Strengthening CIRDES as a centre of reference in the diagnosis and control of trypanosomiasis and resistance to trypanocides in West Africa) has been conducted in partnership with the Institut de Médecine Tropicale d’Anvers (IMT), based in Belgium, and the Institut National de Recherche Agricole du Bénin (INRAB). This project received from the Belgian cooperation (2008 – 2010) a 131 million francs CFA funding that facilitated the organization of various training programmes: three technicians were trained, from a distance, in the technique of molecular diagnosis resistant to isometamidium chloride, this PhD training cycle is aimed at scientists in charge of research activities in Benin and at six other students (from Benin, Burkina Faso, Ghana and Mali).

Research on glossins anti-saliva antibodies is the implementation phase of a project gained in the framework of the CORUS programme (Cooperation through University and Scientific Research). This project, that received a 59 million francs funding from the French Cooperation, involves the CIRDES and the IRD (Institute of Research and Development). Its aim is to produce an efficient serological tool that facilitates the targeting of the main high risk regions and the assessment of the efficiency of the struggle against glossins.

**Researches at the URPAN**

URPA put a lot of effort into the role of modeling for the sustainable management of the cotton-cereals-livestock production system in West Africa and into the recovery of soil fertility in West Burkina Faso populated regions.

Research on the role of modeling for the sustainable management of the cotton-cereals-breeding production systems in West Africa was initiated in the framework of the CORUS programme. It received a funding of approximately 50 million CFA francs from the French Cooperation.
Cooperation. Apart from the CIRDES, CIRAD is also a partner of this project of whose gains include three trainings of DEA students. Among the achievement of this project, it is worth mentioning two communications delivered during a symposium, a colloquium and two operational productions in the form of a simulator of the exploitation operating system (Excel, July 2008) and a simulator based on the exploitation operating system rules (Python, April 2009).

Funded by the European Union, the Fertipartenaires project (agropastoral partnerships and innovations for soil fertility restoration in West Burkina Faso’s populated regions, Tuy province) involves the CIRDES, the CIRAD (Centre for International Cooperation in Agronomic Research for Development), the INADES (African Institute for Economic and Social Development) and the Union of Cotton Producers. Scheduled up to 2012, its global objective is to improve food security among farming families that depend on the cotton-cereals-livestock production systems and also to restore soil fertility.

Researches at UREEN

The “Adaptability of agriculture systems to global climate change in West Africa » project is scheduled for 36 months. Implemented following a call of the French Cooperation in the framework of the RIPIECSA project (Recherches Interdisciplinaires et Participatives sur les Interactions entre les Ecosystèmes, le Climat et les Sociétés en Afrique de l’Ouest), its funding is 78 million francs. This project’s overall objective is to propose concerted solutions for the improvement of conditions for livestock farmers that are consistent with sustainable agriculture. The other partners of CIRDES in this project are the Polytechnic University of Bobo Dioulasso, CIRAD, IRD, the Niamey Agrhymet Regional Centre and
**Research Highlights**

ICRISAT (the International Crops Research Institute for the Semi-Arid Tropics). A PhD student and three DEA students have been recruited in the framework of this project.

**Cross-cutting projects**

Cross-cutting projects concern, beyond a simple research unit, all CIRDES units. They mainly consisted of two projects initiated in 2006 which continued up to the beginning of 2009 and integrated into the institutional support to CIRDES Scientific Directorate.

The aim of this 117 million francs project « Réseau de diffusion et vulgarisation des techniques d’amélioration de l’élevage » is to support, strengthen and develop knowledge and information dissemination and extension as well as training. All research organisations of CIRDES member countries and Ghana as well took part in it. In the framework of this network, extension workshops were organized, and technology developed and transferred to partners, and fact sheets produced. Access to CIRDES website has also been improved.

