ASTI Agricultural Science & Technology Indicators
FACILITATED BY IFPRI

Environment and Agricultural Research Institute
INERA

BURKINA FASO

RECENT DEVELOPMENTS IN AGRICULTURAL RESEARCH

Gert-Jan Stads and Séraphine Sawadogo Kaboré

Country Note • September 2010

LONG-TERM INVESTMENT AND CAPACITY PATTERNS IN AGRICULTURAL R&D

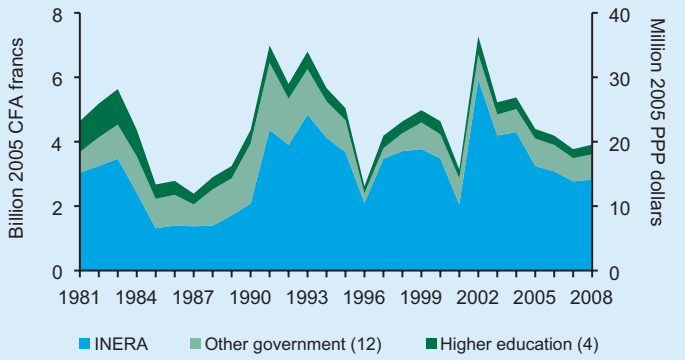
In recent decades Burkina Faso's agricultural research and development (R&D) expenditure levels have been erratic: increases in spending coincided largely with the implementation phases of several consecutive World Bank loan funded projects, on which the country's agricultural R&D sector has relied heavily since 1989 (Stads and Issa Boro 2004). In 2008, the country's investments totaled 3.9 billion CFA francs, or 19.5 million PPP dollars (both in 2005 constant prices), slightly less than levels recorded in preceding years (Figure 1; Table 1). Unless otherwise stated, all dollar values in this note are based on purchasing power parity (PPP) exchange rates.[1] PPPs reflect the purchasing power of currencies more effectively than do standard exchange rates because they compare the prices of a broader range of local—as opposed to internationally traded—goods and services. Total agricultural research capacity levels reveal a positive trend until the year 2004, after which a slight decline set in: in 2008, the country employed 240 full-time equivalent (FTE) agricultural researchers (Figure 2).

The Environment and Agricultural Research Institute (INERA) is Burkina Faso's main agricultural research agency, accounting for more than three-quarters of the human and financial resources that the country allocates to agricultural R&D. INERA was estab-

Key Trends Since 2000

- In 2004, Burkina Faso's agricultural research and development (R&D) expenditures plummeted following the conclusion of the World Bank loan funded second National Agricultural Services Development Project (PNDSA-II), leaving the country's agricultural R&D in dire financial straits.
- Total agricultural research staff levels followed an upward course until 2004, after which time a slight decrease in numbers set in. In 2008, the country employed 240 full-time equivalent (FTE) researchers, of which more than half held PhD degrees.
- Agricultural R&D is largely funded by external donors.
- Agricultural R&D investment levels are expected to begin increasing again once the World Bank loan funded West Africa Agricultural Productivity Program (WAAPP) starts implementing its Burkina Faso component, the launching of which is to occur before the end of 2010.

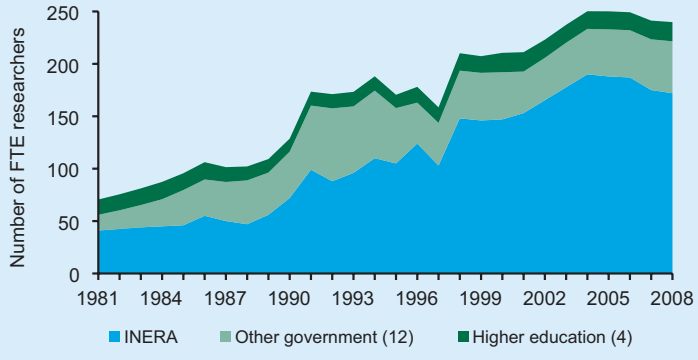
Figure 1—Agricultural R&D spending adjusted for inflation, 1981–2008



Sources: Calculated by authors from ASTI–INERA 2009–10 and Stads and Issa Boro 2004.

