Photo: Flashcom Indonesia

Sustainable statistical training programs at National Statistical Offices

Dag Roll-Hansen and Elisa Rustenbach

Global Network of Institutions for Statistical Training (GIST)

United Nations | DESA Statistics

SUMMARY

Like all workplaces, National Statistics Offices (NSOs) need to build the capacity necessary for their staff and particular circumstances within the overall global requirements for NSOs. International organisations which offer training in official statistics may advise on courses, but NSOs organise ongoing training programmes and frameworks appropriate for their staff and needs. In addition, programmes or training units developed by or with NSOs often provide training for other government entities in their countries. In some regions of the world, regional training centres support NSOs in training their staff, mainly by helping to identify needs and supply training.

This report describes an investigation into how training is organised at NSOs and, where appropriate, how they are supported by regional training centres to build the capacity they need. Training offered by NSO's in countries where the NSO is not well established often lack systematization. It is often ad hoc and focused on what is available rather than the specific skill needs of the staff. Training also suffers from lack of prioritization. In countries where funding is tight, training is often deprioritized at the expense of competing needs. In these contexts, staff must rely on their own motivation and initiative to obtain training because they do not often have comprehensive training at their fingertips.

The Global Network of Institutes for Statistical Training (GIST), working to build sustainable statistical capacities through efficient, effective, and harmonized delivery of training has commissioned this report, aiming to find ways to further strengthen the capacity of NSOs. The report is funded by the UN Department of Economic and Social Affairs, Statistics Division (UNSD) who also acts as a secretariat for GIST.

The aim of the report is to shed light on successes, challenges and needs related to establishing and further developing sustainable in-house training programmes. The investigation was necessarily restricted to a small number of countries and other statistical organizations, but these were chosen to provide a good cross-section of types of situations. As always, caution must be applied to avoid unwarranted generalisation.

Information on training programmes in fifteen countries were collected; Ethiopia, Morocco, Brazil, Dominican Republic, Nepal, Ireland, the Philippines, Nicaragua, Kyrgyzstan, Ukraine, Malawi, Mozambique, Senegal, Norway and Myanmar. For Kyrgyzstan and Ukraine, the interviews were done in writing. For Myanmar representatives of the Central Statistical Organization (CSO) were not interviewed, but information was reported by UNDP working with CSO to build statistical capacity.

Seven regional organisations supporting NSOs were interviewed, including Economic Commission for Latin America and the Caribbean (ECLAC), Arab Institute for Training and Research in Statistics (AITRS),Statistical Institute for Asia and the Pacific (SIAP), Ecole Nationale de la Statistique et de l'Analyse Economique du Sénégal (ENSAE), African Institute for Economic Development and Planning (IDEP), Eastern Africa Statistical Training Centre (EASTC), and Statistical, Economic and Social Research and Training Centre for Islamic Countries (SESRIC). For AITRS the answers were submitted in writing.

The interviews led to a variety of findings, among them we highlight four:

1) Establishment of a repository of training material and tools that can be used as a global common good could be cost-efficient and help NSOs have a common place where quality training can be accessed. NSOs and regional organisations can adapt available material to fit their needs and also make their material and tools available to others.
2) A standard curriculum would give NSOs a starting point to identify their training needs and develop a training programme. It would also help organisations know where to focus resources in developing training and training material. Guidance on how to organise training could be beneficial for countries who are setting up or are in the process of improving their training programme.
3) The establishment of a set of recommendations for training would help NSOs that are just beginning to establish a training program to apply lessons learned from other countries and effectively use the, often, minimal resources at their disposal. The focus should both be on identification of training needs and organisation of training.
4) Strengthening and clarifying the role of regional and international organizations in building training programs at the country level is key to the overall advancement of statistics. Currently, the role of regional and international organizations varies widely, and it is likely that many efforts are duplicated or not leading to sustainable outcomes.

Other findings of interest are highlighted in the final section of this paper. Among them are:

● Lack of time and resources is a common challenge both for trainers and participants. This can be helped by motivating experts in the NSOs to develop training through e.g. recognition and extra pay. Likewise, students would benefit from higher motivation for training through e.g. getting interesting tasks and opportunities for promotion.
● Strong support and commitment to funding for training from either the leadership of the NSO or someone higher in the government is key for the development of a strong training program.

- For every class taught, a staff member could be identified to become the instructor for future courses. This person ought to receive additional subject matter training and pedagogical support.
- The current pandemic has induced a shift towards online training. This includes both training conducted face-to-face online and different types of e-learning.
- The data revolution and digitalization give many NSOs challenges they need support to face. Hence, these topics need focus among GIST members.
- Few existing programs evaluate the extent to which training has lasting impact on the production process.

The aim of the report is to provide guidance and inspiration to NSOs and regional organisations training staff producing official statistics.

ORGANIZATION OF TRAINING PROGRAMS

Overview

Through interviews with NSO's and Regional Training Centers, a large variety of structures and priorities were identified. Although not all aspects are covered in the current state of the training programs, there was some consensus on guiding principles of what the aims and tasks of a training programme should encompass:

1. Identify training needs: both for NSOs needs, then needs of other parts of NSS, and for the individual employee's needs
2. Prioritise training needs, and develop a training plan, considering needs in different sectors
3. Establish and increase sustained funding
4. Develop systems for participants requesting training
5. Develop processes for informing and selecting participants for training, prioritizing students that can have the largest positive impact from the training
6. Identifying the right person or institution to conduct the training
7. Ensure motivation, benefits and time for instructors within the organization
8. Organising the training in terms of content, location, duration, scope, etc.
9. Identify methods for courses to be offered in the long term, such as training of trainers or e-learning
10. Market the training plan to solicit technical assistance and funding from relevant sources
11. Evaluate training in terms of quality, whether objectives were met, and whether it is increasing the skills within the organization over time
12. Incorporate the needs of data users into training plans

Training Audience and Topic

All NSOs offering training programs have courses focused on improving statistical skills. Beyond this, their scope varies widely in terms of audience and topic:

- **Census and Survey Field Staff:** Brazil, Senegal and Nepal are examples of countries that include the training of field staff, such as enumerators and supervisors, for Censuses and Surveys under the umbrella of the training program. In countries such as the Dominican Republic and the Philippines, these trainings are considered outside the scope of the NSOs training and fall in the duties of the field operations staff.
- **Management Training:** Morocco gives training in leadership and professional development, and the Academy in Ukraine trains on interpersonal communication and

professional development. The ENCE in Brazil has developed various e-learning management courses. For example, they have a program that aims to reach out to local leaders dealing with data collection staff that includes courses on quality management, staff management, and monitoring procedures. Nepal and Ireland have a ministry or department, separate from the training program focused on statistics, which offers managerial and soft skill training for civil servants. Staff at the Ireland CSO note that there is an online training platform with a large variety of offerings. Nepal's management school is limited to middle and higher-level staff, usually with more than ten years of experience[1].

- **National Statistical System:** Most countries include members of the NSS in the training offerings, either as part of regular training, or specialized training for Ministries. In Ukraine all training programs are available both for the NSO and for the entire NSS. In Myanmar the training centre serves the whole NSS, including government statisticians in all government ministries, aiming for harmonisation of the production of statistics. The Dominican Republic has a series of training courses oriented at improving metrics for the Sustainable Development Goals that are offered to members of the NSS. PSRTI has customized full training courses for members of the NSS, such as a course on basic statistics for official use for 17 regional offices of the Department of the Environment and Natural Resources that was customized using their data.
- **Other External Participants:** Dominican Republic, Brazil and Norway have programs that aim at increasing statistical literacy and interest in schools. Various NSOs also offer some training to the media and researchers. Media training has e.g. been conducted in Kyrgyzstan with support from UNDP and UN Women. Some NSOs surveyed present statistics to Members of Parliament in various ways, but none give training in using statistics to parliamentarians.

The scope of regional training organisations is narrower. Most do not include training for field staff and soft skills. Exceptions are SIAP, which offers courses on leadership and management for heads of NSOs and training of trainers and IDEP, which is developing a course on statistical leadership. SESRIC used to include soft skills, but now have shifted the focus of their limited budget on the priorities of the Standing Committee for Economic and Commercial Cooperation of the Organization of Islamic Cooperation (COMCEC): 8 prioritized SDGs (i.e., SDG 1 (No Poverty), SDG 2 (Zero Hunger), SDG 3 (Good Health and Well-being), SDG 4 (Quality Education), SDG 5 (Gender Equality), SDG 8 (Decent Work and Economic Growth), SDG 9 (Industry, Innovation & Infrastructure), and SDG 13 (Climate Action)); and 7 cooperation areas (i.e.,

---

[1] https://www.nasc.org.np/

Agriculture, Finance, Poverty Alleviation, Private Sector, Trade, Transport & Communication, and Tourism).

Most NSOs offer training for other members of the NSS. An exception is AITRS, which has a very specific scope that only includes the NSOs of the member countries. However, they do offer training on how NSOs can lead the NSS. Finally, few offer trainings to other external participants.

Types of trainings offered

Given the large variety of structures, scope and funding, it is not surprising that the training offerings also vary substantially across countries. The main types of offerings are as follows:

Globalisation and technical development make training available across borders.
Photo: Juliana Kozoski

● **Accredited higher education degrees (Bachelors, Masters, and/or Ph.D. Programs):** In Ukraine the Academy offers bachelor and master training in educational programmes on Applied Statistics and Business Analytics, it also has a training programme called Official Statistics qualifying both for work in the national statistical system and enterprises submitting statistical reports. The program lasts for one and a half years and currently has about 50 students. The Academy in Ukraine also gives PhD training in statistics. In Brazil, ENCE is an accredited institution per the government and offers higher level degrees such as a Postgraduate in Population, Territory and Public Statistics. Senegal offers a Master of Science, Associates and Bachelor's degree in Statistics.

● **Regular Training Courses:** Both Philippines and the Dominican Republic have a list of statistical courses organised into topical clusters. They offer a subset of the courses every year. For example, PSRTI has a Statistical Modelling Cluster that includes three courses: Regression Analysis, Time Series Analysis and Basic Forecasting and Advanced Forecasting Methods. Dominican Republic has clusters such as applied statistics, with six course offerings or economic statistics. Morocco offers a variety of training courses such as demography, business intelligence and statistics and data collection. The Academy in Ukraine give two weeks trainings on data analysis and three weeks trainings on data processing to about 300 participants annually. Usually the Academy also trains staff of

the State Statistics Committee of Azerbaijan, but this was cancelled in 2020 due to the pandemic.

- **Custom Training Courses:** As noted, the Philippines creates and offers courses to any member of the NSS or the Public (e.g. a financial institution) upon request. Even when the topic areas are common to PSRTI (e.g., basic statistics), they adapt the content to use the data from the organization to which the course is being offered.
- **Webinars:** Dominican Republic offers a series of short webinars on specific topics such as COVID-19 statistics. The CSO in Ireland offers short presentations over lunch called *data bytes*. If there is enough interest, some of these presentations have been developed into longer classes.
- **Working groups:** Brazil has organised working groups where, following a course or a webinar on a specific topic, participants are organised into discussion groups where they can try to apply the learning to their own realities. Ireland is in the process of developing ongoing working groups, where experts on specific topics can pass on their skills to younger staff or share knowledge across thematic application areas.

The regional training centres offer a similar variety of courses. SIAP has a long-term training program where participants live in Japan for 4 months and attend classes that give them basic training on a wide array of statistical topics.

Training Organization and Staffing

There is large variation in how training programmes are organised across the fifteen National Statistics offices described in this report. Many NSOs have, or have access to, a training unit and/or dedicated staff, but these vary in terms of the number of dedicated staff and how the unit is organised. Broadly speaking, four categories of organisation type were encountered:

- **A national training institution that is separate from the NSO and its own entity within the government:** The Philippine Statistical Research and Training Institute (PSRTI) was established in 2013 as its own independent entity within the government after an evaluation of all ministries involved in the production of statistics. Prior to 2013, PSRTI had been a training centre and there were four other primary entities involved in the production of statistics, each of which had some level of training available. Following the evaluation all five ministries were reconstituted into two: the Philippines Statistical Authority (PSA), which encompasses the equivalent of an NSO but also includes the statistical authority for labour, economic and agricultural statistics and 2) the Philippine Statistical Research and Training Institute (PSRTI), which is in charge of training in statistics for the PSA and all other members of the NSS, as well as any interested private companies. The PSRTI has approximately 45 permanent staff and is currently in the

process of getting additional positions approved. They aim to have a total of 75 staff in the next few years.

