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**STATISTICAL COMMISSION and ECONOMIC COMMISSION FOR EUROPE  
CONFERENCE OF EUROPEAN STATISTICIANS**

**REPORT OF THE WORK SESSION ON STATISTICAL DISSEMINATION  
AND COMMUNICATION**

Prepared by the UNECE secretariat

1. The UNECE Work Session on Statistical Dissemination and Communication was held from 12 to 14 September 2006 in Washington D.C., United States of America. It was attended by participants from: Armenia, Australia, Azerbaijan, Belgium, Canada, Czech Republic, Denmark, Estonia, Finland, Georgia, Germany, Ireland, Japan, Latvia, Luxembourg, Netherlands, Norway, Slovenia, Spain, Sweden, United Kingdom, and United States of America. The Statistical Office of the European Communities (Eurostat), UNESCO Institute for Statistics, Organisation for Economic Co-operation and Development (OECD), International Monetary Fund (IMF), and the United Nations Statistics Division were also represented. Experts from UserCentric Inc., the Center for Plain Language and the University of Washington participated at the invitation of the Secretariat.
2. The agenda contained the following substantive topics:
  - (i) Communicating effectively on the Web
  - (ii) Statistical literacy
  - (iii) How to present metadata
  - (iv) Managing revisions and version control to maintain credibility
3. Ms. Katherine Wallman (Chief Statistician of the United States and Chairperson of the Conference of European Statisticians) and Mr. Philip Rones (Acting Commissioner of the U.S. Bureau of Labor Statistics) opened the meeting. They emphasized the important contributions that the work sessions on statistical dissemination and communication have made since 1994 in identifying best practices and publishing practical guides for statistical agencies. Ms. Wallman and Mr. Rones also emphasized the importance of the availability of statistics on government agencies' websites, and the impact this has on the perception of official statistics. National and international coordination helps in ensuring public trust in statistical agencies. Ms. Wallman also stressed the importance of building statistical literacy among decision makers and other users of statistics.
4. Mr. Rick Devens (United States) acted as Chairperson.
5. The following people acted as Session Organizers: topic (i) Ms. Colleen Blessing and Ms. Laurie Brown (United States); topic (ii) Mr. Rick Devens and Ms. Colleen Flannery (United States), topic (iii) Ms. Vicki Crompton (Canada), and topic (iv) Mr. David Marder (United Kingdom).

## **RECOMMENDATIONS FOR FUTURE WORK**

6. The participants contributed ideas for future work throughout the meeting.
7. The participants supported a continuation of international exchange of experiences and identification of leading practices, with a particular focus on communication of statistics. They suggested organizing a similar work session in approximately 18 months. The following topics were recommended for consideration in the future:
  - (i) Governance and management of statistical dissemination and communication;
  - (ii) Impact of the Web:
    - Paper vs. Web publications;
    - Free vs. for fee dissemination;
    - New technologies, their impact and use:
      - RSS, wiki, blog, etc.;
      - How authors think;
  - (iii) Statistical literacy:
    - Presentation, achieving results;
  - (iv) Collecting and managing feedback:
    - Feedback and client relations;
    - Performance measures;
  - (v) Managing relationships:
    - Relations with policy/decision makers;
    - Partnerships;
  - (vi) Professional ethics and independence;
  - (vi) Additional workshop on the dissemination of the results of population and housing censuses.
8. The Steering Group on Statistical Dissemination and Communication will formulate the final proposal for the substantive programme of the next meeting, and look for appropriate methods of work, like plenary meetings, break-out sessions, panel discussion, etc. The Steering Group will also consider coordination with the International Marketing and Output Database Conference (IMAODBC) events, with a view of avoiding overlaps.
9. During the time between work sessions, the UNECE shall support the international exchange of experiences by putting in place a list-server mailing list, comprising e-mail addresses of interested participants.

