

# ASTI

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## **STAFF AGING AND TURNOVER IN AGRICULTURAL RESEARCH**

### **A Case Study on the Burkina Faso Environment and Agricultural Research Institute**

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Analyzing Trends, Challenges, and Opportunities**

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## Acronyms

CAMES	<i>Conseil Africain et malgache pour l'Enseignement supérieur</i> [African and Malagasy Council of Higher Education]
CNRST	<i>Centre National de Recherche Scientifique et Technologique</i> [National Center of Scientific and Technological Research]
HRD	human resource development
IDA	International Development Association
INERA	<i>Institut de l'Environnement et de Recherches Agricoles</i> [Environment and Agricultural Research Institute]
NGO	nongovernmental organization
PNDSA	National Agricultural Services Development Project
Sida–SAREC	Swedish International Development Cooperation Agency, Department for Research Cooperation
WAAPP	West Africa Agricultural Productivity Program

## Abstract

Human resource development (HRD) encompasses a variety of factors, including training, coaching, and mentoring; tuition assistance; career development and succession planning; and organizational and performance management to ensure that goals are met consistently, effectively, and efficiently. HRD is a framework for expanding an organization's human capital. It assists employees in developing their personal and organizational skills, knowledge, and abilities. As such, HRD in a research organization combines training and knowledge sharing to ensure the continual improvement and growth of both the individual and the organization.

This paper analyses HRD trends at the Environment and Agricultural Research Institute (INERA), Burkina Faso's primary agricultural research agency, based on 2001 and 2008 data collected by the Agricultural Science and Technology Indicators (ASTI) initiative of the International Food Policy Research Institute (IFPRI) and results of a case study conducted in 2011 by INERA's *Service Etude et Projets* office.

## 1. INTRODUCTION

The Environment and Agricultural Research Institute (INERA) is the primary agricultural research and development (R&D) agency in Burkina Faso. It is responsible for generating technological innovation and undertaking research activities that contribute (1) to improving crop, livestock, and forestry production, including aquatic and wildlife species, in accordance with national economic and development priorities; (2) to promoting activities to ensure the protection and sustainable management of natural resources and rural areas; (3) to carrying out scientific research in its fields of competence, and (4) to enhance INERA's research findings. The Institute comprises five regional agricultural and environmental research offices located across Burkina Faso's agroecological zones, and one environmental and agricultural research and training center. INERA is managed through a headquarters and four departments focusing on natural resource management and farming systems and plant, forestry, and animal production. Numerous additional research stations and satellite facilities are scattered throughout the country.

This paper focuses on trends in INERA's human resource development (HRD) based on data collected by the Agricultural Science and Technology Indicators (ASTI) initiative, which is facilitated by the International Food Policy Research Institute (IFPRI), and additional data provided by INERA. The objectives of the case study were to assess and analyze

1. human resource capacity, including support staff, by gender, degree qualification, and discipline;
2. the age profile of researchers;
3. opportunities and threats in terms of staff recruitment and turnover; and
4. institutional incentives and policies related to HRD.

The ultimate goal of the study was to determine recommendations for motivating and retaining staff (see Box 1).

### Box 1. Methodology

The case study began with a literature review of human resource development in agricultural R&D. Thereafter, the study team adapted a general questionnaire to the context of Burkina Faso. Data on all research and support staff were collected both through the study's survey and from INERA's statistical database on human resources. Finally, the data were compiled and analyzed. Of the 146 staff members who completed and returned the questionnaire, 82 percent were male, and 18 percent female. A total of 42 percent were researchers (67 individuals), and 44 percent were technicians (44 individuals).

## 2. RESULTS

### Overview of Research Staffing at INERA

INERA's staff comprises researchers, "research engineers,"<sup>1</sup> technicians, and support staff. As of 2010, the Institute employed 161 research staff, comprising 86 research engineers, 14 research associates, 39 researchers, 18 senior researchers, and 4 research directors (Table 1). Of these 161 researchers, only 22 were female, representing 14 percent—an increase of 1.6 percent over 2008 levels (Stads and Sawadogo Kaboré 2010). Interestingly, 46 researchers, or 29 percent, were occupying positions outside INERA,

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<sup>1</sup>Research engineers, "ingénieurs de recherche" in French, are MSc-qualified scientists. Research associates are PhD-qualified scientists, but they don't have the official African and Malagasy Council for Higher Education (CAMES) classification of researcher, which requires that they file an application for review and approval by the council's Scientific and Technical Committee (STC).

either in regional or international organizations, or in different Ministries related to rural development. In addition, some researchers had departed the institute, often taking up more lucrative positions in other sectors or abroad.

