



# MAURITANIA

## RECENT DEVELOPMENTS IN AGRICULTURAL RESEARCH

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Country Note • October 2010

### INVESTMENT AND CAPACITY TRENDS IN AGRICULTURAL R&D

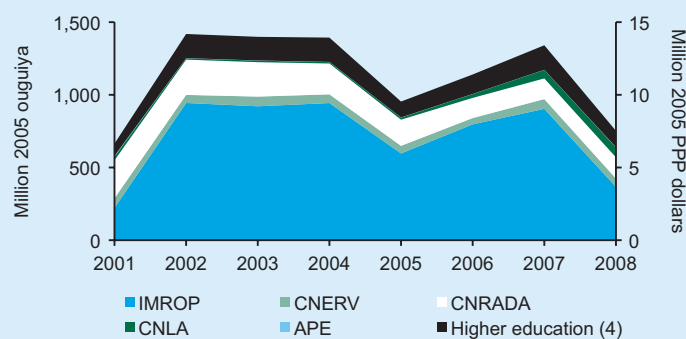
**A**s in many African countries, the agricultural sector supports a significant share of Mauritania's labor force, making agricultural research and development (R&D) an important factor in the pursuit of food self-sufficiency and improved living conditions. Nonetheless, the country's overall investment in agricultural R&D was rather erratic between 2000 and 2008, fluctuating between 600 and 1,500 million ouguiyas or 6 and 15 million PPP dollars, both in 2005 constant prices. In 2008, Mauritania's agricultural R&D expenditures totaled 752 million ouguiyas or 8 million PPP dollars (Figure 1; Table 1). Note that unless otherwise stated, all dollar values in this note are based on purchasing power parity (PPP) exchange rates.<sup>1</sup> PPP 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 R&D capacity levels in Mauritania rose somewhat after the turn of the millennium, reaching 74 full-time equivalent (FTE) research staff in 2008 compared with 63 in 2001 (Figure 2).

A significant proportion of Mauritania's foreign currency is earned through fisheries exports, so fisheries research plays a preponderant role in the country's agricultural R&D. The Mauritanian Institute of Oceanographic Research and Fisheries (IMROP) is the country's principal and most modern agricultural research

### Key Trends Since 2000

- Total agricultural research and development (R&D) spending fluctuated during 2001–08. The renewal of the fisheries treaty between Mauritania and the European Union, and an increased donor commitment expressed during the Brussels Round Table, are expected to have a positive impact on Mauritania's overall expenditure levels in the near future.
- Overall, agricultural research staff numbers rose steadily during 2001–07, thereafter declining somewhat. In 2008, the country employed 74 full-time equivalent (FTE) researchers.
- The Institute of Oceanographic Research and Fisheries (IMROP) is the principal agricultural R&D agency, accounting for close to half of all agricultural R&D expenditures and capacity. Given the country's arid climate, crop and livestock research play a relatively minor role compared with many other countries in the region.
- Lack of both sufficient funding and well-qualified scientists at the National Agricultural Research and Development Center (CNRADA) and the National Livestock and Veterinary Research Center (CNERV) seriously limit the quality of research and consequently its impact on the country's agricultural sector.

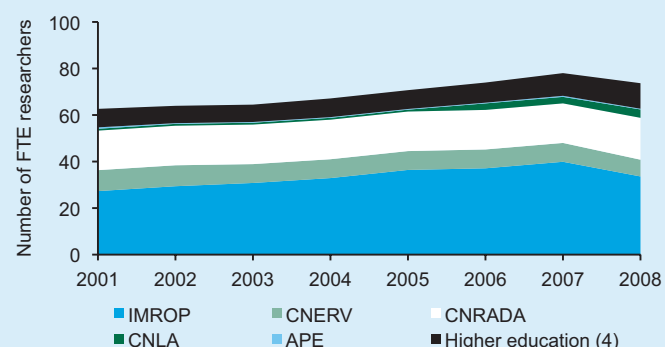
**Figure 1—Agricultural R&D spending adjusted for inflation, 2001–08**



Source: ASTI–CNERV 2009–10.

