

Science Granting Councils in Sub-Saharan Africa

Country Report

Côte d'Ivoire

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List of Acronyms and Abbreviations

ASTIEF	African Endowment for Science, Technology and Innovation
BCEAO	Central Bank of West African States
CAMES	African and Malagasy Council for Higher Education (<i>Conseil africain et malgache pour l'enseignement supérieur</i>)
CEA	Economic Commission for Africa
CEDEAO	West African Economic Community
CFAF	<i>Franc Communauté Financière d'Afrique</i> (West African CFA franc)
CGECI	General Confederation of Enterprises in Côte d'Ivoire
CNRA	National Centre for Agronomic Research
CSRS	Swiss Centre for Scientific Research in Côte d'Ivoire
DGES	Directorate of Higher Education
DGRSIT	Directorate of Scientific Research and Technological Innovation
ECOWAS	Economic Community of West African States
FAPI	Relief Fund for the Promotion of Invention and Innovation
FDA	Agricultural Development Fund
FIRCA	<i>Fonds Interprofessionnel pour la Recherche et le Conseil Agricoles</i> (Inter-Professional Fund for the Agricultural Research Council)
FISDES	<i>Fonds Ivoir-Suisse de Développement Economique et Social</i> (Ivorian-Swiss Fund for Economic and Social Development)
FNRST	<i>Fonds National pour la Recherche Scientifique et Technologique</i> (National Fund for Scientific and Technological Research)
FNS	<i>Fonds National Suisse</i> (Swiss National Science Foundation)
KFPE	<i>Kommission für Forschungspartnerschaften mit Entwicklungsländern</i> (Commission for Research Partnership with Developing Countries) (Swiss)
MHESR	Ministry of Higher Education and Scientific Research
MDGs	Millennium Development Goals
OPA	Professional Agricultural Organisation
PASRES	<i>Programme d'Appui Stratégique à la Recherche</i> (Strategic Support to Scientific Research Programme)
ROCARE	Educational Research Network for West and Central Africa
SER	Swiss State Secretariat for Education Research
STI	Science, Technology and Innovation
UEMOA	West African Economic and Monetary Union

UIS UNESCO Institute for Statistics

WAAPP/ PPAO *Programme de productivité agricole en Afrique de l'Ouest*
(West Africa Agricultural Productivity Programme)

WECARD/ CORAF *Conseil ouest et centre africain pour la recherche et le développement agricoles*
(West and Central African Council for Agricultural Research and Development)



CÔTE D'IVOIRE

Close ties to France following independence in 1960, the development of cocoa production for export and foreign investment all made Cote d'Ivoire one of the most prosperous of the West African states but did not protect it from political turmoil. In December 1999, a military coup – the first ever in Cote d'Ivoire's history – overthrew the government. Junta leader Robert Guei blatantly rigged elections held in late 2000 and declared himself the winner. Popular protest forced him to step aside and brought Laurent Gbagbo to power. Ivorian dissidents and disaffected members of the military launched a failed coup attempt in September 2002 that developed into a rebellion and then a civil war. The war ended in 2003. In March 2007, President Gbagbo and former New Forces rebel leader Guillaume Soro signed an agreement in which Soro joined Gbagbo's government as prime minister. In November 2010, Alassane Dramane Ouattara won the presidential election, but Gbagbo refused to hand over power, resulting in a five-month stand-off. In April 2011, after widespread fighting, Gbagbo was formally forced from office by armed Ouattara supporters with the help of UN and French forces. Ouattara is focused on rebuilding the country's infrastructure and military after the five months of post-electoral fighting. He faces ongoing threats from Gbagbo supporters, many of whom have sought shelter in Ghana. Gbagbo is in The Hague awaiting trial for crimes against humanity.

Demographic Indicators	Source Year	Estimate
Population	2013	22 400 835
Annual population growth (%)	2013	2
Life expectancy at birth in years	2013	57.66
HIV adult prevalence rate (%)	2009	3.4
Percentage of urban population (as % of total population)	2010	51
Gross domestic product (GDP) per capita (in USD)	2012	1 700
Unemployment rate (%)	-	n/a
Population below poverty line (%)	2006	42
Human Development Index (HDI) ranking	2012	168

Source: CIA Factbook 2013

Despite also being an important industrial sector, Côte d'Ivoire remains an agricultural country. The economy relies on two major products, cocoa beans and coffee, of which the country has been respectively the first and fifth highest exporter. Economic growth reached an average of 7% of GDP per year during the two first decades of independence from 1960 to 1979. A hard-hitting economic crisis then damaged the economy, leaving consequences which are still visible. Financial difficulties began with the increase in interest rates that caused external debt and public expenses to grow. Thanks to a good harvest, the situation improved; but in 1987, a decrease in prices of raw materials caused a deeper state of recession. The last decade was a very chaotic one for Côte d'Ivoire that went through two civil wars (see left column) paralysing scientific progress. Research activities, international collaboration and Côte d'Ivoire's five public universities have also been seriously affected by the wars. The latter

reopened on September 2012 and teaching and research activities are slowly and progressively resuming. Currently, Côte d'Ivoire is a low-income country with a GDP per capita income of USD 1 700 in 2012. 42% of its population lives under the poverty line. The HDI ranked Côte d'Ivoire 168th in the world in 2012 (UNDP 2012).



