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Togolese Agricultural Research Institute

TOGO

RECENT DEVELOPMENTS IN AGRICULTURAL RESEARCH

Gert-Jan Stads and Kodjo Labare

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

Following a downward trend in the 1980s and 1990s (Stads and Adomefa 2004), Togo's agricultural research and development (R&D) expenditures exhibited a highly erratic trend, presenting large yearly variations since the turn of the millennium. In 2008, Togo's R&D investments totaled approximately 2.1 billion CFA francs, or 8.9 million PPP dollars, in 2005 constant prices (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.

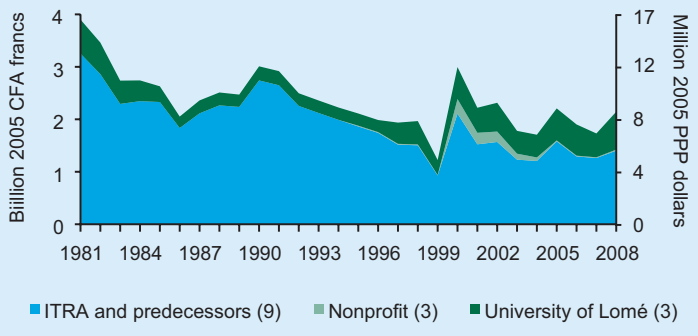
Agricultural research capacity levels reveal a negative trend: in 2008 the total number of full-time equivalent (FTE) researchers had dropped to 63, down from 94 in 2000 (Figure 2). This decline is mainly due to the strong decline in research staff numbers in the country's principal agricultural R&D agency, the Togolese Agricultural Research Institute (ITRA).

In 2008, ITRA accounted for close to two-thirds of Togo's agricultural R&D expenditures and capacity. Established in 1997, following the merger of several research agencies, ITRA is

Key Trends Since 2000

- Overall agricultural research and development (R&D) spending fluctuated significantly, showing considerable differences from one year to the next.
- The Togolese Agricultural Research Institute (ITRA) is the country's main agricultural R&D agency, accounting for approximately two-thirds of Togo's agricultural R&D capacity and spending in 2008.
- The declining agricultural research capacity levels observed in Togo are mainly explained by staff departures as ITRA researchers left for retirement but were not replaced. However, this situation is to be remedied in a few years from now, following the recent recruitment of a number of young researchers who are currently receiving training.
- Agricultural R&D in Togo is largely financed by the national government. Investment levels are expected to rise again in the near future, following the 2011 national launch of the West Africa Agricultural Productivity Program (WAAPP), which is funded by a World Bank loan.

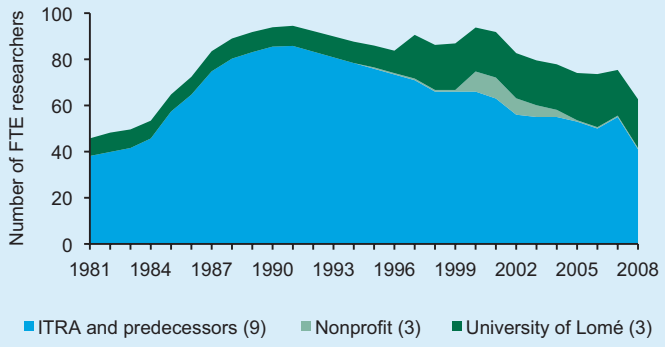
Figure 1—Agricultural R&D spending adjusted for inflation, 1981–2008



Sources: Calculated by authors from ASTI–ITRA 2009 and Stads and Adomefa 2004.

Notes: Figures in parentheses indicate the number agencies in each category. For more information on coverage and estimation procedures, see the Togo country page on ASTI's website at asti.cgiar.org/togo.

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



Sources: Calculated by authors from ASTI–ITRA 2009 and Stads and Adomefa 2004.

Notes: Figures in parentheses indicate the number of agencies in each category. FTE totals include expatriate researchers employed at ITRA and its predecessors in the 1980s and 1990s.

