PROSPECTS AND CHALLENGES OF TRAINING IN AGRICULTURAL STATISTICS AT DIFFERENT LEVELS IN A DEVELOPING COUNTRY

AUTHORS: **Ssekiboobo Agnes Mary (Mrs.) and Dr. E.S.K. Muwanga-Zake**

INSTITUTION: **Institute of Statistics and Applied Economics, Makerere University, Kampala, Uganda.**

ABSTRACT:

Most of the critical items that are considered today in the outline for both current and basic agricultural statistics are not new and indeed most of the indicators derived thereof remain relevant while others need to be refocused or newly developed. It should however be noted that there are new or emerging issues like climate change, economic accounts, management of natural disasters, geo-spatial and remote sensing as well as statistical data for monitoring and evaluation and others as indicated in the Global Strategy.

There is therefore demand for new statistics and there is need to integrate data on agriculture, forestry and fisheries to understand their effects on a number phenomena e.g. climate change. Basic agricultural statistics are normally collected through periodical censuses of agriculture conducted every five or ten years, while current agricultural statistics are collected annually or even at more frequent intervals as in the case of prices and wages.

Capacity for collection and handling of agricultural statistics in most developing countries in terms of institutional arrangement, trained personnel and methodological development is rather limited. As a result the agricultural statistics system is also limited in providing statistical products and services to meet user data needs. The gap between data requirements and data availability and quality is widening in many developing countries and thus the need to invest in training the area of agricultural statistics and data management so as to bridge this gap and allow cross-cutting analysis.

Therefore a full course of training for a prospective professional should cover all the new and old aspects, the corresponding definitions, methods of data collection and analysis and so on. This training mostly oriented towards statistical fundamentals and applications should be carried out at various levels that is, certificate, diploma, undergraduate, postgraduate and in-service training short courses. However currently there are not many institutions offering such a curricula. At the same time very few countries if any in the developing world have carried out a training need assessment to find out the basic skills required. Indeed, the stakeholders are not even clearly known.

The paper will therefore review the currently available training opportunities, the prospects of improving them and the challenges. The main objective of all this should be to see how Africa and developing countries elsewhere can become self-reliant in the provision of trained statistical personnel in the area of agricultural statistics at all levels so as to build a robust, self-sufficient and sustainable national capacity for production of agricultural data.

Introduction:

The Global Strategy makes it clear that the current situation of agricultural statistics in relation to the coverage quality and relevance of the data being produced by developing countries is poor and is declining. This is particularly evident in Africa, as indicated by the independent external evaluation of FAO in 2005. In most categories of data collected by FAO, Africa has the lowest rate of response in 2007 among all regions. The Global Strategy indicates that there are several reasons for this, but a key problem is the limited country-level capacity of public statistical agencies. The Strategy also finds that this is not just a recent phenomenon; data quality and coverage have been declining steadily since the early 1980s. Clearly capacity is more than the skills, knowledge and competencies of the staff of statistical agencies, but increased investment in the human resources available to the statistical system must certainly be part of the response.

The Global Strategy sets out a blue-print for a coordinated and sustained effort to address the decline in agricultural statistics and to put in place a system that will provide the information needed to meet the development challenges of the twenty first century. It is based on three pillars: the establishment of a minimum core data set that all countries will endeavor to compile; the integration of agriculture into national statistical systems; and a sustained effort to build capacity and improve the governance of statistical activities at all levels. All three of these pillars have important implications for future investment in training and human resource development.

It should, however, be noted that Agricultural Statistics was one of the areas that were given early priority in statistics development. For example a good number of countries participated in the 1960 census of Agriculture programme. Unfortunately, most African countries have not generally undertaken agricultural censuses in the technical sense of the word "census". They cannot afford the high cost of such an operation and do not have the necessary human resources.

For the English and French speaking countries, most of the expatriates were phased out soon after independence though in some countries some of them remained under technical cooperation agreements. At the time there was a marked difference between those in French and English speaking countries. The French speaking African statisticians received their training in statistical institutes and were thus well grounded in both theoretical and applied statistics. The statisticians in the English speaking countries had different back grounds: graduates in Economics, Mathematics, Sociology, Geography and other social science subjects.

Professional training was initially given in overseas institutions and universities such as L'Ecole d'application of INSEE in Paris and the London School of Economics. Later institutions within the region provided most of the training required for recruitment of a professional statistician; though there was a scarcity of potential candidates with a satisfactory background in Mathematics.