In Ukraine the Academy is a functional body within the NSS and is a higher educational institution that has existed since 1992. Until then, it was Ukrainian branch of Moscow Interdisciplinary Institute of Advanced Training of Professional Accounting and Statistics of the State Statistics Committee of the former Soviet Union. With Ukraine proclaiming its independence the Educational Institution has changed its status and concept of educational activities towards training and retraining of specialists in economic specializations and statistics.

- **Formal units within the NSO that have established a school or institute often providing training across government entities:** Seven of the interviewed countries fit this description: Brazil, Dominican Republic, Morocco, Mozambique, Senegal, Myanmar and Kyrgyzstan.
  - In 1953 Brazil established the National School of Statistical Sciences (Escola Nacional de Ciências Estatísticas or ENCE) as a department of their NSO, the Instituto Brasileiro de Geografia e Estatistica (IBGE). The school operates in its own space and has about 100 permanent employees that are largely instructors and course creators. The ENCE is an accredited institution recognized by the Government of Brazil. It has a department with 25 employees that focuses on developing and implementing training for IBGE's staff and, to a small extent, the general public. The rest of the staff focus on sustaining the academic activities, including research and teaching at graduate and post-graduate levels.
  - The National School of Statistics (Escuela Nacional de Estadística or ENE) was established within the Oficina Nacional de Estadística (ONE) of the Dominican Republic in 2006 as a result of funding provided by the Inter-American Development Bank (IDB). The ENE has a permanent staff of five: a school director, an administrative assistant, an academic planning manager, an academic coordination manager and an academic coordination analyst. The ENE has its own classroom space that it shares with the rest of the ONE. The ENE does not hold its own official accreditation.
  - Morocco: The school is part of the High Commission for Planning (HCP), the NSO of Morocco. The training program is a strategic component in the HCP Human Resources policy, organised under the Human Resources and General Affairs Department, and establishes and conducts a wide and varied training programme to meet the learning needs of the employees. In addition to the in-house training, there is a statistical school covering all NSS, using full time instructors.

- ○ Mozambique: A Statistical school opened in 2008, organised under the HR and Administration-department at Instituto Nacional de Estatística (INE), the NSO of Mozambique. The main mission of the school is to provide training to promote a statistical culture and train mid-level professionals as well as giving short courses. Experts from INE do the training.
- ○ Senegal: Ecole nationale de la Statistique et de l'Analyse Economique (ENSAE), a school within the NSO, belongs to a network of African statistical schools, organised by le Centre d'Appui aux Ecoles de Statistique Africaines (CAPESA). The school is part of the Agence Nationale de Statistique et de la Démographie (ANSD), the NSO of Senegal.
- ○ Myanmar: The Central Statistical Organization is in the process of establishing a Statistical Training Centre (STC) to provide a broader training program for its own staff as well as staff of statistical units in other agencies in the NSS.
- ○ Kyrgyzstan: A training centre called the Institute of Statistical Research and Capacity Building (ISRCB) is a subordinate body of the National Statistical Committee (NSC), the NSO of Kyrgyzstan. It is funded over the state budget.
- **Formal unit within the NSO with dedicated staff but no officially established school:** Ireland, Ethiopia, Nepal and Norway fall into this category.
  - ○ The Central Statistics Office (CSO) in Ireland has a training unit with four dedicated staff: a statistician, an administrative manager, an executive officer and a clerical officer. The unit reports directly to the Head of HR Learning & Development and has a dedicated training space on site. The training unit has adopted a new training framework that they have been developing and utilizing for the past several years.
  - ○ Ethiopia: A training program exists for staff of the Central Statistics Agency (CSA), the NSO of Ethiopia. It has been in existence for 7 years but is still not fully operational. The training program has a dedicated building, and the staff are working to establish and develop a system for course administration and a curriculum.
  - ○ Nepal's Central Bureau of Statistics (CBS) has four staff members with a statistical background dedicated to training. The training unit is in the Planning and Human Resources Management Division l and does not have dedicated training space.
  - ○ Norway: In-house school, organised by the HR-division in Statistics Norway. One staff member coordinates most in-house training in the organisation as her main task, others support as need be.

- **No formal training unit or staff dedicated to training:**
    - The National Institute of Development Information or Instituto Nacional de Información de Desarrollo (INIDE) in Nicaragua has no staff dedicated to training. Training needs are handled as they arise by the HR department. However, in 2018 the IDB funded a consultancy to identify training needs and establish a training program that will go through 2022.
    - Malawi National Statistics Office (NSO) has no operational training program. They established an internal training centre, which ran for 2-3 years but then stopped. The training centre was basically established to give training directly relevant for the work staff do, by bringing individuals together and having internal trainers to do the training.

For purposes of this paper, we will be referring to the described training programmes as NSO training programmes. Apart from the first category, all of the training programmes originate from units or staff housed within the NSO. The two exceptions, PSRTI and the Ukraine, have the NSO of their respective countries as their primary audience and will in the following also be referred to as NSO training programmes.

Regional Training Centres

The seven regional training centres interviewed also varied widely regarding organization of their training. Headquartered in Chiba, Japan, the Statistical Institute for Asia and the Pacific (SIAP) was established in 1970 as a centre for statistical training. It has two managers that come from a statistical background that assist in the training and four full-time lecturers. Each lecturer has a subject matter focus but the unit works collaboratively on the training.

The Arab Institute for Training and Research in Statistics (AITRS) began in the sixties as a result of an initiative from UNDP as a regional centre for training on agricultural statistics in the Arab Region. It evolved over time and formally became known as AITRS in 1977. It is headquartered in Amman, Jordan.

The Statistical, Economic and Social Research and Training Centre for Islamic Countries (SESRIC) was founded as a subsidiary organ of the Organisation of Islamic Cooperation (OIC) by the 8th Islamic Conference of Foreign Ministers (ICFM), held in Tripoli in May 1977. SESRIC started its activities in Ankara in Turkey on 1 June 1978. Within the framework of its Statistical Capacity Building (StatCaB) programme for the National Statistical Offices (NSOs) of OIC countries, SESRIC collects information from NSOs, assesses their needs and capacities, and matches these needs and capacities through organizing statistical capacity development activities.

The Economic Commission for Latin America and the Caribbean (ECLAC) was established in 1948 and is headquartered in Santiago, Chile. ECLAC has no team dedicated to training. Rather, it is organised by subject matter teams such as statistics, gender affairs, economic development, and natural resources.

The Eastern Africa Statistical Training Centre (EASTC) in Dar-es-Salaam in Tanzania, serves as a centre for training in statistics for English-speaking African countries. EASTC has their own trainers and give both short courses and training of longer duration.

The African Institute for Economic Development and Planning (IDEP) located in Dakar, Senegal is a training institute of the UN Economic Commission for Africa (ECA), focusing on use of data for policy development. They are supporting development agendas, focus on development planning, e.g. trade policies including data analysis and gender policy management. They have a strong quantitative component.

The ENSAE is a training centre serving the NSO of Senegal as well as other French speaking African countries. It is part of a consortium of four African statistical schools (ENSEA Abidjan, ISSEA Yaoundé, ENEAM Benin and ENSAE Senegal) , centered around le Centre d'Appui aux Ecole Africaines de Statistiques (CAPESA).

In addition to the seven centres described above, the national Academy in Ukraine has capacity to create an International Statistical Institute for the Eastern Europe, Caucasus and Central Asia (EECCA) countries, aiming to strengthen the potential of national statistical systems in the production and dissemination of quality statistic.

Most of the NSOs interviewed have limited funding for training. All of them cover the staff salaries when they are developing and implementing training, as well as the time of the staff participating in the training, as long as that training was approved. Most NSOs also have limited funds for travel and accommodation for training offered outside the city where the NSO is located. Often, when multiple people request the same external training that has a cost, one staff member is chosen and that person shares their acquired knowledge upon their return, in order to train more staff with existing resources. In most countries, there was no clear system for identifying the participant who would travel for training. Often it fell to the most senior member of the staff that demonstrated interest.

There are countries with governmental rules surrounding funding that affect the format and location of the training. In many countries training must be given at a certain distance from the main place of work, for the participants to receive daily allowances. As a consequence of being far from the main office, certain classes have more difficulty acquiring the necessary teaching

materials, such as a laptop per participant. We also found economic incentives to have training outside the headquarters in other NSOs, among them in Malawi, Mozambique and Kyrgyzstan.

Most NSOs offer the training they create for free to the participants for which the training has been created. An exception is PSRTI in the Philippines which offers both a regular catalogue of courses and custom courses. All regular courses are offered to the public but have a substantially lower fee for civil servants. Custom training courses are usually developed at the request of an outside party. For these courses, the government covers the salaries of the PSRTI employees, and an agreement is created with the requesting party to fund any external instructors, participant fees and other expenses, such as utilities and electricity. Another example is the Ecole Ecole nationale de la Statistique et de l'Analyse Economique du Sénégal (ENSAE), which charges a fee for participating in short term training that qualifies the individual for working in the field and other data collection activities.

Concerns over limited funding have increased as a result of the pandemic. Some governments, such as Malawi and Mozambique, have frozen the hiring of new employees. Others have reduced government budgets in other ways, as is the case in Morocco, Brazil, and the Dominican Republic. In Nepal, because the training unit is a sub-directorate that does not report directly to the Director General, their funding is often not seen as a priority and, especially during the pandemic, has been redirected to other programs that are deemed to be more central. Having a strong tie to the Director General may also have a negative effect; the in-house training programme in Myanmar was put on hold for a substantial amount of time as priorities changed when there was a new top management. Nevertheless, having resources, interest and support from top management is crucial to having a functional in-house training programme.

Funds committed to countries by international organisations have in some cases been reprogrammed to meet other urgent needs. For some countries, reduced funding has led to a sharp decrease in access to training. For example, Malawi relies heavily on funding from international donors. Even before the pandemic, such funding was decreasing. Now, staff do not have the time to train their colleagues, and there is no budget for cost associated with training. The training program has come to a stand-still. Across the board, there are fewer training resources and staff have less time to develop or participate in training. This necessitates implementation of cost-efficient training.

For many countries this has led to the implementation of more cost-efficient training in the form of e-learning. This includes both synchronous training which is similar to any in-person offering but done with the aid of an online platform such as Zoom or Teams and asynchronous training involving developing recorded materials that a participant can access at any time. Many

NSOs are also increasing their use of existing e-learning offered by external regional, national or international organisations. For example, Morocco identified 5 platforms for e-learning that they have recommended for staff and will pay for certificates acquired. Accessing e-learning reduces the cost and carbon footprint of travel, whether it be for the participants or the instructors, and often allows for a larger number of participants. Some countries noted that female participation in training has also increased as a result of e-learning. E-learning will be elaborated later in this report.

Regional Training Centres are often funded by the contributions of member countries. Although SIAP receives some funds from member countries, it has a unique funding situation in that a large part of its budget and its long-term training is supported by the Japan International Cooperation Agency (JICA). While SIAP is a regional institute in Asia and the Pacific, it often trains participants from other regions such as Africa and Latin America and the Caribbean as well.

Due to the pandemic, many regional and international organisations have noted that countries are paying fewer fees, payments are often delayed, and they are having to postpone or cancel training offerings as a result. These training centres also see the move to e-learning as an opportunity.

IDENTIFICATION OF TRAINING NEEDS

<u>Process of identifying training needs</u>

There are three primary ways NSOs and Regional Training Centres identify training needs: 1) Ad hoc training in response to direct requests, 2) training staff conduct an assessment of training needs and respond accordingly, 3) an individual gap assessment of skills and competencies is conducted to identify training needs.

Ad Hoc Training

Some countries do not proactively attempt to identify training needs but rather respond to needs as they arise and requests stemming from different parts of the NSO or NSS. In Kyrgyzstan an annual training plan is developed based on requests from the different statistical domains. In Ukraine, there is both regular training and courses that are conducted on request and in accordance with the requirements of the time. At Statistics Norway the in-house training programme strives to respond to emerging needs throughout the year, as one of several ways to identify training needs.

Assessment of Training Needs

A second way countries assess training needs is through a needs assessment that is done on a periodic basis, usually about once a year. The format for these assessments varies widely from open-ended questions that ask about training needs and the number of staff that would participate in a ranking of previously offered courses to specific questions concerning who would attend in the future. This model is used by countries such as Morocco, Brazil, Dominican Republic, and Nepal. Most NSOs then set their yearly training program based on a combination of the number of people that need the training and whether the training content has already been developed in house.