The « Centre of Excellence in Animal Biotechnology » of the Support to Regional Excellence Centres (PACER) programme, amounted to 233 million francs obtained from a WAEMU call, aims to strengthen CIRDES’ technical and institutional capacity in the field of biotechnology applied to livestock. CIRDES equipped itself with a sequencer and a new generator for liquid nitrogen. Moreover, some employees got higher degrees through training and five DEA students, coming from various countries, were also trained. The project will continue up to June 2009.

The support from the Scientific Direction is also a cross-cutting project. Estimated at 590.35 million francs from 2002 to 2008 by an independent consulting firm, commissioned by the French Cooperation, it facilitated the defense of various PhD and DEA theses and the purchase of equipments for research, computers and supported documentation.

**Training, documentation, computers**

Training was very important in CIRDES activities during 2008. Each of the research units (URBIO, URPAN, and UREEN) conducted certain number of activities through the publication of articles, the participation in colloquiums and conferences, the production of technical fact sheets and posters, etc. Various workshops and meetings were also organized.

Regarding training, 9 PhD training were supported in 2008 (7 for URBIO and 2 for UREEN) and 12 in DEA (7 for URBIO, 2 for URPAN and 3 for UREEN). CIRDES documentation was improved with 7 books and 10 periodicals. 220 other documents have also been obtained thanks to grants of partner organisations (FAO, CTA, IUCN, AUF, CIRAD). The computer service was improved in 2008 (implementation of the videoconference realized, thanks to IRD and to CIRDES funds, extension of the network, security reinforcement, purchase of equipments and softwares, etc.).
Pastoralism and Agro-Pastoralism: the Pillars of Mauritania’s Economy

In Mauritania, the National Agricultural Research System is made up of two institutions: the National Centre for Agricultural Research and Agricultural Development (CNRADA) and the National Centre for Veterinary Research (CNRV). Both contribute to the modernization of agriculture and animal husbandry and to the improvement of production.

Mauritania, with a population of 3 million inhabitants and a surface area of 1.03 million km², is characterized by the Sahara (in the north) and Sahel (in the south) climates. Temperatures vary from 10° to 44°C depending on the season and the region with dry and hot winds that facilitate the development of sanding up in a desert area. Although most of the country receives a rainfall of less than 300 mm per year from June to September, there are wide disparities in the rainfall patterns. The Senegal River and its tributaries constitute the main water resources for surface water besides important reserves of groundwater.

LIVESTOCK AND AGRICULTURE

Pastoralism and agro-pastoralism constitute the main economic activities for more than 50% of the population in Mauritania. With livestock estimated at 1.5 million cattle, 1.5 million camels and 16 million small ruminants, livestock contributes to up to 16% of the GDP and represents 80% of the rural production. However, it is faced with a great number of constraints such as drought, diseases and the persistence of traditional practices.

Recurrent drought limits the availability of fodder, the main source of food for cattle. As an example, natural fodder resources, estimated at 6.6 million tons of dry matter during a normal year, amount to only 3.3 million tons in a drought year. There is therefore a clear imbalance between the fodder potential and animal population. Various diseases are rampant in the various livestock farming areas. Finally, traditional practices (extensive husbandry, nomadism, transhumance) are not very productive.

The surface area of lands that could be used for economic, agricultural, pastoral and silvicultural activities is estimated at 20 million hectares. Only 500,000 ha (2.5%) are arable of which 100,000 are irrigable along the Senegal River. In total, 4.3 million hectares (21.7%) are covered by woody plants and 15.1 million hectares (75.8%) by herbaceous pasturelands.
Honor to Mauritania

The average size of household farms varies between 1 and 5 ha of rainfed crops, between 0.5 and 2 ha of irrigated crops; in oasis it is reduced to about 32 ares. The agricultural sector contributes up to 25% of the GDP. The agricultural sector contributes up to about 15% to the GDP, while plant protection and fisheries contribute 5% each to the GDP.

