

Gender Issues in the Information Society

Gender Issues in the Information Society

UNESCO Publications for the World Summit on the Information Society

Author: Natasha Primo

The designations employed and the presentation of material throughout this publication do not imply the expression of any opinion whatsoever on the part of UNESCO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The authors are responsible for the choice and the presentation of the facts contained in this book and for the opinions expressed therein, which are not necessarily those of UNESCO and do not commit the Organization.

Published in 2003 by the United Nations Educational, Scientific and Cultural Organization (UNESCO),
7, place de Fontenoy F-75352 Paris 07 SP.

© UNESCO 2003
(CI-2003/WS/05)

Preface

We would be justified in saying that one of the most potent forces shaping the 21st century are the new Information and Communication Technologies. Their revolutionary impact affects the way we live, learn, work, spend our leisure time, and communicate. ICTs are becoming a vital engine of growth for the world economy. They have the potential to enable many enterprising individuals, firms, communities, in all parts of the planet, to address economic and social challenges with greater efficiency and imagination.

While ICTs and the Internet offer vast, new and unprecedented opportunities for human development and empowerment in areas ranging from education and the environment to healthcare and business, they are also one of the key contributing factors to social and economic disparities across different social and economic groups. The gender divide is one of the most significant inequalities to be amplified by the digital revolution, and cuts across all social and income groups. Throughout the world, women face serious challenges that are not only economic but social as well as cultural – obstacles that limit or prevent their access to, use of, and benefits from ICTs.

Improved understanding and awareness of these challenges, but most importantly of the opportunities that ICTs could provide for women, are important steps towards bridging the gender digital divide and towards transforming it into digital opportunity. The involvement and engagement of women in the Information Society on an equal footing with men will directly contribute to improving the livelihood of people, making it more sustainable and thereby promoting the social and economic advancement of societies.

Women represent the main economic force in most developing countries. As economies become more and more information-driven, the issues of women's access to and use of ICTs is growing in importance for both

developed and developing economies. The ease with which information and communication technologies can transmit and disseminate information for development is well recognized. But women's access for women to ICTs cannot be assumed to occur "naturally" when gender-blind approaches and technologies are implemented. As a result of profound, gendered applications and implications of ICTs in employment, education, training and other areas of life, women need encouragement and support to take their rightful place in the information revolution.

Women are underrepresented in all decision-making structures in the ICT sector, and this undermines the negotiation of gender-sensitive investment decisions and introduction of innovative patterns, policies and standards in the ICT sector. Equitable access to ICTs and the autonomy to receive and produce information relevant to women's needs and concerns are central to women's empowerment, and to the construction of an Information Society for all.

Abdul Waheed Khan

Assistant Director-General of UNESCO
for Communication and Information

Table of Contents

Introduction: Gender and the Digital Divide	9
1. From Beijing to the World Summit on the Information Society	11
2. A world of differences	17
3. Issues in the Gender Digital Divide	37
Socio-cultural and institutional barriers	37
Access, control and effective use	39
Education, training and skills development	41
Content and language	42
Pornography, trafficking, violence against women and censorship	45
Cost, time and mobility	47
Gender segregation in employment	49
Indigenous knowledge and intellectual property rights	51
ICT Policy and governance	52
Absence from decision-making structures	55
Privacy, security and surveillance	56
Right to communicate	58
Women, place-based activism and virtual politics	59
Concluding remarks	62
4. Bridging the divide:	
New initiatives, best practices	65
Policy frameworks	65
Connectivity and access	67

Content and technology choice	69
Awareness, training and education	71
Combining access with social empowerment for women	74
5. Towards and beyond the WSIS	77
Principles	81
Actions	82
Process	85

Introduction:

Gender and the Digital Divide

ICTs are understood to include computers, the rapidly changing communications technologies (including radio, television, mobile telephony and Internet), networking and data processing capabilities, and the software for using the technologies. ICTs provide us with the capacity to harness, access and apply information and disseminate knowledge in all kinds of human activities, thus giving rise to the information- or knowledge-based economies and societies. These have the potential to create new types of economic activity and employment opportunities, thereby improving the quality of daily life. For example, ICTs are changing the way business operates through e-commerce applications, and have brought improvements in health-care delivery. As an information and knowledge-based tool, ICTs can enhance networking, participation, and advocacy within society. They also have the potential to improve interaction between governments and their citizens, fostering transparency and accountability in governance as a result.