Individual Gap Assessment

The third method for identifying training needs is a gap assessment comparing the skills and competencies of each individual to an established standard. The CSO in Ireland has identified 13 key skills and defined 5 levels of knowledge[2] within each one of those skills. In addition, they have defined the knowledge level necessary in each of the 13 skills for each job description among the statistical staff of the organization. They then conducted a gap assessment by asking

---

2

https://unece.org/fileadmin/DAM/stats/documents/ece/ces/ge.58/2018/mtg4/Session_3_PPT _Application_of_Statistical_Training_Framework.pdf

managers to set the standard for the role and staff to rank themselves on each of the 13 skills. Their training program was created as a direct result of the gap assessment. Gap assessments are conducted once a year and a training program is identified for each employee. Courses offered are created or sourced based on highest need.

The INIDE (NSO) of Nicaragua also conducted a gap assessment through a special project funded by the Inter-American Development Bank (IDB). A consultant individually interviewed every member of the statistical staff of the NSO. Nicaragua has no training available in-house. As part of the project they have collaborated with two National Universities to develop specializations, Bachelors, and Master's Degrees to address the training gaps. For now, this is a one-time project and it is unclear whether the training program will continue when completed.

Mozambique is carrying out an analysis of the competencies of the staff and comparing them to the list of available training needs. They are currently focusing this effort on the INE (NSO) but plan to expand to the NSS once completed. Finally, Philippines PSRTI uses gap assessment for their in-house staff, in order to level them up in soft skills or being able to teach new topics. However, they do not have the capacity to do this gap assessment with the PSA because it is a separate institution.

As far as the regional organisations, AITRS, SESRIC, IDEP and SIAP develop multi-year training plans, reviewed yearly, that they develop with insight from the heads of NSOs in their respective regions or a technical committee board. The AITRS plan also takes into account other priorities such as the SDGs and has five objectives, each with their own initiatives: 1) improving the statistical capabilities of NSOs by providing quality training, research and technical assistance. 2) training on emerging topics in stats, 3) creating resources for development of capabilities for training, 4) developing international cooperation, and 5) establishing good governance and management in AITRS to help it carry out its role.

SESRIC sends a questionnaire to NSOs of the OIC countries every second year, asking for training needs and what training the NSOs can give, even though some flexibility to respond to requests from countries exists. They are trying to match needs and available trainers by taking languages used, proximity, and equitable geographic distribution into account.

ECLAC responds to requests from collaborations from international organisations such as UNFPA and the World Bank and is largely driven by offering training in places that can provide funding.

NSOs interviewed report that regional and international organisations respond to their needs to various degrees. Sometimes the NSOs are asked to specify their needs, e.g. by writing a Terms of Reference (ToR) for a training. In other cases, the ToR is initially drafted by the international

organisation, to be commented on by the NSO. In training related to projects the training courses are often pre-defined and come as a package, not being possible to influence by the NSO.

The regional training centres interviewed do not specifically help countries organise training programmes by setting up the structure of training courses or staff. However, multiple regional centres such as IDEP identified training of trainers as a priority to help countries be able to offer their own training. Various countries and regional institutions noted the ever-changing evolution of data needs. Currently, there is a move towards big data and web scraping, among other topics. Nepal and the ENSAE noted that online courses and instructors experienced in emerging topics are limited and hard to find.

Summary of Identifying Training Needs

There are possible advantages and disadvantages to each of these methods. 1) When training programs set their courses based on requests, they may only be tailoring training needs to the requests of a few vocal staff, rather than covering the needs of the organisation. Dominican Republic noted that, prior to establishing a formal assessment, they had what they referred to as "frequent flyers" - a few employees who would attend all training courses. 2) Training assessments often include a limited number of questions or are filled out only by managers. This could lead to two problems: not identifying the full range of courses needed or misidentifying them altogether because the supervisor does not truly understand their employees' skills or is out of date with the latest requirements. 3) Gaps assessments seem to offer the most personalized training needs assessment. This method is much more time intensive to create and maintain and often identifies very specific training needs that the training program does not have the time or resources to meet.

NSOs versus regional and national organizations may have different pros and cons when responding to needs assessments. The NSOs likely have better knowledge of the challenges and possible solutions for addressing the gaps. However, they may lack resources to do so. Regional and international organizations lack the in-depth knowledge of the situation of each country but have more access to resources for filling the gaps.

Relevance of training to participants needs

How students are chosen for training varies by country. In many they are nominated by their supervisor, e.g. in Myanmar and Brazil. Several countries have an online platform or a mass email system where anyone can apply to the class and then their supervisor approves the training. This is the case in Norway, Nepal, and the Philippines. Finally, countries that utilize a gap assessment often have a combination of methods. For example, in Ireland, each statistician

has a tailored training program. Some staff members noted, however, that although some primary classes were offered to them, they often had to be proactive about accessing more specialized training.

For existing courses, almost all countries publish a profile describing the characteristics of who should take the course. If there are too many applicants, they choose some participants over others by how well they meet the criteria. IDEP also notes that they, to some degree, prioritize the inclusion of female participants and that doing so has become easier since classes are online and not face-to-face.

Some countries noted a difference in the level of relevance of training developed in-house versus those developed externally. As an example, training on macroeconomic statistics in Morocco is often conducted as a workshop, where colleagues bring the challenges they face in their work, finding solutions in cooperation with relevant experts. In Norway, course evaluations showed that training in the statistical package SAS conducted by an internal SAS expert is perceived as much more relevant to the work of the training participants, than similar training conducted by an external consultant. PSRTI adapts every training course by using the data of the institution receiving the training, making the examples much more relevant to the participants' work.

A substantial amount of training is delivered from international organisations and development partners as part of projects. Malawi e.g. collaborates with international organisations, such as the U.S. Census Bureau, to receive technical assistance related to specific projects like the population census. This makes it possible to use the acquired skills immediately. A disadvantage with training given to support projects is however that it does not necessarily respond to the long-term needs of the NSO because the training comes as part of the project and is not necessarily defined as a priority by the NSO in Malawi. Myanmar has developed a training curriculum to respond to this challenge, encouraging development partners to deliver training in line with the needs defined by CSO. Nevertheless, most training from partners is part of a project, and is supplied regardless of the needs specified in the curriculum.

Career Development

Training is generally seen as positive for career development, but very few countries could directly link training and staff advancement. A few countries noted that a larger array of skills was related to possible promotions indirectly, but for most there was no direct link. Dominican Republic, Norway and Malawi noted that training makes you more rounded and attractive for promotion. Many countries, such as Nepal and Brazil, have structures where promotion is largely based on longevity within the organisation. In Kyrgyzstan and Myanmar promotion depends on the number of years worked in combination with exams passed. To be promoted in

Morocco, staff have to pass an exam and the training program has developed courses that help them be successful in doing so.

Ireland's CSO has a structure where staff are encouraged to rotate every 3-7 years. Staff can look at the skills identified for a position they may want and start to proactively take training related to that job in hopes that it may lead them there.

FOCUS ON DOMINICAN REPUBLIC

Emmanuel Gatón is the head of the External Commerce Division at the ONE (NSO) of the Dominican Republic. He started working for the ONE in 2009 as part of the technical team in charge of the National Survey on Economic Activity. Throughout the years he took "too many classes to count" from the ONE's school of statistics (ENE), including courses on statistical software, management training, demography, time series, data warehouse, international commerce, etc.

According to Emanuel, promotions in ONE are not directly tied to training. In other words, taking training does not guarantee you a promotion. However, when he looks around at the colleagues he started with, he notes that those who have engaged in training are currently in higher positions than those that did not. He credits his ascent in part to all the training he's had access to through the ONE.

The Regional Training Centres have difficulty rating whether the skills acquired in the training are relevant to the jobs, although some have made attempts. AITRS has tried to get their training included in the criteria promotion process of personnel. SIAP requires participants in their long-term training to do a project following the courses that is directly related to their day-to-day job and present on what they have learned. EASTC noted that it is often difficult for staff to use newly acquired skills: When they go back to their jobs they go back to the routines and procedures in their organisations and have to complete the same tasks they had before the training. Hence, applying new skills and changing the way they work as a result of training is often challenging. Improving the training evaluation process so that it better captures the long-term impact of the skills acquired is an aim of most regional training centres. GIST is currently looking into the possibility of establishing international guidelines for training evaluation.

Need for capacity development relating to SDG monitoring and emerging needs

SIAP notes that the adoption of the 2030 Agenda for Sustainable Development has resulted in a quantum jump in the need for statistics given that the number of indicators required for tracking progress increased from just 60 in the MDG era to 231. This fourfold increase in demand for indicators and, consequently, related statistics has led to increased demand on national statistical systems even though many developed countries have not managed to meet the demand. The increased use of administrative data, in addition to official statistics generated

from censuses and surveys, has resulted in higher demand for capacity development of statistics both in NSOs and the NSS. Further, the field of statistics has considerably changed with the emergence of new kinds of data, including "big data", geospatial data mapped on traditional data and data collected through use of mobile devices and scanners. This increased demand for statistics often cannot be met by the countries due to severe budgetary cuts on statistical activities. While there is increased demand for statistics for evidence-based decision-making, there are usually not enough trained statisticians and there is a lack of dedicated financial resources. There is an increasing need for capacity development in diverse areas of statistics.[3]

New Staff

According to the forthcoming UN Handbook on Management and Organization of National Statistical Systems[4] "Integration of newly recruited staff into the NSO involves a process (induction) where employees adjust or acclimatize to their jobs and working environment.", and further that "Newly recruited staff have to be provided with all information and tools required to become fully operational in due time, including through orientation training and seminars". Few NSOs arrange or provide training that is specific to new employees, though there are some exceptions. Ireland has developed a first-year program including quarterly milestones with resources on how to accomplish them. By the end of the first year, new employees are expected to have learned SAS and completed a course that introduces them to the 13 skills that the institution has identified as key to the job.

Brazil also has training oriented toward new staff that covers general information on the IBGE, confidentiality principles, system of automatic data retrieval, how to create basic charts and graphs and how to deal with the media. They also have several tracts of courses that cover specific skills needed for the job that start at the introductory level. They are finalizing a course on basic statistics for official use that every single new employee of the IBGE would take.

---

[3] This is been based on four needs assessment surveys: 1) Assessment on agricultural and rural statistics carried out by SIAP, 2) Assessment on gender statistics carried out by UN Women, 3) generic training needs assessment survey carried out by PARIS21 (Response to the joint survey on New approaches to Capacity Development and Future priorities, Draft Report for the United Nations Statistical Commission 2018) and 4) Assessment by GIST (Key messages from training needs assessments, summary of needs assessment exercise), https://unstats.un.org/gist/resources/Outputs-from-Task-Teams/2018/).
[4] https://unstats.un.org/wiki/display/HSO/Chapter+12+-+Human+Resources+Management+and+Development?preview=/62587036/87426077/UN%20Handbook%20-%20Chapter%2012%20-%20rev%2018.pdf

In Kyrgyzstan new staff at both central and regional levels of the National Statistical Committee receive training in support of the HRM Strategy and the Statistical Work Program. Also, specific training from a Government personnel service, training civil servants and staff in municipalities has been given since 2017. In 2020 this training was not conducted due to the pandemic.

Norway offers new employees four days of training that introduce them to the organization and the different areas people work in and cover administrative processes. The training was transferred to online sessions in 2020. Myanmar has a new staff orientation and provides some training to new staff. Most other NSOs focus on on-the-job training for the inception of new staff but there is little guidance or structure on how to do so.

Management Training

Some countries do not include management or other important training that is not specific to statistics in the offerings (e.g., Malawi, Senegal), but most do. Some countries have an institution, independent from the NSO or training program, that has the mission of training civil servants, like Nepal. A problem Nepal encounters with this structure is that these courses are only offered to individuals with ten or more years of experience in the CSO.

Other countries have a separate department within the NSO that addresses non-statistical skills training. For example, Dominican Republic held 22 courses or webinars in 2019 on topics such as ethics and discipline, management, and how to speak in public and the Academy in Ukraine conducts trainings on the basics of management, communication, psychology and business.

Finally, there are countries where management skills are included in the curriculum of the training unit. For example, Nicaragua included management skills in their gap assessment funded by the IDB and staff including statisticians and HR, received relevant training. Morocco offers training in leadership and professional development and Norway is in the process of developing training for managers in-house.