**Table 1. Researcher distribution by research agency and grade, 2010**

Position	Farkoba	Banfora	Fada	Kamboinse	Saria	Dori	Ndi	Total
Research engineers	25	2	5	38	8	4	2	86
Research associates	4		1	8		1		14
Researchers	9	1		24	5		1	40
Senior researchers	3		1	13	2			19
Research directors	1			3				4
Total	42	3	7	88	15	5	3	161

Source: Case study survey data, 2011.

In terms of research support, in 2010 INERA employed 95 technicians (23 of whom were senior technicians) and 153 other support staff, comprising administrative assistants, drivers, guards, tractor drivers, and accountants. More than half of the support staff (58 percent) is based at research stations in Kamboinse (30 percent) and Farakoba (28 percent), which are the largest in terms of research infrastructure. The use of temporary labor to redress this situation is less than optimal, causing lack of continuity in service duration, knowledge, experience, and qualification levels.

### Recruitment of Researchers and Career Prospects

Until the 1980s researchers were recruited by French research institutes (a remnant of colonial times), after which the government took over with the nationalization of the country's research initiatives in 1983. At that time, about 10 French researchers were transferred to Burkina Faso, and further public recruitment efforts were initiated. Government-based researcher numbers peaked with the World Bank—funded National Agricultural Services Development Project (PNDSA). Recruitment trends reveal that, as of 2010, most of INERA's researchers had been recruited during 1990–2000, coinciding with the implementation of PNDSA, and thereafter recruitment levels plummeted. In most cases, recruited researchers were qualified with an MSc or equivalent degree. Less than 20 percent of researchers held PhD (or equivalent) degrees when recruited (Table 2).

**Table 2. Composition of research staff by position when recruited, 2010**

Position	Number	Percent
Research associates	14	9.2
Research engineers	47	30.7
Senior technicians	9	5.9
Technicians	44	28.8
Accountants	3	2.0
Other	24	15.7
Total	141	92.2

Source: Case study survey data, 2011.

In 1999 capacity building policy was developed focusing on long-term training of two to five years, funded through the International Development Association (IDA) and other sources, both existing and to be identified/secured. The plan was developed in response to needs and priorities expressed by

the departments, regional centers, and central management, along with the General Delegation of the National Center of Scientific and Technological Research (CNRST). Researchers received training with IDA funding, and 26 technicians and 28 members of the administrative staff obtained advanced degrees (Table 3).

**Table 3. Composition of researchers trained through IDA funding, 1998–2004**

Department	PhD or equivalent	MSc or equivalent
Natural Resource Management and Farming Systems	12	10
Plant Production	6	8
Animal Production	5	
Forestry Production	5	1
Total	28	19

Source: Case study survey data, 2011.

Note: The PhD category includes researchers holding the French *Doctorat d'État* and *Doctorat de 3ème cycle* degrees; the MSc category includes researchers holding the French *diplôme d'études approfondies* (DEA) and *diplôme d'études supérieures spécialisées* (DESS) degrees.

Under other funding, 18 scientists received PhD or equivalent training, and 13 research engineers were assisted in acquiring MSc or equivalent degrees. From 2004 to 2011, the Swedish International Development Cooperation Agency (Sida) through its Department for Research Cooperation (SAREC) funded the PhD-level training of about 20 researchers, although—given lack of funding— some civil-service employees encountered problems in being reclassified after completing their training.

Following the completion of PNDISA, both recruitment and overall employment levels fell significantly; as of 2000, research staffing levels were close to those recorded in 1980. Between 2000 and 2010, INERA recruited no new researchers, although some projects utilized temporary research staff. Burkina Faso is, however, participating in the World Bank's West Africa Agricultural Productivity Program (WAAPP), which is scheduled to run for four years (2011–15). This opportunity is significantly contributing to the development of research capacity at INERA. A key objective of the program is to improve the efficiency and performance of agricultural research by strengthening agricultural research capacity at the institutional level. WAAPP has four main components: (1) developing and disseminating improved technologies nationally and subregionally; (2) building research capacity through the creation of a center of excellence in fruits, vegetables, and biotechnology; (3) funding participatory development and adoption of technology to strengthen agricultural programs focusing on priority areas, including transparent funding mechanisms for demand-driven R&D activities; and (4) improving research coordination, management, monitoring, and evaluation.

Components 2 to 4 will contribute to INERA's human resource capacity by providing junior researchers with training and experience through collaboration, including exchange programs at international agencies such as the centers of the Consultative Group for International Agricultural Research (CGIAR) or regional centers of excellence. WAAPP provides similar opportunities for senior staff through short-term training and exchange programs, and by offering competitive grant mechanisms, both regionally and nationally, that INERA will be able to apply for. A further opportunity is provided by the newly created Ministry for Research and Innovation. Under this Ministry, funding mechanisms are being established in support of nationally based research and innovation.