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

Type of agency	Total spending			Total staffing	
	CFA francs	PPP dollars	Shares	Number	Shares
	(million 2005 prices)		(%)	(FTEs)	(%)
ITRA	1,402.2	5.8	65.4	41.0	65.4
YMCA	20.5	0.1	1.0	0.6	1.0
University of Lomé (3)	721.6	3.0	33.7	21.1	33.7
Total (5)	**2,144.3**	**8.9**	**100**	**62.7**	**100**

Source: ASTI–ITRA 2009.

Notes: Figures in parentheses indicate the number of agencies in each category. Two nonprofit agencies (APAF and GLOBE) discontinued their agricultural R&D activities in 2004.

ASTI Website Interaction

- More details on the institutional developments in agricultural research in Togo are available in the 2004 country brief at asti.cgiar.org/pdf/Togo_CB16.pdf.
- Underlying datasets can be downloaded using ASTI's data tool at asti.cgiar.org/data.
- A list of the government agency, the nonprofit agency, and the 3 higher education agencies included in this brief is available at asti.cgiar.org/togo/agencies.

www.asti.cgiar.org/togo

the country's only government agency involved in agricultural R&D. It is responsible for research on agricultural systems, crops, livestock, fisheries, natural resource management, and food technology. ITRA is placed under the Ministry of Agriculture, Livestock and Fisheries (MAEP) and is headquartered in Lomé. It also runs several agricultural research centers (CRAs) located in each of the country's four agroecological zones: coast, forest, humid savannah, and dry savannah. In recent years, ITRA sustained heavy capacity losses, the drop in numbers affecting research as well as support staff. In 2008, the institute employed only 41 FTE researchers, a considerable decline compared with the 66 FTEs recorded at the time of its establishment in 1997. This reduction in research staff numbers is mainly caused by the aging of its researchers and the lack of recruitment to replace losses due to retirement. Moreover, following promotion, some researchers have moved to positions in different MAEP departments, while others have left ITRA to join international organizations offering significantly higher salaries.

Furthermore, after peaking in 2000, ITRA's expenditure levels became erratic, with totals fluctuating, between 5.0 and 6.5 million PPP dollars per year during 2001–08, (or 1,200 and 1,600 million CFA francs in 2005 constant prices). Each year, ITRA's budget is put together based on the likely availability of resources, which are primarily those derived from government subsidies, regional projects administered by networks or international agricultural research organizations, and other partners under various research conventions. The amounts pledged by these different funding sources may vary significantly from one year to the next.

At the turn of the millennium, several small nongovernmental organizations (NGOs) were involved in agricultural research in Togo. However, because two of these, the Association for the Promotion of Agro-Forestry (APAF) and the Action and Research Group for Durable Human Development (GLOBE), have ceased their operations, mainly because of structural and/or financial problems. A third NGO, the Research Division of the Young Men's Christian Association (YMCA) is still in existence, though its actions are limited by financial difficulties. In 2008, the YMCA employed just 0.6 FTE researchers, which represents only 1 percent of Togo's agricultural total R&D capacity.

The higher-education sector plays an important role in Togo's agricultural research, accounting for one-third of its agricultural R&D capacity and investments. All three higher-education agencies that have been identified as involved in agricultural R&D fall under the University of Lomé. They are the Advanced School of Agronomics (ESA), the Faculty of Science, and the Higher School of Biological & Food Techniques (ESTBA). Combined, these three agencies employed 21 FTE professional staff in 2008 and this level has remained rather stable over the past decade. ESA research is carried out in two laboratories, i.e. LVBV (research on plant virology and biotechnology) and LARPSAD (research on poverty and sustainable food security). ESA also conducts studies and other research activities in the fields of soil fertility management, farm mechanization, and post-harvest conservation. The Faculty of Science's R&D program primarily covers the topics conservation of plant genetic resources, entomology, and vegetal biotechnology, whereas ESTBA's research focuses on the transformation and preservation of fruit, vegetables, meat, and other agricultural products.

In Togo, no private company was found to be conducting agricultural R&D work. ITRA, however, carries out research on behalf of the New Togo Cotton Company (NSCT), the New Togolese Phosphate Office (NSPT), and several production or marketing companies dealing in fertilizers and/or phytosanitary products.