As far as the regional training centres are concerned, most do not cover non-statistical skill training. Two exceptions are SIAP, which has management training for heads of NSOs and IDEP, which is in the process of establishing a training on statistical leadership. The IDEP training is initiated by a needs-assessment among African NSOs. A program is proposed to be piloted in one French-speaking and one English-speaking country and implemented in early 2021. SESRIC used to have management skills trainings but currently has channelled the available budget to more prioritized areas.

NSS Training

Most NSOs include members of the NSS in their training and some offer tailored courses for the NSS. When PSRTI offers courses to members of the NSS, they make sure to customize them so that they are using examples and data from the ministry in question. Morocco has a full statistical school covering all members of the NSS. Malawi has a two-year training certificate programme that members of the NSS can apply for. However, the program often lacks funding and staffing. Dominican Republic has many classes for the NSS, specifically focused on institutions that help develop metrics for the SDGs.

Other countries include members of the NSS in many of their regularly offered courses. Mozambique indicated that, on average, about 30% of participants are from the NSS. Brazil has courses that cater more widely to the NSS but, on average, opens 2-3 seats per class to the NSS. Ethiopia sometimes includes members of the NSS in their courses but has identified a more structured approach to NSS training as a main area of need, especially in survey methods, data management, software packages, GIS, data quality, and quality management systems. Finally, Nicaragua included key members of the NSS in the gap assessment and they are currently receiving training under IDB funding.

Training in development and testing of questionnaires, in the Training Centre, Central Statistics Agency of Ethiopia in February 2020. Photo: Gudrun Jevne

The skills of staff within statistical production entities outside the NSO varies widely. Many countries indicated that the training staff have received from college or university is not specific to official statistics and that such courses are not offered in their countries. There are a few exceptions, such as Ireland, where the University of Dublin has a newly established Masters in Official Statistics that the CSO was able to influence. In Senegal there is a lack of skills in the Ministries belonging to the NSS. The NSO created a plan to give short term training for statistics officers in all Ministries, but the plan was not possible to implement. Salaries in the Ministries cannot compete with the salaries in NSO, which makes it difficult for Ministries to recruit qualified personnel. The challenge is addressed through short

term training for staff working with statistics in the Ministries, but progress is slow as the training programme needs external funding to do training for Ministries.

Most regional training centres do include members of the NSS. An exception is AITRS, which has a charter that specifies its mandate is to offer training only to the NSOs of the 22 member Arab countries. They do, however, offer courses on helping the NSO be the leader of the National Statistical System. Both ECLAC and SIAP offer courses that include NSS ministries and develop courses that are specific to the needs of certain ministries. IDEP and EASTC indicated that they primarily have participants from the NSOs but a few seats are open to members of the NSS. ENSAE includes the NSS in training but relies on external funding to offer the courses.

External users

As far as training for people outside the NSO and NSS, Brazil and the Dominican Republic offer training such as statistical literacy and data visualization to members of the public with a focus on members of the media, researchers, university students and primary and secondary schools. Brazil has a web page with material for school teachers to use in their classes and thematic pages for teens and kids.[5] The Philippines offers certain courses to the public, charging a higher fee than the one they charge for civil servants.

Most of the regional training centres do not offer training to people outside the NSO and NSS. IDEP opens their courses for members of non-state organisations and the private sector. Various NSOs noted the increasing importance of this topic.

Need for capacity development relating to COVID-19

The COVID-19 crisis has also propelled data and statistics into the spotlight. The importance of accurate, reliable and timely data in understanding and managing the crisis has become more apparent by the day, as decision-makers across the world have had to make quick and unprecedented decisions affecting millions of people spread across the globe. In parallel, the international official statistics community has had to react at lightning speed to meet the urgent demands for new types of data to support potentially critical lifesaving decisions. The needs for statistical capacity development have been strengthened.

---

[5] https://educa.ibge.gov.br/

MEETING TRAINING NEEDS

Internal resources

Internal or external trainers

For training to be effective, the best is to have the appropriate expertise within the organisation. Internal trainers can adapt a training to fit the work processes and systems used in an organisation better than an external trainer. Internal trainers are often more easily available, cheaper to use and being a trainer can also be motivating and build confidence, and subsequently strengthen the learning potential of the organisation.

Most NSOs utilize their own staff to develop some of the training for the program (Nicaragua is an exception because it does not organize any in-house training). However, very few offer an incentive for staff to become instructors and they are often expected to develop training and facilitate the course on their own time. Some offer a bonus for working overtime (Brazil). The Dominican Republic is currently working on a plan to be able to provide such a bonus. Because staff are often expected to create the courses in their own time, it often leads to delays.

In Mozambique the statistical school uses instructors from INE when possible. The trainers are mostly technicians involved in the different parts of the statistical production process from the different departments. They are the right ones to do the training as they know the skills hands-on, but need to balance their activities, meaning that they need to do their regular tasks. This makes them less available for giving training. Trainers from international organisations are also invited, especially where there is a lack of expertise in INE.

When choosing which employees will teach the course, it is important to make sure that they have both the ability to teach effectively and are interested in doing so. An advantage of using an existing employee to become a trainer is that he or she already has experience in the field and knowledge of the work of the NSO. One should be motivated to act as an instructor, in order to encourage the employees to acquire skills and pass them on to their colleagues.

In Morocco, the HCA is facing difficulties recruiting highly qualified trainers in some areas, mainly in statistics, economics and especially digital transformation. It is also difficult to find the budget to hire trainers in these areas. HCA reports that organising training in cooperation with international organisations in specific areas will be valuable to strengthen national capacity.

The selection of trainers must also be adapted to the cultural context. In some NSOs, it is expected that training should be given by a manager or other high-ranking person (Myanmar). In most contexts however, experts or dedicated trainers are culturally accepted as trainers.

The Central Statistics Agency of Ethiopia is aiming to establish a more sustainable and organised training which can go from year to year. To achieve that, they report the need for organised systems, an organised curriculum, and training facilities and to have a system built. Currently, they are providing most training ad hoc upon request. To start, the CSA needs experienced organisations to help establish the system, develop curriculum, and work with them until they are well-trained.

> "We want to learn the whole system, their regulations, their curriculum and so forth. Even though we are providing training, it does not mean we do not need training ourselves. Specialists need to be updated. Senior staff need to learn about poverty, new methodologies. We need to capacitate our colleagues in the national statistical system, that do not have that much practical statistical experience. We also need to provide training for NSS, and to do that we need some experience from international partners on how to provide that training."

> *Aberash Tariku, Deputy Director, Central Statistics Agency of Ethiopia*

The aim of CSA Ethiopia is to use both internal trainers and trainers from international organisations. As their capacity grows, they gradually will take more responsibility for training their own staff using internal resources.

If an instructor is brought in from the outside, it is ideal if the course is structured as a training of trainers, so that the training centre can have an internal instructor for future offerings. The NSOs of Ukraine, Ethiopia and Norway use this approach to build internal capacity. This can be done by having an external trainer first conduct the course with the help from an internal assistant trainer. If help is brought from outside it is important to have a plan to build competence in your own organisation, to have someone to teach the course when it is to be repeated. Hence, it is important to have one of the employees cooperate with the external instructor in preparing the course and to be acting as an assistant instructor. When the course is repeated, the assistant instructor will take responsibility for the course. When the assistant becomes the main instructor, he or she takes on a new assistant. Unfortunately, we do not find this strategy widely used, and the countries using it could all benefit using the approach more systematically. Generally outside instructors provide training on a particular topic, the instructor is not training how to teach others on the topic.

External instructors are sought for two main reasons: 1) the expertise on the subject matter is not available in the NSO or 2) although the expertise is available, there is no time for that staff member to teach the course. Most countries then draw on a mix of 1) local experts, usually from national universities, 2) international or regional organisations or 3) consultants with expertise in the area. The Dominican Republic noted that bringing in external instructors often

involved a lot of additional paperwork and that the bureaucracy sometimes led to having to postpone or cancel the course.

When countries cannot access training for a specific topic they need, it is often because the expertise nationally is lacking, and funding is too limited to contract an external instructor. The largest training gaps identified were:

- Training in specialized or advanced statistical topics that only a few staff members needed – in this case the institution could not justify the cost to provide training to just 2-3 staff members. Examples are index numbers and estimation and hypothesis testing.
- Training in new subject areas such as data science or big data, where the international expertise applied to statistics is still unclear. As an example, Nepal, Senegal and Norway all report to have a shortage of staff skilled in data science.

In Statistics Norway external trainers are only used if the capacity cannot be found in-house. This has been the case for e.g. some programming languages and authoring tools for e-learning. In both these areas internal staff members have been given advanced training to be able to fill the role as internal trainers or super-users. The aim is to have their own staff being able to train colleagues in all major areas.

Pedagogical support

Giving successful training does not only depend on having the relevant expertise, but also on facilitating it in a way that the training participants can relate to and apply in their work. Experts in thematic areas often lack pedagogic training.

The Central Statistical Organization (CSO) in Myanmar is building generic internal training capacity among members of staff within CSO. They are getting training in how to give training, in addition to doing training needs assessments and developing curriculums. There is a group of 16 staff, experts from different parts of CSO, receiving training of trainers (ToT) training. The ToT training has been delayed because of the pandemic and will be finalized as online training. It has triggered a discussion between staff and management on what good training should look like. It not only helps to develop better training, but also in reviewing offers of training from external institutions to more critically assess whether they meet the priorities and needs of CSO. The aim is to support technical experts within CSO to develop and deliver training within and outside CSO. The CSO in Myanmar has a long-term cooperation with UNDP to develop their in-house training programme. ToT training is also given in NSOs in several other countries, like in Ukraine, Ethiopia, Morocco, Brazil, Dominican Republic, and Norway.

The PSRTI is an interesting case. Since the Training Institute is a separate organization from their NSO (PSA), they do not have the expertise in house for advanced statistical topics. Currently, the PSRTI staff have gained expertise in teaching topics such as Introduction to Statistics to members of the NSS. They have implemented a ToT system to little by little advance the skills of their staff to teach courses in more complex statistical subjects.

Training must do two things:

First it must move your attitude.

Second the skills you gain can only be seen in your work. If work has not changed, then training has done nothing.

And remember, the knowledge you gain is not yours. You have to pass it on to others."

Mr. Isaiah Chol Aruai, Chairperson of the NSO in South Sudan, April 2009. Photo: Dag Roll-Hansen

Time for and priority of training

The organisational environment must be supportive to establish and maintain training. This implies that both trainers and trainees must have the time for training and are able and willing to prioritize it above other tasks. High level management must also be supportive of staff prioritizing training and devoting time and resources. Discussions with NSOs on in-house training has revealed the following potential threats to an organisational environment favourable for training:

1. Trainers and/or trainees do not have the time. Some periods of the year are generally busier than others. Currently, many governments/NSOs are facing increasing economic difficulties due to the pandemic, e.g. leading to a ban on recruitment in Malawi and Mozambique. This puts more strain on existing staff, leaving less time for training.
2. Trainers and/or trainees have other priorities. Other tasks may be deemed as more of a priority in the organisation, particularly if there is a larger economic benefit associated with other kinds of activities, if training is of low quality, or it does not give social prestige or increase the chances of being promoted.

3. The number of staff that need specific training may not be high enough to justify the cost or time to develop.
4. Training is often not prioritized by management in terms of funding or time allocated. Due to competing priorities, staff may be discouraged from spending time and money on training to develop their skills.

New technology to some extent makes it possible to rationalize the provision of training, especially training that can be given as e-learning and online training that can address the needs on topics where the number of students is too low to justify setting up a traditional training course.

<u>National training providers</u>

The availability of resources at the national level varies widely. Some countries have many universities and private companies with statistical expertise (Philippines) and others have very few (Nicaragua).

At HCP in Morocco trainers from universities are sometimes used, but a challenge is that they generally do not know enough about practical production of statistics. HCP gets most trainers internally or from Government Ministries in Morocco. Earlier public tenders have been used to recruit trainers, but this was stopped as it did not give training of sufficient quality. HCP trains and gets training from relevant Ministries in the NSS. The trainings are often organised as workshops focusing on solving challenges the participants face in their daily work.

NSO in Malawi have developed a training with the Chancellor College, part of the University of Malawi. Staff from NSO and NSS enrol for a two-year course, leading to a diploma in statistics. The training is not full time, participants learn for a month, then go back to the office, do assignments and go for more training after some time. Similar training was previously given to NSO staff at EASTC. The College also offers short term training.