Agriculture mainly depends on climatic conditions. Between 1985 and 2004 the level of cereal production (rice, sorghum, millet, maize, wheat and barley) varied between 99,827 tons (1990) and 201,334 tons (1994). The average yields were 428kg/ha for rainfed cereals. Regarding irrigated crops they are about 4.5t/ha for rice. The maximum of 10t/ha in Trarza shows a clear improvement of yields in certain areas due to the introduction of good quality seeds and timeliness in farming operations. While the production of dates reached an average of 15,000 tons between 2001 and 2004, yields are currently estimated between 15 and 20kg per plant; which still remains very low at the sub-regional level.

The main cropping practices are the Diéri, farming around inland valley swamp dams, natural or controlled falls, oasis and irrigated lands.

The Diéri is practiced on sandy soils, mainly for cereals (millet, sorghum), but also watermelon, cowpea and sorrel. Cultivated surfaces vary between 94,417 and 139,875 ha. The average cereal yields are 428 kg/ha.

Farming around inland valley swamp dams are mainly based on the development of dams, bunds and embankments in low rainfall areas with a favourable topography. These crops represent about 20% of the cereal production during the past fifteen years, with a yield of 636 kg/ha for a surface area that increased from 14,465 to 49,271 ha between 1997 and 2006.

The natural or controlled fall is based on the use of areas flooded by River Senegal, its tributaries and distributaries. The flooding can be natural or controlled. Cropped areas (between 2,250 and 27,436 ha over the period of 1997 to 2006) yielded an average of 874kg/ha with variations between 400 and 500kg/ha. The main cereal produced are sorghum and maize.

With regards to oasis crops, they cover between 4,751 and 12,000 ha. They are practiced on more than 15,000 small farms (32 ares in average) that produce palm tree, cereals, vegetables and fodder. The potential of rainfed crops is estimated at 135,000ha; however, developed surface area is only about 42,000 ha of which only half is cultivated effectively each year. Rice cultivation is prevalent (80% of sown areas), but maize, sorghum, market gardening and fruit trees can also be found.

AGRICULTURAL RESEARCH

The National Agricultural Research System (NARS) of Mauritania is made up of two institutions: the National Centre for Agronomic Research and Agricultural...
Development (CNRADA) and the National Centre for Livestock and Veterinary Research (CNERV).

NATIONAL CENTRE FOR AGRONOMIC RESEARCH AND AGRICULTURAL DEVELOPMENT (CNRADA)

The focus of research in Mauritania

The CNRADA, created in 1974, is a government-owned institution under the supervision of the Ministry of Rural Development. Provided with the legal entity and financial autonomy, it is in charge of organizing, implementing and disseminating research activities related to agriculture and the promotion of agricultural productions. CNRADA is also mandated to provide advice and documentation to extension services, organize training sessions, provide information for the elaboration of national agricultural development plans and to participate in their implementation in collaboration with economic operators.

The centre organizes research and activities around the global development strategy of the government within the context of a close interaction between research, training and development initiatives. In principle, the Government falls exclusively on the CNRADA to carry out the needed research. Similarly, scientific studies outside the country are submitted to the centre for preliminary evaluation.

Financial resources – In addition to the subsidy from the government, CNRADA draws resources from its scientific activities, donations, legacies, and from various subsidies and external funding. Its accounts are checked and certified by one or more auditor(s) appointed by the Minister of Finance.

Programme – From 1974 to 2000, CNRADA adopted a thematic option that highlighted the divisions. In 2000, a systemic approach as defined by the National Plan for Agricultural Research took over. At the end of this new approach, programmes divided into sub-programmes were defined. Thus, there exist 5 programmes, 13 sub-programmes, 8 support services and 10 experimental stations.

Achievements – CNRADA has achieved a lot to improve agriculture and animal husbandry in Mauritania. To this day, all the technical recommendations for all crops grown in Mauritania have been drawn up. The expansion of market gardening was achieved through a wise choice of various and appropriate farming techniques. Moreover, many high-yielding varieties of cereals, vegetables, legumes, fruits, oleaginous plants and fodder have been introduced, adapted and made available to producers; the same holds true for irrigation techniques (trickle flow, metal tube, Californian system). CNRADA has also put in place water and soil conservation techniques (stony contour planting, zai) and introduced new plant species (lentils, chick peas, cactus, oats, etc.).