Figure 1: Map of Côte d'Ivoire

1. General overview¹

1.1. Science and technology system

As was the case in many African countries, modern science was introduced to Côte d'Ivoire by colonists. The first recorded research activities concerned agriculture and were performed in trial gardens created at the end of the nineteenth century. By the 1920s, they were transformed into experimental stations, each one specialising in a different type of crop. Recorded results were then analysed by research institutes in France. Between 1942 and 1958, many research institutes were created in Côte d'Ivoire, mainly focused on agricultural sciences and with a few expanding to the domain of geosciences. At the end of the colonial era, agricultural research began to focus on food crops rather than only on exports products. However, at this time it was still entirely controlled by French institutions. This was the status quo until 1971 with the creation of the Ministry of Scientific Research. This signalled the start of permanent reforms within the system and the beginnings of a national research policy.

A specific ministry dedicated to research was created in 1971, embodying the recognition of research as a sector. The period of economic growth during the 1970s was also a time of valuable investment in research, which was demonstrated through great interest in research itself and much debate regarding its management. By the end of the 1970s, national institutions controlled research while also creating new research centres, defining programmes and orientation, managing, training and supporting research output. Despite the successful establishment of the new ministry, it neglected an important factor in research prosperity, in that it did not link its activities to higher education. Reform in 1981 saw the creation of a Ministry of Higher Education and Scientific Research. Despite many name and role changes, the system remained quite stable and efficient throughout this time. In 1984, an agreement between Côte d'Ivoire and France was signed which gave sovereignty to all Ivorian research institutions. At the same time, the university was decentralised. Governmental support for research collapsed when the economic crisis occurred. Even if science remained a proclaimed priority in the official discourse, public funds for research support were considerably reduced.

1971	Ministry of Scientific Research
1981	Ministry of Higher Education and Scientific Research
1983	Ministry of National Education and Scientific Research
1986	Ministry of Scientific Research
1989	Ministry of Higher Education and Scientific Research
1993	Ministry of Higher Education and Technological Innovation
1998	Ministry of Higher Education and Scientific Research (MHESR) National Centre for Agronomic Research (CNRA)
2003	Inter-Professional Fund for Agricultural Research and Council (FIRCA)
2007	Strategic Support for Scientific Research Programme (PASRES)

¹ Much of this part is borrowed from the work of our colleague and friend Hocine Khelifaoui who passed away in March 2013 (Khelifaoui, 2000).

The share of the state in funding research activities, which was already low, declined to 0.24% of GDP in 1996. Even in agronomic research, which is by far the most subsidised domain, the allocation never exceeded 0.33% of agricultural national product. This led research performers to look for other sources of funding. The National Centre for Agronomic Research embodies this trend: it was transformed in a private institution that gets 60% of its capital from the private sector (the World Bank is the first financial backer) and runs like a private company. In addition to governance, funding remains one of the biggest problems for research in Côte d'Ivoire.

We cannot finish this brief historical overview without mentioning the very chaotic period Côte d'Ivoire went through during more than a decade. Since the end of Houphouët-Boigny's rule, Ivory Coast has experienced one coup d'état, in 1999, and a first civil war, which broke out in 2002. The 2010 presidential election led to the 2010–2011 Ivorian crisis and to the Second Ivorian Civil War. The new elected President Ouattara came only into power in 2011. The country was severely damaged by these two successive civil wars, and the country is slowly recovering. But rebuilding the economy and reuniting Ivorians remain a real challenge. Research activities and Côte d'Ivoire's five public universities have also been seriously affected by the wars. The latter reopened on September 2012 after almost two years since they were closed in the violent unrest sparked by the disputed 2010 presidential vote. International collaboration was likewise affected. Another consequence of the political crisis has been the extreme difficulty in collecting and processing statistical data (Urama, Ozor, Kane & Hassan, 2010).