Information and communication technologies could give a major boost to the economic, political and social empowerment of women, and the promotion of gender equality. But that potential will only be realized if the gender dimensions of the Information Society – in terms of users' needs, conditions of access, policies, applications and regulatory frameworks – are properly understood and adequately addressed by all stakeholders. Poverty, illiteracy, lack of computer literacy and language barriers are among the factors impeding access to the ICT infrastructure, especially in developing countries, and these problems are particularly acute for women. But women's access to ICTs is constrained by factors that go beyond issues of technological infrastructure and socio-economic environment. Socially and culturally constructed gender roles and relationships remain a cross-cutting element in shaping (and in this case, limiting) the capacity of women and men to participate on equal terms in the Information Society.

UNESCO believes that unless gender issues are fully integrated into technology analyses, policy development and programme design, women and men will not benefit equally from ICTs and their applications. In Section 1 the evolution of the international debate on gender and information technology is sketched out. Section 2 contrasts the impact of infrastructural and gender-specific constraints on women's capacity to exploit the potential of the new information and communication technologies in different world regions. The cross-cutting role of gender in determining participation in the information society, and the issues this raises, are explored in Section 3. Strategies, initiatives and best practices aimed at addressing these issues, and at bridging the gender divide, are considered in Section 4. Finally, Section 5 puts forward a range of actions to be considered by the various stakeholders involved.

1. From Beijing to the World Summit on the Information Society

The role of ICTs as a tool for development and social transformation has enjoyed sustained interest in the international arena, and especially in the United Nations.

The Fourth World Conference on Women in Beijing in 1995 is generally regarded as a watershed in understanding of information technology as a powerful tool that women could use for mobilization, information exchange, and empowerment. The virtual community that developed around Beijing was the genesis of an international electronic network of women's organizations that still exists and continues to expand. Beijing was also the first international conference at which substantive issues relating to women, information and communication technology were debated, albeit somewhat on the margins of the core agenda. The 2000 review of the implementation of the BPFA acknowledged the increased opportunities afforded to women through the use of ICT – in knowledge sharing, networking and electronic commerce – but also noted that poverty, lack of access to telecommunications infrastructure, language barriers, computer non-literacy and illiteracy hamper women's use of ICTs, including the Internet.

As a contribution to the Beijing conference, the United Nations Commission on Science and Technology for Development (UNCSTD) carried out a comprehensive set of studies on the relationships between gender, science and technology, and development. This work showed convincingly that there were significant gender differences in levels of access to, control of, and benefits accruing from a wide range of technological developments¹. Specifically in relation to ICTs, the UNCSTD review concluded that the

1. UNCSTD-Gender Working Group 1995. *Missing Links: Gender Equity in Science and Technology for Development*. Ottawa/London: IDRC/Intermediate Technology.

information revolution appeared to be bypassing women, that information society literature was silent on gender issues, and that neither research nor practical projects in the information technology field had addressed the particular circumstances of women.

Recent international policy documents have recognized the gender implications of the new communication technologies and identified the enhancement and development of women's skills, knowledge and use of and access to information technology as major challenges for the Information Society.

In the years since Beijing, international awareness has developed rapidly. Since 1995, women have taken their concerns directly to national governments and global telecommunications bodies. Women's participation in the regional and global preparations for the Beijing meeting also helped build a network of women concerned about gender and ICT issues and policies.

Global Knowledge 97 (GK97) was the first major international conference to explore the potential of information technologies and their possible impact on developing countries. An intense e-mail and institutional lobbying campaign, initiated by the Ad Hoc Committee for Women at GK97, resulted in substantial female participation and was an important step in putting women on the 'knowledge for development' agenda. At GK97, women participants were also instrumental in drawing up the *Canon on Gender, Partnerships and ICT Development*, which outlined some principles for development and design of ICTs that emphasized equal participation by women and men, and gender-aware assessments and evaluations of ICT use.

Other initiatives swiftly followed. Acting on a resolution adopted at the 1998 World Telecommunications Development Conference, a Task Force on Gender Issues (TFGI) was established within the Telecommunications Development Sector of the ITU (ITU-D). Its mandate was to work towards ensuring that the benefits of telecommunications and the emerging information society are made available to all women and men in developing countries on a fair and equitable basis.

