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GENDER ISSUES IN ICT STATISTICS AND INDICATORS, WITH PARTICULAR EMPHASIS ON DEVELOPING COUNTRIES

Keynote address

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Introduction

Why gender statistics?

1. The basic purpose of this workshop is to underline the importance of bringing ICT data into the realm of official statistics so that current global gaps in the data can be identified and closed. This paper maintains that one of the most important data gaps is in the area of gender and ICT statistics and indicators, which can be closed by the identification and

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collection of sex-disaggregated data and gender-specific indicators. By its very name, the World Summit on the Information Society emphasizes the societal over the technological aspects of ICT. In order to have a clear picture of the impact of ICT on society, it is necessary to see whether and how ICT impact men and women differently. Without this data, the situation of a majority of the world's people vis-à-vis ICT may be overlooked.

2.   There is a paucity of sex-disaggregated information on the Information Society. This reflects the more general dearth of information on women's activities across all sectors that has led to a lack of understanding of the 'different world's men and women live in'- in terms of access to education and work, health, personal security and leisure time (United Nations, 1996: xvii). The collection and analysis of information on the differential impact of ICT on men and women is a necessary prerequisite to the achievement of a globally equitable Information Society.

What's a gender indicator?

3.   The Canadian International Development Agency (CIDA) has a very useful definition of a gender-sensitive indicator.

> Gender-sensitive indicators have the special function of pointing out gender-related changes in society over time. Their usefulness lies in their ability to point to changes in the status and roles of women and men over time and therefore to measure whether gender equity is being achieved. Because use of indicators and other relevant evaluation techniques will lead to a better understanding of how results can be achieved, using gender-sensitive indicators will also feed into more effective future planning and program delivery (CIDA, 1997).

4.   In view of the special function of gender indicators in pointing out gender-related changes in society over time and to measure whether gender equity is being achieved, it is particularly important that the use of gender indicators be adopted early in the data collection efforts to support the achievement of a global, equitable Information Society.

Is there a gender digital divide?

5.   Many of the realities of life are different for women than they are for men. According to UNDP, "in no society do women enjoy the same opportunities as men" (UNDP, 1995). The world over, most women are poorer than men, not as well educated and with higher levels of illiteracy. They tend to earn less and hold fewer positions of power and decision-making in the family, in businesses, and in political and public life. These inequalities impact women's ability to benefit equally from the opportunities offered by information technology and to contribute fully to shaping the developing global knowledge economy and society.

6.   The outcome of these gender inequities is that the impact of ICT is not gender neutral-women have many disadvantages in accessing and using new information technologies. Unless special interventions are made, most women will not benefit from the Information Society at anywhere near the same extent as men. This situation is mostly sharply felt in developing countries and is brought home by the following text.

Rural telecentres are being built across Africa at an amazing rate, yet there is no attention given to the development of programmes for the women who live and work in the fields surrounding them and as a result very few women get to use them (Walker, 2003).

What are the main gender issues in ICT?

7.   These are some of the gender issues that are central to an understanding to the application of information technology to society, the major concern of WSIS.

Infrastructure is a gender issue

8.   The most basic gender issue in ICT is access, which is inextricably linked to the availability of the necessary infrastructure. In virtually all developing countries, communications infrastructure is weaker and less available in rural and poor urban areas, where the majority of women tend to live. Especially in Africa, Internet connectivity is frequently available only within capital and major secondary cities in many developing countries, while the majority of women live outside these cities. The urban bias in the dissemination of information technologies and the fact that most poor women in developing countries live in rural areas make the placement of infrastructure a gender issue. Simply by being the majority of the population in rural areas, women have a smaller chance than men to access new technologies. It is likely that phone lines are fewer, that there are no relay stations for mobile phones and no earth stations for satellites. As UNIFEM and the UNU/TECH noted:

« Women, with their special responsibilities for children and the elderly, find it less easy than men to migrate to towns and cities. The urban bias in connectivity thus deprives women, more than men, of the universal right to communicate (UNIFEM and UNU/TECH, 2000)."