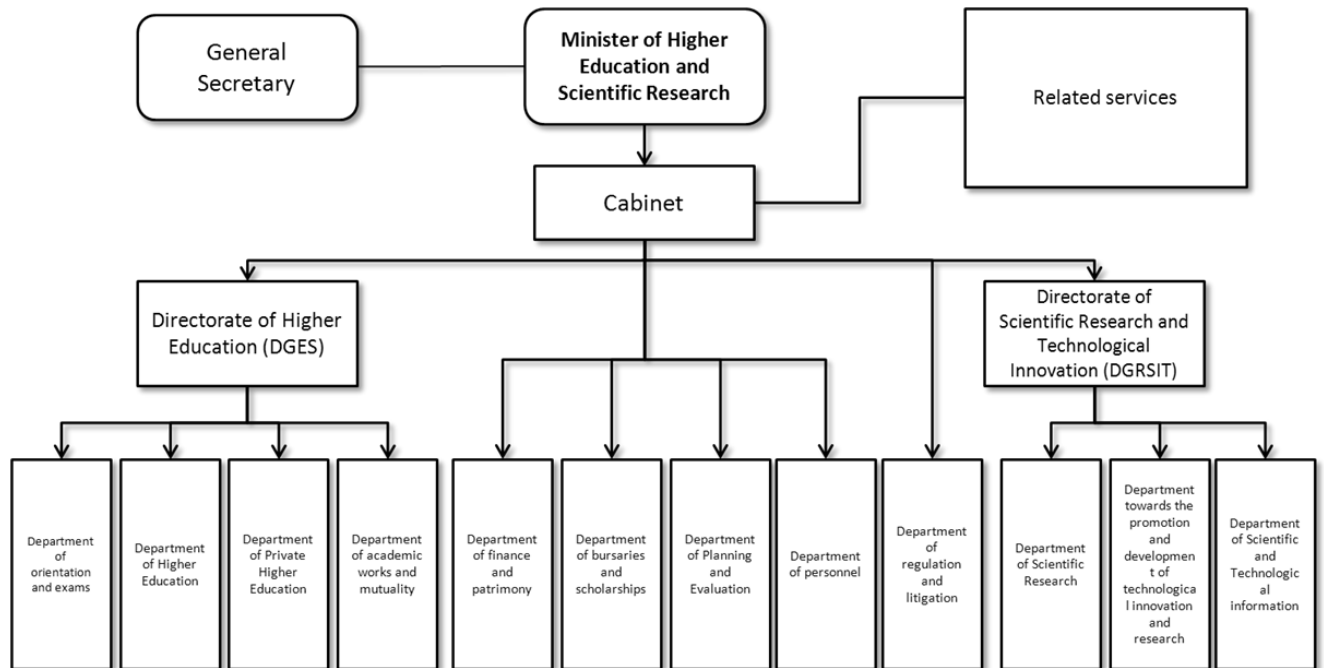
1.2. Governance

The ministry responsible for STI and R&D in Côte d'Ivoire has undergone many changes over the years. In 1986, the ministry was dedicated only to scientific research. From 1989, it included higher education. Between 1990 and 1993, the ministry also included technical and professional education.

Between 1993 and 1998, the ministry was oriented towards research and innovation and was named the Ministry of Higher Education and Technological Innovation. The Ministry of Higher Education and Scientific Research (MHESR), which exists to this day, was established in 1998 (Khelfaoui, 2000).

Within MHESR lie the Directorates of Higher Education (DGES) and of Scientific Research and Technological Innovation (DGRSIT). Various departments responsible for the coordination of research activities in Côte d'Ivoire fall under the authority of these two directorates, as illustrated in Figure 2. The DGRSIT coordinates all research activities at a national level, thus including research performed in other departments such as agriculture, public health and environment.

Figure 2: Organogram of the Ministry of Higher Education and Scientific Research of Côte d'Ivoire



1.3. STI policies

In August 2012, Côte d'Ivoire's Ministry of Higher Education and Scientific Research and various Ivorian research institutes unveiled a policy document supporting the implementation of national research programmes in the country (cf. Table 1). This initiative aims to “energise Ivorian research and invigorate its more effective engagement with the population’s development needs” (Kouadio, 2012) The policy, entitled '*Document supporting the implementation of research programmes in Côte d'Ivoire*', was formally adopted during a seminar hosted by the Ministry of Higher Education and Scientific Research. The seminar was attended by ministry staff, the presidents of Côte d'Ivoire's public universities, representatives from the Ministry of Higher Education and Scientific Research, and national and international experts. The aim of the policy is to encourage synergy and partnering between different enterprises, training centres and universities (both public and private) around shared projects of an innovative nature. The document also recommends substantially increasing state financing for research to 1% of gross domestic product (GDP). According to the Strategic Support to Scientific Research Programme (PASRES) (*Programme d'Appui Stratégique à la Recherche*) in Côte d'Ivoire, funding is currently running at less than 0.5% (Kouadio, 2012).