By the time of the second Global Knowledge conference (GKII, March 2000), the level of mobilization around issues of gender, knowledge

and information was such that a specific Women's Forum was held within the conference, leading to a comprehensive set of recommendations². In the review and appraisal of the implementation of the Beijing Declaration and Platform of Action (Beijing +5, June 2000), effective use of ICTs emerged as one of the major challenges to be addressed in promoting women's advancement. In July 2000, the ITU, UNDP and the United Nations Development Fund for Women (UNIFEM) signed a Memorandum of Understanding to collaborate on developing gender-responsive approaches to telecommunications and ICT policy development.

In 2001 the United Nations Secretary-General established a high-level Information and Communication Technologies (ICT) Task Force whose Plan of Action, adopted in November 2001, is clearly informed by gender analyses and perspectives. The objective of the Task Force is to "provide overall leadership to the United Nations role in helping to formulate strategies for the development of information and communication technologies and putting those technologies at the service of development and, on the basis of consultations with all stakeholders and Member States, forging a strategic partnership between the United Nations system, private industry and financing trusts and foundations, donors, programme countries and other relevant stakeholders in accordance with relevant United Nations resolutions³."

In March 2002 the World Telecommunication Development Conference agreed on the establishment of a gender unit within the Telecommunication Development Sector (ITU-D), the mainstreaming of gender issues throughout the organization's work, and the conversion of its Task Force on Gender Issues into a permanent Working Group of the ITU-D. The Conference also urged the inclusion of a gender perspective in the themes and work of the World Summit on the Information Society.

In November 2002, the UN Division on the Advancement of Women (DAW) held an Expert Group Meeting (EGM) on *Information and communication technologies and their impact on and use as an instrument for*

2. See Karl, Marilee (ed.) 2000. Transcending the Gender Information Divide. www.globalknowledge.org/my/GKII_WomenForum_FinalReport.doc

3. <http://www.unicttaskforce.org/>

the advancement and empowerment of women, in Seoul, Korea⁴. Participants produced numerous examples of how marginalized women are using ICTs for their own empowerment, but noted that these examples are still sporadic and not widespread enough: in large part, the problem lies with the global lack of gender analysis in ICT policy and programme delivery. Furthermore, apart from the internal barriers felt by many women (fear of technology, lack of self-confidence, etc.) that restrict their use of ICTs, gender-specific structural barriers reinforce women's lower usage of ICTs compared to men. These barriers include inequalities between men and women at decision-making levels that constrain women's participation in shaping the role of ICTs as a development tool. Women's marginalization from ICTs may also mean that they will benefit less from the educational and employment opportunities that will become available through ICTs, as well as access to health systems and other social services, thus perpetuating and deepening existing gender inequalities.

One of the key UNESCO programming areas is Women and the Media, under which it launched two special projects: *Women Working on the Net*, and *Women speaking to women: Women's rural community radio in least developed countries* in 1996. Through the Women in the Media programme, the Organization seeks to assist Member States in developing their communication, information and informatics capacities in practical and policy terms. Its work encompasses all forms of communication and information-sharing, from the most basic forms (like community radio programming) to the most sophisticated new electronic media. One of the challenges for UNESCO has been to employ all possible means to increase access to information so that women do not miss out, and to ensure that the content is truly directed at supporting women and their full participation in society. This has included training women in news production, as well as in management and decision-making in community-based media organizations. Furthermore, the Organisation actively advocates and provides technical services aimed at furthering the development of sex-disaggregated statistics and indicators.

4. The results of the UNDAW EGM will be fed into the 2003 Commission on the Status of Women discussions to shape their multiyear work plan for 2002-2006, and will inform the UNDAW submission for the WSIS 2003 and 2005.

Given the potential of ICTs in development and social transformation, it is essential that we address the gender digital divide. The aim is both to ensure women's access to the benefits of ICTs, and to make ICTs into a central tool in women's empowerment and the promotion of gender equality.

Against this background, UNESCO proposes a dialogue with all relevant stakeholders, including governments, professional communities, representatives of civil society, bilateral and multilateral partners and the private sector, to explore how gender issues should be addressed within the WSIS process, and more widely in the construction of an Information and Knowledge Society based on principles of equity and justice.

2. A world of differences

While the role of ICTs in fostering development and social transformation is increasingly recognized, it is also becoming clear that the benefits of ICTs are unevenly spread between and within countries, based on differential access to the technologies and the knowledge/skills base needed to derive optimal benefit from them. This difference in the ability of countries, regions, sectors and socio-economic groups to access knowledge through ICTs, and to use them for a range of different purposes, has been coined the “digital divide” or “information poverty.”