The Centre identified various pest and crop diseases and has put in place practical methods to combat them (sesame on sorghum and maize) and methods to control rice weeds.
NATIONAL CENTRE FOR LIVESTOCK AND VETERINARY RESEARCH (CNERV)

Developing livestock through research

Similarly to the CNRADA, the National Centre for Livestock and Veterinary Research (CNERV) is a government-owned institution which is financially autonomous. It was established in April 1973 to implement and facilitate medical, veterinary and livestock research necessary for the development of animal husbandry.

Among the achievements of the CNERV, one can mention its contribution to the establishment of the Mauritanian Network for Epidemic Control of Animal Diseases, its support to PACE through studies that allowed the country to be counted among rinderpest-free zones, its diagnosis of a number of diseases (bovine infectious peripneumonia, Rift Valley fever, small ruminants fever, avian flu, aphteous fever, gastro-intestinal parasitosis, trypanosomiasis, brucellosis, trematodosis, etc.)

CNERV also contributed to a better knowledge of diseases in camels, conducted the evaluation of tests for serologic diagnosis, and conducted a study of the nutritional value of grazing lands or some herbaceous lands (Gorgol, Diawling National Park). It also conducted studies on livestock parameters of small ruminants, from the fattening of ovine with fodder crops during the dry season (Trarza), the improvement of dairy production and traditional poultry and on husbandry and coastal biodiversity systems.

Recently, CNERV established a molecular diagnosis laboratory with the support from AIEA and FAO. This laboratory will contribute to improving the handling of the main diseases affecting cattle. Several articles, thesis, memoirs, reports, etc, have been published by the Centre. It also hosted interns.

All these activities sufficiently address constraints in the operation of CNERV: insufficient financial resources, undefined training programmes, particularly for diploma training, issues regarding the recruitment of qualified staff, the lack of high level researchers, research themes often incomplete due to the interruption of a funding or project, insufficient involvement in research networks. Thus CNERV would gain by putting in place a strategic plan to better restructure its mission, promote research-development in the form of crosscutting programmes, standardise laboratories in order to harmonize diagnosis tests, put in place a strategic-oriented scientific council to define priority and relevant themes.

PARTENARIATS. - CNRADA and CNREV are in a partnership with several agencies and projects, both at national and international level.

At the national level, CNRADA cooperates with PPDO, PAHABO, PDRC, VISA, PPF, PRSA/CSA.

At the international level, it cooperates with CORAF/WECARD, WADA, ICRAF, ICRISAT, INSAH, CIRAD, OADA, Japanese Cooperation, Spanish Cooperation and ACSAD.

At the national level, CNREV cooperates with ministerial departments, dairy industries, the University of Nouakchott, and at the international level with FAO, WHO, CORAF/WECARD, CRSA-AN, OADA, AIEA, CIRAD-EMVT, OMVS, FARA, EISMV, LNERV, LCV, CILSS, LCPA, etc.

However there is a need to revitalise the cooperation with a number of international institutions.
The West and Central African Council for Agricultural Research and Development (CORAF/WECARD) is made up of four hierarchical bodies that ensure the implementation of the objectives of the sub-regional organization through operational units: the General Assembly, the Governing Board, the Scientific and Technical Committee, and the Executive Secretariat.

GENERAL ASSEMBLY (GA)

The General Assembly (GA) is the supreme decision-making authority of CORAF/WECARD and is made up of representatives of its NARS members, regional and international institutions in the sub-region and the private sector, agricultural professional organizations and development partners.