The policy document outlines plans for creating think tanks to act as catalysts for the implementation of partnership with the private sector to better utilise technological innovations. The document also draws attention to the need for research centres to have consistent funds and efficient management in order to support national research programmes.

An Orientation and Programming Law for Scientific Research and Technological Development has also been in preparation for some time (*Présidence de la République*, draft). A draft text is ready and

is under discussion with the Secretary General of the Government. It should be shortly submitted to the Parliament. In an explanatory memorandum (*Exposé des motifs*), it is said that the ambition for Côte d'Ivoire is to reach the level of development of the emerging countries by 2020. This requires a complete reorganisation of the national scientific and technological system. In the same explanatory memorandum, it is noted that the present system is characterised by:

- A lack of legal framework and a real institutional basis for the components of the national system
- The inadequacy of research personal
- The inadequacy of training
- The inadequacy of equipment and funding
- The inadequacy of promotion systems for the implementation of research results

In its chapter II (Article 7) the law creates:

- The Higher Council for Scientific Research and Technology Development (directly under the Prime Minister)
- The National Centres for Scientific and technological Research, and Innovation
- The Centres of Competences
- The National Fund for Scientific and technological Research (see below)

The mandate of the National Fund for Scientific and Technological Research is to provide funding for:

- National scientific research programmes
- Infrastructures and equipment
- Training related to science and technology
- Implementation and diffusion of research results and technological innovation
- Diffusion of Science and Technology Innovation
- Promotion of Cooperation in Science and Technology
- Research Management

The National Fund is defined in Article 14 as a legal person under private law recognised for its public utility that can benefit both from public and private resources².

² The law in preparation defines different modes of funding through e.g. fiscal incentive measures for commercial and industrial enterprises. As far as public resources are concerned a (very generous) annual state grant of at least 1% of GDP is announced!

Table 1: The 24 national research programmes

COMPETENCE CENTRES ³	RESEARCH PROGRAMMES
Health Competence Centre	PNR1: Waste Management and Risk Assessment PNR2: Emerging and re-emerging diseases
Natural Products Competence Centre	PNR3 : Exploitation of Medicinal Plants PNR4 : Biological and Cosmetic Products
Agriculture Competence Centre	PNR5: Food Security PNR6: Agroforestry
Mines & Energy Competence Centre	PNR7: Mining and Oil Resources Development PNR8: Renewable Energy Development
Civilisation Competence Centre	PNR9: Migration, Integration and Development PNR10: Cultural, linguistic and Civilisation Diversity
Environment Competence Centre	PNR11: Biodiversity and Ecosystems Conservation PNR12: Urbanisation and Quality of Life PNR13: Water
Governance Competence Centre	PNR14: Ethics and Development PNR15: Governance (CIRES)
Technology Competence Centre	PNR16: Technological Development PNR17: Nanotechnology
Special Programmes: Governmental programmes	PNR18: Climatic Change and Sustainable Development PNR19: Biofuel PNR 20: Rice Development PNR21: Swollen Shoot PNR22: Biotechnologies PNR23: Mathematics applied to Life and Earth Sciences PNR24: Coastal Erosion

1.4. Funding by numbers

Research in Côte d'Ivoire received the highest level of support from 1980 to 1985, during which 13.1 billion Franc Communauté Financière d'Afrique (West African CFA francs) (CFAF) (USD⁴ 26 868 100) were spent each year. The funds were received as follows: 23% came from public funds, 32% from

³ In French "Pôle de Compétences".

⁴ Currencies converted with exchange rate as was 1 September 2013

the sale of research results and 45% from external aid. Over five years, 107 scholarships were allocated for students of higher education. This represented CFAF 1 253 437 350 (USD 2 570 800). Despite these great efforts, the operating budget for research and the equipment grants were fairly slender.

Since the early 1990s, the economic crisis beginning considerably reduced public investment. The state's financial input in research activities – which was already low at 0.3% of GDP before 1987 – had declined to 0.24% by 1996. Even in its golden era, the state contribution never reached the target identified in the Lagos Plan of Action in 1980, which recommended that each African country invest 1% of its GDP in research by 2008. This even applied to agronomic research, which was by far the most subsidised domain but never received a state allocation of more than 0.33% of agricultural national product. Besides, the numerous reforms and the will to nationalise research got external financial backers to reduce their aid. Hence, a reform of the system and a growing will of research performers to look for other sources of funding. The National Centre for Agronomic Research (CNRA) embodies this trend: it is a private institution that gets 60% of its capital from the private sector (the World Bank is the first financial backer) and runs like a private company. Furthermore, the state officially stands against market economy and competition. Thus, it never took into account the consequences of globalisation on research, which encourages research institutions to ease from the public sphere.