Notes: Figures in parentheses indicate the number of agencies in each category. The "other government" category includes a number of agencies that have merged into INERA or IRSAT in the mid-1990s or that have discontinued R&D activities. For more information on coverage and estimation procedures, see the Burkina Faso country page on ASTI's website at asti.cgiar.org/burkina-faso.

Figure 2—Agricultural research staff in full-time equivalents, 1981–2008



Sources: Calculated by authors from ASTI–INERA 2009–10 and Stads and Issa Boro 2004.

Notes: Figures in parentheses indicate the number of agencies in each category. The "other government" category includes a number of agencies that have merged into INERA or IRSAT in the mid-1990s or that have discontinued R&D activities. Total staff numbers include expatriate research staff employed at INERA and IRSAT, as well as their predecessors in the 1980s and 1990s.

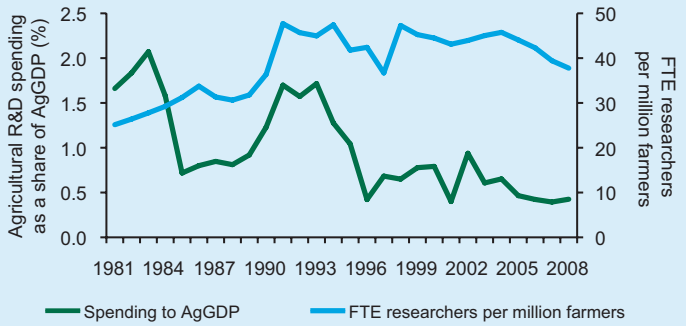
Table 1—Overview of public agricultural R&D spending and research staffing levels, 2008

Type of agency	Total spending			Total staffing	
	CFA francs	PPP dollars	Shares	Number	Shares
	(million 2005 prices)		(%)	(FTEs)	(%)
INERA	2,823.6	14.1	72.2	172.0	71.7
Other government (5)	785.7	3.9	20.1	49.5	20.6
Higher education (4)	298.8	1.5	7.6	18.3	7.6
Total (10)	**3,908.1**	**19.5**	**100**	**239.9**	**100**

Source: ASTI–INERA 2009–10.

Note: Figures in parentheses indicate the number of agencies in each category.

Figure 3—Intensity of agricultural research spending and capacity, 1981–2008



Sources: Calculated by authors from ASTI–INERA 2009–10; Stads and Issa Boro 2004; FAO 2009; and World Bank 2009.

lished in 1996 and its mandate is to formulate, implement, and coordinate Burkina Faso's environmental and agricultural research activities. The institute is placed under the National Center of Scientific and Technological Research (CNRST), which in turn falls under the Ministry of Secondary and Higher Education and Scientific Research (MESSRS). In addition to its headquarters in Ouagadougou, INERA comprises an environmental and agricultural research and training center (CREAF) located in Kamboinsé, and five regional agricultural and environmental research centers (called CRREAs) distributed among Burkina Faso's five agroecological zones. In 2009, INERA was running 16 research programs, structured around four themes: animal production, crop production, forestry, and natural-resource and farming-system management. From 1989 to 2004, INERA relied heavily on the World Bank loan funding it received through two consecutive projects: the first loan was granted under the Agricultural Research Project I (PRA-1), the second to support implementation of a National Agricultural Services Development Project (PNDSA-II). The two projects contributed to rehabilitating INERA by facilitating training events for researchers and supporting initiatives to improve CREAF and the CRREAs. The closure of PNDSA-II in December 2004 led to a sharp decline of INERA's overall expenditures. In 2008, the institute's investments totaled 2.8 billion CFA francs, or 14.1 million dollars (in 2005 constant prices), roughly a one-third decrease compared with the level of investments registered in 2004. The decline in spending triggered a loss of motivation among INERA's research staff, even causing some researchers to leave. Departures were not followed by new recruitments and, as a result, INERA's overall research capacity dropped from 190 FTE researchers in 2004 to 172 in 2008.

