

## **Assessment of Existing Data Collection Capacity and Infrastructure at the National Level<sup>1</sup>**

One of ASTI's principal objectives in Sub-Saharan Africa (SSA) during 2012-14 is the establishment of a decentralized and institutionalized system that will allow a more frequent collection, synthesis, and analysis of agricultural R&D investment and capacity data through a set of national and regional focal points. It is believed that such a system will enhance the "ownership" of the data at the national level, and that it will ultimately increase the use of ASTI data for advocacy, priority setting, and policy influencing purposes.

However, a major constraint to establishing such a system is that effective institute-level data management systems are often lacking or underdeveloped in many SSA countries. The result is that ASTI data collection becomes a very time-consuming undertaking and that the overall quality of (time-series) data may leave a lot to be desired. At the national level, infrastructural constraints resulting from a geographic dispersion of agricultural R&D agencies and weak transport/communication can be major impediments to an effective data management system. Besides, existing data management systems of different national-level agencies do not always use the same definitions, standards, and procedures, making comparisons across agencies a protracted and difficult process.

During a number of ASTI events, various country representatives stressed that ASTI should be better integrated in the existing monitoring and evaluation (M&E) activities that are taking place at the country level in order to reduce duplication of data collection activities and to enhance the relevance of ASTI. In order to get a sense of the existing data management systems and M&E activities in place in each country, as well as the major capacity and infrastructure constraints that impede the establishment of an effective data management system at the national level, the ASTI team conducted a short survey among workshop participants from 30 SSA countries, which included the following topics:

- Types of data management systems in place in the country
- Existence of a designated M&E person/division within the national agricultural research institute (NARI)
- How is data collected, managed, and maintained?
- Principal data management challenges
- Ease of access of data from R&D agencies other than the NARI
- Existence of investment and capacity data initiatives other than ASTI

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<sup>1</sup> Based on survey results and discussions at the ASTI implementation and training workshops in Entebbe and Dakar during March-April, 2012.

- If so, how can ASTI be better integrated with these other initiatives?

### **Types of Data Management Systems in place in the country**

Most national agricultural research institutes (NARIs) have human resource and financial data management systems in place. Financial data are typically managed by Accounting Divisions, while human resource (HR) data are usually managed by HR Divisions. Some NARIs reported maintaining publication databases, plant genetic resources databases, research project databases, or various data gathering activities for the purpose of annual reports. All these databases are typically scattered and data collection takes place on a rather ad hoc basis.

Most data initiatives take place at the institute level. Initiatives that collect comparable information from a large number of different institutes under a certain ministry or within a country are rare. An important exception in this regard are the Centre for Science, Technology and Innovation Indicators (CeSTII) initiative in South Africa, which established a baseline set of Science & Technology (S&T) indicators for monitoring, reporting on, and fine tuning the national R&D and innovation system.

Generally speaking, data management systems in francophone West Africa are poorly developed compared to many (larger) Anglophone countries in SSA.

### **Existence of a designated M&E person/division within the NARI**

The majority of NARIs have a designated M&E team/person in place for agricultural R&D. In most cases, M&E of agricultural research takes place at the NARI level (Kenya, Tanzania, Senegal, etc.), but in some cases, this is done at the ministry level (Cameroon, Zimbabwe, etc.). The capacity of the M&E unit differs largely from one country to the next. The national agricultural research institutes of South Sudan, the Republic of Congo, and Sierra Leone, for example, have just one designated M&E person, while DRD in Tanzania has four. At NARIs in some of the smaller nations such as The Gambia, Guinea-Bissau, and Swaziland, there is no designated M&E personnel.

### **How is data collected, managed, and maintained?**

Data on human and financial resources is quite institutionalized in most NARIs for accounting and personnel management purposes. Data on research projects/outputs, on the other hand, is collected at a rather ad hoc basis (through questionnaires, emails, letters, interviews, group discussions, reviews of official reports) and updated infrequently.

Most NARIs lack a one-stop place for data. Instead, data is typically stored in a rather scattered fashion on individuals' computers, libraries, accounting divisions, HR divisions, etc. In addition, data is stored in various different software and statistical packages, including Excel, SPSS, Stata, Access, and SQL, adding to the overall complexity of access.

Only few countries reported storing data on an intranet. Access to data remains restricted in most countries.

### **Principal data management challenges**

Data management is not a priority in most SSA countries. As a result, most countries lack data management guidelines and operational policy, which in turn leads to a poor institutional framework for data collection, analysis, and management.

Major data management challenges that were frequently cited, include:

- Data is scattered, incomplete, missing, low quality, not readily available, difficult to obtain
- Lack of skilled data management personnel
- Lack of appropriate computer systems / software / intranet and compatibility between computer systems
- Poor institutional framework for data collection, analysis, and management; lack of data management guidelines and operational policy
- Lack of funding for dedicated data management unit
- Inadequate internet and poor communication with remote areas (in some countries)

### **Accessibility of data from other institutes**

Data from institutes outside the NARI are fairly accessible in some countries (Cameroon, Rep. of Congo, The Gambia, Ghana, Nigeria, Swaziland, Tanzania, Uganda), but not so easily accessible in others (Burkina Faso, Burundi, CAR, Guinea Bissau, Lesotho, Madagascar, Mauritania, Mauritius, Rwanda, Senegal, Sierra Leone, South Sudan, Togo, Zambia, Zimbabwe). In countries like Malawi or Namibia, an official request is often needed to obtain information from outside agencies, while in Kenya, information is often only available at a fee. In South Africa, information on investments and capacity of public agricultural R&D agencies is publicly available, albeit in an anonymized, aggregated way so as to protect the confidentiality of individual agencies. Generally speaking, financial information from outside agencies is more difficult to access than other types of information.

### **Existence of investment and capacity data initiatives other than ASTI**

To the question whether initiatives other than ASTI collect information on R&D investment and capacity, a bifurcation between Francophone and Anglophone Africa becomes apparent. While the majority of Francophone respondents were unaware of any initiatives in their respective countries, the participants from Anglophone Africa listed quite a number of such initiatives. The most notable (sub-) regional initiatives included the African Science, Technology & Innovation Initiative (ASTII) and the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM). ASTII's mandate is broader than ASTI's in that it maps capacities and investments of all R&D agencies in participating countries, not just *agricultural* S&T capacities and investments. RUFORUM aims to strengthen the role of universities in agricultural R&D in East and Southern Africa and plays an important role in monitoring university capacity.

At the national level, a number of important initiatives collect R&D investment and capacity data. These include CeSTII (South Africa), the National Bureau of Statistics (Nigeria), the E-agriculture

initiative (Mauritius), the National Integrated M&E System (NIMES, Kenya), and ZAR4DIN (Zambia).

**How can ASTI be better integrated with other data collection initiatives?**

There was widespread consensus among respondents that in order to reduce duplication of data collection and survey fatigue among participating agencies, a certain degree of centralization of data collection and management and a harmonization of indicators is required. Joint questionnaires and data sharing among initiatives are key in this regard. In order to do so, it would be useful if a lead data management agency to coordinate the various data collection initiatives at the country level could be appointed (for example, CeSTII in South Africa or MINRESI in Cameroon, which lead both the ASTII and ASTI surveys), and a long-term mechanism for updating and sustaining the established system be worked out.

In addition, the importance of frequent data collection needs to be more clearly advocated among stakeholders, and a true M&E culture developed. ASTI capacity needs to be strengthened at the national level, so that its outputs feed more easily into national statistics and decisionmaking processes.