Funding remains one of the biggest problems for research in Côte d'Ivoire. As a result of numerous reforms and the drive towards nationalisation, research is now funded largely by external sources. Reform of the system has thus compelled researchers to look for sources of funding other than that from the state. The CNRA exemplifies this trend: it is a private institution that gets 60% of its capital from the private sector (the World Bank is the first financial backer) and runs like a private company. Furthermore, the state officially opposes the market economy and competition. In doing so, it has failed to take into account the consequences of globalisation on research

Researchers' efforts to obtain private funding absorb time and energy, limiting their input on institutional research activities. This situation has caused a gradual decrease in research activity in recent years. The small amount of state funds available for research has been poorly managed because of unduly bureaucratic procedures. As a result, researchers have demanded a private management system. The relative stagnation of state funding has led to equipment not being replaced and self-financing decreasing. Despite the tangible stagnation of state funding, Côte d'Ivoire remains one Sub-Saharan African countries where the capacity for research on STI is available. But, except for forestry and agricultural research, national research is more and more depending on external funding with the inherent difficulty of developing a national research strategy supporting national research priorities.

Today, the overall national research budget would represent 0.25% of the country GDP (cf. *Présidence de la République*, 2013)⁵. The announced target is still 1%. To reach this objective, the law in preparation indicates that the annual research budget will increase by 25% during the coming years.

2. Actors involved in funding

A multiplicity of actors is involved in funding research activities in Côte d'Ivoire. In addition to foreign sources mentioned earlier, national higher education and research institutions receive an annual budget from the government. The latter budget is however insufficient and only provides a marginal contribution to research activities.

In the field of agricultural research, the Inter-Professional Fund for Agricultural Research and Council (FIRCA) (*Fonds Interprofessionnel pour la Recherche et le Conseil Agricoles*) was established in 2003 with the backing of the Ministry of Agriculture. By contrast, other areas of research suffer greatly from the absence of a financial support mechanism at the national level. The Ministry of Higher Education and Scientific Research (MHESR) has identified the establishment of a National Fund for Scientific and Technological Research (FNRST) (*Fonds National pour la Recherche Scientifique et Technologique*) as a priority (cf. *Présidence de la République* 2013) that will build on the experience of the Strategic Support to Scientific Research Programme co-funded by Switzerland and presented below. The development of FNRST is one of the four main objectives of PASRES.

2.1. Strategic Support for Scientific Research Programme (PASRES)

2.1.1. Background, history and legal status

In 2006, Côte d'Ivoire and Switzerland signed a scientific cooperation agreement; and in 2007, the Strategic Support for Scientific Research Programme in Côte d'Ivoire (PASRES) was created with funds from the Ivorian-Swiss Fund for Economic and Social Development (FISDES) (*Fonds Ivoir-Suisse de Développement Economique et Social*). Côte d'Ivoire is considered by Switzerland to be a priority country for scientific cooperation over the 2008-2011 period. As a result, the Swiss Centre for Scientific Research in Côte d'Ivoire (CSRS) receives annual grants from the Swiss State Secretariat for Education Research (SER) and the Ivorian government as part of its core funding.

The CSRS, universities and other Ivorian research institutions offer attractive platforms and themes to Swiss researchers. However, these Ivorian institutions and their work remain little known in Switzerland, since the few scientific exchanges between researchers of both countries are limited to

⁵ Neither the African Innovation Outlook 2010 nor the UNESCO Institute for Statistics (UIS) reports any R&D financial input indicators for Côte d'Ivoire.

stays of Ivorian researchers in Switzerland as part of training courses primarily funded by grants from the Swiss state. To improve this situation, the CSRS has made scholarships available to researchers in Switzerland who would like to carry out research in Côte d'Ivoire. The project is funded from the unexpended balance of funds from the former FISDES.

Projects to be funded are identified after a rigorous and transparent selection. Since its inception in 2008, PASRES has funded more than 100 projects and more than 150 scholarships for students. Altogether more than 200 researchers have benefited from funding.

2.1.2. Management and Governance

With the support of the Executing Agency on behalf of FISDES, the PASRES is administered by a decision-making body (Steering Committee), an advisory body (Scientific Council) and an implementing agency (Executive Secretariat). The Executive Secretariat is based at the PASRES CSRS where he/she has the support of the various services located there. The Minister in charge of Scientific Research in Côte d'Ivoire and the representative for the State Secretariat for Education and Research of the Swiss Confederation (SER), along with the Director of the leading house decide on the final allocation and release of start-up capital for FNRST.