A number of professional level centres were created namely:

English-speaking:

- Department of Statistics, University of Ibadan, Ibadan, Nigeria
- Department of Statistics, University of Ghana, Legon, Ghana
- Department of Statistics, University of Botswana, Gaborone, Botswana

- Institute of Statistics and Applies Economics (ISAE), Makerere University, Kampala, Uganda
- Regional Institute for Population Studies (RIPS), Legon, Ghana
- Eastern Africa Statistical Training Centre (EASTC), Dar-es-Salaam, Tanzania

French-speaking:

- Collège Statistique (CS), Dakar, Senegal
- Ecole National Supérieure de Statistique et d'Économie Appliquée (ENSEA), Abidjan, Côte d'Ivoire
- Institut de Formation et Recherche Démographiques (IFORD), Yaoundé, Cameroon
- Institut national de Statistique et d'Économie Appliquée (INSEA), Rabat, Morocco
- Institut national de planification et de statistique (INPS), Algiers, Algeria
- Institut sous-régional de Statistique et d'Économie Appliquée (ISSEA), Yaoundé, Cameroon.

Some of the Current Training Opportunities: The Prospects

All the above-mentioned training institutions set up in the 1960s have continued to train statisticians and in addition a number of universities are currently offering statistics in their programmes though not the official statistics. Currently at ISAE, training in Agricultural statistics is offered at both undergraduate and postgraduate levels for the Bachelor of Statistics, postgraduate diploma in Statistics and Master of Statistics programmes respectively. It is necessary however that scholarships are made available for training in agricultural statistics at postgraduate level in order to build capacity in this area of specialization. This is because there are no government scholarships for graduate students. Short term courses and workshops are also offered to meet specific skills needs. At the present ISAE is reviewing its programmes to make them more relevant to the information needs under different arrangements, decentralization being one of them.

A foundational course on official statistics is also being proposed for all our students both undergraduate and postgraduate to cover national and international development frameworks, integration frameworks, data sources and data quality frameworks, sources of data for indicators and their development, statistical ethics and legislation. In addition other areas to be covered are qualitative assessments, gender responsive statistics, measuring progress, etc.

The Eastern Africa Statistical Training Centre (EASTC) on the other hand covers a few topics of agricultural statistics in the Applied Statistics course which is basically a subset of the Agricultural Statistics course offered at ISAE at the undergraduate level.

INSEA does not offer any programme in agricultural statistics but are however proposing creating a specialisation in this area in their four year programme and then go ahead to have a Masters programme in agricultural statistics in collaboration with the Agronomy and Veterinary Medicine

Institute. INSAE is also proposing running short courses in agricultural statistics for public servants in the agricultural and related sectors

As far as training outside Africa is concerned, there have been a number of options some of which are:

The Summer Institute conducted by the Survey Research Centre, Institute of Social Research, University of Michigan, USA offers rigorous and high quality training in all phases of survey research. The program provides practice and theory in the design, implementation and analysis of surveys.

The Indian Agricultural Research Institute (IASRI) offers under-graduate, Masters and Doctorate degrees plus carrying out research in agricultural statistics and has offered this service for the last 50 years. The Institute is recognised world wide for its contribution to research and training in agricultural statistics and should have a number of good practices that institutions training statisticians and more so agricultural statisticians can borrow a leaf from.

The Statistical Institute of Asia and the Pacific runs both long and short-term courses and plays a central role in national statistical capability in developing countries. Their courses are aimed at improving knowledge and developing practical skills of government officials/statisticians in aspects of official statistics from planning phase to execution, processing, analysis and dissemination phase. At the end of the day, the trainees are trained in the production and development of official statistics for national development, in applications of information management and communications technology for official statistics and in analysis, interpretation and use of official statistics. In addition the trainees are introduced to better communication and presentation skills and at the end of the day these trainees have the ability to provide training to colleagues in their respective countries which is very important. The Institute also organises long distance training courses.

It is also worth noting that a number of relevant courses to the training of an agricultural statistician may be offered in the Faculties of Agriculture in universities. For example in the Department of Agricultural Economics, Extension and Rural Development, University of Pretoria and in the Faculty of Agriculture in Makerere University, courses are offered in Agricultural and Rural Development studies, Commodity Price Analysis and Agricultural demand and Supply Analysis which can supplement those offered in the Statistical Training Centres (STCs) very well.