Five other government agencies are actively involved in agricultural R&D. Combined, these five agencies accounted for one-fifth of Burkina Faso's R&D capacity and expenditure in 2008. The main agencies in this category are the Applied Science and Technology Research Institute (IRSAT), equally placed under CNRST, and the National Forest Seed Center (CNSF), which falls under the competence of the Ministry of Environment and Livelihood (MECV). Totaling 23 FTEs in 2008, IRSAT's research staff conducts applied research on natural resource, agricultural technology, and energy topics. IRSAT received large sums of money through PNDSA-II, and like INERA, it found itself facing a most fragile financial situation when the project came to an end. CNSF (with 15 FTE researchers in 2008) produces forest seeds and seedlings and also carries out forestry research. In addition to its Ouagadougou-based headquarters, CNSF has four regional outreach posts located in Kaya, Fada-Ngourma, Bobo-Dioulasso, and Dori, as well as several experimental research stations. CNSF's research investments have been erratic, fluctuating according to the availability of government or donor funding. The three remaining government agencies involved in agricultural research each employed 5 FTE researchers or fewer in 2008.

Burkina Faso's higher education sector plays a limited role in agricultural R&D, accounting for 8 percent of the country's total agricultural R&D capacity in 2008. The higher education sector consists of three institutions under the University of Ouagadougou as well as the Institute for Rural Development (IDR) in Bobo-Dioulasso. Close linkages exist between the University of Ouagadougou and IDR and many scientists hold a double appointment at both agencies. Whereas at the University of Ouagadougou, training and research are of a rather theoretic nature, IDR's training and research programs are more hands-on and practice oriented.

Although no profit-seeking private-sector agencies were identified as conducting agricultural research in Burkina Faso, it is noteworthy that INERA and IRSAT work closely with various producer organizations and private companies, notably the Burkinabe Company for Textile Fibers (SOFITEX) and Nestlé.

ASTI Website Interaction

- More details on institutional developments in agricultural research on Burkina Faso are available in the 2004 country brief at asti.cgiar.org/pdf/BURKINAFASO_CB21.pdf.
- Underlying datasets can be downloaded using ASTI's data tool at www.asti.cgiar.org/data.
- This brief presents aggregated data; additional graphs with more detailed data are available at asti.cgiar.org/burkina-faso/datatrends.

www.asti.cgiar.org/burkina-faso

In 2008, 12 percent of all agricultural researchers in Burkina Faso were female (ASTI–INERA 2009–10). This points to women being very poorly represented in the overall pool of researchers, but it nevertheless is indicative of a slight improvement since 2001, when the share of female researchers was 8 percent (Stads and Issa Boro 2004). In 2008, the overall support-staff-to-researcher ratio averaged 4.5, the breakdown being as follows: 3.2 for technical support, 0.8 for administrative support and 0.5 for the category "other" (farm laborers, guards, drivers, etc.) (ASTI–INERA 2009–10).

In 2008, Burkina Faso's total public agricultural R&D spending as a percentage of output (AgGDP)—a common, internationally comparable indicator of a country's agricultural R&D investments—was $0.43 for every $100 of AgGDP, which was far lower than the ratios recorded during implementation of PNDSA-II (Figure 3). The number of FTE researchers per farmer has also declined since the turn of the millennium. In 2008, Burkina Faso employed 38 agricultural researchers per million farmers.

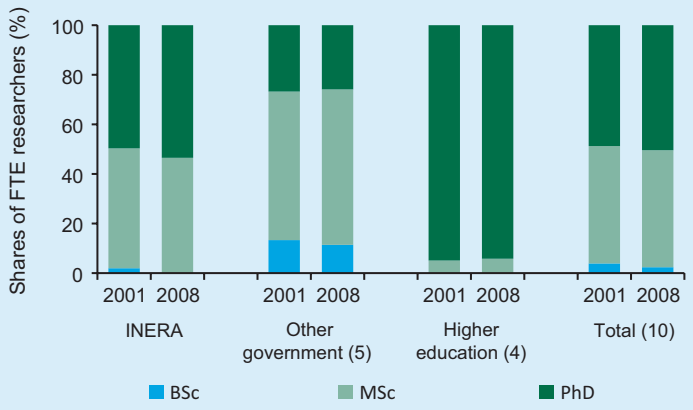
INSTITUTIONAL STRUCTURE AND POLICY ENVIRONMENT

The structure of Burkina Faso's agricultural research has remained relatively stable since the turn of the millennium. INERA continues to dominate the national agricultural R&D scene, and the higher education agencies still play a minor role.