Recently, the CSO in Ireland cooperated with the University of Dublin to participate in the establishment of a European Masters in Official Statistics that more closely matches the statistics training that is pertinent to a statistics office. This has a dual benefit for the NSO: 1) as new students graduate, they are more prepared for the specific skills needed to be successful at the CSO and 2) the CSO can send a few of their staff to established courses within the program that are pertinent to increase their skills.

In the Philippines the training institute PSRTI use trainers from the national university, the national statistical office PSA, and financial experts from some private institutions for training, in addition to their own staff.

In Nicaragua the NSO is cooperating on training with two universities, one specializing in software engineering and another on administrative topics, statistics and demography.

Even though some training is given by national training providers, the scope is rather limited. A main reason is that they often lack the mix of theoretical and practical knowledge needed to produce official statistics.

Regional and international training providers

Most regional organisations interviewed both have experts in house that can provide much of the requested training, and also use external trainers in areas in which they do not have the expertise. The only exception was SESRIC that mainly uses trainers from the NSOs in OIC countries.

AITRS identified training in new methodologies such as big data or artificial intelligence as areas where they have difficulty finding trainers. Both SESRIC and SIAP reported it was a challenge to find trainers that can offer training in specific languages.

Many of the NSOs utilize their regional partners for training and access training websites for international organisations to get further training. Countries in Latin America identified both ECLAC and IDB as good places for finding training, with IDB having a very good online portal. Ireland and Morocco identified the European Statistical Training Program as a useful source of training. Even though virtual training makes geographical distance less important, many countries approach organisations in their region. (SIAP has a broad range of e-learning training. Other organisations mentioned were the UN, World Bank, ILO, and FAO.) During the pandemic, most regional or international training has been shifted from face-to-face to virtual mode. This enabled a lot of officials to safely participate in training without travel and other costs. For example, the number of participants of the training has increased from 1,258 in 2019 to 2,709 in 2020 for SIAP training.

A lot of the external training conducted at NSOs is related to projects implemented or supported by partners. If for example a Census or a survey like e.g. MICS, DHS or LSMS is conducted, NSOs will generally receive training on data collection activities, regardless if this is capacity that needs to be strengthened in the NSO or not. The CSO in Myanmar has addressed this problem by developing a curriculum identifying what the organisation defines as the core competencies needed in the organisation. Development partners are encouraged to refer to the curriculum when offering training, to support the needs defined by CSO. Even though this has been successful in some cases, most organisations present the training they offer as a package that is not possible to influence by CSO or other NSOs.

Coordination between regional centres

There seems to be little coordination between regional centres. It is often a challenge to cooperate efficiently with other organisations and not to duplicate work. The African Institute for Economic Development and Planning (IDEP) reported that GIST contributes to helping regional organisations to deliver as one, building on comparative advantages and having access to new training material and experts. It is key to have regular interaction with other training centres to make sure they do not do the same thing in the same place, something that can easily happen. Organisations sometimes find out from twitter about a NSO requesting training the organisation already had supplied to the NSO.

We found examples of coordination in that AITRS is working with SESRIC, though in a very ad hoc manner. The regional organisations seem to have stronger ties with international organisations such as UN Women, UNFPA, ESCAP, WB, PARIS21 and IDB than they have with each other.

SIAP is acting as the secretariat of the Network for the Coordination of Statistical Training in Asia and the Pacific, which was created in September 2013 on the recommendation of the Committee of Statistics of ESCAP to facilitate coordination of statistical training in the region. Members of the Network are 13 countries and 13 international, regional or sub-regional organizations. The Network has identified the following priority areas: (a) coordination, including for the development of common training programmes in response to the requirements of key regional statistics development programmes; (b) share information on the work of statistical training providers, to facilitate cooperation among the providers and relevant stakeholders; and (c) periodically review the implementation of the proposed coordination activities, and identify and implement further actions required.

We found some examples that regional organisations exchange trainers. Sometimes this is made complicated by differences in remuneration and per diem-rates.

Different organisations have different mandates and priorities that they need to pursue. IDEP focuses on use of data for informed policy-making, while SESRIC has 8 prioritized SDGs and 7 cooperation areas of COMCEC.

The different mandates of the organisations may leave them little room to change the way they are working to align efforts with other organisations.

Motivation for teaching and learning

Motivation may come from something outside, or it may be genuinely perceived as something inherent in a person. Motivation from outside – or extrinsic motivation – is driven by the urge to achieve something other than learning. An example of this is to be motivated by the payment for taking part in a training. Inner (intrinsic) motivation on the other hand, is driven by the joy of learning or teaching others. It is being motivated because the task itself is attractive, because you are looking forward to planning it, doing it and seeing the results of it. Research shows that the intrinsic motivating factors are most important to us (DeVoe and Iyengar, 2004). Hence, the use of additional payment is not necessarily the best way to motivate for training and should never be used as the only motivator. Ways to enhance inner motivation should be considered.

Developing and imparting training can also be a development path for the instructor. First, it can help enhance skills within a specific field, leading to becoming an expert in that field. Second, being a trainer can provide prestige and name recognition as someone others turn to for advice and knowledge.

However, in some cultures sharing knowledge is not considered to be a good strategy for individual success in an organisation. Imparted knowledge may help someone else go further than the person sharing the knowledge. This is counterproductive from an organisational point of view. In order to encourage competent staff to train their colleagues, they must see it as a beneficial thing to do. Some important motivators for teaching are commitment and obligation to the organisation, status and financial incentives. These are tools that can be used to promote the development of training.

Training can be imparted by dedicated trainers or internal or external experts. If developing training is not part of the regular tasks of a staff member, extra payment for teaching is sometimes given. In the Academy in Ukraine, external instructors receive an hourly rate for imparting training, though it is often considered to be too low. In situations where income is insufficient to meet the basic needs of trainers and their families, worker motivation in a developing country context ought to involve a mix of financial and non-financial incentives (Mathauer and Imhoff, 2006). If imparting training represents a significant additional burden to the trainer, additional payment can be justified. This is the case if the trainer must prepare in his or her free time or have to work overtime to finalize work postponed due to providing training. Additional payment to trainers can also be given as a sign of appreciation to trainers, or as one element in building the status of trainers.

NSOs report that many trainings are supply-driven and may not match the needs and interests of the participants. One example is that training in field work is often given as part of externally

funded surveys, regardless if this is needed in the NSO that executes the survey or not. As a result, participants may have less intrinsic motivation to take part in the training. In some training participants receive sitting fees to take part. Fees and allowances are sometimes paid as a result of national laws and traditions and are sometimes related to external projects that are not necessarily a priority for neither the NSO receiving the training nor the individual participant. If the participants are not motivated, the learning outcome will often be low. Also, if allowances are a motivator for taking part in training the students it will be most useful for may not be reached. Regional and international organisations indicated that some people take part in training due to the daily allowance, without motivation to learn what is taught. In one country, training with economic benefits was parcelled out to everyone, e.g. everyone got 5 hours paid training per month, to give an even distribution of the economic benefit the training represented. The selection of participants did not consider how training can be a means to an end, a way to build skills and quality statistics the NSO wants to develop. If training is seen as useful for work, it can help the participants work on tasks they find interesting or, in other ways, help them follow their career path because they will more easily find inner motivation for the training. This can further be enhanced if training is presented and perceived as valuable in the organisation, e.g. by the narrative of the top management, managers take part in training or training is related to career development. One example of this is diplomas to accredit wanted behaviour in the NSO in Kyrgyzstan, like e.g. for being a good manager. Another example is that most Directors in Statistics Norway take part in training for new staff, indicating it is a priority of the organization.

In general, both trainers and participants impart or participate in training as part of their daily work, and many countries believe doing so does not necessarily justify additional payment. As we have seen, additional payment to trainers comes with more advantages and fewer disadvantages than paying daily allowance to participants. Whether or not additional payment is used to motivate training, inner motivation for training should still be promoted. This can be done by building the social status and joy of teaching and learning in the organisation.

Resources for in-house training

For in-house training to be effective, it is necessary to ensure that the appropriate expertise and resources exist in-house or can be recruited from outside. The necessary resources must be dedicated to the training programme. These include management time, an experienced trainer, the administration effort, training or course materials, computers and a room to do the training, and maybe also travelling, accommodation and refreshments. Training will also require resources and may require employees to be away from their posts while they learn. Even if training is given by international partners, local costs for venue, travels, food and

accommodation must be covered by the NSO. This is a challenge for the NSO in Malawi that does not have a budget to cover costs associated with training.

It may be a good idea for management to sit down with the trainer and identify what content should be included in the course. It may be useful to concentrate courses to a time that is normally relatively quiet. In Mozambique, training given by NSO staff generally has to be done when there are not too many other activities going on. If such a time period at e.g. two months can be identified, this will make it easier for the staff to set aside time for training, without conflicting with other tasks of the NSO.

Giving the staff insight into practical approaches to solve tasks is often best done by having them attend relatively short courses directly related to their tasks. The knowledge needed is often based on sharing experience on practical production of statistics and working routines. Such training could be given by a training team at the NSO. If the centre offers training both in the Headquarters and in regional offices, portable equipment will be an advantage. At first, the main priority of the centre should be to give internal training. Gradually it may take on other tasks like supplying training for other institutions and library services. A training centre may also contribute additional income to the NSO, through offering training and other services to other government institutions or other organisations.

Learning from sister organisations, networks and colleagues

Development cooperation between NSOs

Many NSOs are cooperating with colleagues in NSOs in other countries, often as part of bilateral development assistance. Examples of this is that HCP in Morocco is cooperating with Statistics Denmark, and Ethiopia, Mozambique and Kyrgyzstan are cooperating with Statistics Norway. Dominican Republic is currently working with the NSO of Bolivia and has worked with Colombia in the past. The Philippines has hosted several training courses for other NSOs in the region and has cooperated with North Korea.

Study visit in 2019 on population register, administrative data and GIS, as part of cooperation between Kyrgyzstan and Norway. Photo: Rimma Chynybaeva

Cooperation through social networks

Various social networks can be used to exchange ideas and experiences among colleagues. One notable example is the Global Network of Data Officers and Statisticians[6] . The network is based on Yammer, a platform primarily aimed at helping employees connect within an organisation, but that can also be used to establish networks and communicate across multiple organisations. The Global Network of Data Officers and Statisticians aim to:

1. Increase collaboration among national statistical offices and regional and international organisations.
2. Share knowledge and best practices on the production and dissemination of data and official statistics.
3. Build new partnerships and foster synergies in data development to support the production and dissemination of data and official statistics.
4. Help establish and strengthen networks among producers of official statistics, as well as with other professionals within the area of statistics on national and international levels.
5. Get support from a pool of experts on different topics and from different statistical domains, related to data and statistics for SDG implementation, monitoring and reporting.

The network is open to everyone, but primarily has members from NSOs and various regional and international organisations. It is rather new, and probably has a lot of untapped potential.

On the job training and organisation of work to enhance learning

Learning while doing the job generally is the most efficient and cost-effective type of training. Efforts ought to be made to increase knowledge sharing between senior and junior staff, and a foundation ought to be created for knowledge sharing between various areas within the organisation. Learning for most employees comes from this kind of training.

Competence is built through training, but most importantly through what we learn from daily interaction with colleagues. Sharing knowledge and best practices is necessary in order to ensure high-quality products and processes. It is also necessary to develop and retain the right expertise in the organisation. Linking colleagues using similar tools, having similar interests and tasks, enhances learning and professional development. Even though exchange of knowledge is a key element in many in-house training programs, the programs rarely engage in learning that is not defined to be training. One notable exception is Malawi, where the lack of a training programme makes teamwork described as the only alternative to make people learn how to do

---

[6] https://www.yammer.com/unstats#/home

their jobs. Another is Ireland, where their Statistical Training Framework identifies the 70:20:10 learning model as key to their training objectives. In this model 70% of training is acquired through on the job experience, 20% through mentoring and coaching and 10% through classroom, courses and reading.

FOCUS ON E-LEARNING

e-learning as part of training programmes

The availability of e-learning has been growing for many years, along with the increased availability and capacity of web-based solutions globally. Consequently, e-learning is becoming more frequent in most training programs, and due to COVID-19, that growth has accelerated substantially. Some were using e-learning before the pandemic, but now almost all regional and national programs mentioned the development of e-learning as a priority. Some exceptions were Nepal, Malawi, Mozambique and Nicaragua, who lack resources and staff to move to e-learning.