In 2007, 9 percent of all of ITRA's and ESA's researchers were female (ASTI–ITRA 2009). While very low, this ratio is nevertheless higher than the 4 percent recorded in 2001 (Stads and Adomefa 2004). The ratio of support staff to researchers averaged 5.1: 4.1 technical support, 0.4 administrative support, and 0.6 in the category "other," which comprises laborers, guards, drivers, etc.

In 2008, ITRA's support-staff-to-researcher ratio was 7.9, while at University of Lomé's ESA and at its Faculty of Science, the corresponding ratios were 0.4 and 0.3 (ASTI–ITRA 2009).

In 2008, Togo's total public spending as a percentage of agricultural output (AgGDP)—a comparative indicator of agricultural R&D spending across countries—was $0.47 for every $100 of AgGDP (Figure 3). While this intensity ratio matches its equivalent in many of the subregion's other countries, it nevertheless represents a considerable decline compared with the ratios recorded in the 1980s. It should be noted that the decline reflects the sharply reduced levels of investment in agricultural R&D in the 1980s and 1990s. The ratio of FTE researchers to farmers has also declined gradually since the end of the 1980s. In 2008, it stood at 45.

INSTITUTIONAL STRUCTURE AND POLICY ENVIRONMENT

The structure of Togo's agricultural research has undergone some gradual changes since the 1990s: ITRA's share of total national R&D capacity gradually decreased, while higher-education agencies gained ground. It should however be mentioned that ITRA has noticeably improved the efficiency of its research. As the mass departure of retiring senior researchers and program directors had opened the way for several internal reorganization projects, some of the institute's younger researchers found themselves entrusted with the responsibility of managing certain programs. With a view to showing themselves worthy of the positions, these new program managers increased their efforts and dedication, thus enabling ITRA to stay on course and remain a leader in the field of agricultural R&D (it being understood that the higher education agencies' primary mandate is teaching).

Since 2000, there have been no major institutional changes with regard to Togo's agricultural R&D. The only reform that was carried out during the above-mentioned period concerned a change of status that affected not only ITRA but also the Technical Advice and Support Institute (ICAT), the country's main agricultural extension agency. In August 2008, these two institutions, which initially had the status of *mixed economy companies*, became public institutions placed under the authority of MAEP. Above all, this transformation was to remove certain obstacles that threatened their financial balance. As nonprofit institutions, it was necessary to revise the legal status of ITRA and ICAT so that the government would be able to grant them funding at its own discretion.

ASTI Website Interaction

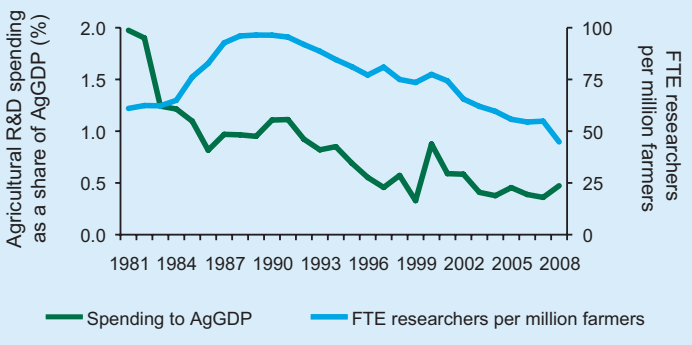
- Detailed definitions of PPPs, FTEs, and other methodologies employed by ASTI are available at asti.cgiar.org/methodology.
- The data in this note are predominantly derived from surveys. Some data are from secondary sources or were estimated. More information on data coverage is available at asti.cgiar.org/togo/datacoverage.
- More relevant resources on agricultural R&D in Togo are available at asti.cgiar.org/togo.