Education and skills

9.   Women in developing countries are less likely than men to have the requisite education and knowledge to use ICT effectively. Two-thirds of the world's 900 million illiterates are women. ICT that do not require literacy are being developed such as the IDRC sound and graphics CD-ROM on rural women in Uganda earning money, but to date these are available in only widely scattered pilot projects. Women are also less likely than men to know the international languages that dominate the web. Given their limited access to schooling, women, especially those in rural areas, are also much less likely than men to have computer skills. Information literacy essentially involves using information contextually, a skill that women are less likely than men to have, resulting from the comparatively limited exposure and isolation of many women.

Social and cultural issues

10.   Women tend to have less access than men to those ICT facilities that do exist. Frequently, information centers or cybercafes are located in places that women may not be

comfortable frequenting or that are culturally inappropriate for them to visit. Since most communications facilities in developing countries are in offices or shared public access, women also have problems of time. Given gender-defined multiple roles and heavy domestic responsibilities, their leisure hours are few, and the public centers may not be open when women can visit them. Or they may be open evenings, when it is problematic for women to visit them and then return safely to their homes in the dark. Their mobility (both in the sense of access to transport and ability to leave the home) is also more limited than that of men. Some accommodations that may be needed to ensure gender equity in access and use of ICT for women are adaptation of schedules to suit women's hours and availability of women support staff and trainers.

11.   Another cultural aspect of gender and ICT is gender bias in attitudes towards women studying or using information technology. Throughout the world, there are problems in attracting young women to science and technology studies, as we will see in the section on education below. The problem is worse in Africa than in any other region with the lowest percentage of women studying science and technology at all levels. Many (predominantly male) math and science teachers in Africa hold outmoded views that girls can't think or work scientifically and that science is too mechanical and technical for girls, thus discouraging female students. In many countries traditional cultural attitudes discriminate against women having access to education and technology. Girls are encouraged to take any job or get married rather than seek higher education. Attitudes that information technology is not for women are not limited to formal education. In a project for rural farmers in Peru, when women undertook information technology training with men, the men mocked them, saying that computers were for men, not women.

12.   Sometimes gender-based cultural attitudes, and not the immediate gender identification of technology use, prevent young girls and women from accessing and using ICT. In Uganda, girls did not get equal access to the limited number of computers installed in school (under a WorldLinks Program) because of the socio-cultural norm that "girls do not run." Boys ran and got to the computers first and refused to give them up to girls. Additionally, the earlier curfew hours for girls at boarding schools further constrained their access. In India, in the well-known 'hole in the wall' experiment, the aggressiveness of boys pushing away girls prevented the girls from using the computers.

Financial resources

13.   Almost all communication facilities cost money. Women are less likely than men to own radios and televisions, or to access them when they want to, in the case of household possession of the technology. When it involves paying for information access, such as at a rural information center or a cybercafe, women are less likely to have the disposable income to do so (or hesitate to use family food, education, and clothing resources for information).

Limitations of the media on gender issues

14.   Little Internet content is available that meets the information needs of women in developing countries in a form they can use. The amount of content in local languages, which women tend to use exclusively more than men, is miniscule. If ICT are to be useful to women

in developing countries, they must meet the test of relevance. If this is not passed, ICT will remain of little interest and value to many women in developing countries, particularly those living in rural areas.

For what uses?

15.   There are gender issues in the way that ICT are used in developing countries. To date, most women's use of ICT has been confined to email and sometimes to listservs (email discussion lists), generally in connection with advocacy and networking activities. The main reasons for this concentration are cost of access and limitations of time, bandwidth, and technical skills. Relatively few women have used it for business, for entertainment (the predominant use in the developed world), or for education, including education in matters related to livelihood and well being of themselves and their families (e.g. health and nutrition education). Promoting women's use of new technologies for business (including improved agriculture and agricultural products) and for education is an important undertaking.

Industry and labor

16.   The patterns of work in the IT industry are highly gendered. Women are found in disproportionately high numbers in lowest paid and least secure jobs. Few are found at higher levels, particularly in hardware and software engineering and at management levels. Many women have been displaced due to increasing automation and computerization of workplaces. Men continue to crowd out women in training required to high skilled work. The gender patterns of work in teleworking have not been fully researched.

Power and decision making

17.   Women are underrepresented in virtually all ICT-decision making structures, including policy and regulatory institutions, ministries responsible for ICT, board and senior management of ICT companies. ICT decision-making is generally treated as a purely technical area, where civil society viewpoints are given little or no space.