Organisations or institutions like the Statistical, Economical and Social Research and Training Centre for Islamic countries (SESRIC) and the African Development Bank (ADB) coordinate a number of activities under their statistical capacity building programmes to improve human capital in NSOs (National Statistical Offices) with the former concentrating mostly on OIC member countries and ADB spreading its efforts to the STCs as well. This covers a number of subject areas including agricultural statistics.

Challenges of Improving the Different Types of Training

There are several challenges as outlined below. Training both formal and informal, is the most important element in human resources development. It is generally agreed that the training of statisticians at all levels should be oriented towards applications and that theoretical courses should themselves contain illustrations whenever possible of real life applications.

The training of middle level staff has remained a challenge. The question is whether for further training of professional staff, priority should be given to practical courses of short duration (not more than 9 months) or training up to Masters level. Does the work of NSOs or the NSSs (National Statistical Systems) in general deem training beyond Masters degree necessary or desirable? Are the NSS or the NSOs sufficiently developed to undertake in-depth substantive or methodological research which may require post-masters training? It should however be noted that these offices should undertake some analytical work and countries have to assess the need for post-masters training from time to time. The question would then be whether the training in analytical techniques should be one that leads to the award of a degree.

The quality of products from the statisticians will depend heavily on their continuous professional development, that is, their in-service training as it helps them to cope with the demands and challenges the results agenda. The training especially at intermediate levels can be provided by universities and STCs and this avenue should be fully exploited. To overcome bigger training constraints, there is also need to target for in-service training programmes and it would also help if statistical training components were included in agricultural programs or in the training of agriculture students. The trainers for the in-service training should recognise the experience of the trainees and build on it so that they connect prior experience to learning and build on it by relating it to current job responsibilities. This will ensure that the staff of statistical agencies have the knowledge, skills and technical competencies they need and that these competencies are kept up to date.

In most of the STCs, the training programmes are giving the relevant statistical background necessary for further training in agricultural statistics and most of them give the basic data management skills. What is basically lacking in training even in training centres like ISAE that offer graduate training in agricultural statistics are the specialised statistical skills in areas like supply utilisation accounts and food balance sheets, small area estimation and imputation techniques, statistical methods for crop forecasting, food security and vulnerability, agricultural prices, investment and capital formation in Agriculture, use of the most up to date relevant statistical software packages, preparation of maps using the GIS, development of indicators, gender dimensions in agriculture, to mention but a few. So at all levels there is the challenge of periodically reviewing the course content and making changes to reflect current priorities and latest data collection and processing methods.

There is the challenge of knowing all the stakeholders. There has been a general concern that the training of statisticians in general was still being organised from the supply side without knowing the demand. The results agenda however has created the urgency to begin to balance demand and supply issues in statistical training programmes so that the trainees also acquire the capacity to demand and effectively use statistics for policy analysis and design. The ISAE has revised all its programmes to take into account this concern and from this academic year, students are registered on these revised programmes. Basic data collection skills will be needed by many people if one is to create a conducive survey infrastructure.

Partnership between academic statisticians at universities and training centres on the one hand and official statisticians working at NSOs is very important as it augurs well for the teaching of official statistics, including agricultural statistics. Scaling up partnerships and interactions between academic

staff at STCs and official statisticians at NSOs enhances the relevance of statistical training at STCs. Practical and applied courses e.g. index numbers, trade statistics and agricultural statistics could be taught by senior and experienced staff from NSOs and other data producing agencies on a part-time basis so that the students are exposed to practical and applied aspects of these subjects. The contribution of some specialised organisations like the Ministries of Agriculture, Veterinary and Fisheries; Meteorological departments; Ministries or organisations handling the water, environment, forestry and agricultural research portfolios, is therefore also necessary. Fortunately, the Plans for National Statistical Development (PNSDs) and sector strategies encourage this relationship.

Together, STCs and NSOs can organize in-service training courses and middle-level training courses. The training of junior cadre staff e.g. statistical clerks, enumerators/interviewers, data entry clerks, data editing clerks, etc is also very important. The tendency is to carry out this training immediately before a specific survey or census. However, review short courses could be organised in STCs for the trainers.