www.asti.cgiar.org/togo

RESEARCH STAFF QUALIFICATIONS AND TRAINING

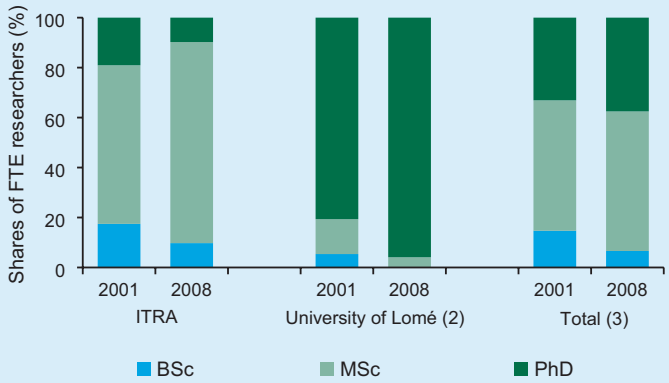
In 2008, 56 percent of Togo's FTE agricultural researchers were trained to the postgraduate level and 38 percent held PhD degrees (Figure 4). The higher-education agencies present a

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



Sources: Calculated by authors from ASTI–ITRA 2009; Stads and Adomefa 2004; FAO 2009; and World Bank 2010.

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



Source: ASTI–ITRA 2009.

Notes: Figures in parentheses indicate the number of agencies included in each category. University of Lomé's ESTBA was excluded because of data unavailability.

much higher proportion of researchers holding PhD/doctorate degrees (96 percent) than does ITRA (10 percent), a finding which is in line with the trend observed in many other African countries.

In the recent past, all PhD students went abroad to complete their studies, in particular to France, Germany, Côte d'Ivoire, and Senegal. However, the long period of social unrest that Togo experienced caused many of the development-aid agreements signed with technical and financial partners to remain suspended for almost 15 years, a fact that has not been conducive to traveling abroad for degree-training purposes. At present, while the University of Lomé runs a number of post-graduate programs, its current offer does not cover all discipline areas: in particular it lacks certain fields of specialization. The current approach consists of training based on "thesis co-tutorship" agreements that involve the University of Lomé and developed-country universities.

Although the National Agricultural Services Support Project (PNASA), which was largely funded through a World Bank loan and covered the period 1997–2003, comprised an important training component focused on agricultural researchers, ITRA has been faced with a severe loss of capacity since the turn of the millennium. In 2008, the institute employed only four researchers holding PhD degrees, compared with 16 ten years earlier. This loss of capacity is due not only to the lack of PhD-level training opportunities for young ITRA researchers, most of whom have completed training to the post-graduate level, but also to the failure to replace retiring senior researchers. And it affects more than just the level of staff holding PhD degrees: during 1998–2008, the overall number of researchers holding MSc or equivalent degrees dropped as well, from 47 FTEs to 33.

To both ITRA and ESA, the aging pool of research staff constitutes an area of major concern. In 2007, 21 percent of ITRA's researchers were 51 years or older, while 56 percent were between 41 and 50 years old. ESA's professional staff was even older: in 2007, close to one-third of was 51 years or older, and 54 percent fit in the 41 to 50 age bracket (ASTI–AWARD 2008). These percentages point to the fact that a very large number of senior scientists are rapidly approaching retirement age, set at 60. While ITRA's previous status of "company" allowed it to go ahead and recruit new staff as the need arose, now that it has become a state-owned enterprise, the institute cannot launch recruitment procedures without having first obtained the approval of its supervising ministry, the Ministry of Civil Service, and the Ministry of Economy and Finance; obtaining such an approval is, however, not straightforward.

The continued dwindling of ITRA's staff numbers, mainly due to the lack of recruitment to replace staff members who have either retired or left to work elsewhere, is a matter of grave concern. At the time of writing, there is already a lack of human resources in areas such as soil science, agricultural chemistry, genetics, entomology, plant pathology, weed science, nutrition, agricultural economics, parasitology, microbiology, and agricultural meteorology. In addition, to properly address existing problems, it is necessary to have at least two researchers in each field of specialization, which is currently not the case. While experienced specialists can be found in some areas, these mostly work on their own, each being the only specialist in his/her specific area of competence. It is therefore often difficult for them to cover the whole territory. In other fields of expertise, there are no specialists at all, meaning that ITRA's R&D capacity is nonexistent.