## **FURTHER INFORMATION**

10. The conclusions reached during the discussion of the substantive items on the agenda are contained in the Annex.
11. The participants thanked the Bureau of Labor Statistics for hosting the meeting and the Statistics Directorate of the International Monetary Fund for providing excellent facilities for its work.
12. Presentations and all background documents for the meeting are available on the website of the UNECE Statistical Division (<http://www.unece.org/stats/documents/2006.09.dissemination.htm>).

## **ADOPTION OF THE REPORT**

13. The participants were presented with the report before the Work Session adjourned, with adoption occurring following a period of two business days to allow for provision of comments.

## ANNEX

**SUMMARY OF THE MAIN CONCLUSIONS REACHED AT THE WORK SESSION  
ON STATISTICAL DISSEMINATION AND COMMUNICATION 2006****I. Communicating effectively on the Web**

**Documentation:** Invited papers by User Centric Inc., Center for Plain Language and UNECE. Supporting papers by Czech Republic, Germany, Spain, United States (4 papers) and the International Monetary Fund.

**Session organizers:** Ms. Colleen Blessing and Ms. Laurie Brown (United States).

1. The discussion on effective Web communication covered a wide range of issues related to usability testing, experiences during the website design phase, user accessibility, emerging research, and success stories.

2. Web usability expert Wendy Yee spoke to the group about usability issues. Some of the lessons learned are:

- a) Eye tracking is a specific technique for testing usability. Research shows that when accessing websites, users generally concentrate their search for information on the upper left corner of the screen and view the screen in an 'F' pattern;
- b) Eye tracking does not replace other usability testing techniques, but can help identify behaviour of which users are not consciously aware;
- c) Classical statistical tools do not usually translate well into Web design, because they require domain specific knowledge, such as an understanding of statistical terminology, and some initial training;
- d) Users need some data filtering tools that are contextually embedded with the data and encourage exploration. Too many filtering options tend to overburden and confuse users;
- e) Tools on the Web can be an asset, but users need to be given compelling reasons to use them.
- f) Users can be distracted by items such as areas of high contrast and links appearing in their focus area that are not related to the topic of their search;
- g) An eye tracking study needs 10 to 15 participants to be tested;
- h) Feature creep is a phenomenon that affects usability. This is the temptation to include too many features (options, links, etc.) in a website or software development project. These extra features can overburden the user with choices and detract from the main functions.
- i) A high-level recommendation for statistical agencies is that there should be different usability expectations depending on the level within the website. When users get to a detailed view of information, they are there for a reason and quite often press the print button at this point, or begin to actually read. Usability at the home page and other high-level pages needs special consideration;
- j) In general, the eye tracking tests on websites have confirmed most of the earlier experiences of similar testing with the print media.

3. The role of statistical websites is to bring detailed information to users. Testing navigation and improving customer utility was discussed at the Work Session. The following points were made:

- a) Target audiences need to be defined for different data products before considering the usability;
- b) Defining questions (tasks that the test participants would have to perform) is a key task in navigation testing;
- c) Some agencies use staff as testers, who can reflect the behaviour of external users;
- d) It can be of interest to perform tests with users, such as students and researchers, who have contacted the agency with requests related to services offered on the Web;
- e) There was some discussion on how to involve decision makers and get their support for improving usability;