GOVERNING BOARD (GB)

The Governing Board is the Body that controls and monitors the implementation of decisions endorsed by the General Assembly. It is made up of 14 members: the Chairman, the Executive Director of CORAF/WECARD, a Representative of the STC, three NARS representatives, five representatives of the agricultural research partners (RECs, NGOs, PAOs, private sector), one representative of the development partners and one representative of the scientific partners.

SCIENTIFIC AND TECHNICAL COMMITTEE (STC)

The Scientific and Technical Committee is the consultative body of the GB. Its role is to assess scientific activities and assist the Executive Secretariat in its leadership and scientific coordination functions. It is made up of twelve members, scientific personalities coming from the NARS and partner institutions and selected intuiti personae on the basis of their competencies.

EXECUTIVE SECRETARIAT (ES)

The Executive Secretariat is made up of the professional staff (Executive Director, Scientific Director, Director of Administration and Finance, Information and Communications Manager) and the support staff. Under the supervision of the Executive Director, it implements the decisions endorsed by the General Assembly, monitors scientific activities, organizes audit of research programmes and projects, mobilizes and manages human and financial resources and arranges statutory meetings.
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<tr>
<th>Dr. Georges Achu MULUH</th>
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<tr>
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<tr>
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<th>Dr. Ernest Assah ASIEDU</th>
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<td><strong>Crops Programme Manager</strong></td>
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<th>Dr. Samba LY</th>
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<tr>
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<th>Mr Abdou Niang GUISSE</th>
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<th>Mrs Awa Cissé DIONE</th>
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<th>Miss Julienne KUISEU</th>
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## Support Staff

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CORAF/WECARD brings together the NARS of 22 countries, divided into three agro-ecological zones:

- the Sahelian Zone of West Africa,
- the Costal Zone of West Africa, and
- the Central Africa Zone.

Here is the list of member nations:

- Benin
- Burkina Faso
- Cameroon
- Cap-Vert
- Centrafricaine
- Chad
- Congo
- Côte d’Ivoire
- Gabon
- Gambia
- Ghana
- Guinea
- Gunea Bissau
- Liberia
- Mali
- Mauritania
- Niger
- Nigeria
- Democratic Republic of Congo
- Senegal
- Sierra Leone
- Togo
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CHAD
## ABBREVIATIONS AND ACRONYMS

### AAA
- **ABBP**, African Biotechnology and Biosafety Platform
- **AfDB**, African Development Bank
- **ARDESAC**, Sustainable Development of the Savannahs in Central Africa (*Appui à la recherche régionale pour le développement durable des savanes d’Afrique centrale*)
- **ARI**, Agricultural Research Institute
- **APS**, Senegalese New Agency (*Agence de presse sénégalaise*)
- **ARCN**, Agricultural Research Council of Nigeria
- **ASARECA**, Association for Strengthening Agricultural Research in Eastern and Central Africa