### Qualifications of INERA's Agricultural Researchers

The composition of INERA's researchers by location, qualification, and gender as of 2010 is provided in Tables 4, 5, and 6, respectively. All researchers, apart from research engineers, hold PhD degrees and

certificates from short-term training. A PhD is the minimum required qualification for researchers within the African and Malagasy Council for Higher Education (CAMES) system; research engineers must hold an MSc or equivalent degree, which allows them to apply for project funds, if available, and enroll in a PhD program in order to further their careers within the system. CAMES was established in 1968 for the purpose of integrating research and higher education within 16 (and now 19) French-speaking African countries to promote coordination, communication, and cooperation across educational and research institutions.

**Table 4. Composition of researchers by location and position, 2010**

Position	Farkoba	Banfora	Fada	Kamboise	Saria	Dori	Ndi	Total
Research engineers	25	2	5	38	8	4	2	86
Research associates	4		1	8		1		14
Researchers	9	1		24	5		1	40
Senior researchers	3		1	13	2			19
Research directors	1			3				4
Total	42	3	7	88	15	5	3	161

Source: Case study survey data, 2011.

**Table 5. Qualifications of INERA researchers by gender, 2010**

Researchers	Qualification				Total
	PhD	MSc	BSc	Less than BSc	
Male	39	15	3	59	116
Female	8	2	1	12	23
Total	47	17	4	71	139

Source: Case study survey data, 2011.

**Table 6. Composition of INERA research staff by position and gender, 2010**

Gender	Position							Other support staff	Total
	Research director	Senior researcher	Researcher	Research associate	Research engineer	Senior technician	Technician		
Male	4	9	20	6	26	3	41	13	119
Female	0	0	6	2	3	3	2	8	24
Total	4	9	26	8	29	6	43	21	143

Source: Case study survey data, 2011.

### Increase in the Average Age of Researchers

One of INERA's principal challenges is the fact that, based on lack of staff recruitment during 2000–10, its research staff is aging. The majority of researchers are 40–55 years old (79 percent), 8 percent are 56–60 years old, and no researchers are younger than 30 years old. Based on existing recruitment trends, retiring staff will not be systematically replaced in the years to come. Within less than a decade, all of the current research directors and most of the researchers and senior researchers will have reached retirement age, despite the fact that it has been raised from 63 to 65 years. That being the case, INERA will face two problems. First, the reduction in researcher numbers will significantly hinder the execution



of the institute's strategic plan. Second, following actual recruitment trends, young researchers may not have the opportunity to benefit from the experience of the senior researchers. This situation may also create discontinuity among some of the Institute's research programs, which will negatively affect performance. Consequently, effective plans to recruit young researchers are needed as a matter of urgency.

### **Assessing the Performance of Researchers**

Agricultural researchers in Burkina Faso are evaluated both at national and regional levels. Nationally, evaluations are conducted annually according to the performance appraisal system for civil servants that was established in May 2008 (for outposted staff, the assessment is done accordingly to the host institution's criteria). These regulations, however, do not explicitly cover researchers, senior researchers, and research directors. Furthermore, prior to 2009 the assessment was based on a simple report from the human resources department that led to an automatic promotion every two years. At the regional level, researchers are evaluated according to the CAMES system, which outlines specific evaluation criteria at each level and allows for the promotion of researchers from junior levels all the way up to research directors (CNRST 2002). Each year, between 95 and 100 percent of INERA's researchers are promoted within the CAMES system.

### **Performance Incentives**

The incentive/reward for well-performing researchers is almost exclusively promotional opportunities and associated financial benefits, although salary increases are not as significant as might be expected. In addition, long delays can occur in processing salary increases as a result of cumbersome administrative procedures, the outcomes of which can take two or more years to be finalized. Similar administrative issues occur within the CAMES system. Other benefits, such as the provision of service vehicles, depend more on the position held (such as minister, director, director general, and so on) than on performance. In general, the lack of significant performance incentives is a source of frustration and the cause of a high rate of staff departures.

### **Research Staff Departures and Retention Measures**

The secondment of INERA's researchers to subregional, regional, and international organizations (46 percent) is the leading cause of the departure of researchers, whereas secondment to ministries of agriculture, livestock, and environment and resignations (20 percent each) rank equal-second (Figure 1).

**Figure 1. Reasons for the departure of research staff from INERA, 2000–10**



Source: Case study survey data, 2011.

Analysis by position shows that researchers and senior researchers are more often seconded to other agencies or missions (Figure 2). At the national level, INERA’s researchers have a good reputation. From 2005 to 2010, approximately 20 percent of the Institute’s researchers were appointed to positions in various ministerial departments. Even though this does not alter their salary arrangements, researchers considered that the appointments enhanced their status and provided an acknowledgment of their competence. Most of these researchers were appointed as directors or directors general, and many were awarded for their service to the State—an uncommon honor for researchers. In contrast, research engineers are more likely to leave INERA to take up more lucrative opportunities in the private sector, usually at consultancy firms. Projects implemented by nongovernmental organizations (NGOs) and rural development ministries offer salaries as much as two to three times higher than those offered by INERA. As previously discussed, staff retirement is a particular problem based on the lack of recruitment of sufficient replacement staff. The researcher retirement age is 63 years; the retirement age for other staff is 55 years.