This partnership can also organize refresher courses and/or specialized training courses for serving statisticians. Here, one is looking at having extensive on-going, structured and customized or tailor-made training programmes. Sight should also not be lost of the fact that all NSOs and Ministries of Agriculture train their field staff in a number of aspects like data collection (area measurement and yield estimation), data entry and cleaning. This is a cadre that can be given more specialised training in other aspects though they are only called upon when there agricultural sample surveys and censuses which is not that often. As an incentive to the field staff, credit units could be given to the different aspects of the training leading to the award of certificates to enumerators and possibly Diplomas to supervisors.

The crucial role of agricultural statistics in dealing with the challenges of food security and climate change have been recognized and the current arrangements for collecting and managing this statistics have been found to be inadequate in relation to this crucial role. In addition the challenge of the new areas introduced by the global strategy implies that there is demand for new statistics which may limit further the capacity for collection and handling of agricultural statistics.

It has also been noted that the development of statistics in general in Africa requires training, recruiting and retaining statisticians within the national context though sometimes there are restrictive civil service rules and regulations on new recruitments and remuneration scales. Competition from the private sector for the trained agricultural statisticians is also a challenge in managing human resource for the NSSs. Therefore training at middle and senior levels has to become routine. While agricultural statistics may be integrated in training institutes programmes, there is need to ensure that those trained work in a conducive environment and efforts are made to retain them with competitive packages across the statistical systems. This will require some study that will document best practices in the areas of training, recruitment and retention mechanism.

There is the challenge of introducing modern but cost-effective methodology in the training. The time has come to introduce self learning through e-learning and distance learning. This helps to vary and strengthen teaching programmes. Many countries in Africa have a shortage of trained personnel and this coupled with the expense of full-time training makes it difficult to build the critical mass of trained staff necessary to change the working practices in the NSSs. It also makes it difficult for staff to be away from their offices for an extended period of time. E-learning will not only make it

possible to provide training for such staff from their home countries or offices but also more people can be trained using this training method and thus building a critical mass of skilled and trained staff in the shortest possible time. In the triangular cooperation between InWent –Germany, ISAE and ENSEA, one of the major activities is for InWent to train participants from ISAE and ENSEA in technical and didactical skills of e-learning. This e-learning programme provides an in-depth and practical insight into the preparation plus delivery of e-learning from the angle of an e-learning manager, instructional designer, content developer and on-line tutor. This will help build capacity for trainers at ISAE and ENSEA in implementing e-learning projects in the future.

Demand and supply information is important to training providers and statistical agencies. It is therefore necessary to consider the human resource required to implement the NSDS. However, it is very important that a national statistical manpower development plan for different countries or regions is developed giving the planned output in terms of statistical personnel (and data processing personnel) at different levels of statistical and related training. A Needs Assessment Team at national level should be instituted and this body should carry out inquiries among users of statistics as well as employers of the products of STCs and universities, to ensure that what is demanded is actually going to be used. The training plan so developed would then translate the requirements of the Statistical Systems into specific qualification profiles of staff or other people for whom training is then called for. This then has challenges such as:

(i) Having the right training for the wrong people
(ii) Having the right training for the right people only to go back and they cannot use their new skills.
(iii) People wanting different training from what they need.

The next challenge would then be to find out what institutions in the region are offering what type of training so that these institutions can then be optimally used.

The needs of governments, private sector and those of bilateral and multilateral partners for reliable statistical data has increased the extent of opening up new recruitment opportunities and this has encouraged students to take up relevant options. There is therefore the challenge of STCs to review and adjust their various programmes to take into account the changes in the job market. The need to develop statistical capacity at different levels of local government must be taken up by training institutions to include in their training agenda a sub-national orientation that caters for the training demands of statistical personnel in local government.

Modularization of teaching programmes should also being considered to enable short-term, competency-based training of varying durations providing students with on the job and off the job training.

It is important to also strengthen the field attachment programme for the students which had worked very well when for example ISAE was supported by UBOS to place the students in the districts and sub-counties. This has proved very beneficial to the students who get to know how local governments at different levels operate as far as data collection, entry, processing and dissemination are concerned. It has also helped ISAE to appreciate the demands of local governments and other stakeholders and the quality of graduate they want in order to meet these demands.

While there is a challenge of decentralisation within countries which implies increase in demand for quality data and institutional changes in the generation of statistics, it is hoped that decentralization will open up new recruitment opportunities for the different applied areas of statistics so that students are encouraged to specialize in these areas.