Notes: Figures in parentheses indicate the number of higher education agencies. For more information on coverage and estimation procedures, see the Mauritania country page on ASTI's website at [asti.cgiar.org/mauritania](http://asti.cgiar.org/mauritania).

**Figure 2—Agricultural research staff in full-time equivalents, 2001–08**



Source: ASTI–CNERV 2009–10.

Note: Figures in parentheses indicate the number of higher education agencies.

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

Type of agency	Total spending			Total staffing	
	Ouguiyas (million 2005 prices)	PPP dollars	Shares (%)	Number (FTEs)	Shares (%)
IMROP	366.7	3.7	48.7	33.6	45.6
CNERV	57.5	0.6	7.6	7.2	9.8
CNRADA	146.1	1.5	19.4	18.0	24.4
CNLA	67.5	0.7	9.0	3.6	4.9
APE	2.3	0.0	0.3	0.3	0.4
Higher education (4)	112.2	1.1	14.9	11.0	14.9
<b>Total (9)</b>	<b>752.3</b>	<b>7.6</b>	<b>100</b>	<b>73.7</b>	<b>100</b>

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

institute, accounting for roughly half of national agricultural R&D staffing and expenditures in 2008. IMROP is administered by the Ministry of Fisheries and is headquartered in Nouadhibou. Its research covers a variety of topics ranging from stock assessment, biology and ecology of species, fisheries management, socioeconomics, and fisheries technology (IMROP 2010). In 2002, the then National Center of Oceanographic Research and Fisheries (CNRFP) was granted institute status to become IMROP following the signing of a five-year treaty with the European Union under which Mauritania exports large quantities of pelagic fish, prawns, cod, and tuna to Europe (Stads, Lô, and Diallo 2004). During 2002–07, the European Union invested extensively in the institute’s infrastructure, including the recruitment of new researchers, such that IMROP’s laboratories meet Europe’s strict hygiene and food safety standards. The fisheries treaty was renewed in August 2008 and extended to 2012. Various political factors impeded a smooth renewal of the treaty, leading to a (temporary) drop in IMROP’s spending in 2008. In addition, the establishment of the National Office of Health Inspection of Fisheries Products and Aquaculture (ONISPA), which had previously been a department of IMROP, caused IMROP’s spending and capacity levels to decline between 2007 and 2008.

The National Agricultural Research and Development Center (CNRADA) under the Ministry of Rural Development (MDR) is Mauritania’s principal crop research agency. The center’s research is organized under five main programs—irrigation-based production systems, rain- and riverfed production systems, desert oases systems, silvo-pastoral systems, and peri-urban production systems—and 13 subprograms. CNRADA, which is headquartered in Kaédi in the fertile Senegal River valley, operates 10 additional research units across the Gorgol, Assaba, Trarza, and Noaukchott regions. In 2008, CNRADA employed 18 agricultural researchers in FTEs.

The National Livestock and Veterinary Research Center (CNERV), also administered by MDR, is the country’s main livestock research agency. Its mandate includes livestock genetic improvement, diagnosis and detection of animal diseases, epidemiological research of livestock ailments, meat product control, and the analysis of forages. In 2008, the center employed 7 FTE researchers. CNERV is headquartered in Nouakchott. It also operated a regional station in Kaédi, which closed down permanently in 2007.

## ASTI Website Interaction

-  More details on institutional developments in agricultural research on Mauritania are available in the 2004 country brief at [asti.cgiar.org/pdf/Mauritania\\_CB15.pdf](http://asti.cgiar.org/pdf/Mauritania_CB15.pdf).
-  Underlying datasets can be downloaded using ASTI’s data tool at [www.asti.cgiar.org/data](http://www.asti.cgiar.org/data).
-  A list of the 4 government, 1 nonprofit, and 4 higher education agencies included in this brief is available at [asti.cgiar.org/mauritania/agencies](http://asti.cgiar.org/mauritania/agencies).