Privacy and security

18.   One of the negative aspects of ICT is the use of the Internet for women's sexual exploitation and harassment. The pernicious elements include trafficking of women through the Internet, pornography, sexual harassment and use of Internet to perpetuate violence against women. Regrettably, increasingly graphic pornography is easily available to all who seek it and even to those who don't. A number of cases have appeared recently where men use web sites to harass women and violate their privacy. Legislation is needed that prevents ICT from threatening human rights.

A caveat needs to be inserted whenever the term **women** is used. All women in the developing world do not belong to one homogeneous group. There are highly variable political, socio-economic, and cultural differences that affect the lives of both men and women across different regions of the world, an addition to factors such as age and health. We do not want to lose sight of this complex reality. Not all women are disadvantaged (for example middle class women will usually have much greater access to ICT than most poor men), and there are also major differences based on age and ethnicity. There are also substantial regional variations in the relations between gender and ICT. While in North America, for instance, girls shy away from computer science, it is often regarded as a women's field in some countries of south and west Asia.
At the same time, however, it should be noted that gender inequality is more pervasive across societies than other forms of inequality. It is a feature of social relations in most societies, albeit in different forms. Gender inequality also cuts across other forms of inequality so that it is a feature of rich as well as poor, racially dominant as well as racially subordinate. Gender inequality is usually, but not always, more marked among the poor.

How do official statistics and indicators capture this divide?

19.   Standard presentations of ICT statistics pay no attention to gender differentials. To cite one example of this, the World Bank Development Data Group publishes "ICT at a glance", with breakdowns by country. No breakdowns by sex are shown for any of the indicators, despite the fact that more than half of the indicators are based on demographic data that could be disaggregated by sex. As far as most official statistics are concerned, the gender digital divide is invisible and unmeasured.

20.   Few countries collect gender ICT statistics, and those that do so are typically the countries where the gender digital divide is least marked[1]. Very few countries have official surveys, such as household surveys, to collect gender-disaggregated statistics. It is no surprise that the gender digital divide mirrors the income divide to a large extent: the access and use of ICT by men and women is much more equitable in rich countries than in poor countries. And as with statistics and indicators in general, gender statistics are much more available in rich countries than in poor countries. Those countries where the gender digital divide is most marked are also those where the digital divide in general is hardest to document. It is difficult to bring this issue to the attention of policy makers in these countries because of the lack of reliable data on which to make the case for the inequitable access to and use of ICT by women in developing countries. This includes ICT not only for communication, but also for conduct of business (including e-commerce) and employment in the IT industry itself.

21.   Michael Minges explains why there is so little data on gender and ICT:

 First many government organizations do not collect national ICT statistics in a consistent and regular manner. Of those government agencies that compile [ICT] statistics, most do not provide a breakdown by gender. Second, traditional, ICT statistics are either obtained from telecommunication organizations (e.g. telephones) or estimated based on shipment data (e.g. personal computers). These organizations have their own operational or analytical reasons for maintaining the data, and gender is not one of them. . . . until primary ICT data collectors see market value in obtaining gender-disaggregated statistics, the data will not be widely available (Minges, 2003). »

Currently available gender statistics and indicators

What the ITU is doing

22.   Until 2003, the only sex-disaggregated ICT data that the ITU published was that on female employees of telecommunications administrations. This in itself was a relatively recent addition to the ITU's annual questionnaire. Only one-third of countries were able to supply this data, and a number of developed nations, including France, Germany, Japan and the United States, were unable to do so. However, this data is not very significant because it simply reveals that in most countries the majority of positions within the traditional Public Telephone Operators –that of telephone operators- are held by women. A high percentage of female personnel among telecommunications staff is not an indicator of gender equity in employment the telecommunication industry. Many of the reporting countries have old telephone networks that require heavy operator intervention, and telephone operators have traditionally been women globally, except in places such as the Gulf States where cultural prohibitions have kept women from working. The statistic says nothing about the level of employment by sex. The statistic tells us virtually nothing about the comparative access to or use of ICT by men and women. It also tells us little about employment in the ICT industry.