Role of the African Group on Statistical Training and Human Resources (AGROST) in fulfilling its mandate is crucial as it is supposed to coordinate ongoing and future statistical training activities in Africa and together with the proposed Statistical Training Programme for Africa should propel the continent toward achieving its targets in the area of human resource development. The implementation modalities of activities identified thereof are also easily worked out through an umbrella institution like AGROST. UNECA and other UN agencies can then provide the required advisory services.

Required Financial Support

Finally, financial support is necessary to enable the above and in addition for:

- Fellowships for both trainers and trainees. The resources available to training centres for further training are usually overstretched and the chances of securing a sufficient number of scholarships from indicative planning figures or national programmes are limited since statistics is not yet accorded the importance it deserves in most African countries. It is therefore necessary to develop fellowship schemes to enable staff go for this training. Establishing this scheme requires assistance from development partners. Training of Trainers is crucial and it is important that investment is done in staff development to improve the performance of the trainers. This could be in form of Masters and Ph.D training, short courses to acquire targeted skills in selected areas and study tours to learn about statistical training in other STCs in Africa and beyond.

  The training of trainers ensures that training centres have qualified staff to teach statistics or related fields and to enable trainers conduct research in their areas of specialisation. The experts so created by the training will help in the supervision of postgraduate students and will also act as resources persons in regional training programmes including the short term ones. In the case of the trainees, lack of fellowships is one aspect that makes it difficult to

implement regional training programmes. The fellowship for trainees assist in fully utilising the available training facilities. Twinning arrangements between STCs , universities and other stakeholders will greatly ease the implementation of the training programmes.

- Research and development of appropriate methodologies (low cost, simple to apply, yet give reasonably accurate data). This is very crucial and as it is another important component of capacity building. Research can cover a broad range of activities including postgraduate students research papers, research projects undertaken by training centres and individual or collective research by lecturers. It may be necessary to assess the status of research at the training centres. Currently research outputs are few because of lack of resources to conduct research. The training centres should therefore also identify research projects which would be of interest to the private sector to enable them finance some of these projects. There is need for more methodological research to come up with methodologies that are suited to conditions in Africa. This also helps to enhance analytical capabilities as the centres are able to get involved in more in-depth analysis of statistical data. Research outputs should have the aim of improving technical and operational aspects of agricultural statistics within the National Strategy for the Development of Statistics (NSDS) framework.
- Physical infrastructure i.e. classrooms, laboratories, libraries. One of the major limiting factors to the effectiveness of agriculture statistics training, and indeed statistics training in general, is the critical shortage of space. Some of the training centres have critical shortages of space so that there is a shortage of lecture rooms, offices, computer laboratories as well as a library to service staff and students. This limits the effectiveness of the training centres in their teaching and research programmes. For example, the Institute of Statistics and Applied Economics (ISAE) at Makerere University requires US$5million for the construction of a building without furniture. Much as this specific project may not fund this kind of work, it is important to come up with possible ways to assist.
- Development of guide syllabuses and production of relevant teaching materials and periodic review of syllabuses. Guide syllabuses assist in the maintenance of curricula and qualification and also in the review and re-orientation of programmes at training centres. These syllabuses can be prepared at professional, middle and in-service training levels and in three language groups: English, French and Portuguese. This takes into account the differences in the education systems existing in the three language groups. Periodic review and updating of syllabuses is also necessary to enhance the relevance of the curriculum in a dynamic policy and development environment and in conjunction with the users to keep pace with changing user demands and make the programmes more sustainable in local STCs and universities, emphasizing the practical aspects of applied statistical courses. There is also need to train on

the use of new methodological tools and new technologies e.g. GPS, Remote sensing. There is need to develop curriculum to meet the different staff levels of staff working in the planning units and line ministries at the districts.