- f) The group discussed card sorting and paper prototyping test techniques. The feedback from users can be used in grouping data items into topics on the home page.
4. Further to usability testing, the following suggestions were made for actually improving usability:
    - a) From the users' perspective, it would be valuable for statistics provided by individual government agencies to be disseminated through a common interface, with features such as data overlays;
    - b) If statistics are a part of a larger corporate website of a government agency, it is important to educate administrators inside this agency so that they can better understand specific needs of communicating statistics to external users;
    - c) Users like to have data in a context with textual description and stories; Transforming existing information to text suitable for the Web is a resource consuming task;
    - d) Understanding how humans perceive visual patterns is very important for good Web design, authoring and structuring of Web pages;
    - e) Technological advancements open new ways to present data, one of them being the use of the Scalable Vector Graphics, allowing animations and user interaction. An example of advanced graphics use is available at <http://www.gapminder.org>. The example contains data from the Human Development Report published in 2005 by the United Nations Development Programme.
  5. Communicating statistics through the Web to users who have visual impairments was considered as a specific issue:
    - a) Visually impaired users need to use specific equipment to get information from the Web, which may not convey all the information that is available;
    - b) Communicating to blind people is restricted to a linearly structured text;
    - c) In principle, a website accessible to visually impaired and blind people should be the same as that accessible to other users;
    - d) In some countries, legislation governs the requirement to make websites fully accessible. However, accessibility should be a goal of agencies despite any legal requirement;
    - e) Font size should be relative and allow enlargement;
    - f) Employing visually impaired and blind Web developers helps in adapting the websites;
    - g) Testing is most effective when done by visually impaired and blind testers;
    - h) While some of the earlier presentations and discussion dealt with the advanced use of graphics tools, these tools are not accessible to visually impaired users;
    - i) Other handicaps (oral, concentration, etc.) were also mentioned as potential topics for further considerations.
  6. Blogging, originally understood as a tool for youngsters to share their personal opinions and messages, is being used more by organizations. The following was highlighted in the discussion:
    - a) While most of the participants were aware of blogging, very few of them actually used blogs in their internal or external communications;
    - b) There was a general agreement that blogs represent a new type of media, and should be approached from this perspective;
    - c) Different experiences were shared regarding incorrect information published on blogs. While in some cases statistical agencies had a hard time correcting misinformation, in another case other bloggers stepped in with corrections;
    - d) Statistical agencies need policies on blogging, whether they have a corporate blog or not. A policy can guide dealings with external bloggers and clarify boundaries and expectations for the agency's staff with private blogs.
  7. Migration from the printed publications and stand-alone electronic outputs (CD-ROMs, etc.) seems to be a common issue for statistical agencies. The following experiences were highlighted:
    - a) Metadata have to be communicated on the websites, but some may need to be transformed before being put on the Web – e.g. using natural language;

- b) Contacts with subscribers to printed publications may be used for obtaining feedback about transformation of print to Web-based output;
- c) The migration from printed to Web-based output needs to be structured into several phases, depending on costs and the complexity of the project. For example, migration of stand-alone electronic products to Web-based products may be slightly faster than for printed outputs;
- d) Having PDFs on the Web is not the same as moving away from print. Structure and content on the Web need to be very different and enable user interaction. Some offices are moving away from PDF files on the Web;
- e) Links, both internal and external, are an important aspect of Web products;
- f) Are agencies moving away from print and solely to the Web? Some organizations think that print publications still have a place but they focus more on analytical text than data tables.
- g) The migration to electronic products represents a change of culture that has developed within statistical agencies over the last decade;
- h) Costs are not a major motivation as they represent only a minor part of the overall expenditure;
- i) It is important to know what the users want, and there are clients who still want print versions. Some agencies have an experience of users relying on print. For example, users such as the media and teachers often demand print material.
- j) The impact on history and heritage left to the future generations should be also considered – in contrary to printed publications, archiving of databases and websites is more difficult, and there are no universal solutions for website archiving.

## II. Statistical Literacy: is what we have here a failure to communicate?

**Documentation:** Invited papers from Azerbaijan, Finland, Germany, Slovenia, United Kingdom and the United States. Supporting paper from the former Yugoslav Republic of Macedonia.

**Session organizers:** Mr. Rick Devens and Ms. Colleen Flannery (United States)

- 8. Improving statistical literacy relies on identifying user groups and developing strategies to:
  - a) increase users' understanding of statistical concepts and how to use statistical information; and
  - b) increase knowledge within the statistical organization of the issues faced by users in using and understanding statistics.
  