CNRST is the umbrella organization in charge of Burkina Faso's research. Its mandate is to stimulate policymaking with regard to development and research; to coordinate national and regional research programs and develop technologies that are adapted to the users' needs; and to enhance research results and disseminate them throughout the country. Launched in 1994, a strategic planning initiative set in motion an in-depth evolution towards change of Burkina Faso's research sector. Following approval by the country's scientific community and its research partners, a cabinet meeting adopted the strategic plan in 1995. Ten years later, CNRST was officially established as being a "public institution of a scientific, cultural, and technical nature" (EPCSCT, one of the French public administration categories). This legal status placed CNRST (as well as the agencies under its umbrella) at the same level as the higher education institutions. One result of the new status was that the salary gap separating government agricultural R&D agencies from higher education institutions became narrower.

CNSF researchers fall under MECV and are therefore still considered to be regular civil servants. As of 2011, however, a change of status should enable CNSF to fulfill its mandate more efficiently because it will give the center greater academic autonomy through more scientific, administrative, and financial freedom, as well a better legal, operational, and financial means to fulfill its mandate.

Figure 4—Qualifications of researchers by institutional category, 2001 and 2008



Source: ASTI–INERA 2009–10.
Note: Figures in parentheses indicate the number of agencies in each category.

ASTI Website Interaction

- A list of the 6 government and 4 higher education agencies included in this brief is available at asti.cgiar.org/burkina-faso/agencies.
- Detailed definitions of PPPs, FTEs, and other methodologies employed by ASTI are available at asti.cgiar.org/methodology.
- The data in this brief are predominantly derived from surveys. Some data are from secondary sources or were estimated. More information on data coverage is available at asti.cgiar.org/burkina-faso/datacoverage.
- More relevant resources on agricultural R&D in Burkina Faso are available at asti.cgiar.org/burkina-faso.

www.asti.cgiar.org/burkina-faso

RESEARCH STAFF QUALIFICATIONS

In 2008, virtually all of Burkina Faso's agricultural research employees were trained to the MSc level, and more than half of them held doctorate/PhD degrees (Figure 4). A comparative analysis revealed a higher percentage (94 percent) of researchers with PhD degrees in the higher education sector than at INERA (53 percent), IRSAT (39 percent), or CNSF (10 percent). This tendency matches the trend observed in many other African countries. Most Burkinabe agricultural researchers with PhD degrees completed their university training abroad, although IDR and the University of Ouagadougou offer doctoral programs in several agriculture-related sciences.

The financial support Burkina Faso was granted under PNDSA-II during 1998–2004 enabled INERA and IRSAT to strengthen their research capacity, not only by recruiting new staff (up to 40 researchers and support staff), but also by providing training in order to raise the performance level of existing human resources. This was achieved by implementing a two-component training plan, which provided staff with opportunities to either take long-term certificate courses, mostly designed as sandwich courses, or to participate in short-term

training, or part-time education events while on the job that did not lead to a qualification (World Bank 2005). PNDSA-II support also made it possible for 23 INERA researchers to complete PhD-level training (in Ivorian, French, or Dutch universities) and for 48 support staff—technical, administrative, or other—to follow additional training in their respective fields of competence. Moreover, since 1999, the yearly application of an internal performance assessment system for technical and scientific staff has enhanced the quality of the scientists' research, and the implementation of a scientific tutoring system has led to improved monitoring of young researchers and counters the risk of scientific isolation.