The term e-learning is also gradually being used in a wider sense, not only including traditional e-learning courses like massive open online courses (MOOCs), courses including a facilitator and various forms of blended learning, including multiple learning techniques. The term is also used to describe traditional training adapted to an online environment. Due to restrictions in face-to-face-interaction, most training was, for a period of time, done online. This has given valuable experiences in a variety of electronically supported learning methods.

Production of e-learning material in-house

Several training programmes have produced their own e-learning material. The complexity and level of ambition of the training varies greatly. Brazil and Norway noted that the production of large training courses often takes a substantial amount of time and resources, both in the creation of the content of the training and related to the technical production. If the production of e-learning is too resource intensive, it may be difficult to justify it if it is not created as a common good many can benefit from, or it is particularly important to have a customized training available as e-learning. The latter may e.g. be the case to explain production procedures to new staff or to staff in different geographical locations.

There are however ways to mitigate high production costs related to the production of e-learning. In addition to an educational designer and an HTML storyboard developer already on staff, Brazil's ENCE has recently hired a professional scripter who came from the marketing team and used to record publicity videos. Until the scripter was hired, the instructors would develop their own scripts, doubling the development time of the course. In addition to saving

time, the scripter has introduced creative methods of checking in with the participants to make sure they are engaged, such as interactive videos that require participants to apply their skills on the spot, and forums for discussion that further the learning in the course. She also ensured that videos represented the racial, ethnic, gender and geographical mix of the country.

There are also examples of e-learning material produced in a simpler form. This can be done in a variety of ways. One example is recording lectures or presentations and posting them online. A challenge is that if an in-person course is simply recorded, the elements of interaction, making sure people are engaged, and good spaces for discussion can be lost in an online format. Recorded lectures can also be used in combination with online discussions or forums, which may help reduce this problem. In Brazil and SIAP we find examples of chat rooms set up to accompany courses, where participants can answer each other's questions in a collaborative manner.
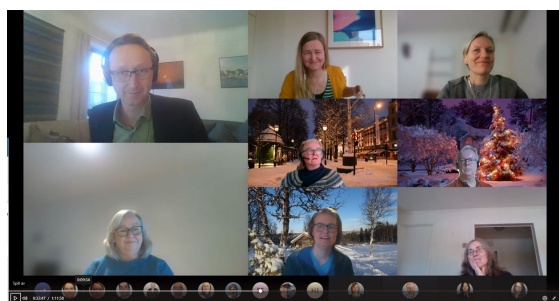
Forum for e-learning in Statistics Norway during the pandemic, December 2020. Photo: Dag Roll-Hansen

Norway has established a Forum for e-learning, an open forum for those engaged in or interested in e-learning, meeting 2 or 3 times per semester to exchange experiences, ideas, get feedback from colleagues and present tools. The forum was created because existing initiatives to produce e-learning were scattered around the organisation; the colleagues behind the different initiatives often did not know of each other, not having the opportunity to benefit from exchanging ideas and experiences on the use of tools and learning methods. At the Forum colleagues give short interventions on work they do related to e-learning, inspiring others in terms of methodologies to foster learning and the use of tools.

In-house production of e-learning is on the rise. As an example, Morocco wants to develop online training from face to face training material, as staff are satisfied with learning this way. Mozambique is aiming to start using e-learning, but do not feel they have the technical capacity to do so.

ECLAC, SIAP, AITRS. IDEP and EASTC are among the regional organisations offering e-learning. All have e-learning courses available in different formats. SIAP offers asynchronous e-learning courses, meaning they can be taken at the convenience of the learner. The courses are not facilitated but have a forum where learners can collaborate. AITRS and ECLAC offer synchronous e-learning, often conducted as online workshops. Although ECLACs courses

include a lot of video and all sessions have been fully recorded, many of the courses were only developed as a one-time offer. Those that they do plan to offer again, they will probably only offer once every second year. They feel the presence of a full-time facilitator is important and cannot handle the staffing need if they offer it continuously. IDEP has developed an online training platform and has translated all their courses to online training. EASTC directs participants to supplementary online material after short courses. They also use Moodle and Google Classroom for long term training.

E-learning as a common good

An advantage of e-learning is that it is not limited by geographical distance and often can be used by numerous learners at their own convenience. Hence, e-learning can have huge benefits, especially for organisations that do not take the investment of making them. NSOs have taken advantage of e-learning produced by others to a varying degree. The High Commission of Planning (HCP), the NSO of Morocco have taken a proactive approach to the use of available e-learning. Since 2018, HCP has suggested 24 different MOOCs open for all staff. The organisation pays for the certificate. 20-30 staff get certificates each year, more take training. As a result of a lockdown in March and April 2020, the number of courses was increased to 65. The courses were made available through five different platforms offered to the HCP employees in an online training catalogue accessible from different platforms (FUN MOOCs, EDX, Coursera and MyMOOCs). The platforms were made available to all staff, and staff were encouraged to build capacity during the lockdown. An important motivation for the increased focus on e-learning was reduced Government budgets as a result of the pandemic. Increased use of MOOCs was not only desirable from a public health perspective, but also seen as cost-effective.

Many NSOs have however not introduced use of available e-learning resources systematically. Even though staff members search and find e-learning courses, manuals and other material to learn from online, NSOs like the CSA of Ethiopia, Malawi National Statistics Office (NSO) and Statistics Norway do not utilize such training in a strategic way. Some countries are however planning to start utilizing available online material. One example is that Statistics Norway is identifying e-learning courses in Python that are recommended for relevant staff. Staff from various countries, such as Ireland, indicated that if they searched for their own courses and proposed them to management, they often received approval, but there was no systematic way for them to know what was available. Lack of knowledge of what training is needed, what quality training includes, and connectivity are some challenges to enhanced use of available e-learning resources.

Because so many countries are developing e-learning there is likely to be some duplication of efforts taking place. Ideally, any country that currently offers e-learning courses would make those available internationally. Another option would be to cooperate with other countries with similar needs to develop courses together or to work with a regional or international organization and then make the course widely available for others to use, adapt and build on, to develop for use in both a national context and as a contribution to a common good.

UN SDG:Learn[7] is a hub for courses provided by a number of actors on statistics and was developed by members of GIST. All NSOs and regional and international organisations making e-learning material on production of official statistics are encouraged to make their material available through the hub as a collective good. As members of the GIST stakeholder advisory group, Ethiopia and Ghana have highlighted the e-learning on statistics available through the hub as very useful, but also that it ought to be further developed in respect of the number of trainings available. Other types of learning material and documentation are also made available through UN SDG: Learn. The portal is developing into a comprehensive repository of curriculums and training material on statistics made globally available as a common good.

Online classes

Online classes can be described as synchronous training courses, where the trainer and the learners have to be present at the same time or asynchronous learning, where students can do it on their own time. Synchronous courses are often courses that were originally planned as in-person training, and moved to use an online platform like Zoom or Teams due to the pandemic. The advantage of this type of course is that it does not require extensive additional time to prepare. However, these courses often do not take full advantage of the technology available for e-learning. Some learners also find it more difficult to ask questions for clarification than in face-to-face-classes.

Giving online classes is nothing new, but the extent to which it happens has increased greatly during the current pandemic. For many countries in this investigation the initial response to the pandemic was that planned and ongoing face-to-face training was cancelled, before they gradually shifted to online classes. This made many colleagues look for ways to offer different kinds of e-learning. Online classes have advantages and limitations compared to face-to-face-training. We will present some of them illustrated by examples from NSOs and regional training organisations.

The Philippines has a large catalogue of synchronous online learning. They are creating their first asynchronous one around SDG's by recording the content and posting it online for students

---

[7] www.unsdglearn.org/statistics/

to access it at any time. The PSRTI are concerned that e-learning can be less engaging, so they have put measures in place to motivate the participants to stay focused, e.g. by introducing energizers. Often participants do not have their own video running because of internet connection issues, so the instructors pause at least once an hour to check in, often by asking a question that everyone needs to answer, asking participants to share an emoji of how they are feeling or doing a quick online yoga class.

In Kyrgyzstan the number of courses given as part of the training programme was reduced by 42% from 2019 to 2020. In 2020, the trainings were conducted via Zoom. In addition, NSO staff participated in online training, webinars and seminars organised by international organisations. Examples are that FAO and ADB conducted online training on Computer-Assisted Personal Interviewing (CAPI) using CSPro and Survey Solutions, and UNECE gave training on visualization and geospatial data. Previously e-learning has not been commonly used, but due to the pandemic, e-learning is reported to be actively taking over.

The Academy in Ukraine offers distance learning using platforms and tools for online learning like Microsoft Office 365, Zoom and Moodle. All employees were trained by the organisation using distance learning both for educational purposes for students and to improve the skills of state statistics bodies. Training includes online lectures, theoretical and practical material as well as tests. During the pandemic, distance learning of employees of state statistics bodies of Ukraine is constantly carried out. Before the pandemic began, training was conducted in a blended learning; in classrooms and e-learning.

During the pandemic, Statistics Canada created and deployed an online class to the Ireland CSO staff on imputation and non-response. The topic was identified as a growing need due to the difficulty of reaching respondents due to COVID-19. The course involved four instructors, which the CSO may not have been able to afford to bring to the country in person. Ireland has offered other online classes and has recorded many of the sessions. However, it is currently facing problems related to privacy issues that legally stop them from posting the courses online. They are working with the Irish government and believe they will have the issue resolved in the near future.

In Senegal e-learning is not much used for now. All training is planned for classrooms, but they have experience with virtual training using Teams during the pandemic. It has not been evaluated yet, but no problems have been detected so far. Some students have asked for continued online training, but the plan is to return to face-to-face-training after the pandemic has ended.

The CSA in Ethiopia are receiving web-training from international partners during the pandemic. They have e.g. received training on GSBPM, survey methodology and the African

Information Highway. Even though they receive web-training from outside, the infrastructure at CSA is reported not to be adequate to give online lectures internally.

Nicaragua tried to go to online classes and found that they had too much trouble with connections and the translation of materials to an online format and reverted to in person learning after a few weeks.

It varies how the regional organisations relate to online lectures. In IDEP and SESRIC all courses have been translated to online training, and both organisations have experienced an increased number of training participants. AITRS has a set of 15 courses that have been offered online since before the pandemic. SIAP facilitates discussion among training participants via breakout rooms in Teams, and plans continue doing so even after the pandemic. Finally, IDEP has found that there are more female candidates online training than in face-to-face training. Hence, the pandemic appears to have had a positive impact on female participation in statistical training.

Blended learning

Blended learning refers to using more than one learning method in one training. It could e.g. be to have learners read a text, do an assignment or quiz and/or watch a video or attend a lecture or workshop, either online or in person. As a consequence of the pandemic, more NSO training programs and regional training centres are using a combination of online lectures and other training material.

Various countries are utilizing some of the positives of synchronous training such as encouraging strong participation, spaces for asking questions, and clear deadlines for completion with the positives of asynchronous learning, like using videos and interactive demos to learn and spacing out training so that it does not last for full days.

The Dominican Republic has a course on the Importance of Statistics that includes 10 sessions, three virtual and seven online. Norway has given training in e.g. R, SAS, Power BI and training of trainers as a combination of online lectures, individual assignments for self-study, and online workshops on presentation of the individual assignments and problem-solving.

EASTAC is providing online links to participants as a supplement to training materials they provide during training. Links to material are sent out after short term training. For long term training, Moodle and Google Classroom are used. SIAP also offers some blended courses, often having students do preparatory work as self-study online and then attend face-to-face training or webinars with support from lectures to facilitate their learning.

The digital revolution the COVID-19 pandemic has induced, has fostered the spread of a variety of blended learning training initiatives within national and regional training in statistics.

The social element of learning

Social interaction between colleagues also ought to be accommodated when doing training by electronic means. Interacting with, discussing, seeing, greeting and smiling to colleagues can be an important aspect of work, in particular for colleagues who have limited social interaction in their discretionary time. This can be accommodated in various ways. As previously mentioned ENCE in Brazil and ECLAC both use forums for discussion and chat rooms actively to engage learners. Group discussions on video-chats can also be used to keep participants active and engaged. In Brazil there is also a course that is offered online that originally included only one open question and answer session between the students in the instructor. Evaluations indicated more time would be helpful and in subsequent offerings of the course they added three more sessions. The feedback for these sessions has been very positive. As mentioned, PSRTI in the Philippines use energizers like a quick yoga class or ask questions everyone has to answer to keep learners engaged and focused. Statistics Norway tries to enhance social cohesion by establishing a check-in process to include participants in an electronic training, aiming to make them feel welcome and trying to recreate the atmosphere you could find when meeting your colleagues by a coffee machine on your way into a physical training room.