23.   Progress has been made this year at both the ITU and at the United Nations statistical office in the inclusion of gender ICT indicators. ITU has now increased to three the number of sex-disaggregated indicators included in its annual questionnaire to member States and in its *Handbook of key indicators of the telecommunications/ICT sector*, adopted by the third World Telecommunications/ICT indicators meeting held in Geneva in January 2003. The two new indicators are:

-     Female Internet users as a percentage of total users
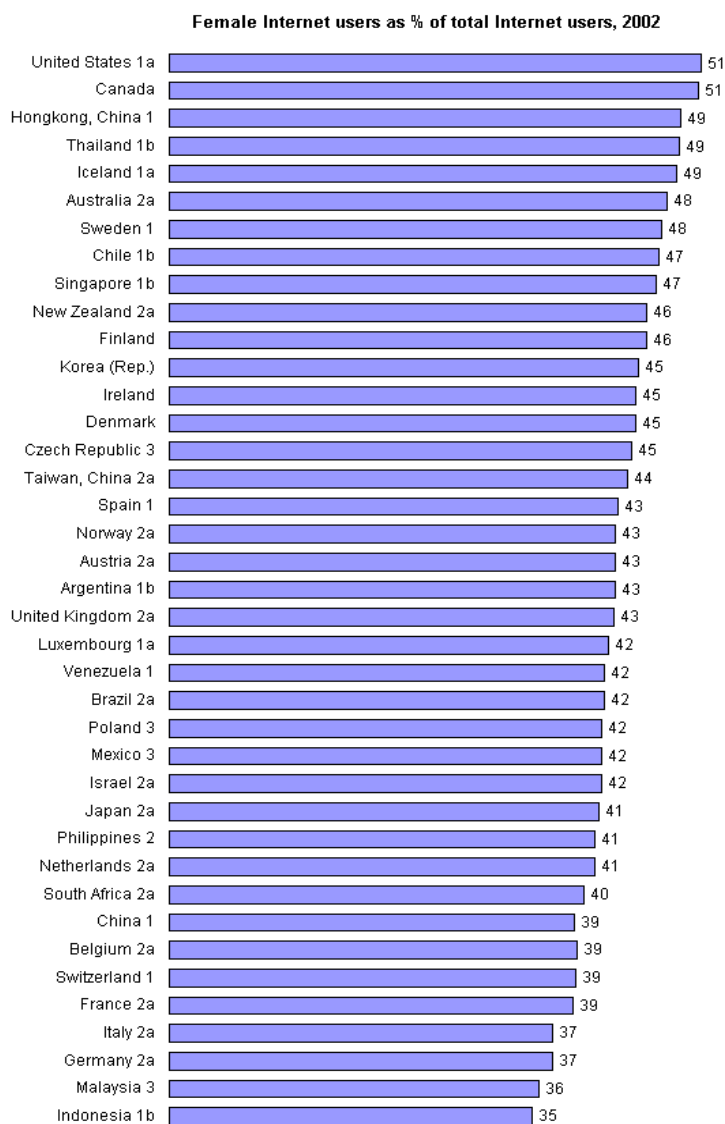-   Female Internet users as a percentage of females

24.   The following definitions were adopted for these indicators:

Table: Key gender indicators of the telecommunications/ICT sector

ITU Code	Indicator	Definition
16.1	Percent female Internet users	Share of females in the total number of Internet users. This is calculated by dividing the number of female Internet users by the total number of Internet users.
16.2	Female Internet users as percent of female population	Share of female Internet users in the total number of females. This is calculated by dividing the number of female Internet users by the total number of females.

25.   Additionally and significantly, the United Nations Millennium Development Goals monitoring report and database has also begun to include female Internet users as a percentage of total Internet users. However, as agreement on its inclusion came only during the March 2003 of the UN MDG team, it is too early to see entries on this indicator.