[www.asti.cgiar.org/mauritania](http://www.asti.cgiar.org/mauritania)

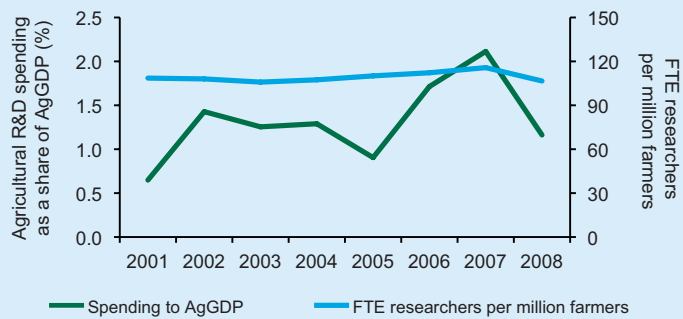
One other government agency is involved in agricultural R&D in Mauritania: the National Anti-Locust Center (CNLA), which conducts research into monitoring and combating locust plagues. The Association of Livestock Professionals (APE) is the country’s only nonprofit agency involved in agricultural R&D. Its limited research focuses on improved milk and meat production and animal health. CNLA and APE employed 3.6 and 0.3 FTE researchers in 2008, respectively.

Compared with many other West African countries, Mauritania’s higher education sector accounts for a relatively small (although increasing) share of total agricultural research capacity. The University of Nouakchott conducts the majority of research in the higher education sector. With no agricultural faculty, agricultural R&D activities fall under the Department of Biology of the Faculty of Technical Sciences—focusing on crop genetic improvement, nutritional sciences, animal ecobiology, maritime pollution, entomology, and parasitology—and the Department of Geography of the Faculty of Arts and Human Sciences—mainly focusing on climatology, pedology, soils, and agrarian geography. In addition, the National School of Agricultural Training and Extension (ENVFA) and *École Normale Supérieure* (ENS) carry out limited socioeconomic and biodiversity research. The four higher education agencies combined employed an estimated 11 agricultural researchers in 2008 (in FTEs). In November 2009, the Institute for Advanced Technology Education (ISET) was inaugurated under the Ministry of Higher Education. In addition to training in the fields of agriculture and the environment, ISET also conducts crop, livestock, and environmental research. Given that this study focuses on the period 2000–08, ISET is not included in further analysis in this note.

Agricultural R&D performed by the private sector in Mauritania is minimal. Many of the larger companies do not employ research staff but instead outsource their research to CNRADA, CNERV, and IMROP. CNERV, for instance, works closely with various livestock producer organizations, including the Association of Milk Producers and the National Group of Pastoral Associations (GNAP), as well as milk companies such as Tiviski and Top Lait. Top Lait also conducts agricultural research itself, mainly on livestock genetic improvement, fodder, and animal health.

In 2008, just 3 percent of agricultural research staff in Mauritania were female (ASTI–CNERV 2009–10), which is one of the lowest shares in the world. Twenty-three percent of research-

**Figure 3—Intensity of agricultural research spending and capacity, 2001–08**



Sources: Calculated by authors from ASTI–CNERV 2009–10, FAO 2009, and World Bank 2009.




ers employed at CNERV in 2008 were female, whereas CNRADA employed no female researchers and IMROP employed only one. Most women employed at these three agencies have administrative rather than research functions. In 2008, on average, for each agricultural FTE researcher, Mauritania employed 0.6 technicians, 0.1 administrative support staff, and 0.3 other support staff (such as laborers, drivers, and guards) (ASTI–CNERV 2009–10).