Since the conclusion of PNDSA-II, several agreements—signed with the International Foundation for Science (IFS, Sweden), the International Development Research Centre (IDRC, Canada) and the Alliance for a Green Revolution in Africa (AGRA)—have provided funding for the training of young INERA researchers. Most of these completed their studies in African universities and a few went to Europe. Still, in the past few years, CNRST recruited an average of five researchers per year in total (that is, including recruitment for its non-agricultural institutes), which, needless to say, is insufficient. Consequently, the average age of INERA's research staff keeps rising, currently exceeding the 50-year mark. In the near future this reality will turn into a real challenge as a large number of highly qualified researchers will be reaching retirement age. In order to maintain its high-level research capacity, the institute will have to recruit suitably qualified new senior staff, as well as ensure that its current researchers can go for additional training and obtain higher degrees. The imminent launch of the large World Bank funded West Africa Agricultural Productivity Program (WAAPP), which contains an important capacity strengthening component, will address some of these pressing capacity problems.

With an average age around 45, IRSAT's research staff is younger than INERA's. In addition, the institute's contingent of PhD-qualified researchers has been expanding over the past few years, thanks to the financial support that the Danish International Development Agency (DANIDA) and the French Public Development Aid have provided to the institute's training program. Staff members thus completed doctoral training in Denmark, France, Ghana, Mali, as well as in Burkina Faso. Finally, over the past few years, several CNSF researchers have been leaving to study at universities in Germany and the Netherlands.

INVESTMENT TRENDS

Expenditures

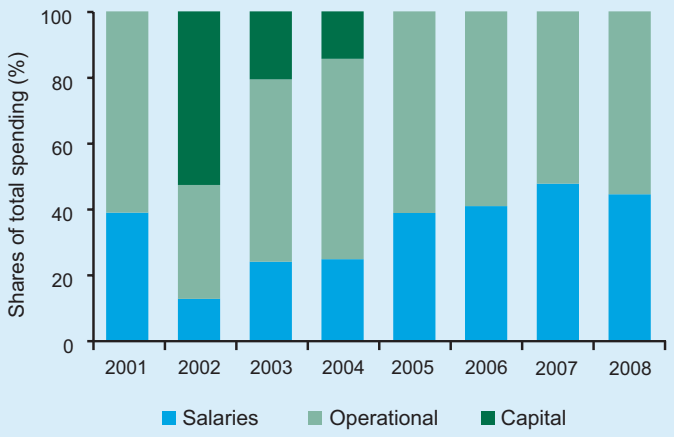
Since the allocation of research budgets across salaries, operating costs, and capital expenses affects the efficiency of agricultural R&D, detailed cost category data were collected from relevant agencies as part of this study. At INERA, during 2001–08, overall salary costs accounted for 31 percent of its total expenditures, with operational and program costs representing 53 percent, and capital investments 16 percent, respectively (Figure 5). The abundant inflow of PNDSA-II funds enabled INERA to invest substantial sums in its infrastructure and facilities, which explains the relatively high shares of capital investment during 2002–04. The subsequent 2004–10 period was marked by an absence of any large donor projects, and capital investments were quick to dry up again as a result. Many of the institute's computers and vehicles, as well as of various facilities, are currently in a run-down state and replacement is necessary. However, with the launch of the World Bank loan funded WAAPP in late 2010, INERA is expected to receive large amounts of funding to rehabilitate its infrastructure.

The overall distribution of CNSF's expenditures was similar to that of INERA, but with regard to IRSAT, the picture reveals a different trend. Salaries accounted for 59 percent of IRSAT's total expenses during 2001–08, while operational and program costs represented 32 percent and capital expenditure 10 percent. Just like INERA, IRSAT received large sums of PNDSA-II funding that were earmarked for capital investments, notably to build new buildings. With the closure of the project, capital investments came to a halt. Government funding does not adequately cover the cost of maintaining the institute's laboratories, facilities, and vehicles.