Figure : Female Internet users as percent of total Internet users, 2002

Female Internet users as % of total Internet users, 2002

Country	%
United States 1a	51
Canada	51
Hongkong, China 1	49
Thailand 1b	49
Iceland 1a	49
Australia 2a	48
Sweden 1	48
Chile 1b	47
Singapore 1b	47
New Zealand 2a	46
Finland	46
Korea (Rep.)	45
Ireland	45
Denmark	45
Czech Republic 3	45
Taiwan, China 2a	44
Spain 1	43
Norway 2a	43
Austria 2a	43
Argentina 1b	43
United Kingdom 2a	43
Luxembourg 1a	42
Venezuela 1	42
Brazil 2a	42
Poland 3	42
Mexico 3	42
Israel 2a	42
Japan 2a	41
Philippines 2	41
Netherlands 2a	41
South Africa 2a	40
China 1	39
Belgium 2a	39
Switzerland 1	39
France 2a	39
Italy 2a	37
Germany 2a	37
Malaysia 3	36
Indonesia 1b	35

Note: 1=National source. 2=Nielsen//NetRatings. 3=TNS. a=2001. b=2000.
Source: International Telecommunication Union (ITU).

26.   The figure shows ITU data on female Internet use for 39 countries from three sources (national, Neilsen/Net and TNS)[2]. Of the data from the 39 countries, only 13 are indicated as coming from country sources, presumably national statistical offices that do collect sex-disaggregated ICT data. For those interested in the situation of female Internet use in developing countries, there is disappointingly little data available. There is data available on

only one African country – South Africa, a country atypical of the region. Only five Latin American countries are represented, and they, too, are among the richest countries of the region (Argentina, Brazil, Chile, Mexico and Venezuela). There are no Middle East countries, except Israel. While the highest number of countries from any region outside Europe and North America is from Asia, the list is heavily weighted towards wealthy countries and does not contain India, a very interesting and important case in terms of gender and ICT. Again, the available data reflects the fact that the gender data divide mirrors the global digital divide.

Some good practices

27.   Two of these good practices are country examples, both from developed countries-one from North America and the other Asia. The third is a toolkit on gender statistics, with particular emphasis on developing countries.

28.   The U.S. Department of Commerce has an excellent series entitled ***Falling Through the Net.*** The 2000 edition, fourth in the series, focused on "Toward Digital Inclusion", measuring the extent of digital inclusion by looking at households and individuals that have a computer and an Internet connection. What was unique about this series is the amount of gender-disaggregation of data. Among the gender-disaggregated data that the 2000 edition presented was the following.

- Percent of U.S. persons using the Internet, by gender and location (printed) (at home, outside home, at any location)
- Reasons for households with a computer/webTV[7] not using the Internet at home, by gender
- Percent of U.S. persons using the Internet at home, by gender and use (printed)
- Percent of U.S. persons using the Internet at home, by subject matter and gender/and Not at home, by subject matter and gender (printed)
- Percent of U.S. households with a telephone
- By household type (including female-headed, with and without children)
- With a modem, with e-mail by household type (U.S. Department of Commerce, 2000).

29.   The data comes from U.S. census data. Most of these breakdowns, however, would not be meaningful for most developing countries, particularly those in Africa, where Internet usage tends to be public access (either in telecenters or in relatively low-cost cybercafes) or at work, and where the emphasis is on alternative technologies because of the cost and unavailability of reliable Internet connections.

The Korean case

30.   Korea is doing substantial and interesting work on gender and ICT statistics. Since the first quarter of 2000, the Korean Network Information Center (KRNIC) http://www.krnic.or.kr) has undertaken and published quarterly surveys of Internet use,

averaging 5700 users, with some 20 categories of data collected and disaggregated by sex, and in addition in most cases, age. KRNIC's categories for which data is available by sex are:

KRNIC categories of Internet statistics disaggregated by sex:

Rates of Internet usage (by sex and age)
Main reasons for Internet usage (10 reasons cited)
Age of first Internet usage
Frequency of Internet usage
Average duration of Internet use
Anticipated (projected one year) Internet use
Modes of Internet access (e.g. LAN, IDSN, DSL)
Time of main Internet usage
Places of primary, secondary, tertiary Internet usage
Average cost of Internet connection
Main purpose of usage
Main purpose of Internet surfing
Rate of possession of e-mail address
Numbers of e-mail addresses
Rate of possession of homepage
Problems with using Internet
No. hours weekly reading newspapers, watching television
Reasons for not using Internet

31. In 2001 the Ministry of Gender Equality released a research report on "Women's Informatization survey and index development" in order to document and examine the gender digital divide in Korea. The Ministry based their research on five categories, from which they developed an index of women's "informatization" defined as the process by which information technologies have transformed economy and society. These categories are *awareness*, *access*, *utilization*, *skill* and *effects*. The index measured involvement of men and women according to the categories and then measured the comparative informatization by sex. The results showed that women's informatization measured 88 percent that of men's. Although women scored very high on awareness, skills and effect, in terms of access and usage, the situation of women was particularly deficient, with women having only 22.9 percent the access of men and using the Internet of 28.2 percent as much as men (Korea, 2001).