- 9. The session on statistical literacy included six presentations from national statistical organizations, considering a range of issues. A summary of the key points is below.
  - a) Statistical literacy strategies may be targeted at user groups such as ordinary people, teachers, journalists and intellectuals. The latter groups should be educated as intermediaries for data access/dissemination and literacy.
  - b) It is important to be aware of public perceptions and the impact they may have on the ability for agencies to communicate their message. For example, the public perception of certain indicators, such as inflation, may be different from the official figure released by the statistical office. Agencies need to increase their explanations, provide definitions for specialists and also for everyday people, and enhance public education to increase confidence in official statistics.
  - c) There is often a gulf in understanding between statisticians and the wider community. The two approaches for narrowing this gulf tend to be educating the public to become more statistically literate; or presenting more understandable material. Statistical offices often use a combination of both approaches, but the question as to what is realistically achievable still remains.
  - d) Although there are a number of good examples of statistical writing, there is an ongoing need to educate staff in the methods of effective writing. The group were presented with the top ten statistical writers' blocks as helpful hints to recognize common barriers to writing well.
  - e) Close relations with the media are important to a statistical agency. It is the media that takes the statistics and transforms them into something more understandable for the public. Strategies for gauging when users misinterpret data include monitoring newspaper articles and other media

- channels. Examples included size of sample, mean versus median, confidence levels/intervals, and recognition that numbers do not talk on their own.
- f) A strategy for increasing public interest in statistics is to create press releases about days of national or international importance. Involving subject experts from several statistical areas can enhance the content of such releases.
  - g) An important issue for agencies is managing limited resources and increasing pressures on staff. Now statisticians not only have to produce data, but also need to make it appealing. Staff employed for statistical expertise may not have the skills to write like a journalist, and it may be unrealistic to expect them to. The shift from an audience of experts to widespread general interest in statistics has contributed to increasing pressures on agencies to address different levels of statistical literacy.
  - h) In many cases, the statistical subject-matter department writes the first version of releases. The publishing/communications department then receives it and only has a little time to improve the releases. It is important to clarify the responsibilities and the position in the organizational structure of the publishing/communications department.
  - i) A challenge within agencies is the perception that the organization has of its own communications unit and the work they do. The communications unit has a responsibility and the expertise to communicate on behalf of the statisticians. They need to play the role of bridging the gap between statistical experts and everyday people.
  - j) There are many ways of organizing communication in statistical agencies, and it would be an interesting topic for one of the future meetings. There are differences between big and small agencies.
  - k) Strategies and issues surrounding educating the public, and training staff within an NSO included:
    - (i) Bringing expert journalists into the office to teach staff about what the media needs from them;
    - (ii) Partnering with educators to develop and co-produce materials for their students to use in various courses of study to help young people learn the skills necessary to understand and use statistics;
    - (iii) Creating Web resources;
    - (iv) Allowing users to customize their Web page views and functions;
    - (v) Communicating through radio or television programs;
    - (vi) Needing a systematic way of interacting with the education system. In some countries it is necessary to go through the relevant education authority to introduce programs in schools;
    - (vii) Recruiting people with an educational background to help develop education programs; and
    - (viii) Investing time in outreach and building relationships with users. Focussing on groups that can provide access to others, such as teachers associations, academicians, and the media.
  - l) The next level of statistical literacy may be enabling adults to identify both good and bad uses of statistics.
  - m) It was recommended that the UNECE establish a strong body to improve the situation and perception of statistical literacy. There is a need to move forward from discussion of the issue to concrete actions.

10. 'Bringing Numbers to Print' was a panel discussion with Mr. Paul Overberg (USAToday) and Mr. John Berry (Bloomberg News), and moderated by Mr. Kenneth Meyer (US Census Bureau). The panelists have extensive experience in using statistics in journalism and were able to offer valuable insights and anecdotes.

11. In opening the session, Mr. Meyer made the following observations about his experience at the U.S.

## Census Bureau:

- a) In press releases, it is important to embed live links to data sets, podcasts, and graphics, to make the information more accessible to the media.
- b) Journalists want analysis and comparison from statisticians, but this needs to be balanced against the difficulties NSOs have with making judgements about trends.
- c) For important releases of statistics, such as income and poverty, the U.S. Census Bureau holds a large press conference to launch this information. To maximize participation, they go to the National Press Club to pick up reporters and bring them out to the press conference (located outside Washington D.C.).
- d) Place importance on preparing staff to respond to answering media enquiries.
- e) The U.S. Census Bureau runs training programs for journalists and develops their own public affairs officers through activities such as sending them to conferences for journalists. They run media training for those people authorized to speak on behalf of the agency.