The autonomous Steering Committee, having six members, is constituted of representatives drawn from MESRS, the Swiss government, the CSRS, MEF, the private sector, the scientific community, development agencies and NGOs.

The Scientific Council plays an advisory function. It has 11 members drawn from research centres, universities and the development sector.

The Executive Secretariat consists of an Executive Secretary and two Assistants.

2.1.3. Objectives, functions and fields

The MHESR and the CSRS believe that research knowledge and skills can be of great benefit to the social and economic development of Côte d'Ivoire. Based on this common objective, they applied to FISDES for funding to establish a Strategic Support Programme for Scientific Research (PASRES) in Côte d'Ivoire which fits closely with the framework of the Millennium Development Goals (MDGs).

PASRES's objectives are twofold:

- funding a Research and Development Programme for the fight against poverty; and
- financing and ensuring the effective establishment and working of the management bodies of the Fund for the Programme for Research and Development function (this being the role model for the future FNRST).

Activities of PASRES:

- Funding research projects contributing to the fight against poverty
- Allocating grants for the training of young researchers (doctoral and postdoctoral) to provide young scientists at research centres and universities
- Providing support to research facilities for rehabilitation of stations and laboratories, capacity (equipment and connectivity) and access to scientific information
- Provide necessary support to the emergence of a National Fund for Scientific and Technological Research in Côte d'Ivoire (FNRST); and
- Fund exchange programmes (South/South and North/South).

Domains and fields of research:

- Natural Sciences
- Engineering and Technology
- Medical Sciences
- Environment and Biodiversity
- Agriculture and Food Security
- Humanities
- Energy
- Legal Sciences
- Economics and Management; and
- Activities of NGOs involved in the fight against poverty.

The following individuals or groups are eligible for funding from PASRES:

- University teaching staff (*enseignant-chercheurs*) and researchers holding a research project
- Students who hold a Master's degree or equivalent degree and wish to undertake doctoral studies
- Institutes and research centres; and
- Other natural or legal persons carrying research projects likely to have a beneficial impact on sustainable development and reducing poverty in Côte d'Ivoire.

Swiss, Ivorian and West African researchers and scientists affiliated with universities, colleges, institutes, civil society and the private sector in Switzerland are eligible to apply for funding.

PASRES achievements (2008-2009):

- Four calls for proposals in two years
- 306 project proposals received
- 44 (14%) selected for funding
- USD 1 152 000 allocated (USD 6 000 to 30 000 per project).

2.1.4. Call for proposals, selection and peer review

FISDES was established for an initial period of two years. The fund is to be used by the CSRS to award research scholarships aimed at initiating or reinforcing the scientific partnership between Swiss and Ivorian institutions. The amount of a scholarship is set at a maximum of CFAF 4 411 850 (USD 9 084) for exploratory activities in Côte d'Ivoire and a maximum of CFAF 15 000 000 (USD 30 885) for research in partnership in Côte d'Ivoire.

Scholarships will be awarded for all scientific fields of interest for both Côte d'Ivoire and Switzerland. However, priority will be given to the following ones:

- Research directly or indirectly related to the protection of water, forest and other environmental resources including endangered species; an
- Other research fields of CSRS (Animal and Human Health; Food Security)
- Research themes of interest for Swiss research institutions but not yet developed in Côte d'Ivoire.

During their stay in Côte d'Ivoire, grantees and their hosts are encouraged to organise scientific seminars in collaboration with CSRS. Ivorian researchers at Master's, Doctoral or post-Doctoral level who receive grantees benefit indirectly from the scholarship, such as through support for the direct costs related to their involvement in the activities with the grantee.

Twice a year, the Executive Secretariat PASRES issues a press release calling on scientific research project leaders to submit proposals likely to have a beneficial impact on the fight against poverty and sustainable development in Côte d'Ivoire. Applications are evaluated according to seven criteria inspired by the 11 principles proposed by the Swiss Commission for Research Partnership with Developing Countries (KFPE, 1998).