32. In November 2001 the Government of Korea followed the development of the index with a survey of statistics to compare men and women in terms of informatization. Among the findings was that there is a serious digital divide by age, with women's scores on all categories in the index dropping with age (measured in decades, starting with those in their twenties) and a series gap apparent for those in their fifties and older. Not surprisingly, higher income women had a higher rate of informatization than those with lower incomes.

33. In February 2002 the Asian Pacific Women's Information Network Center of Sookmyung Women's University, the leader in this work, organized a workshop entitled "Survey of Women's Informatization in Asia and the Pacific," in an effort to develop

indicators for a survey on women's involvement in computerization to be conducted throughout the Asian region[3]. In cooperation with the Korean National Commission for UNESCO, APWINC has been carrying out a survey on the situation of women's informatization in seven countries: China, Indonesia, Japan, Korea, Nepal, Philippines and Sri Lanka from March-October 2002.

34.   Unesco and the Gender Advisory Board of the United Nations Conference on Science, Technology and Development have produced a toolkit on gender indicators in engineering, science and technology for development. Although there are few specific references to ICT, the toolkit covers many areas relevant to the Information Society. It is particular good at describing the availability of gender statistics in science and technology education, including computer science. It also provides excellent methodology for collecting gender data, statistics and indicators. Chapter 5 "Collecting gender-disaggregated data: case studies and models" is especially useful; it provides an inventory of available and potentially useful data sources for gender-disaggregated statistics and indicators (Huyer and Westholm, 2001).

Identifying desirable data and indicators – it's more than Internet!

35.   No single indicator can capture the gender equity issues of the Information Society. Limiting data collection and analysis to male/female differentials in use of the Internet gives a very limited picture of the Information Society. Among the questions it leaves unanswered are: What are the relative difficulties that women have in accessing the Internet? Once connected, is there accessible content, including in terms of language, literacy and interest to women of the world, particularly poor women from developing countries? Access to other communication media, such as radio, is particularly important for women in developing countries. The Information Society also encompasses the Knowledge Economy, in which we need to know the extent to which the women of the world are participating. Information Society is based on the IT-industry, where entry and progress is based on education, in particular in science and technology. For this, comparative data on men and women's education in science and technology and employment in technological fields are necessary. What are the relative opportunities for girls and women for computer and communications education, the basic prerequisites for participation in the Information Society, at all levels, including non-formal education?

36.   In addition to formal sector employment, ICT enables a host of new employment opportunities, including e-commerce and communications businesses. How are women faring in these? We need to know whether national ICT policies are aware of gender issues as well as the gender divide in ICT decision-making. The area of development information also needs to be considered. Given the large number of projects globally in the broad area of information society and development, to what extent are gender issues being considered in these projects and what has their impact been on women. The largest question of all remains open: how to define an indicator that can measure the comparative impact of the information society on men and women globally.

37.   A number of these areas where sex-disaggregated statistics and gender specific indicators would be useful are detailed below.

Internet access

38.   In addition to Internet usage, gender access data is very important. Among other reasons, its availability can inform regulators in the application of universal access. To date, most universal access strategies have been based on geographical factors (e.g. rural/urban) or income data (with low income areas being underserved). It is important to add gender as an important variable in determining universal service obligations and enabling the universal right to communicate.

Telecommunications access

39.   This is especially important in relation to the right to communicate. Few telecommunications access statistics or indicators are disaggregated by sex, except for mobile phone subscribers in some countries. The number of mobile phone subscribers disaggregated by sex would be a highly desirably indicator, in view of the increasingly dominant position of mobile telephone in many developing countries. Access to radio by sex would also be very valuable, in view of the fact that the presence of a radio in a household does not ensure its availability to the women in the household.

