

Distr.
GENERAL

Working Paper No. 17
25 April 2010

ENGLISH ONLY

**UNITED NATIONS ECONOMIC COMMISSION
FOR EUROPE (UNECE)
CONFERENCE OF EUROPEAN STATISTICIANS**

**EUROPEAN COMMISSION
STATISTICAL OFFICE OF THE EUROPEAN
UNION (EUROSTAT)**

**ORGANISATION FOR ECONOMIC
COOPERATION AND DEVELOPMENT (OECD)
STATISTICS DIRECTORATE**

Meeting on the Management of Statistical Information Systems (MSIS 2010)
(Daejeon, Republic of Korea, 26-29 April 2010)

Topic (iii): Issues for Asian statistical organizations and ways to increase international cooperation

Common challenges in managing statistical information systems in Asian developing countries

Prepared by Ilpo Survo (United Nations ESCAP, Bangkok)¹

I. Introduction

1. The UNECE/Eurostat Meeting on the Management of Statistical Information Systems is organized for the first time in Asia. It is hosted by Statistics Korea, one of the most technologically advanced national statistical services in the region, in the most wired country in the world. The development of the Republic of Korea has been impressive on all accounts and her national statistical system has been benefiting from that overall development in terms of budget resources, educated labour force and information infrastructure.
2. Most economies and statistical systems in Asia have not been as fortunate (i.e., dynamic). This paper lists areas of information systems development where national statistical systems of Asian developing countries are struggling with, and suggests that international cooperation is an effective way of making better use of the technology. This summary is done on the basis of papers presented by colleagues from Asian statistical offices in this Meeting and recent technical cooperation experience of the ESCAP secretariat.
3. As economies grow, the information systems of their civil services tend to get gradually upgraded (through conscious decisions, of course). This has happened in all Asian countries to a significant extent compared with the era before computers and computer networks. All statistical systems in developing countries are now heavily computerized, have local area networks, and use modern software packages and the Internet in their operations. This absolute change is, however, an inadequate, if not poor measure of success, as the benchmarks (i.e., the use of ICT in other civil services, other statistical offices, and offices in the private sector) as well as the potential of the latest technology are galloping further away. Statistical offices in developing countries are not utilizing ICT to the extent they should and could.

¹ The views expressed are those of the author and do not necessarily reflect those of the United Nations.

II. Vision, planning and standardization

4. By emphasizing the need to measure development outcomes, the Millennium Development Goals and Poverty Reduction Strategies have had a very positive influence on statistical systems as a whole as the new way of thinking requires participation and cooperation by all players of the national statistical system. The link between data collection and its primary purpose, better policy making, is increasingly well understood in developing countries, and more data are exchanged and used across departments than ever before.
5. What is lacking in developing countries, however, are data and metadata sharing systems and standards and effective presentation of data. Many governments do not have the technical capacity to make the integration of information systems and sharing of data a reality. Each department struggles to develop and manage statistical information systems on their own. Even where technical skills are missing, leadership and vision could make a difference for making progress in systematic data sharing.
6. Using Thailand as a positive example, the National Statistical Office developed (with assistance from UNICEF) a DevInfo-based system to exchange data between the 76 provincial statistical offices and the NSO in Bangkok. This system, which is based on common data templates, can be seen as a stepping stone to their latest achievement, statXchange. StatXchange is an SDMX-based application for sharing data among 20 departments (line ministries) of the national statistical system. Its development would not have been possible without a vision, long-term plan (part of ICT and statistical master plans, e-Government services), conceptual understanding and learning of SDMX, and technical skills that have been gradually been built up at the NSO. Thailand did not wait for the international SDMX registries and tools become available in all domains, but went ahead and developed a national implementation that serves their own purposes. A lot of coordination was needed among the ministries, which meetings were shared by the NSO. The success may also have something to do with the fact that the NSO is under the Ministry of Information, Communication and Technology.

III. Understanding the role of metadata

7. Unlike in the regions that have a long tradition in metadata management, metadata still plays a secondary role in most Asian developing countries. This is evident in the randomness with which metadata are documented and made available together with data. In the past two years, however, many statistical offices in Asia and the Pacific have made progress in understanding the central role of metadata in developing their services. Several of them have started documenting their survey and census data sets in accordance with DDI using the Metadata Management Toolkit of the International Household Survey Network. National Data Archives, such as being developed in Cambodia, have been set up to facilitate coordination and sharing of microdata with researchers. These are welcome developments, but achieving across-the-board standardized documentation of metadata would require further development of the tools.
8. Administrative sources are a cost-effective way to generate official statistics. However, administrative systems are seldom developed with a view to using them also for creating representative statistics. Data formats vary, and in the absence of metadata on the reporting system and records, it is difficult to assess the quality of data they produce. Another “problem” is that the estimates produced differ from those derived through sample surveys and censuses. In spite of those shortcomings, it is clear that administrative data will always be used for national decision making, including providing estimates for small areas and population groups. The development of national data and metadata exchange systems is not only needed for pulling data from different areas together, but also for understanding different data sources and seemingly competing estimates. Seeing data from different sources side by side is probably one of the most effective ways of addressing prevalent coordination problems and promoting common methodology in the national statistical system.