People exchange personal information with their friends. To encourage emotional connection between colleagues, it can be useful to ask them to share something personal about themselves. To enhance activity, it is also possible to invite contributions from selected participants in advance. Further, participants can be kept more active by asking them to keep their cameras and microphones on, as far as the technical system allows. Even though connectivity may sometimes be challenging, the pandemic has led to closer interaction between colleagues working at different geographical locations. Virtual arenas to meet have e.g. enhanced cooperation between Malawian colleagues in the NSO headquarter in Zomba and the regional office in the capital Lilongwe, and also link them up to international colleagues. It has brought in a new dimension of doing things, of working closer together.

Efficiency

If relevant e-learning material is available from other organisations or can be produced in-house at a reasonable cost, it can be a cost-efficient way to build capacity. E-learning:

1. Allows employees to complete training while remaining in employment,
2. Can be completed at a time to suit the organisation and the employees,
3. Is available for a wide range of topics,

4. Can reach more participants,
5. Can be available free of charge or at a low cost,
6. Can give accredited qualifications from entry level diplomas and certificates to post-graduate degrees.

A major advantage of using e-learning is that it allows people to enhance their qualifications without taking time off or even leaving the workplace. Employees can study part-time using courses delivered online and achieve recognised university qualifications

Summing up potential benefits of e-learning

Technological development gives the opportunity to combine training with performing duties at work, also scheduling it at a time convenient both for the organisation and the individual employee, preferably just before new skills are going to be used.

By taking advantage of the variety of existing training, adapting it to the relevant context if need be, it is possible to tailor training both to the task at hand and the needs of the individual employee.

E-learning makes it possible to reach more participants, increase collaboration across borders keeping both the cost of travelling and the carbon footprint to a minimum. Building a library of training material that persists over time can further strengthen these advantages.

The COVID-19 pandemic has reminded us that e-learning is more than taking training online. The pandemic forced us to find ways to do on-the-job training and integrate new staff members socially online. Tools and training material developed in this context, can also be used later, when we once again can benefit from the advantages of closer human interaction.

EVALUATING TRAINING FOR CONTINUOUS IMPROVEMENT - LEARNING WHAT WORKS AND WHAT IS NEEDED

Most countries use evaluation forms that are delivered to participants immediately following the training. In some countries, filling out the evaluation is a prerequisite to receiving the course certificate (Philippines). In Ukraine, the work of the trainer is evaluated on the following criteria: quality of prepared materials, their presentation, ability to interest students and the validity of the answers they provide. Evaluations are used in some countries to improve sections of the course in terms of content or how it was delivered (Brazil, Dominican Republic). For example, in Brazil modules are updated if they receive criticism and the whole course can be revamped if the criticism grows. Brazil also added several question and answer sessions with the instructor after feedback on a recent e-learning course. The Dominican Republic develops a detailed report, with tabulations and graphs, of the findings of the evaluation. In some countries the evaluations ask the participants supervisors for feedback (Nepal). It is worth noting that in several countries, the instructors we interviewed noted that they did not receive the results of the evaluation themselves. This limits how it is possible for them to use the evaluations to improve, as it is difficult for them to know what learning methods the participants report to benefit from. In Senegal, trainers only receive the results of the evaluation if it is negative, and there is something that needs to be corrected before the training is conducted again. If the trainer fails to improve the course to receive a better evaluation, he or she will be taken off the training.

Kyrgyzstan does not do evaluations systematically, but once a year conduct an assessment of the activities of the NSO employees to assess the quality of their work. However, a more effective tool for tracking learning outcomes is welcomed.

At HCP in Morocco, training is evaluated right after the course, and then again after six months. Then a questionnaire is sent to the participants to find if the training has improved their work or not. This approach gives the participant perspective on what has changed as a result of the training. In addition, knowing that they will have to fill the form six months after the training may encourage the participants to look for ways to make use of the training they have participated in. Except for Morocco, all NSOs interviewed use evaluations on the first of the four levels in Kirkpatrick's model of training evaluation. None of the NSOs tested the knowledge gained by the participants as part of the course evaluation, and few tried to assess changed behaviour or impact of the training.

Similar to NSOs, most regional training centres also conduct evaluations only right after the training. A notable exception is the evaluation for the long-term training program offered by SIAP. All trainees are expected to (a) conduct a presentation on their project work to their supervisors

and colleagues, which is practical training where trainees select and analyse data and compile SDG indicators by themselves in consultation with lecturers and other trainees in the course, and to (b) improve their work by applying knowledge and skills learned to their work in their offices in their countries after the course. The Director of SIAP asks the heads of the pertinent NSOs to cooperate in ensuring provision of the needed institutional support and assistance to the trainees to facilitate certification and submission of the report by the deadline: five months later for (a) and seven months later for (b). SESRIC points out that transferring training online has made it possible for them to take part in the training to learn how they are conducted and to assess them. Before the pandemic, they did not have the option to participate in training they organised as the trainings were mostly held in the beneficiary countries. The African Institute for Economic Development and Planning (IDEP) evaluates training using a comprehensive log-frame to assess outcomes. A few NSOs and regional organisations have no standardised system for training evaluation. As mentioned, GIST is currently developing international guidelines for training evaluation.

In addition to evaluating training, courses could be further improved by building a system for continuous improvement. Such a system ought to include:

1. collecting information through evaluations,
2. implementing new training methods, and
3. having regular meetings to discuss how training can be improved.

The system needs to collect information on the quality and applicability of training, as well as suggestions for how they can be improved based on recent experiences.

RECOMMENDED ROLES OF THE GLOBAL, REGIONAL AND NATIONAL LEVEL

There are some tasks that need to be done in more or less all NSOs. Training material to strengthen capacity on these skills could be made available for all NSOs. Hence, training material on these topics does not need to be created from scratch but can be reused once developed and be available as a *global good*. Examples of this could be training on development of questionnaires, analysis of data and report writing. The availability of training material could also have a larger reach when presented as e-learning. Making e-learning available globally can benefit capacity development in NSOs. We find an example of increasing the availability of e-learning at UN SDG:Learn[8] . Initiatives to share other types of training material as a global good can also strengthen NSO capacity to conduct training.
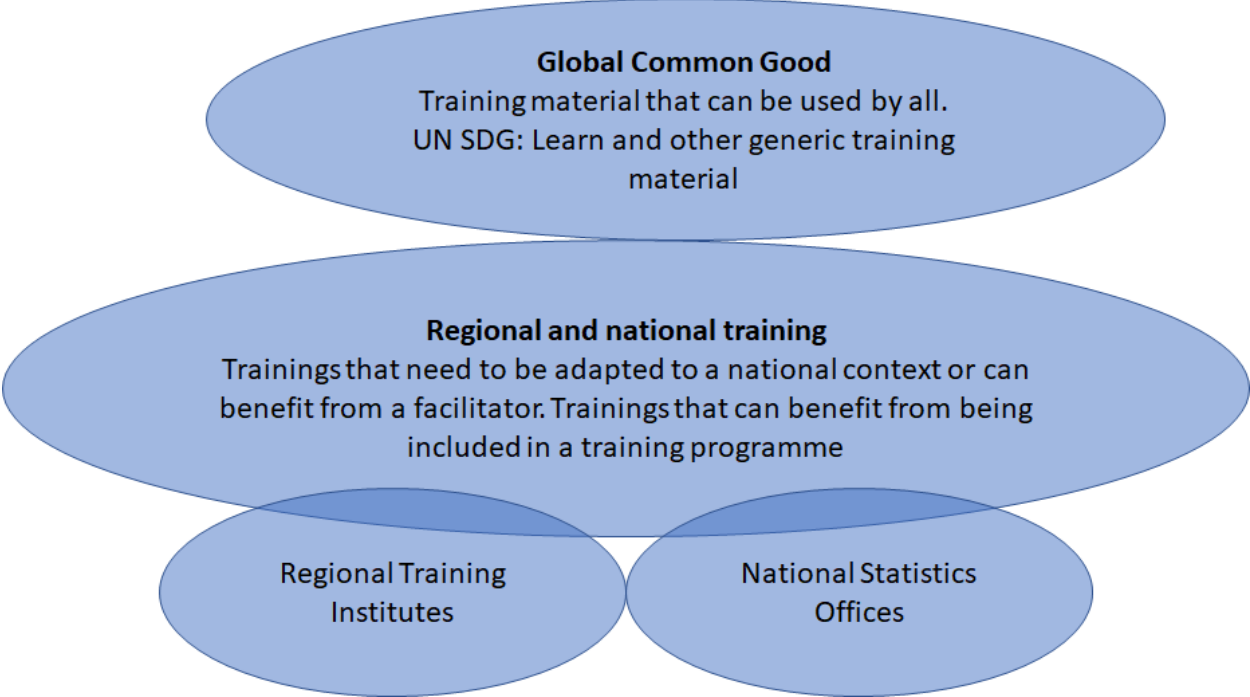
The body of training: Adapting globally available training material to fit local needs

Some training must be adapted to fit the needs of a country. This can e.g. be on how to draw a sample on population groups that are hard to find, field work under difficult circumstances or adapting management training to fit the cultural context. Such training can be adapted to fit regional or national needs by NSOs or regional training centres and, if possible, be made available to countries with similar capacity development needs. Using an NSO facilitator is often a benefit to enhance learning outcomes, as it makes it easier to ask questions and discuss learning that is more relevant to the local context. Adapting training to the local context and

---

[8] www.unsdglearn.org/statistics/

finding adequate facilitators is labour-intensive and national and regional training programmes play a key role in supplying such training. Hence, their key task should be to focus on training that needs to be adapted or is difficult to give as standard e-learning.

Organising training programmes is a national responsibility, but valuable support to NSOs and NSSs is given by regional training institutes and international organisations. The focus of regional and international organisations has so far been to supply training. In the future, NSOs and NSSs may also benefit from more hands-on cooperation on how to organise locally relevant training programmes and building national capacity to train. A key challenge is to structure the cooperation to ensure that the national needs for training to produce official statistics is accommodated, and that NSOs and NSSs are positioned to define their needs.

WAY FORWARD: A ROADMAP TO ENHANCE TRAINING PROGRAMS

Primary Recommendations

The most notable finding from the interviews conducted with the NSOs and the regional offices was the large variety of training program structures, curriculums, course formats, and student and instructor experiences. Four recommendations stand out from all the learnings:

- **Establish a compendium of e-learning resources on an international multilingual platform:** As noted, many countries are developing e-learning courses that are synchronous, asynchronous and blended e-learning. This is likely leading to a lot of duplication of efforts among the countries creating e-learning. Other countries, that do not have the capacity to create such training, would greatly benefit from a single source. Current availability is unclear and difficult to find. Ideally, this platform could also vet the quality of the courses and offer them in several languages. It would also be preferable if the courses could be categorized per an internationally recommended curriculum, as outlined in the next point. The development of such a standard curriculum could help identify what exists and where there are gaps that can be filled when looking at existing international training platforms such as UN: SDG Learn.
- **Develop a document that recommends a standard curriculum for NSO training programs:** A proposal for a standard curriculum could help NSOs in starting or further developing their training programmes, and where needed, developing specific courses. Although there is variance by NSO, training recommendations could be structured around basic skills needed in the production of statistics, with some subsections on the most common variances across countries. The level of the training ought to be adjusted to the initial level of the participants, and what level of expertise they are expected to reach in a field. In addition, specific training could be suggested for managers and new

staff members. The curriculum could e.g. be based on the statistics themes used in UN SDG:Learn, the UNECE classification of statistical activities or a competency framework[9]

● **Provide recommendations on first steps towards establishing a training program:** As has been noted, there is a large variance in how training programs are structured. Because there is such a large variety of how training programs are structured, the best way to establish and cement a training program is unclear. Many countries that are just starting have few staff and funding and find themselves overwhelmed with the demand. A document with recommendations and tangible steps would help countries establish their foothold more quickly. The document could start by suggesting a standard methodology for conducting training needs assessments or individual gap analysis. This could e.g. be done by comparing the competencies of the staff to what training is needed and available. Second, it could address how courses could be organised; how trainers and participants could be recruited and motivated and how courses could be developed and adapted to the needs of the organisation. Regional organisations ought to work hands on with staff in NSOs to organise and run training programs.