**Figure 2. Research staff departures from INERA by position, 2000–10**



Source: Case study survey data, 2011.

How to retain and replace researchers is a significant challenge for the Institute due to the current low levels of investment in agricultural R&D in Burkina Faso. The reasons for recent staff departures from INERA vary from the low salary levels and lack of recognition of individual merit, to the lack of adequate facilities and equipment. This situation is exacerbated by the lack of application of a strategic plan and the absence of an appropriate recruitment policy. The current case study found that INERA staff members have expectations that are not being fulfilled. These expectations fall into five main groups: (1) educational opportunities; (2) promotional opportunities; (3) remuneration, benefits, and incentives; (4) working conditions; and (5) other factors, including the organizational culture. Success in both recruiting and retaining researchers will require a serious review of salary levels, and the urgent development of a recruitment and succession plan that includes further education and training.

In terms of salary levels, after much dispute the government agreed to take action to institute improvements. A new pay-scale was adopted in 2009, which increased earnings and provided both disability benefits and an academic supervision allowance in addition to the housing allowances already provided. Despite these efforts, the salaries remain low compared with the private sector, NGOs, and international and subregional organizations, making it difficult for INERA to compete to attract and retain well-qualified and experience staff. In addition, this salary review did not include all staff categories. The issue remains a source of frustration among staff.

### **3. RECOMMENDATIONS FOR HUMAN RESOURCE DEVELOPMENT**

The results from this case study prompt the following recommendations.

#### **Researcher and Support Staff Salary Levels**

An adequate HRD strategy is a necessary prerequisite for any institution to perform at high levels, and a review of researcher salary levels is a fundamental requirement if INERA is to compete with other agencies for talented and well-qualified researchers. Support staff can be motivated through the performance appraisal process, which offers the opportunity of salary reviews.

#### **Research Staff Recruitment and Incentives**

To ensure succession, recruitment requirements for young researchers need to be revised from the current prerequisite of a PhD-level degree. Such candidates are scarce, generally need to be sourced from abroad, and are difficult to attract given INERA's low salary levels compared with the private sector and NGOs. A strategy of recruiting qualified research engineers and instituting a viable training plan would significantly help. Naturally, the training plan would need to be devised based on the needs of the various departments, stations, and programs, at the same time taking into consideration research priorities and the composition of departing and retiring researchers. The last review of training needs was conducted in 2007 and 2008 by the various programs, but no action was taken based on lack of financial resources. INERA should take the opportunity provided by WAAPP and external partners to devise a strategy to attract and retain young researchers. Such a strategy should include opportunities for researchers, technicians, and support staff to undertake degree training, along with continuing education and exchange programs. Training should focus on priority research issues and include project development and proposal writing, monitoring and evaluation, data collection and analysis, research management, quality control, intellectual property rights issues, and human resources management.

In addition, motivating research staff will require the promotion of dynamic research teams comprising both senior and junior researchers in a multidisciplinary environment. The recommended ratio of at two technicians per researcher should be the goal. The establishment of a competitive grant scheme is recommended as well. It could be a means of dissuading both junior and senior researchers from leaving the institute. The government needs to commit to improving education levels by recruiting young scientists, investing in training, and allocating funding to enable continuity in conducting viable research programs. In tandem, INERA must develop an internal funding strategy whereby the Institute generates its own funding. Finally, acknowledging and rewarding competent staff is fundamental to motivating and retaining research staff.

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The Agricultural Science and Technology Indicators (ASTI) initiative compiles, analyzes, and publishes data on levels and trends in agricultural R&D investments, capacities, and institutional arrangements in developing countries. ASTI is managed by the International Food Policy Research Institute (IFPRI) and involves collaborative alliances with many national and regional R&D agencies.

Jointly convened by ASTI/IFPRI and the Forum for Agricultural Research in Africa (FARA), the conference, "Agricultural R&D—Investing in Africa's Future: Analyzing Trends, Challenges, and Opportunities," brought together experts and stakeholders from the region to contribute their expertise for the purpose of distilling new insights and creating synergies to expand the current knowledge base. The themes under focus were (1) Why African governments under invest in agricultural R&D; (2) How human resource capacity in agricultural R&D can be developed and sustained; (3) How institutional structures can be aligned and rationalized to support agricultural R&D; and (4) How the effectiveness of agricultural R&D systems can be measured and improved.

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