IV. Human resources dilemma

9. Time and again, statistical offices participating in ESCAP technical cooperation activities report that the turnover of staff is the single biggest problem hampering their IT development. Once IT staff have acquired good technical skills through training, coaching and self-learning, they are either transferred elsewhere within the government or they apply to the better-paying private sector. From an individual staff member’s point of view, this is rational behaviour as the remuneration offered by statistical offices is not attractive, and sometimes

not even sufficient to buy food for the family. In small offices, the departure of a single staff member can not only halt any systems development work, but in extreme cases delay stop ongoing data processing operations. A common way to keep IT (and other) experts is to transfer them to work for a national technical cooperation project attached to the national statistical system, which can pay better salaries. Some other flexible working arrangements and opportunities for studying and learning are also being used.

10. The turnover of IT staff has various implications to statistical information systems. It hampers systematic planning and own application development. It makes off-the-shelf solutions, solutions provided by donors, and tested and well-known technologies that come in a package together with training and good documentation, relatively more attractive than solutions tailored for specific business purposes.

V. Current technological challenges: protection, dissemination and presentation of data

11. The scope of this paper does not allow enumeration of all technological challenges that statistical offices in developing countries are facing. Much of the above implies that technological challenges are more often in the management of the technology, particularly the leadership and planning, than in the availability of financial resources and technical skills. There are, however, areas which should be urgently addressed through a combination of standard good practices and technologies.

12. Valuable datasets are still getting lost, and some are soon beyond recovery. This refers to data on old magnetic tapes and other obsolete media and to data only available in printed format. In some offices, the protection of digital data is still not systematically addressed with related policies, systematic archiving and backup procedures, and protecting the physical and computer infrastructures. These problems could be addressed with relatively small resources, and perhaps with the help of external risk assessments.

13. User-friendly electronic dissemination is rare in developing countries, with much of the results disseminated only in report format (i.e. PDF) or in unstructured Excel files. Investment on database-driven dissemination and graphical presentation tools would probably provide the best “return” at the moment, especially in terms of credibility of the statistical office and the demand for data and future resources it would generate.

14. Statistical offices in developing countries have good awareness about the potential of location specific statistical information and the importance of maps for statistical operations and data dissemination. A major obstacle in some countries has been the quality of maps; some of them have had no choice but prepare and improve maps by themselves.

15. While the submission of census information through the Internet is being offered as an option in many developing countries, hand-filled questionnaires are likely to remain the primary data collection method. It is therefore good to note how widely imaging and optical data capture technologies have been adopted by developing countries.

VI. The role of international cooperation

16. The role of statistics as a key development factor is not obvious for all decision makers in developing countries. Consequently, the core funding of many statistical services is inadequate for organizing data collection for the production basic set of internationally recommended key indicators. Own data collection is supplemented with the help of bilateral donors and various international organizations (e.g. UNICEF, UNDP, World Bank, Macro International). While external assistance creates statistics that would not have otherwise been produced, reliance on external assistance can have a negative impact on the long-term development of a national statistical system. There were blatant cases in the past that no national capacity was left behind after a survey or census “outsourced” to data-hungry agencies was completed. Fortunately, the awareness in this sense has grown among all stakeholders, the governments, donors, and international data collectors.

17. Leadership by visionary individuals can make a major difference in the national statistical system. While accepting all available assistance may be tempting, one of the most important roles that Chief Statistician is to make a convincing case for sustainable regular funding for running the statistical services. Statistical

information systems are too mission-critical to be primarily funded and directed by donor assistance. One-time investments on PCs, networks, data recognition technology, etc., should be accompanied by a plan for creating sustainable capacity within the statistical system to use and maintain the equipment (taking into account the likely staff turnover).

18. During the 2000 round of population and housing censuses, ESCAP implemented a successful project on application of the latest information technology in census operations. Experts from developed and developing countries teamed up and evaluated and prepared guidelines on cutting-edge data recognition, GIS and internet technologies. Consequently, a number of developing countries gained sufficient confidence and expertise in applying such technologies. This was a mix of south-south and triangular technical cooperation. Bangladesh and Indonesia were testing specific technologies whereas Australia, New Zealand and Japan shared their expertise and experience. ESCAP has recently started a fairly similar two-year cooperation facilitation project to improve census technologies in Russian-speaking countries. ESCAP is also in a position to provide regional advisory services in several areas of statistics, and to some degree also on statistical information systems. Where its own expertise is insufficient, ESCAP works together or identifies partners from within and outside the region that can provide the advice.

19. Useful development experiences should be shared with the rest of the government and statistical offices in other countries. Ideally, the sharing should take place continuously, without specific invitations from the United Nations and other development agencies. To lower the threshold for SIS experts in developing countries to share their experiences (from writing comprehensive papers for meetings like this one), collaborative tools on the Internet, such as Wikis, might be used as the inputs do not always need to be extensive. This meeting could share experiences what has worked elsewhere and suggest what could be done to activate (Asian) developing countries to ask peer questions and share experiences.

20. Topic (iv) of this meeting, software sharing and shared maintenance, is certainly of interest of developing countries as they have limited resources to purchase and develop applications on their own. Using free and low cost software, including open source, is much talked about among statistical offices, but few developing countries have made headway towards that direction.

21. To conclude this paper, the author agrees with WP.32 that R is a diverse low-cost professional tool for statistical analysis and graphics. Young statisticians around the world, including in developing countries, are increasingly mastering the R language since it is widely used at universities. With appropriate interfacing and add-on tools, it could become a manageable option for many statistical offices.