- Provision of consultants and visiting lecturers for short periods. This is necessary as they will help to give courses in some specialised areas/fields and also fill gaps of trainers who may be away for further training.
- Support for the holding of seminars, workshops and short courses in priority areas of applied statistics such as agricultural statistics. These help to offer short term training that enhances processes related to data production namely planning to collect data, data collection and post –enumeration activities including data processing, storage, analysis and reporting. On the other hand the training may be for data users to empower them and also give them knowledge of how to effectively use data in policy design, planning and decision-making.
- Equipment and accessories. This includes computers, software, projectors and projection screens, consoles, photocopying machines, scanning equipment, power point projectors and screens, and other equipment that will help in the training (better delivery) and research. Equipment is also required for the practical lessons during the training. This should include area measuring equipment like Geographical Positioning System (GPS) tools, measuring tapes, compasses, etc; and yield estimation equipment like weighing scales, sub-plot demarcation, etc. Where different models exist, like for GPS tools and compasses, they should be bought to enable the training centres to participate in research on the respective advantages and dis-advantages of these equipment.
- Accessing Websites that provide training materials like for FAO and the World Bank. This helps the training centres to have a point of reference especially in as far implementing recommendations that may be relevant to them are concerned. New methodologies that have been developed as well as useful information for improving teaching materials may available on these websites and may remain unknown to both the trainers and trainees. This may require the libraries of training centres to be modernised and their services expanded and improved. Libraries are supposed to repositories and access points for maps, prints or other documents on various storage media and thus provide public facilities to access among other things subscription databases. So the libraries should be redefined as places to get unrestricted access to information in many formats and from many sources. The libraries at the training centres should also have connectivity with the library resource centres of NSOs where they exist.
- Harmonising courses and standards. This may require a comparative analysis of the syllabuses of the centres in terms of courses and hours covered per course, number of applied courses, the reading lists, etc. This also enables students to move from one training centre to another without any problem. An example in case is that in the admission requirements to the Bachelor of Statistics programme at ISAE, a holder of the professional

diploma in Statistics from EASTC can join this Bachelor's programme. In addition, these diploma holders with at least a Credit or above are allowed to join the second year of the Bachelor of Statistics programme.

- Mentoring. Mentoring has been defined as "the practice of assigning a junior member of staff to the care of a more senior and experienced person who assists him/her with his/her carrier". It proposed that the training centres play some role in this with the staff of NSOs and Ministries of Agriculture. At the same time, under the twinning arrangements proposed above, the staff of the training centres could benefit from mentoring from colleagues in the foreign institutions.

REFERENCES

African Development Bank, PARIS21, UN Economic Commission for Africa (2005), *Communiqué: NSDS Briefing Session, Addis Ababa, Ethiopia, 8–11 August 2005*.
FAO, African Development Bank, Bill and Melinda Gates Foundation (2010), *Report on the Conference of Development Partners on the Global Strategy for Improving Agricultural Statistics – Implementation Plan for Africa, T*unisia.

Institute of Statistics and Applied Economics (2007), *Strategic Plan 2006/7-2010/11.*

Lufumpa Charles and Michel Mouyelo-Katoula (2005), *Strengthening Statistical Capacity in African Countries under the Framework of the International Comparison Program for Africa (ICP-Africa,* The African Statistical Journal, Vol.1.

Makerere University, *Strategic Framework 2000/1-2004/5*, Kampala, March 2000

PARIS21 (2002), *Statistical Capacity Building Indicators*, Paris

OECD et al (2004), *Action Plan on Managing for Development Results*, Second International Roundtable, Marrakech, Morocco

United Nations Economic Commission for Africa (1990), Addis *Ababa Plan of Action for Statistical Development in Africa in the 1990s*, Addis Ababa, Ethiopia

United Nations Economic Commission for Africa (1990), *Creating and Strengthening a Statistics Teaching Group,* Addis Ababa, Ethiopia

United Nations Economic Commission for Africa (1990), *Guide Syllabus for Middle-Level Personnel in Statistics (English – speaking Countries*, Addis Ababa, Ethiopia

United Nations Economic Commission for Africa (1994), *Evaluation of Fifteen Years of the Statistical Training Programme for Africa (STPA),* Addis Ababa, Ethiopia

United Nations Economic Commission for Africa (1994), *Statistical Newsletter, No. 81*

United Nations Economic Commission for Africa (1998), *Eighth Meeting of the Coordinating Committee on African Statistical Development (CASD),* Addis Ababa, Ethiopia.

United Nations Economic Commission for Africa (2000), *Overall Report of the Evaluation of the Addis Ababa Plan of Action for Statistical Development in Africa in 1990s*, Addis Ababa, Ethiopia.

United Nations Economic Commission for Africa et al (2006), *Reference Regional Strategic Framework for Statistical Capacity Building in Africa: Better Statistics for Improved Development Outcomes*, Addis Ababa, Ethiopia.