Over the past few years—as part of the emphasis placed on developing capacity—special attention has been given to providing young ITRA researchers with PhD-level training opportunities. In 2009, some ten agricultural engineers were recruited on behalf of ITRA from among the ranks of the civil service, which established a pool of managers-to-be. At the time of writing, seven of these researchers have begun PhD studies in various fields (soil fertilization, plant pathology, entomology, livestock research, quality control) at French universities and in Lomé. Six others are enrolled as DEA[2] students in various discipline areas at the University of Lomé. A state grant enables ITRA to finance studies followed at the University of Lomé. For studies abroad, in particular at European universities, scholarships are made available drawn on funds obtained from international partners.

At the University of Lomé, total professional staff numbers have been on the increase since 2000, and the average level of qualification has been steadily improving. University salaries are slightly higher than those paid by ITRA and university professional staff are granted special status, whereas at ITRA, there is as yet no special status for researchers. The combination of the two factors makes the University of Lomé a more attractive employer than ITRA.

INVESTMENT TRENDS

Expenditures

The allocation of research budgets across salaries, operating costs, and capital investments affects the efficiency of agricultural R&D, so detailed data on government agency cost categories were collected as part of this study. During 1998–2008, salaries accounted for 37 percent of ITRA's expenditures, operating costs for 40 percent, and capital investments for 23 percent (Figure 5). The relative shares of the different cost categories vary considerably from year to year, which reflects fluctuating donor funding.

Figure 5— Cost category shares of ITRA, 2000–08

Source: ASTI–ITRA 2009.

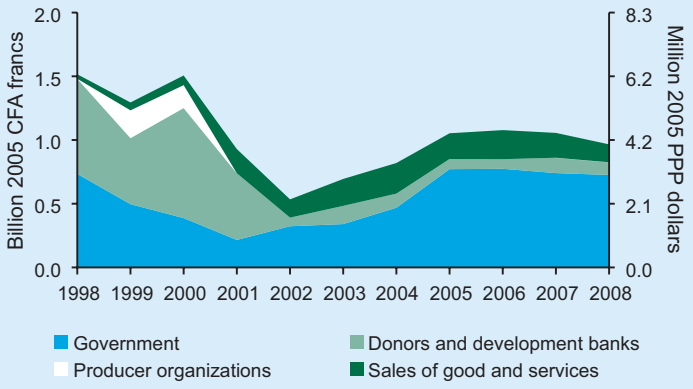
The Government of Togo pays the salaries of all public-service employees directly (researchers and all civil-service agents). ITRA is responsible for the salaries of all the nonpublic-service staff (contract and temporary workers), which it is to pay out of its operating budget. Because of its budget difficulties, ITRA finds itself accumulating salary and benefit arrears. In 2005, by reasons of public order, the institute had no choice but to pay out several months of arrears to the entitled parties, even though it had not budgeted for such an event, which explains the high level of ITRA's salary expenses registered for that year.

Funding Sources

Agricultural R&D in Togo derives its funding from three primary sources: the national government, donors and regional or subregional networks, and the sale of goods and services. During 1998–2008, government grants covered an ever-increasing share of ITRA's expenses, and in 2008, the Togolese government met more than half of the institute's expenses. Donor funding accounted for 29 percent, and internally generated resources represented 15 percent that year (Figure 6). Each year, ITRA sets up its annual budget which it then submits for approval to the Ministry of Economy and Finance, by way of MAEP. Following this submission, arbitration sessions are organized during which ITRA justifies the different budget headings and the amounts allocated to the various activities; this first takes place at the level of MAEP, then before representatives of the Ministry of Economy and Finance. The final decision with regard to the actual research budget that is to be attributed to research for the year under consideration lies solely with the Ministry of Economy and Finance.