Total public spending as a percentage of agricultural output (AgGDP), a commonly used indicator of comparative agricultural R&D spending across countries, fluctuated considerably in Mauritania during 2001–08 as a result of the abovementioned fluctuations in R&D spending and large yearly differences in agricultural output. In 2008, Mauritania invested \$1.16 for every \$100 of AgGDP, which represents one of the highest levels in West Africa (Figure 3). It is important to note, however, that this high research intensity ratio actually reflects the relatively small size of the country’s crop sector (given its arid climate) rather than high agricultural R&D investments. The number of agricultural researchers per million farmers remained stable during 2001–08 at around 108 FTEs.

## INSTITUTIONAL STRUCTURE AND POLICY ENVIRONMENT

The institutional structure of agricultural R&D in Mauritania has changed little since the 2002 establishment of IMROP. IMROP, CNRADA, and CNERV continue to dominate the country’s agricultural R&D system, with the remaining agencies playing minor roles. In terms of research coordination, important changes did occur between 2000 and 2008. Until 2004, Mauritania’s science and technology (S&T) policy was dispersed among various ministries, and little or no institutional arrangements were in place for the coordination of the national research agenda. In 2004, a Department of Scientific Research (DRS) was created within the Ministry of Higher Education for the purpose of coordinating public R&D activities undertaken in different areas by various ministries. That year, the government also established the National Fund for the Support of Scientific Research (FNARS) with the aim of financing specific research projects within Mauritania’s higher education sector. DRS has several roles including increasing the value of scientific research output, developing scientific research, following up and assessing research programs, and pursuing international scientific cooperation. Due to the limited financial

## ASTI Website Interaction

-  Detailed definitions of PPPs, FTEs, and other methodologies employed by ASTI are available at [asti.cgiar.org/methodology](http://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/mauritania/datacoverage](http://asti.cgiar.org/mauritania/datacoverage).
-  More relevant resources on agricultural R&D in Mauritania are available at [asti.cgiar.org/mauritania](http://asti.cgiar.org/mauritania).

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and human resources available, DRS has—in spite of its various specific official roles—largely restricted its activities to developing strategic studies and training programs, and managing the FNARS research fund (UNCTAD 2010).

S&T policy and institutions in Mauritania are essentially underdeveloped. The only ministry that has direct responsibility for S&T is the Ministry of Higher Education. Technological development and the diffusion of innovations receive little policy attention. Furthermore, policy implementation appears to be a serious problem for the government, partly due to high rates of management turnover in government ministries and a resulting lack of continuity in the planning and implementation of many projects, as well as a lack of documentation on implementation and a lack of funding to implement projects unless they are donor funded (UNCTAD 2010).

## DEGREE LEVELS AND TRAINING OF RESEARCH STAFF

In 2008, 90 percent of agricultural researchers employed in Mauritania were trained to the postgraduate level, with 28 percent holding PhD degrees and 63 percent holding MSc or equivalent degrees (Figure 4).<sup>2</sup> At 70 percent, that year the higher education sector had a higher share of researchers with PhD degrees compared with the government agencies—29 percent at IMROP, 17 percent at CNRADA, and 25 percent at CNERV—which is a consistent finding in developing countries around the world. Average qualification levels of Mauritanian agricultural R&D staff deteriorated slightly after the turn of the millennium.

Both CNRADA and CNERV underwent restructuring as part of the 1995–2000 Agricultural Services Project (PSA), an agricultural development project predominantly funded by a World Bank loan in accordance with the Government of Mauritania’s National Agricultural Research Program (PNRA). PSA’s principal objectives were to strengthen CNRADA and CNERV and to improve coordination and collaboration between them. More specifically, the reorganization was intended to stimulate onfarm and applied

research and establish direct links between research and extension (Stads, Lô, and Diallo 2004). The cessation of PSA in December 2000 left CNRADA in a severe financial crisis, after which many senior scientists left the center. CNRADA's current lack of highly qualified scientists seriously limits the quality of its research and consequently its impact on the country's agricultural sector. PSA also assisted CNERV, albeit more on an institutional level, but the center was nonetheless negatively affected by the completion of the project. PSA funds did allow recruitment of researchers and training of technicians, but all of this came to a halt with the project's completion. Overall, career opportunities and training facilities at CNRADA and CNERV are limited, which has prompted the departure of some (senior) scientists to IMROP and abroad.