Funding Sources

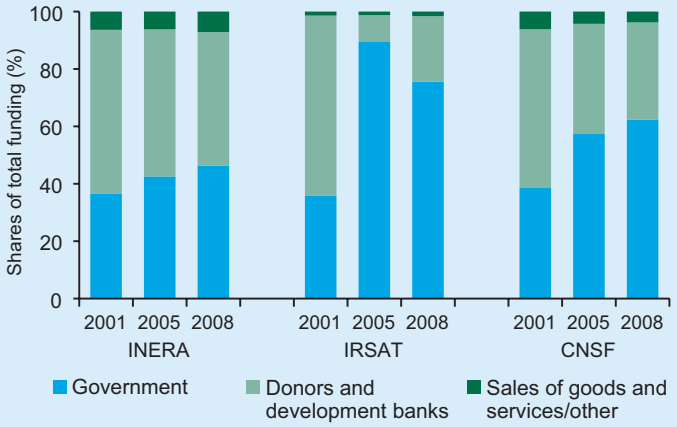
Agricultural R&D in Burkina Faso derives its funding from a variety of sources, including the national government, foreign donors, regional and subregional networks, and the sale of goods and services. During 2001–08, one-third of INERA's total funding was provided by the government. The share of donor and development bank contributions exceeded 60 percent, and the institute's internally generated resources (mainly through training offered to producers and the sale of seeds) accounted for 5 percent (Figure 6). Government funds were used primarily to pay staff salaries; only a very limited share was allocated to the institute's operational costs. INERA therefore has no choice but to generate funds internally in order to make ends meet. The private company SOFITEX funds INERA's cotton research activities. Nevertheless, the bulk of INERA's funding is derived from bilateral and multilateral donors. The list of donors for the period 2001–08 includes the World Bank (through PNDSA-II), the European Union, the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), the West and Central African Council for Agricultural Research and Development (CORAF/WECARD), the International Centre for Research in Agroforestry (ICRAF), the Food and Agriculture Organization of the United Nations (FAO), the African Development Bank (ADB), AfricaRice, the International Institute of Tropical Agriculture (IITA), the Bill and Melinda Gates Foundation (BMGF), and the governments of France, Canada, Sweden, and the United-States.

Figure 5— Cost category shares of INERA, 1991–2008



Source: ASTI–INERA 2009–10.

Figure 6—Funding sources of INERA, IRSAT, and CNSF, 2001–08



Source: ASTI–INERA 2009–10.

During the same period, 2001–08, the national government provided almost two-thirds of IRSAT's funding, with donor contributions accounting for 35 percent, and internally generated resources (consultancy fees and sales of services) representing 2 percent. As in the case of INERA, the national government's yearly contributions suffice only to cover IRSAT's salary costs. The institute's research program is entirely funded by its internally generated resources and by donor contributions. Donors include DANIDA, which supported IRSAT's training program as well its work to identify bacterial fermentation of sorghum and baobab; the European Union, which, since 2008, has been financing a program on biofortification and nutritional elements in children's food; and the Swiss government, which is funding studies on food processing and drying technologies.

As previously mentioned, the conclusion, in December 2004, of the World Bank loan funded project PNDSA-II caused a sharp drop in investments in agricultural R&D at INERA and IRSAT (and more generally throughout the country). PNDSA-II's objective had been to reduce rural poverty by boosting small farmers' productivity through the provision of essential agricultural services and the strengthening of linkages between agricultural research, farmer organizations, and extension services (World Bank 2005). Project costs totaled US$41.3 million, of which US$17.1 million was earmarked for the "agricultural research" component. With regard to infrastructure and facilities, PNDSA-II consisted of several large construction projects (buildings, experimental testing plots, waterway and dam landscaping, etc.) carried out at INERA's headquarters and on several research stations, as well as for both of IRSAT's units. The project also supported capacity strengthening in both institutes (see the section on staff qualifications and training on pages 3–4), which led to an increase in the number of scientific publications. Finally, the project helped develop and implement regional research schemes, which has improved the agricultural research sector's ability not only to meet end-user needs but also to realize economies of scale by streamlining the management of research. PNDSA-II is widely believed to have boosted researcher productivity and fostered the forging of scientific partnerships at the national as well as the international levels.