During the first years of its existence, ITRA was largely dependent on World Bank funding through PNASA. As previously mentioned, PNASA contributed to a reform of the Togolese agricultural sector by redefining and restructuring the roles played by the sector's various agencies, by involving producer organizations in decision making, and by generating necessary human, material, and financial resources. The implementation phase took place between 1997 and 2003, albeit with several periods of suspension due to the national government's periodic inability to mobilize the agreed level of counterpart funding. By the end of the project, only one-fifth of the total project budget (US$10.3 million) and of its agricultural research component (US$2.7 million) had been disbursed (Stads and Andomefa 2004).

Figure 6—Funding sources of ITRA, 1998–2008



Sources: ASTI– ITRA 2009; Stads and Adomefa 2004.

Subsequent to the project's conclusion in 2003, the relative share of donor contributions to ITRA's total funding remained rather modest, largely as a consequence of the international boycott. The main list of donors includes the AfricaRice, the World Vegetables Center, the International Center for Research and Development of Livestock in the Subhumid Zone (CIRDES), the French government's Priority Solidarity Fund (PSF), the International Institute of Tropical Agriculture (IITA), Bioversity International, the Foundation for Sustainable Food Security in Central West Africa (SADAOC), the Food and Agriculture Organization of the United Nations (FAO), the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), the Technical Centre for Agricultural and Rural Cooperation (CTA), and the European Union.

Internally generated resources account for a rather large share of ITRA's funding. These funds are derived primarily from services rendered, such as laboratory analyses or tests done on phytosanitary products, but also from the sales of vegetal/plant products (foundation seed and seedlings) as well as animal products (breeding stock for cattle, sheep, goat, and swine, and young fish).

After years of shortage, it looks as if ITRA's financial situation is set to improve toward 2011, once the launch of the Togolese component of the West Africa Agricultural Productivity Program (WAAPP) takes place. The aim of this program, which is funded through a World Bank loan, is to generate and disseminate improved agricultural technologies in the participating countries' top priority areas that are aligned with regional priorities, as identified by the West and Central African Council for Agricultural Research and Development (CORAF/WECARD). The first phase of WAAPP was launched in 2007; it 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, WAAPP-II, seven additional countries were included, one of which is Togo. Togo is to take charge of the priority area cereals, for which it will receive US$ 9 million for a five-year period. ITRA, ICAT, the University of Lomé, as well as ONGs and producer organizations, will be involved in implementing WAAPP-II, which will consist of two components labeled "research" and "rehabilitation," as well as of a competitive fund, a funding mechanism that will be introduced in Togo for the first time.

The University of Lomé has a Department of Research, which coordinates the research activities of professional staff, both in the field of agriculture as in other areas (social sciences, biomedicine, economics, etc.). Over the past few years, professional staff has been receiving a yearly grant of at least 500,000 CFA francs from the University of Lomé to carry out their research activities. In addition, research grants and other forms of sponsorship programs are made available to professional staff by the United Nations Educational, Scientific, and Cultural Organization (UNESCO), FAO, and the Association of Universities of the Francophony (AUF).

RESEARCH ALLOCATION

Given that the allocation of resources across various lines of research is a significant policy decision, detailed information was collected on the number of researchers (in FTEs) working in specific commodity and thematic areas. In 2008, 61 percent of ITRA's and ESA's researchers were involved in crop research, 19 percent in livestock research, while 6 percent focused on natural resources (Figure 7). The category labeled "other" includes FTE researchers involved in post-harvest research and those conducting socioeconomic research.

In Togo, the most intensively researched crop is maize. In 2008, research on maize accounted for 15 percent of ITRA's total FTE crop and livestock researchers, and for 13 percent of ESA's. Other important crops were cotton (11 percent), rice (10 percent), sorghum (9 percent), yam (7 percent), cassava (7 percent), cocoa (6 percent), and coffee (5 percent) (Table 2). The principal livestock commodities were sheep and goats, beef cattle, and poultry, which accounted for respectively 11, 6, and 6 percent of ITRA and ESA's combined FTE crop and livestock researchers.