The University of Nouakchott currently offers undergraduate and MSc training, and Mauritians are thus obliged to travel abroad if they want to pursue PhD training in agricultural sciences. Although the University of Nouakchott does not currently offer PhD training, it works closely with a number of subregional universities, as well as with international institutions to tailor PhD training to the country's needs.

Training of research staff is largely donor-funded through bilateral agreements or by organizations such as the International Atomic Energy Agency (IAEA), the European Union, the World Bank, the Arab Organization for Agricultural Development (AOAD), and the Food and Agriculture Organization of the United Nations (FAO). Capacity building and training are typically initiated through donor-funded projects and are confined to a plan of action. The Mauritanian government also allocates some funding for degree-level training of agricultural scientists, but amounts are generally limited. Training opportunities for scientists at IMROP are much better than those at CNRADA and CNERV. IMROP has a separate training budget created by its scientific council. Furthermore, in order to comply with strict European standardization rules, the European Union funded important degree- and nondegree-level training for a large number of IMROP researchers and support staff. Many CNERV scientists received short-term training funded by IAEA, whereas training courses for CNRADA staff were largely funded by the Catalan Món-3 Foundation, AfricaRice, and the Islamic Development Bank (IDB).

With an average age of 40 to 45 years, Mauritanian agricultural researchers are typically younger than their colleagues in

other West African countries. This average does, however, mask important cross-agency differences. The signing of the fisheries treaty with the European Union has led to a large influx of young and relatively inexperienced scientists at IMROP, who are offered ample training opportunities. Research staff at CNRADA and CNERV are much older, with the result that numerous senior scientists have retired in recent years and not been replaced due to budget restrictions.

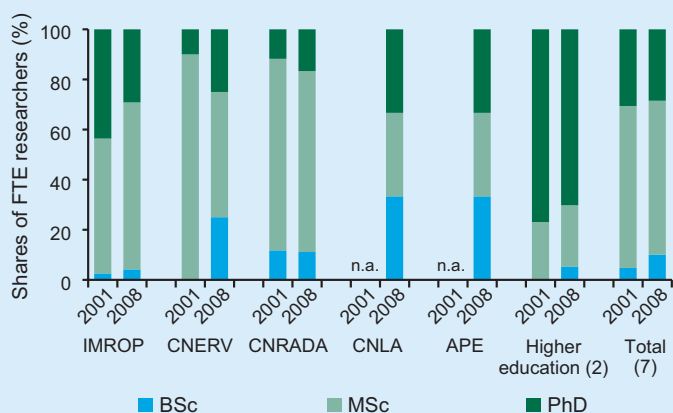
## INVESTMENT TRENDS

### Cost Categories

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. Unfortunately, certain agencies had difficulties distinguishing between operating, program, and capital costs, so data have been categorized as either salary or nonsalary expenditures. During 2001–08, salaries accounted for 68 percent of combined total expenditures by IMROP, CNRADA, and CNERV (Figure 5). These averages mask significant cross-agency variations over time. The share of nonsalary expenditures at CNERV was higher than at CNRADA because livestock research generates higher operating costs compared with crop research due to the costs of equipment and livestock. In addition, CNERV received funding to construct and equip a molecular biology laboratory. Close to 80 percent of CNRADA's spending is on salaries, leaving very little funding for actual research or much-needed capital investments. As previously mentioned, the completion of PSA in 2000 plunged the center into a deep financial crisis. Most research activities were halted or severely disrupted. Although both CNRADA and CNERV scientists fall under MDR, CNERV's research staff received a 100 percent pay increase in 2007, whereas CNRADA's research staff did not. This explains the large increase in CNERV's share of salary expenditures in 2008. Given the importance of fisheries to the national economy, IMROP is far better funded than the other R&D agencies. This is also reflected in the Institute's salary levels and annual operating budgets, making it a very attractive employer compared with either CNRADA or CNERV.