Content

40.   Are there differences in the kinds of material on the Internet that men and women access? Want? This data is available in sex-disaggregated form for many developed countries as market research firms are interested in sex-differentiated content access patterns. For developing countries, content access data is completely unavailable. The data could be in the form of specific sites or types of sites most commonly accessed, differentiated by sex.

Knowledge economy employment

41.   Valuable statistics and indicators in employment include gender-related employment differentials within ICT and telecommunications industries and employment by sex and level in the IT field, in jobs using IT and in the IT manufacturing industry. Useful statistics would show level of employment in telecommunications, including telecommunications manufacturing and ICT industries (both ICT manufacturing and ICT-using).

42.   Little data is available on women's participation in computer science and engineering research and employment in the private sector as well as in research institutions. However, the data that does exist indicates that the participation of women in higher-skilled, higher-ranking and higher-paid positions remains very low. This data is now available for a number of countries, including some developing ones. It shows a progressive decline of the number of women in ICT-related employment at increasing levels of complexity. Many women operate computers, largely for word processing and related office programmes, and enter data. Many fewer are programmers and systems analysts, and the smallest number of women is found in North America, Europe and Asia in software and hardware engineering.

43.   In particular, the participation of women in information technology design and development is generally low. Concentrated in the low or unskilled end of employment,

women are not getting the training that the new jobs require. This is leading to fears of the global feminization of labour, whereby occupations in which women predominate see a drop in salaries, status and working conditions. Readily-available statistics and indicators in this area would help make the case for encouraging girls women's education in science and technology in order to make them eligible for higher level positions using IT.

Self-employed: ICT-enabled and e-commerce

44.   Telework-this is an important new area and it holds, apparently, opportunities for women because of its apparent flexibility in location and hours. Are more women able to take advantage of employment opportunities in teleworking? Statistics are needed on this area of the Information Society. One group that is working on the identification of indicators and cross tabulations by gender with specific attention to the question of whether telework based as home is employing more women than men, albeit in the setting of Europe, is the STILE consortium (STILE, 2003).

Education

45.   The question of women's scientific and technical education and their participation in S&T professions are important ones for national sustainable development. Of all the work in gender statistics, by far the most has been done in the area of female education, from primary to post-graduate levels and in women's subsequence participation in S&T professions. Unesco is the leader is gender statistics on the participation of women in science and technology education. In its guide to *Gender-sensitive Education Statistics and Indicators* Unesco outlines methods of 'engendering' some of the most commonly available education statistics and indicators and using them to analyze and understand gender trends (Unesco, 1997). Much of its work in this area could be applied to gender statistics on ICT. This data on differential access to and participation in education for use of and employment in telecommunication and ICT is very significant in determining the future of the gender digital gap.

ICT telecommunication/policy

46.   An important gender indicator in ICT/telecommunication policy could be the inclusion (or not) of gender issues in the country's ICT/telecommunications plan, policy or strategy. To date, few developing countries have done this. Korea is a notable exception, with a well-developed gender strategy in the national ICT plan. In Africa, Cote d'Ivoire makes passing mention of gender issues, while Guinea has developed it well. While South Africa's White Paper on communication dealt with gender issues, critics feel that implementation has not lived up to intentions.

Participation in telecommunication and ICT decision making

47.   An examination of the extent to which women are represented in decision-making in information technology reflects the progress of women in the field and the possibility that women in positions of power would serve as role models for others, facilitate the entry of other women, and alleviate some of the negative impacts of new technologies of women.

Available data indicates that women are conspicuously absent from decision-making structure in information technology in both developed and developing countries. These structures includes boards and senior management of IT companies, senior management and advisors of policy and regulatory organizations, technical standards setting organizations, industry and professional organizations such as the Internet society, national policy and regulatory organizations, line ministries responsible for the IT sector, and international development organizations and agencies. Indicators in this regard could include numbers of women in senior management positions at selected ICT firms, in ministries of communication and information technology (or their equivalent), in ICANN and in ITU study groups.

Development information

48.   The area of development information is a vital one for gender and ICT statistics. Given the large number of projects globally in the broad area of information society and development, it would be very useful to know to what extent gender issues are being considered in these projects, especially in the ICT components of the project, and what the impact has been.