● **Strengthen coordination among international and regional organisations and clarify their role in statistical training:** Although international and regional statistical organisations have a variety of structures and objectives, they all agree on the goal of increasing the statistical capacity within the NSOs. Currently, due to lack of coordination, they may be duplicating efforts among themselves and with the NSOs as well. The three recommendations provided above this one constitutes a good starting point for collaboration among these international and regional organisations:

  ○ The establishment of an international source of training would help regional organisations have greater reach in any online training they have developed, have greater access to training from other sources, and encourage countries in their region to contribute to the site,

  ○ A standard curriculum would highlight the existent gaps in training and help organisations know where to focus resources, and

  ○ An international recommendation on how to establish a training program in an NSO would help regional and international organisations know how to focus sustainable capacity building activities.

---

[9] https://www.unsdglearn.org/statistics/, https://statswiki.unece.org/display/CSA , https://www.unsiap.or.jp/tnetwork/CSF.pdf, https://ec.europa.eu/eurostat/cros/content/estp-training-offer_en, https://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/739CF74A6DDCA817CA257AB4001121C0/$File/1125.0%20-%20statistical%20skills%20for%20official%20statisticians.pdf

Enhanced cooperation between international and regional organisations should aim at making it easier for NSOs to decide on what training should be supplied, setting NSOs in the driving seat of the training agenda.

FOCUS ON IRELAND:

Training programs like the ENCE in Brazil or the PSRTI in the Philippines are the gold standard but often feel far out of reach to imitate for countries that are just starting to develop their training program. These gold standard training programs count with 25+ staff, their own training space and clear funding, as well as strong backing from the government of their countries - things which are not readily accessible when starting out.

Ireland, on the other hand, has established a very strong statistical training program with a staff of four headed by a statistician and a small funding pool.Following the Ireland model still requires a lot of purposeful work and a passionate staff to get the model running, but may be more accessible to countries that are looking to take their training program to the next level.

Four years ago, and following the GSBPM model, the CSO in Ireland established a brainstorm group to identify the key skills needed for the statisticians at the CSO. From an initial 65, the group reduced them to 13 by identifying overlap. For each of these 13 skills, the CSO developed 5 levels from beginner to advanced, with very specific skills identifying what knowledge was included in each level. They then worked with staff and managers to outline the level of each of the skills needed for each position at the CSO. These two elements: 1) identifying the basic skills needed at the CSO and 2) identifying the level for each of these skills needed to be successful at each job, constituted the base of their training evaluation framework.

After the base was established, they conducted a skills register, where each employee rated themselves on the 13 skills and reviewed their answers with their supervisor. The gap between the skills register and the job descriptions provided the list of training needs. The CSO finalized their full complete gap assessment about a year ago and have been working to fill the gaps with a mix of internal and external staff. An example of internal courses is a series on Theory of Statistical Disclosure Control (SDC). This series currently has courses that correspond to level 1, 2, and 3 of the skills register. The level 1 course is part of the CSO Statistical Skills Awareness Program - a course offered to all employees that outlines each of the 13 skills. Externally, the CSO worked with StatsCanada to have them implement an e-learning course on imputation and non-response. The course was taken by 20 CSO staff and was also recorded - the CSO plans to make it available for e-learning. They also make great use of courses offered online through the European Statistical Training Program.

Currently, the plan is to update the skills indicators and job descriptions every three years and conduct the skills register yearly. With a staff of four hard-working staff, the CSO in Ireland has developed a sustainable training assessment with a low-cost way of developing and implementing training that is not available in house.

https://unece.org/fileadmin/DAM/stats/documents/ece/ces/ge.58/2018/mtg4/Session_3_PPT_Application_of_Statistical_Training_Framework.pdf

<u>Other Findings</u>

Many other learnings originated from the interviews that may aid in improving future training programs. They are as follows:

- There is an opportunity for international and regional organisations that offer training and capacity building to increase their emphasis on sustainability and training of trainers. For example, it would be ideal if, for every class taught, a staff member was identified to become the instructor for future courses and that person received additional guidance. Emphasizing skills for how to develop training, structure content and be an engaging instructor should also be part of the offering.
- Strong support and commitment to funding for training from either the leadership of the NSO or someone higher in the government is key for the development of a strong training program.
- The current pandemic has induced a shift towards online training. This includes both training conducted face-to-face online and different types of e-learning. Although online training comes with challenges, it may also entail several benefits for the post pandemic era. Technological development gives the opportunity to learn and give training in a manner that makes it easier to
    - Combine training with performing duties at work,
    - Target training to the task at hand, tailor the training to the needs of the individual employee,
    - Make the training available at a time that fits the schedule of the staff member and the organisations, preferably as the new skills are going to be used,
    - Reach more participants,
    - Increase female participation in training,
    - Reduce carbon footprint
    - Reduce costs
- e-learning has a very broad definition, from in-person class recordings to interactive online elements. Further study may be needed more specifically on this subject in terms of what elements are necessary for e-learning that is conducive to students increasing their skills and knowledge and what staff is required to support such efforts.
- The data revolution and digitalization give many NSOs challenges they need support to face. Hence, these topics need focus among GIST members.

- Few programs have evaluations that extend into whether the training was applicable to the day-to-day job a few months later. Better methods for evaluating the impact of training should be developed.
- Lack of time and resources is a common complaint in developing and participating in training. International and regional organisations should emphasize the role of training in the development of quality statistics.
- Motivating experts in the NSOs to develop training is key. Even though additional payment for giving training could sometimes be an advantage, this is not feasible for most NSOs. Hence, strengthening inner motivation should be in focus, e.g. by enhancing joy of teaching, professional development, respect and social status as well as promotion and career opportunities for the trainers.
- Likewise, students would benefit from enhanced motivation for training. As noted, few countries have direct links between training and promotion opportunities. When busy with their daily tasks, this offers staff little incentive to advance their skills by attending training. In the long run, this decreases the statistical skills of the NSOs. Motivation for training can be increased by receiving interesting tasks and opportunities for promotion.
- As noted, E-learning provides an opportunity to include additional participants in courses. An effort should be made to include more females in training in countries where they are underrepresented.

ANNEXES

Contacts in Countries

Brazil
Bianca Walsh, Coordinator of Training and Development at IBGE
    Email: bianca.walsh@ibge.gov.br

Dominican Republic
Kenia Sanchez, International Relations Manager of the ONE
    Email: Kenia.Sanchez@one.gob.do

Ethiopia
Aberash Tariku, Deputy Director, Central Statistics Agency
    Email: kaberash@yahoo.com
Damtew Bernahu, Senior Expert, Central Statistics Agency
    Email: damtew.berhanu@gmail.com

Ireland
Pamela Lafferty, Statistical Training Manager at the CSO
    Email: pamela.lafferty@cso.ie

Kyrgyzstan
Lola Baimatova, Head of International Cooperation Department of NatStatCom
    Email: icd@stat.kg, baimatova71@mail.ru

Malawi
Jameson NdawalaDeputy Commissioner. National Statistics Office
    Email: jndawala@gmail.com

Morocco
Samir Issara, Directeur Ressources Humaines et Affaires Générales, Haut commissariat au Plan
    Email: s.issara@hcp.ma

Mozambique
Adélaide Macaba Bazagari, Deputy director of National School of Statistics, INE
    Email: adelaidemacaba@yahoo.fr

Myanmar

Thomas Gregory, International Committee Specialist at UNDP
E-mail: thomas.gregory@undp.org

Nepal
Rishi Ram Sigdel, Director of the Training Section of the CBS
Email: sigdelrishiram@gmail.com

Nicaragua
Emer Garcia
Email: emer.garcia@inide.gob.ni

Philippines
Pinky Peña, Chief Statistical Specialist in the Training Division of PSRTI
Email: pinky.pena@psrti.gov.ph

Senegal
Omar Sene, Head, Continuing Education Department, Ecole Nationale de la statistique et de l'analyse Senegal (ENSAE), Agence Nationale de Statistique et de la Démographie (ANSD)
Email: Omar.SENE@ansd.sn

Ukraine
Olena Motuzka, Assoc. Prof., Head of Editing and Publishing Division, National Academy of Statistics, Accounting and Audit
E-mail: olmotuzka@gmail.com

Contacts in Regional Training Centres
AITRS
Issa Almasarweh, Demographer
Email: issa@aitrs.org

ECLAC
Rolando Ocampo, Statistical Division Director
Email: rolando.ocampo@cepal.org

ENSAE
Omar Sene, Head, Continuing Education Department
Email: Omar.SENE@ansd.sn

EASTC

Nelson Ndifwa, Research and Training Manager
        E-mail: nelson.ndifwa@eastc.ac.tz

IDEP

Mustafa Sadni Jallab, Head of the Research and Training Division
        Email: *sadnijallab@un.org*

SESRIC

Atilla Karaman, Director of the Statistics and Information Department
        Email: akaraman@sesric.org

SIAP

Makoto Shimizu, Officer-in-Charge
        Email: makoto.shimizu@un.org

Glossary

ADB	Asian Development Bank
AITRS	Arab Institute for Training and Research in Statistics
ANSD	National Agency of Statistics and Demography (Agence Nationale de Statistique et de la Démographie) of Senegal
CBS	Central Bureau of Statistics of Nepal
COMCEC	Standing Committee for Economic and Commercial Cooperation of the Organization of the Islamic Cooperation
CSA	Central Statistics Agency of Ethiopia
CSO	Central Statistics Office of Ireland and Myanmar
DHS	Demographic and Health Surveys
EASTC	Eastern Africa Statistical Training Centre
ECA	UN Economic Commission for Africa
ECLAC	Economic Commission for Latin America and the Caribbean
EECCA	Eastern Europe, Caucasus and Central Asia

ENCE	National School of Statistical Sciences (Escola Nacional de Ciências Estatísticas) of Brazil
ENE	National School of Statistics (Escuela Nacional de Estadística) of the Dominican Republic
ENSAE	National School of Statistics and Analysis (Ecole Nationale de la statistique et de l'analyse) in Senegal
ESCAP	Economic and Social Commission for Asia and the Pacific
FAO	Food and Agriculture Organization of the United Nations
GIST	Global Network of Institutions for Statistical Training
GSBPM	General Statistical Business Process Model
HCP	High Commission for Planning of Morocco
HTML	Hypertext Markup Language
IBGE	Brazilian Institute of Geography and Statistics (Instituto Brasileiro de Geografia e Estatistica)
IDB	Inter-American Development Bank
IDEP	African Institute for Economic Development and Planning
ILO	International Labour Organization
INE	National Institute of Statistics (Instituto Nacional de Estatística) of Mozambique
INIDE	National Institute of Development Information (Instituto Nacional de Información de Desarrollo) of Nicaragua
ISRCB	Institute of Statistical Research and Capacity Building of Kyrgyzstan
JICA	Japan International Cooperation Agency
LSMS	Living Standards Measurement Study
MICS	Multiple Indicator Cluster Survey
MOOCs	Massive Open Online Courses
NSC	National Statistical Committee of Kyrgyzstan
NSO	National Statistical Office
NSS	National Statistical System

OIC	Organisation of Islamic Cooperation
ONE	National Statistics Office (Oficina Nacional de Estadística) of the Dominican Republic
PSA	Philippines Statistical Authority
PSRTI	Philippine Statistical Research and Training Institute
SAS	Statistical Analysis Software
SDG	Sustainable Development Goals
SESRIC	Statistical, Economic and Social Research and Training Centre for Islamic Countries
SIAP	Statistical Institute for Asia and the Pacific
SN	Statistics Norway
STC	Statistical Training Centre of Myanmar
ToT	Training of Trainers
UN	United Nations
UNDP	United Nations Development Programme
WB	World Bank

Literature

Combs, J., Liu, Y., Hall, A., & Ketchen, D. 2006. How much do high-performance work practices matter? A meta-analysis of their effects on organizational performance. Personnel Psychology, 59: 501-528.

DeVoe, S. E., and Iyengar, S. S. (2004), "Managers' theories of subordinates: A cross-cultural examination of manager perceptions of motivation and appraisal performance", Organizational Behaviour and Human Decision Processes, Vol. 93 pp. 47-61.

Malawi National Statistical System Strategic Plan 2019/20 – 2022/23, http://www.nsomalawi.mw/index.php?option=com_content&view=article&id=228:national-statistical-system-strategic-plan-2019-2023&catid=2:general

Myanmar National Strategy for the Development of Statistics 2019/20-2023/24