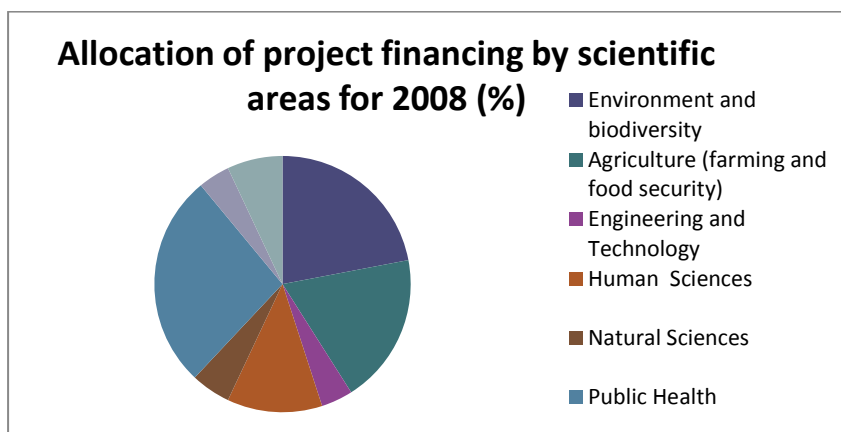
The Scientific Council of the CSRS evaluates projects submitted for funding. The selection of applicants is made on the basis of transparency and the process is thus documented. Each application is evaluated by at least two experts from the Scientific Council. Additional experts are contacted if required.

2.1.5. Financing (sources and expenditure)

FISDES awarded PASRES an initial capital of CFAF 5 billion (USD 10 295 000), including interest for annually funded activities. The capital was placed in a local bank in Côte d'Ivoire. Interest on the capital amount (about CFAF 300 million/USD 617 700) was placed in an operating account to fund the activities of research projects, as well as operating activities of the other management bodies of PASRES.

In 2008, 77% of funding went towards financing projects and 23% of funds were allocated to scholarships. Figure 3 shows the allocation of project financing in 2008 towards the various scientific areas. The majority of funds were allocated to research on the environment and public health.

Figure 3: Allocation of project financing by scientific areas for 2008



An assessment of the budget allocation per objective for the first five years (2008-2013) shows the following:

- Objective 1 (Financing of research projects): CFAF 614 million (USD1 267 296), being 38% of total
- Objective 2 (Training of young researchers): CFAF 434 million (USD 895 776), being 26% of total
- Objective 3 (Supporting research stations and laboratories): CFAF 120 million (USD 247 680), being 7% of total
- Objective 4 (Operation of PASRES organs and support for the establishment of FNRST): CFAF 393 million (USD 811 152), being 24% of total; and
- Management fees totalled USD 85 million, being 5% of total.

The activities of PASRES provide a solid foundation for the sustainable development of research in Côte d'Ivoire. The project has focused on revitalising the capacity of research structures heavily affected by the economic crisis of the 1980s and more recently by the two civil wars.

2.2. Inter-Professional Fund for the Agricultural Research Council (FIRCA)

2.2.1. Background, history and legal status

FIRCA funds research activities in the areas of crop production, forestry and animal related funding programmes. It acts primarily as a service to all sectors of agricultural production and professionals.

FIRCA was created as a result of the restructuring of the agriculture service in the 1990s. It was put in place through the combined effort of the government and the World Bank's attempts to strengthen the agriculture sector. It was created by Decree No. 2002-520 of 11 December 2002, which also established the Agricultural Development Fund (FDA).

2.2.2. Management and governance

FIRCA is managed by a General Assembly which consists of 152 members from four colleges:

- The college of producers and their professional organisations (111 members)
- The college of agro-industries and primary processing industries (24 members)
- The college and professional membership organisations (9 members); and
- The college representatives of the state (8 members).

The General Assembly has the following functions:

- Deciding on allocation of FIRCA funds
- Approving statutes, procedures and management relating to FIRCA
- Managing accounts, programmes and activity reports; and
- Appointing members of the Board of Directors.

2.2.3. Objectives, functions and fields

FIRCA essentially provides a service to agricultural producers in that it awards funds for three primary areas benefitting the agricultural sector. These three areas are: applied research (project grants) commercialisation of research (such as information, technical consulting and management advice to farms) and career management (capacity building of producers and their professional agricultural organisations). FIRCA therefore acts in consultation with agricultural professionals who benefit from the research activities that FIRCA funds, and then in turn make financial contributions to the fund through their agricultural enterprises. FIRCA makes grants to projects across 12 fields of study. This has grown significantly from the small number of fields of study considered in 2004.

FIRCA works with the agricultural sector by providing for training of producers and supporting sector-based organisations' structures. This involves developing process manuals and development plans, as well as assisting in the consolidation of the associations. FIRCA also supports associations by funding the following:

- Generating technologies to meet the needs of producers
- Transferring and diffusing technology in the medium-term
- Increasing production
- Improving the productivity of farms
- Putting quality products on the market; and
- Training and building the capacity of farmers and their organisations for greater professionalism.

FIRCA's relationship with the agricultural sector is increasingly productive. It has improved farm productivity and increased incomes.

2.2.4. Financing (sources and expenditure)

In 2009, FIRCA financed 55 projects; in 2010, 68; and in 2011, a total of 73 projects.