No funding project of similar caliber stepped in immediately to continue supporting Burkina Faso's agricultural research. Subsequent assistance seems to have mainly taken the form of a series of small "consortium projects" carried out in close cooperation with other research institutes. However, investments in agricultural R&D are expected to pick up again following the launch of the national component of WAAPP, which is scheduled to take place before the end of 2010. The overall WAAPP objective is to generate and disseminate improved agricultural technologies in the participating countries' top priority areas that are aligned with regional priorities. Launched in 2007, the program's first phase involved three countries and focused on three priority R&D areas: roots and tubers in Ghana, rice in Mali, and cereals in Senegal. In 2009, as part of planning the second phase of the project, seven additional countries were included, including Burkina Faso. Burkina Faso is to take charge of the research effort focused on fruit and vegetables, for which it is due to receive a total of US$23 over a period of five years. A World Bank grant will provide the bulk of this sum; further contributions should come from the governments of Burkina Faso and Spain. The main focus will be on rehabilitating core facilities and providing equipment, on capacity-building for researchers, on supporting research programs and supply-chain analyses, and on carrying out benchmark studies. The project's three other components can be summarized by the following titles: a) enabling conditions for regional cooperation in the generation, dissemination and adoption of agricultural technologies; b) funding of demand-driven technology generation and adoption; and c) project coordination, management, monitoring and evaluation. Implementation of WAAPP in Burkina Faso will involve INERA, IRSAT, and the Ministry of Agriculture, Water, and Fisheries Resources (MAHRH).

During the period 2001–08, the Government of Burkina Faso provided over half of CNSF's funding. Donor contributions represented 43 percent and internally generated resources 5 percent.

CNSF's donors include the United Kingdom through Kew's Millennium Seed Bank, the Japanese government, the Walloon Region of Belgium, DANIDA, and the European Union, acting through the Sahelian Fruit Trees project (SAFRUIT).

The national government provides the University of Ouagadougou with an annual 350 million CFA franc grant (in current prices) for the university's research activities. This amount is distributed among its various faculties. The university's Life and Earth Sciences Training and Research Unit reports having been granted substantial contributions by the governments of the Netherlands, Sweden, and the United States, in support of its research on groundnut, cotton, and the environment.

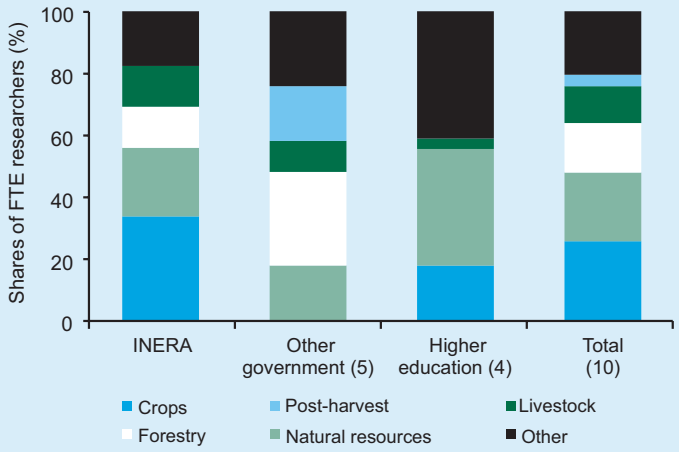
ALLOCATION OF RESEARCH

Given that the allocation of resources across various lines of research is a significant policy decision, detailed information was collected on the number of FTE researchers working in specific commodity and thematic areas. In 2008, 26 percent of Burkina Faso's agricultural researchers were involved in crop research, 22 percent conducted research on natural resources, 17 percent on forestry issues, and 12 percent on livestock (Figure 7). The category "other" includes research on food security, socioeconomic topics, and freshwater-fisheries.

In 2008, rice and sorghum were the commodities most researched by INERA's scientists: each of the two absorbed 19 percent of the resources the institute allocated to crop and livestock research. Other important crops were maize (14 percent), millet (7 percent) and vegetables (7 percent).

The main livestock commodity was beef (9 percent), which was followed by sheep and goats (7 percent) and poultry (5 percent); research related to dairy products accounted for 5 percent.

Figure 7—Research focus by major commodity area, 2008



Source: ASTI–INERA 2009–10.

Note: Figures in parentheses indicate the number of agencies in each category.

CONCLUSION

In 2008, Burkina Faso's investments in agricultural R&D totaled 3.9 billion CFA francs, or 19.5 million dollars (both in 2005 prices). This amount included the salary, operational, and program costs that were covered through government contributions, and donor grants and loans, as well as capital investments. Agricultural R&D funding was seen to follow a very unstable pattern over the past few decades. Between 1989 and 2004, the World Bank played a role in the field of agricultural R&D by conducting two major projects.