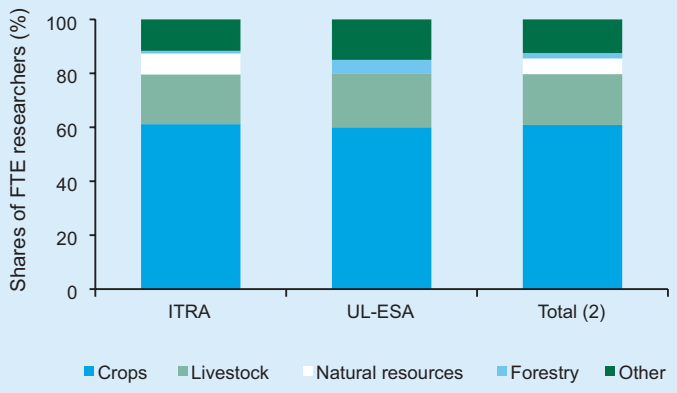
CONCLUSION

In 2008, Togo's investments in agricultural R&D totaled 2.1 billion CFA francs, or 8.9 million dollars (both in 2005 constant prices), which included all salaries, operating costs, and capital investments. During the past decade, funding for agricultural R&D proved to be very unstable. In the first years of its existence, ITRA was heavily dependent on the support it received from the World Bank through PNASA. Since the closure of this project in 2003, donor contributions account for a very limited share of the funding of Togo's agricultural R&D. ITRA's main sources of funding are the grants it receives from the national government as well as the resources it generates internally through the sale of services and of vegetal and animal products.

Agricultural R&D capacity levels decreased by one-third, from 94 FTE researchers in 2000, to 63 in 2008. ITRA's inability to ensure replacement of its retiring researchers has, in recent years, increased the overall age of its research staff. At ESA the average age of professional staff is much higher still. In an attempt to slow down the ageing of its team of researchers, ITRA recruited about ten young agricultural engineers in 2009, who are to be trained to PhD-degree level over the next few years. While this is a positive development, ITRA will still risk losing its researchers to international organizations and higher-education agencies, as long as the salary gaps fail to decrease and the status of ITRA researchers do not entitle them to the same benefits as those granted to professional staff at the University of Lomé.

The launch of the national component of WAAPP will no doubt temporarily improve the financial situation but, in the long run, the Government of Togo will have to take the necessary steps to consolidate the gains brought by the program. It will have to take responsibility for securing funding for agricultural research so as to avoid the pitfall of fluctuating investment and capacity levels, which have been the predominant feature of Togo's agricultural research up until now.

Figure 7—Research focus by major commodity area, 2008



Source: ASTI–ITRA 2009.

Notes: Figure in parentheses indicate that two agencies were included in the total. Data were unavailable for the other research units under the University of Lomé.

Table 2—Crop and livestock research focus by major item, 2008

	ITRA	UL-ESA	Total
Crop items	Shares of FTE researchers (%)		
Maize	14.6	12.5	14.1
Cotton	12.2	6.3	10.7
Rice	9.8	12.5	10.4
Sorghum	9.8	6.3	8.9
Yam	4.9	12.5	6.8
Cassava	4.9	12.5	6.8
Cocoa	7.3	—	5.5
Coffee	6.1	—	4.6
Other crop	7.3	12.5	8.6
Livestock items			
Sheep and goats	12.2	6.3	10.7
Beef	6.1	6.3	6.1
Poultry	3.7	12.5	5.9
Other livestock	1.2	—	0.9
Total crop and livestock	**100**	**100**	**100**

Source: ASTI–ITRA 2009.

Note: No data were available for the other research units under the University of Lomé.

NOTES

[1] Financial data are also available in current local currencies or constant 2005 U.S. dollars via ASTI's Data Tool, available at www.asti.cgiar.org/data.

[2] DEA: diplôme d'études approfondies, equivalent to a MSc/Master-level degree.

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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).

The Togolese Agricultural Research Institute is Togo's principal government institute charged with agricultural research. The institute was established in 1997 and falls under the administrative coordination of the Ministry of Agriculture, Livestock, and Fisheries. ITRA holds a broad mandate covering crop, livestock, fisheries, natural resources and food technology research. To learn more about ITRA visit http://www.itranet.tg.

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.

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