From 2005 to 2010, FIRCA granted:

- USD 5 726 411 for applied research across eight industries
- USD 30 087 023 for technical advice/ extension research across four industries
- USD 1 138 108 to training/capacity building projects across six industries
- USD 1 027 190 to projects related to support to the Professional Agricultural Organisation (OPA); and
- USD 421 030 to study support across 11 industries.

FIRCA has three main sources of funding. The first – and main – source is professional contributions from the agricultural sector. These professional contributions are made by 19 private agricultural institutions and make up 98% of FIRCA's funding. These contributions are negotiated between FIRCA and the agricultural producers through a process mediated by the Ministry. The Ministry subsequently decrees the amounts that producers contribute to the fund in five-year agreements.

The second source of income comes from state subsidies and the third through contributions from development partners, such as grants.

3. Partnerships

The following institutions are FIRCA's primary partners:

- World Bank
- WECARD/CORAF (West and Central African Council for Agricultural Research and Development; *Conseil ouest et centre africain pour la recherche et le développement agricoles*)
- ECOWAS /CEDEAO (Economic Community Of West African States; *Communauté économique des États de l'Afrique de l'Ouest*)
- WAAPP/PPAAO (West Africa Agricultural Productivity Programme; *Programme de productivité agricole en Afrique de l'Ouest*)

In all, over 500 service providers tender for FIRCA research projects.

A constraint relating to FIRCA's activities is the lack of capable researchers and research organisations in certain fields of study. FIRCA is often limited for choice when assigning tenders, which makes it difficult to control quality. This lack of service providers is also exacerbated by the fact that the CNRA poses as a direct competition to them in that it may offer researchers more financial benefit than FIRCA does. As a private institution, CNRA is more financially attractive to researchers.

Another constraint relates to the implementation of research projects, in that the process is sometimes drawn out. This could be bridged through more collaboration with the CNRA. While FIRCA encourages collaboration with the CNRA, such efforts, need to be strengthened significantly. In certain fields, research projects are also more expensive than in others and financial resources are limited. Another difficulty can be a lack of suitably qualified staff.

The Ministry of Higher Education and Scientific Research in Côte d'Ivoire and the AIRD have launched a call for proposals in 2014 entitled "Partnership renovated for research for development of Côte d'Ivoire" (PresEd -CI) in attempt to strengthen the collaboration between France and Sub-Saharan Africa.

The call for proposals includes two main areas. Projects must relate to:

- Health: emerging and re-emerging diseases, health and the environment.
- Technology: technical development and formulation of biomolecules, biodiversity and food security; materials; mining and energy technologies, and information technology and communication and water environment.

This call will fund ten research projects using a maximum €130,000 (USD 178 646) per project. Projects submitted must include at least two Ivorian teams, one of which is the project coordinator in association with a French team and at least one team from one of the 19 member countries of the African and Malagasy Council for Higher Education (CAMES) (*Conseil africain et malgache pour l'enseignement supérieur*).

4. Conclusion

The economic crisis in the 1980s resulted in a reduction in wages, aggravated by devaluation of the CFAF. This forced many researchers to devote a significant proportion of their time to parallel activities and to develop survival strategies dependent on foreign cooperation and NGOs. This has caused tensions and debates on the financing of research activities in Côte d'Ivoire. The two civil wars that took place during the last decade impacted also negatively the functioning of research activities and scientific progress.

Despite the inadequate financial allocation to research activities at national level being an obstacle for researchers, many young researchers also face many other challenges. A lack of experience in writing competitive grant proposals across the research sector has limited the opportunities open to young researchers. National research financing institutions also tend to favour more experienced researchers: this makes it extremely difficult for young researchers to obtain funding. In response, PASRES has, through the allocation of research grants and scholarships, contributed to support and train young researchers in an effort to create an influx of a new generation of researchers to research centres and public universities.

Côte d'Ivoire has around 1,300 researchers working in the higher education sector and various research institutes. Only 16% of these researchers are women. Most researchers are based at the National Centre of Agronomic Research (CNRA), which also absorbs around three quarters of R&D

funding (UNESCO Science Report, 2010). It is therefore imperative that the Ivorian government ensure that adequate and sustainable funding be made available also to sectors outside that of agriculture. In this respect the proposed creation of a National Fund for Scientific and Technological Research (FNRST) building on the experience of PASRES, is a welcome development. Such a national funding body should preferably be given an autonomous status (similar to that of FIRCA) with an autonomy of management with enough flexibility to put in place a peer review system independent from the government subsequently ensuring an undisputed selection process, disbursement of funds and follow up of disbursed funds (control *a posteriori* and not *a priori*) and research activities.

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