## 12. A summary of the panel discussion is below:

- a) Mr. Overberg described the work he does at USA Today. It involves maintaining and monitoring large data sets, analyzing the information for trends, and identifying news stories. He advocates the use of statistics as a valuable source for journalists, and helps colleagues and student journalists extract and interpret news from data. This approach is called analytical journalism, or precision journalism, and is a distinct sub-culture within the journalistic field.
- b) The Web has created an increase in statistical literacy compared to ten years ago. The media now has to be better at distilling information. This has been fostered by information moving quickly through the Web, and the provision of on-line tools for data analysis. Statistical agencies have been good at recognizing the impacts the Web has had on journalism.
- c) The abilities of journalists to understand and interpret data are disparate. It is important for statistical agencies not to think of the press as monolithic in their abilities, and to recognize that journalists are only one type of user.
- d) The press is free to make judgements and qualifications about statistics. In addition, anyone can start a blog and comment about the work of statistical agencies, without the agency necessarily being aware this is happening. Blogs offer parallel and separate conversations about statistics; the issue for the Statistical Office is to determine when and whether to intervene to correct erroneous information.
- e) Journalists have to do basic statistical analysis. Public opinion polling is a big part of their business today and they understand this is only possible with good survey processes.
- f) Invest in research and development on how to manage and communicate with special audiences. For example, providing a section on your website for children and teachers, and offering information translated into languages additional to the official ones of the country or organization.
- g) Journalists and statistical agencies often under use visualization as a tool for presenting complex ideas. Letting users manipulate data themselves, by providing interactive graphical tools on-line, is a valuable service. It is possible to achieve better results with information on-line even when there are only rudimentary ways for users to interact with it.
- h) Mr. Berry outlined his extensive experience in dealing with statistics and statistical agencies in his role at The Washington Post and Bloomberg News. He commended the agencies for their professionalism and has unqualified admiration for their work. Statistical Offices (SOs) are open to attack from people who may disagree with statistical results. Mr. Berry has found SOs readily acknowledge any issues with statistical calculations, and are extremely professional in their work to provide data in accordance with the [Fundamental Principles of Official Statistics](#).
- i) There have been changes in use of technology, such as handhelds for collecting data, new releases and products. An enormous amount of progress has been made in dissemination techniques. It is important to foster the relationship between the media and SOs, and provide support to journalists in helping them analyse and understand statistical information.
- j) Adapt the language when conversing with journalists – for example, instead of using technical

- terms, use adjectives and adverbs to help people without statistical knowledge to understand.
- k) It generally takes twelve hours after the data are released before a story goes to print. Then depending on the issue, there may be further reports given a week or more later, incorporating different aspects of the story that didn't initially fit.
  - l) At a minimum, press releases should be short (one page), clear and include a single graphic. The valuable thing about an electronic press release is you can keep layering information, providing more detail to those who want it. When writing a press release, think about who uses that release. It is important to know which medium journalists prefer to receive information: press releases, phone, website, email, etc. It may help to hold periodic round table meetings with journalists who have used your statistical information, to discuss their issues and needs.
  - m) One way of dealing with reuse of data in a way that can't be controlled is to monitor robots scraping websites for data. It is possible to contact the robot owner through the provided email address to find out how they are using the information.
  - n) Statistical agencies communicate difficult concepts. It may be possible to train journalists to understand statistics, but perhaps agencies can only expect to communicate their information to interested specialists. The general public may not be interested. Data needs to be communicated in different levels of detail to appeal to a wider range of users, from general information, to detailed tabular data for experts. Websites need to have sections for discrete, particular audiences. Think about ten different audiences that your agency communicates with and analyse their needs.