### ABBP
- **ADB**, Arab Development Bank

### CCC
- **CAADP**, Comprehensive African Agricultural Development Programme
- **CARBAP**, African Research Centre on Banana and Plantain (*Centre africain de recherche sur bananiers et plantains*)
- **CEMAC**, Central Africa Economic and Monetary Community (*Communauté économique et monétaire de l’Afrique centrale*)
- **CERAAAS**, Regional Centre for Studies on the Improvement of Plant Adaptation to Drought (*Centre d’Etudes régional pour l’amélioration de l’adaptation à la sécheresse*)
- **CIAT**, International Centre for Tropical Agriculture (*Centre international pour l’agriculture tropicale*)
- **CILSS**, Permanent Inter-State Committee for Drought Control in the Sahel (*Comité permanent inter-États de lutte contre la sécheresse au Sahel*)
- **CGIAR**, Consultative Group for International Agricultural Research
- **CIRAD**, French Agricultural Research Centre for International Development (*Centre de Recherche Agricole pour le Développement International*)
- **CIRDES**, International Centre for Research-Development on Livestock in the Sub-Humid Zone (*Centre international de recherche-développement sur l’élevage en zone sub-humide*)
- **CNERN**, National Centre for Livestock and Veterinary Research (*Centre national de recherches vétérinaires*), Mauritania
- **CNRLAD**, National Centre for Agricultural Research and Development (*Centre national de recherche agriconomique et de développement agricole*), Mauritania
- **CRI**, Crops Research Institute (Ghana)
- **CTA**, Technical Centre for Agricultural and Rural Cooperation (*Centre technique de coopération agricole et rurale*)
- **CORUS**, Cooperation through University and Scientific Research (*Coopération par la recherche scientifique et universitaire*)
- **CRAL**, Centre for Agronomic Research (*Centre de recherche agronomique de Loudima*), Congo
- **CSIR**, Council for Scientific and Industrial Research, Ghana
- **CNRADA**, National Centre for Agricultural Research and Development (*Centre national de recherche agriconomique et de développement agricole*), Mauritania
- **DONATA**, Dissemination of New Agricultural Technologies in Africa
- **EU**, European Union
- **ES**, Executive Secretariat
- **FAAP**, Framework for Africa Agriculture Productivity
- **FANRPAN**, Food, Agricultural and Natural Resources Policy Analysis Network
- **FAO**, Food and Agriculture Organization of the United Nations
- **FARA**, Forum for Agricultural Research in Africa
- **GEF**, Global Environment Fund
- **ICRAG**, International Centre for Research Agro-Forestry
- **ICRISAT**, International Crop Research Institute for the Semi-Arid Tropics
- **IARC**, International Agricultural Research Centre
- **ICRAF**, International Centre for Research Agro-Forestry

### DDD
- **DFID**, Department for International Development (United Kingdom)
- **ECOWAS**, Economic Community of West African States
- **ECCEAS**, Economic Community of Central African States
- **EU**, European Union
- **ES**, Executive Secretariat
- **FAO**, Food and Agriculture Organization of the United Nations
- **FARA**, Forum for Agricultural Research in Africa
- **GEF**, Global Environment Fund
- **ICRAG**, International Centre for Research Agro-Forestry
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### EEE
- **ES**, Executive Secretariat
- **FAO**, Food and Agriculture Organization of the United Nations
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- **ICRISAT**, International Crop Research Institute for the Semi-Arid Tropics
Abbreviations and Acronyms (continued)

**IFAD**, International Fund for Agriculture Development  
**IITA**, International Institute of Tropical Agriculture  
**IRD**, Institute for Research and Development (Institut de recherche et de développement)  
**IRAD**, Agricultural Research and Development Institute (Institut de recherche agricole pour le développement)  
**IFPRI**, International Food Policy Research Institute  

**KKK**  
KKM-PLS, Kano-Katsina-Maradi Pilot Learning Site

**MMM**  
**MDTF**, Multi-Donor Trust Fund  
**MTOP**, Medium Term Operational Plan

**NNN**  
**NARS**, National Agricultural Research System  
**NEPAD**, New Partnership for African Development

**PPP**  
**PACER**, Pacific Agreement on Closer Economic Relations  
**PRASAC West** (Pôle régional de recherche appliquée au développement des savanes d’Afrique centrale)

**RRR**  
**REC**, Regional Economic Communities  
**RAILS**, Regional Agricultural Information and Learning System

**SSS**  
**SADC**, Southern African Development Community  
**SCARDA**, Strengthening Capacity for Agricultural Research and Development in Africa  
**STC**, Scientific and Technical Committee

**UUU**  
**USAID**, United States Agency for International Development  
**UEMOA**, West African Economic and Monetary Union (Union économique et monétaire de l’Ouest africain)  
**UNEP**, United Nations Environmental Programme

**WWW**  
**WAAP**, West African Agricultural Productivity Programme  
**WACIP**, West African Cotton Improvement Programme  
**WCA**, West and Central Africa  
**WARDA**, West Africa Rice Development Association/Africa Rice Center