Although exact cost category shares for Mauritania's higher education agencies were largely unavailable, actual R&D program

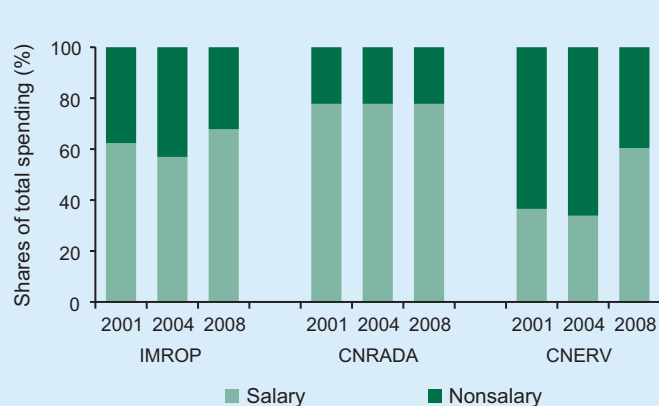
**Figure 4—Degree level of researchers by institutional category, 2001 and 2008**



Source: ASTI–CNERV 2009–10.

Notes: n.a. denotes not available. Figures in parentheses indicate the number of agencies included in each category.

**Figure 5—Cost category shares of IMROP, CNRADA, and CNERV, 2001–08**



Source: ASTI–CNERV 2009–10.

and capital costs are thought to be minimal. Inadequate financing is a major challenge for the University of Nouakchott. Its buildings are in disrepair, and its staff members share overcrowded offices without reliable computer and Internet access (UNCTAD 2010).

## Funding Sources

Throughout 2001–08, funding for agricultural R&D in Mauritania was derived from three primary sources: the national government, donors and development banks, and internally generated resources. CNERV was almost entirely funded by the Mauritanian government during this period, supplemented by a few notable donor projects. In 2003, CNERV received 75 million ouguiya (in current prices) as part of the World Bank–financed Rainfed Natural Resource Management Project (PGRNP). The funds were intended to improve milk production, traditional poultry farming, and animal disease awareness, and optimize village veterinary pharmacies. In addition, in 2007 CNERV received US\$ 200,000 worth of laboratory equipment through the IAEA-funded Mau 5002 project. The objective of this project was to strengthen CNERV’s diagnostic capacity and monitor and control transboundary animal diseases, particularly foot and mouth disease, bovine pleuropneumonia, small ruminant diseases, and bird flu. The project was renewed in 2009 under the name Mau 5003. Moreover, since 2000, CNERV has received annual IAEA support of around 1.4 million ouguiya for the monitoring of Rift Valley fever (RVF) sentinel flocks.

Government contributions accounted for more than 80 percent of CNRADA’s total funding during 2004–08. CNRADA received some funding through the World Bank–financed Integrated Development Program for Irrigated Agriculture in Mauritania (PDIAM), the first phase of which ran until 2005. The program consisted of a small R&D component focusing on improving new pumping techniques, testing equipment, and studying farmer acceptance of techniques developed by researchers for draining and lowering salinity (World Bank 2005). CNRADA also reported funding from IDB as part of a wider food-security project that involved a component on the genetic improvement of sorghum.

Unfortunately, exact amounts of donor funding to IMROP were unavailable. Given the importance of fisheries to the Mauritanian economy, IMROP receives larger amounts of government funding than any of the country’s R&D agencies. IMROP also

reported important funding from foreign donors, including the European Union and Japan, as part of bilateral and multilateral fisheries initiatives. France also provides in-kind support to IMROP in the form of expert consultants.

As previously mentioned, FNARS was created in 2004 with the aim of promoting scientific research in the higher education sector. The fund’s Secretariat is organized through the Scientific Research Executive Board and comprises a coordination committee, a management committee, and specialized technical commissions. FNARS’s 2006 budget totaled US\$330,000, 20 percent of which was provided by the Mauritanian government, 40 percent by the World Bank, and 40 percent by the African Development Fund. In 2005, FNARS contributed to the financing of 24 research projects in various fields, including ecology, education, natural resources preservation, pedagogy, health, and culture (UNCTAD 2010).