### III. How to present metadata

**Documentation:** Invited papers by Canada and University of Washington. Supporting papers by Australia, Finland, Luxembourg, Norway and United States (2 papers)

**Session organizer:** Vicki Crompton (Canada)

13. The session on metadata included discussion on research and development, technical applications, and presentation of metadata on the Web. Statistical agencies have the opportunity to use metadata to organize and structure their website, improve effectiveness and functionality of search engines, and provide valuable explanatory material to users.

14. The following key points were made during presentations and discussion:

- a) User studies help us understand the utility of metadata schemas.
- b) It is not possible for agencies to decide what is best for users without testing. Pilot tests completed before finalizing system design, particularly on metadata schemas, will be invaluable in developing the final solution.
- c) Studies have revealed that in some cases, metadata is not structured in the appropriate form and the main thing users want is information that is relevant to them. This metadata should include more than just the variable names, but also variable values (put all the entities in the table into the metadata). For example, data relating to geographical information will be more discoverable if the metadata includes the names of particular regions, rather than only the level within a geographical hierarchy.
- d) Metadata in the context of finding and using statistical information can be seen from two angles – the dissemination of current statistical information and the preservation and archiving of statistics.
- e) Metadata databases are exciting tools for providing metadata in the right context. Challenges remain in getting values into the database, as it is difficult or impossible to develop efficient automated methods for extracting metadata from disparate sources.
- f) The usability of Web interfaces can be improved by considering how metadata is used to access, manipulate and understand data. Metadata has to be discoverable and useable to be of value to the user.
- g) Researchers accessing microdata are a more sophisticated user group who need detailed metadata.



Conversations with research associations could clarify user requirements and help drive development of a better metadata infrastructure. Specialised metadata can encourage feedback on statistical methods. Clear links between microdata and the related metadata will help users make the connection between the two.

- h) Integrating the presentation of metadata with data on the website, such as through popups, ALT tags and links to lower layers of detail, provides context around the statistical information being presented. Copies of the question used to collect the data, and graphs that link to the underlying data table, are some strategies being used to make metadata meaningful.
- i) Usability is increased when an intuitive and standard approach is used to present metadata on a website.

#### **IV. Managing revisions and version control to maintain credibility**

**Documentation:** Invited papers by Canada and Denmark. Supporting papers by Netherlands, Sweden and United Kingdom

**Session organizer:** David Marder (United Kingdom)

15. Users, unlike statisticians, do not often understand why revisions occur. In some cases revisions are a logical consequence of statistical methodologies used, for example in calculating the gross domestic product (GDP), or in case of re-basing and smoothing of time series. The discussion within this session did not deal with these cases, but with corrections to errors of various nature.

16. The following points were made in the discussion, with respect to treatment of errors and corrections communicated to external users:

- a) Statistical agencies should admit errors and correct them rather than hide behind revisions. A limited number of errors that are honestly admitted can increase the credibility of a statistical agency;
- b) It was suggested to deal differently with serious errors and minor errors. Serious errors may need flagging on the home page, recalling distributed information, and inserting corrections into printed materials; for minor errors it would be acceptable to correct them on-line and provide a contextual note on the correction;
- c) Experience shows that it is usually external users who discover errors. Some participants felt that the publication departments are the next place where errors are identified;
- d) In some cases it is justified to take data off the Web or out of on-line databases, before correct data can be published. If this is necessary, an appropriate note should be published to inform potential users. This note should contain the expected deadline for the correction.

17. Errors in published data also have internal implications, and the following were mentioned in the discussion:

- a) Quality standards for errors have to be included in policies of statistical agencies. Statistical agencies need to maintain statistics about errors, which can help in their quality management;
- b) Some statistical offices develop incentives for subject-matter staff to re-check and admit errors. The level of internal transparency is variable in different statistical agencies;
- c) Not only the final, but also intermediary statistics have to be corrected and sources identified. The sources can often be external, for example, when data are misreported and later corrected by the reporting enterprise;
- d) Statistical Offices should track when corrections are made.

18. Errors often get unfavourable press coverage. Participants discussed approaches to addressing this:

- a) Press releases or notes on the website should acknowledge the errors;
- b) Sometimes the press releases have to be issued before the corrected data are available, because the data revisions require more time.