Following the closure of these projects, INERA and IRSAT found themselves facing a financial crisis that seriously disrupted their daily performance and that prevented the recruitment of new researchers. INERA's rapidly aging research staff poses a real threat to Burkina Faso's agricultural research development. Indeed, even if on the whole the country's agricultural researchers rank among the most highly qualified scientists in West Africa, the importance of recruiting and training young researchers remains crucial to securing a critical mass for the long term.

While capacity strengthening is a component of WAAPP, the question still remains as to how many new researchers will actually be recruited. The launching of the national WAAPP component will doubtlessly herald a temporary improvement of Burkina Faso's financial situation, but in the long run, the government will have to take the necessary steps to consolidate the program gains. It will have to take charge of financing agricultural research in order to avoid continued investments fluctuations, that is, to end the instability which has characterized Burkina Faso's agricultural research to date.

NOTE

[1] Financial data are also available in current local currencies or constant 2005 US dollars in the ASTI Data Tool, www.asti.cgiar.org/data.

REFERENCES

ASTI–INERA (Agricultural Science and Technology Indicators and Institut national de l'environnement et de recherches agricoles). 2009–10. Agricultural Science and Technology Indicators survey. Unpublished surveys.

FAO (Food and Agricultural Organization of the United Nations). 2009. FAOSTAT. <http://faostat.fao.org/site/452/default.aspx>. Accessed 20 November 2009.

Stads, G. J. and S. Issa Boro. 2004. *Burkina Faso*. ASTI Country Brief No. 21. Washington, D.C. and Ouagadougou: IFPRI and INERA.

World Bank. 2005. *Implementation completion report (IDA-29740) on a credit in the amount of US$41.3 million to the Government of Burkina Faso for a second national agricultural services development project*. Rapport No. 32352. Washington, D.C.

_____. 2009. *World development indicators* 2009. Washington, D.C.

IFPRI-ROME
Agricultural Science and Technology Indicators (ASTI) initiative
c/o ESA, Food and Agriculture Organization (FAO)
Viale delle Terme di Caracalla • 00153 Rome, Italy
Telephone: +39-06-570-53192 / 56334 • Skype: ifpriromeoffice
Fax: +39-06-570-55522 • Email: asti@cgiar.org
www.asti.cgiar.org

Facilitated by:
INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE
2033 K Street, NW • Washington, DC 20006-1002 USA
Tel: +1-202-862-5600 • Skype: ifprihomeoffice
Fax: +1-202-467-4439 • Email: ifpri@cgiar.org
www.ifpri.org

IFPRI is one of 15 agricultural research centers that receive their principal funding from governments, private foundations, and international and regional organizations, most of which are members of the Consultative Group on International Agricultural Research (www.cgiar.org).

INERA is Burkina Faso's principal agricultural R&D institute. The institute was established in 1996 and falls under the administrative coordination of the country's Ministry of Secondary and Higher Education and Scientific Research. The institute holds a broad mandate covering crop, livestock, forestry, postharvest, and socioeconomic research. To learn more about INERA visit http://www.inera.bf.

The Agricultural Science and Technology Indicators (ASTI) initiative compiles, analyzes, and publishes data on institutional developments, investments, and human resources in agricultural R&D in low- and middle-income countries. The ASTI initiative is managed by the International Food Policy Research Institute (IFPRI) and involves collaborative alliances with many national and regional R&D agencies, as well as international institutions. The initiative, which is funded by the Bill & Melinda Gates Foundation with additional support from IFPRI, is widely recognized as the most authoritative source of information on the support for and structure of agricultural R&D worldwide. To learn more about the ASTI initiative visit www.asti.cgiar.org.

The authors thank the eight agricultural research agencies that participated in the ASTI–INERA survey, without whose commitment this country note would not have been possible.The authors also thank Michael Rahija for his research assistance, and Nienke Beintema who provided comments on an early draft of this note. ASTI gratefully acknowledges the generous support from the Bill & Melinda Gates Foundation.