The larger question

49.   Very little data is available on the impact of information technology on persons outside the OECD countries. Given the project-level indications of the differential impact of information technology on men and women, both quantitative and qualitative data on this area would be highly useful.

Where to go from here

50.   How is it possible to encourage countries that don't currently collect the gender and ICT data to do so within their official statistics program? We need much more gender-based information than female Internet use. Gender-disaggregation of all relevant data related to the Information Society must be encouraged. Perhaps the best hope for the collection of gender-specific and sex-disaggregated data comes through household surveys. Undertaken by national statistical agencies. In order for this to happen, there has to be pressure from gender advocates at national level, both on the national statistical agencies and on the making of national ICT policy. ITU can do a lot by exercising its 'bully pulpit' encouraging national statistical agencies to (a) collect ICT data; and (b) disaggregate the data by sex wherever relevant. Most importantly in security the adherence of member States, the World Summit on the Information Society needs to take the lead in identifying this as an important area for action.

NOTES

[1] The United States, Canada, Hongkong, Thailand, Iceland, Sweden, Chile, Singapore, Finland, Ireland and Denmark all collect gender-disaggregated ICT usage statistics. In all of these countries, the percentage of female Internet users as a percentage of total Internet users is 45 percent or more. In most African countries, where such data is not collected by official statistics sources, estimates of female Internet use are 25 percent or less.

[2] TNS is TNS Telecoms, which advertises itself world's largest telecom market information company and which provides market information services to national and multi-national organizations in over 80 countries. Its headquarters are in Jenkintown PA (USA).

[3] "Survey on Women's Informatization in Asia and the Pacific." 2002. http://www.apolc.org/news/con_index.html?con_no=40.

References

Canadian International Development Agency. 1997. *Guide to gender-sensitive indicators*. Hull: CIDA.

Hafkin, Nancy. 2003. "Some thoughts on gender and telecommunications/ICT statistics and indicators." Presented to Third World Telecommunication/ICT Indicators Meeting. 15-17 January. Geneva. http://www.itu.int/ITUD/ict/WICT02/doc/pdf/Doc46_Erev1.pdf.

Huyer, Sophia and Gunnar Westholm. 2001. *Toolkit on Gender Indicators in Engineering, Science and Technology*. Produced for Unesco and Gender Advisory Board, United Nations Conference on Science and Technology for Development. http://gstgateway.wagsat.org/ta/data/toolkit.html.

Korea, Ministry of Gender Equality. 2001. "Study of Women's Informatization survey and index development." Cited in Republic of Korea.. 2002. *APEC 2ⁿᵈ Ministerial Meeting on Women*. Seoul.

Minges, Michael. 2003. "Gender and ICT Statistics." Presented to Third World Telecommunication/ICT Indicators Meeting. 15-17 January. Geneva. http://www.itu.int/ITU-D/ict/WICT02/doc/pdf/Doc07_E.pdf.

STILE Consortium. 2003. "Measuring mobility in the *e*Economy." *Newsletter*, no. 4. September. Brussels. http://www.stile.be/Newsletters/Newsletter_no_4.pdf.

United Nations Educational, Scientific and Cultural Organization. *Gender-sensitive Education Statistics and Indicators: a practical guide*. Paris: Unesco.

UNIFEM and United Nations University Institute for New Technologies (UNU/TECH). 2000. "Gender and Telecommunications: An Agenda for Policy." http://www.unifem.undp.org/pap_itu.htm.

United Nations. 1995. *The World's Women 1995*. New York: United Nations.

United Nations Development Programme. 1995. *Human Development Report*. New York: United Nations.

United States Department of Commerce. 2000. *Falling Through the Net: Toward Digital Inclusion. A report on Americans' Access to Technology Tools*. Washington: National Telecommunications and Information Administration. http://www.ntia.doc.gov/ntiahome/fttn99/InternetUse_II/Chart-II-14.html.

Walker, Anne. 2003. "ICT programmes for rural women." E-mail message to WSIS Gender Caucus mailing list. wsis-gendercaucus@wougnet.org. 11 September.

World Bank Development Data Group. ICT at a glance. 2003. Washington: World Bank: http://www.worldbank.org/data/countrydata/ictglance.htm.