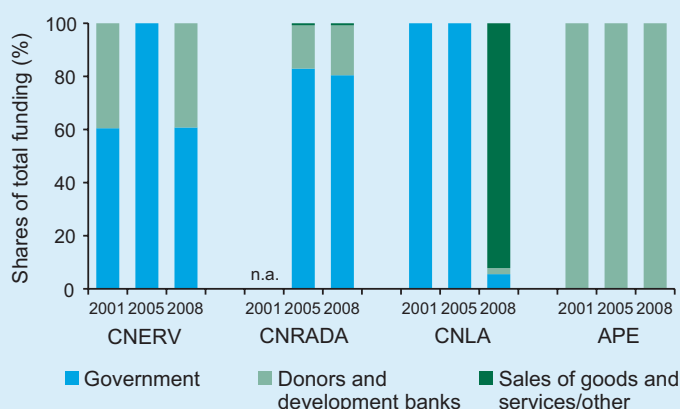
It is important to note that during the Brussels Round Table on Mauritania in June 2010, all development partners and potential donors present answered the call to step up their development assistance to Mauritania. The country received a pledge of over US\$3 billion in aid in the coming years, a much higher amount than was originally anticipated. Poverty reduction was seen as the focus by donors, so agricultural R&D projects should be prevalent on the donor agenda in the coming years.

## RESEARCH ALLOCATION

The allocation of resources across various lines of research is a significant policy decision; hence, detailed information was collected on the number of FTE researchers working in specific commodity and thematic areas. In 2008, nearly half of Mauritania’s agricultural researchers were conducting fisheries research (Figure 7). Crop research accounted for close to one-third of all FTE researchers, and livestock research accounted for 12 percent. The remaining researchers concentrated on issues relating to natural resources, postharvest, socioeconomic, soil, or other research.

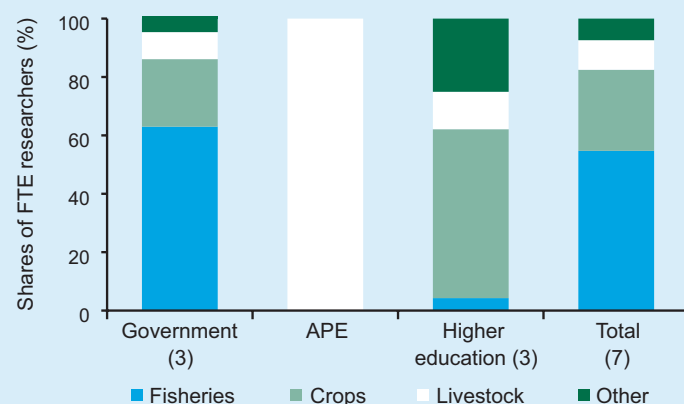
Rice is the most researched crop in Mauritania, accounting for close to a quarter of total crop and livestock research conducted in the country. Other important crops include vegetables (16 percent), fruits (11 percent), sorghum (9 percent), and maize

Figure 6—Funding sources of CNERV, CNRADA, CNLA, and APE, 2001–08



Source: ASTI–CNERV 2009–10.  
Note: n.a. denotes not available.

Figure 7—Research focus by major commodity area, 2008



Source: ASTI–CNERV 2009–10.

Notes: Figures in parentheses indicate the number of agencies in each category. Data were unavailable for one government and one higher education agency.

(3 percent). The country's livestock researchers concentrated primarily on beef (9 percent), camels (8 percent), and sheep and goats (7 percent).

## CONCLUSION

Being a sparsely populated desert country, Mauritania's total agricultural R&D capacity and investments are understandably significantly lower than those of many West African countries. In 2008, the country employed 74 agricultural R&D staff in FTEs and spent 752 million ouguiyas or 8 million PPP dollars on agricultural R&D (both in 2005 prices). Fisheries research dominates Mauritania's agricultural research system. The 2002 signing of a fisheries treaty between Mauritania and the European Union prompted a large influx of funding, causing IMROP to gain official institute status and expand its human resource capacity. The 2008 establishment of ONISPA, which had previously been a department of IMROP, prompted a decline in IMROP's overall capacity and expenditure levels; however, the renewal of the fisheries treaties between Mauritania and the European Union and Japan, ensures that the institute's R&D funding will remain relatively secure in the years to come.

This situation sharply contrasts that of CNRADA and CNERV, the country's main agencies for crop and livestock research. Both centers have seen their R&D budgets shrink since the completion of PSA in 2000, which had been funded through a World Bank loan. Training opportunities for staff are limited, and retiring staff members are not being replaced, causing a gradual aging of the scientist pool. The situation at the University of Nouakchott is not much better.

In summary, Mauritania's agricultural R&D system is split: on the one hand, IMROP is relatively well-funded and benefits from modern facilities, whereas on the other hand, entities like CNRADA, CNERV, and the other government and higher education agencies struggle financially and consequently have difficulty attracting well-qualified research staff. Sustainable financial support is crucial for all of Mauritania's agricultural research agencies, not just those focused on the income-generating fisheries sector. Funding is especially needed for those entities focused on helping to produce much-needed food crops

and to promote development initiatives to mitigate rural poverty. Unfortunately, the Government of Mauritania currently lacks the means, capacity, and sense of urgency to implement far-reaching S&T policies in favor of the agricultural sector.

## NOTES

<sup>1</sup> Financial data are also available in current local currencies or constant 2005 U.S. dollars via ASTI's data tool ([www.asti.cgiar.org/data](http://www.asti.cgiar.org/data)).

<sup>2</sup> *Doctorat vétérinaire* and *diplôme d'études approfondies* (DEA) degrees have been categorized as equivalent to MSc degrees.

## REFERENCES

- ASTI–CNERV (Agricultural Science and Technology Indicators and National Livestock and Veterinary Research Center). 2009–10. Agricultural science and technology indicators survey. Unpublished surveys.
- FAO (Food and Agriculture Organization of the United Nations). 2009. FAOSTAT database. <<http://faostat.fao.org/site/452/default.aspx>> (accessed March 8, 2010).
- IMROP (Mauritanian Institute of Oceanographic Research and Fisheries). 2010. L'IMROP en bref. <<http://www.imrop.mr/ahlamy2,2.html>> (accessed August 25, 2010).
- Ould Sidi, H., and M. Habaye Ag. 2005. *État en environnement de la recherche en Mauritanie: Étude exploratoire*. Nouakchott: International Development Research Center.
- Stads, G. J., A. Lô, and B. C. Diallo. *Mauritania*. ASTI Country Brief No. 15. Washington, D.C., The Hague, and Nouakchott: International Food Policy Research Institute, International Service for National Agricultural Research, and National Livestock and Veterinary Research Center.
- UNCTAD (United Nations Conference on Trade and Development). 2010. *Science, technology and innovation policy (STIP): Review of Mauritania*. New York and Geneva.
- World Bank. 2005. *Project appraisal document on a proposed credit in the amount of SDR 25.7 million (US\$ 39.0 million equivalent) to the Government of the Islamic Republic of Mauritania for the second phase of the Integrated Development Program for Irrigated Agriculture in Mauritania*. Report No. 31638-MR. Washington, D.C.
- \_\_\_\_\_. 2009. *World development indicators 2009*. Washington, D.C.

### IFPRI-ROME

Agricultural Science and Technology Indicators (ASTI) initiative  
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CNERV is Mauritania's principal veterinary research agency. The center was established in 1973. Its mandate includes genetic improvement of livestock, diagnosis and detection of animal diseases, epidemiological research of livestock ailments, meat product control, and the analysis of forages.

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](http://www.asti.cgiar.org).

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