The Internet is the fastest diffusing communication medium in history, but its use has predictably varied according to existing income divides, both within and between countries. For example, within the USA, only 6 percent of those earning less than \$10,000 had access to Internet in 2001 compared to 50 percent of those earning more than \$75,000⁵. Across countries, the differences are stark: in North America and Europe, about 1 in every 2 people use the Internet. In contrast, the world average is 1 in every 15 people, compared to 1 in every 250-400 people in Africa⁶.

At present, there are about 6 billion people in the world, of whom a mere 15 percent live in the so-called developed countries. About 85 percent of the world's people live in the so-called developing countries, which have the fastest rates of population growth. The income gap has never been larger in world history. On average, according to the World Bank, the advanced countries have a per capita income of about \$25,000. The 5 billion people in the developing world have an average income of approximately \$1,000 per capita, and about a quarter of the world lives on a dollar a day. For the half the

5. Consultation 2001, www.mandamus.co.uk/bshf/publications/harnessing_it/challenges.html

6. *The African Internet – A Status Report*, www3.sn.apc.org/africa/afstat.htm

planet living in the so-called low and low middle-income countries, average income is about \$ 1.25 a day. It is expected that by 2050 the world population will reach 8.5 billion people. All this population growth is expected to take place in the now developing world.

The increasing gaps in income, human development, and ICT applications between the elite and the majority of the world's population show that ICTs boost economies and improve the quality of life in industrialized and some newly industrializing countries. They will not, however, do so in other developing countries, where economic, cultural, social and political constraints are likely to prove obstacles to their use. These countries are slipping gradually into marginalization and isolation. The least developed countries face enormous risks of exclusion, because they often lack the economic and social capabilities needed to take advantage of the ICTs.

The real problem, however, is not that technological change has outrun the ability of some people to benefit from it. It has more to do with our knowledge of the effects of these changes. The ICTs seem to have a momentum of their own, and if it is sustained over the next decades they will dissolve and create jobs, change industries, generate wealth and power at both global and local levels, and more importantly, transform societies. The real problem is that we are hurtling into this new era with very little serious analysis of the adaptability of existing social and technological capabilities, or of the role of human responses to the information revolution.

Women's capacity to exploit the potential of the new information and communication technologies as tools for empowerment is constrained in different ways in different regions (Table 2). Some differences are linked to factors that affect both female and male populations in a generalized way: these include technical infrastructure, connection costs (see Table 1 below), computer literacy and language skills. In regions with low teledensity, basic socio-structural obstacles mean that the vast majority of women and men are effectively excluded from the emerging Information Society. Yet in many cases these overall constraints are filtered through specific gender-based determinants that cause women to be particularly disadvantaged. One additional disincentive faced by most women in developing countries is that, despite the vast amount of content available on the World Wide Web, little of it is of relevance or use. A web search in early 2000 found some 200,000 web

sites related to women and gender, but only a fraction of these came from developing countries⁷.

Table 1:
Cost of connection (monthly Internet
access charges as % of average monthly income)

Nepal:	278%
Bangladesh:	191%
Bhutan:	80%
Sri Lanka:	60%
United States:	1.2%

Source: UN Development Report office calculations, 2001

Outside the upper income strata, home access to a computer and to the Internet is not common in developing countries. When women do have access, it is generally in their workplace, and they use it in their work. Here too gender inequalities are well-established, and affect how women use technology. In the workplace, the majority of women use IT and ICTs for routine office work; far fewer use them as a tool for communication and information sharing. Even fewer women are producers of IT and ICT products and services, and are a rare sight among industry decision-makers.

In the developing world email use predominates as the application of choice, while high bandwidth costs place web uses outside the limits of what many women's organizations can afford. In developing countries, more women are also using ICTs to promote their businesses, though this is less prevalent than the use of ICTs for political advocacy among women's organizations.

While women in the developing world have had far less contact with ICTs to date, there is still a lot of scope for getting women involved in lobbying around ICT policies and infrastructure roll-out in many developing countries. It is imperative that the gender perspective informs ICT policy and infrastructure planning from the early stages so that women's needs are not

7. Fontaine, Mary 2000. "A High-Tech Twist: ICT Access and the Gender Divide," *TechKnowLogia*, Vol. 2, No. 2. www.techknowlogia.org

continually ignored and underrepresented. The benefits of early involvement stem from women's inclusion in the list of potential beneficiaries from the outset, rather than being added on after the fact, and in a piece-meal fashion.

Africa

In Africa, except for countries with higher teledensity such as South Africa, Uganda and Senegal, intra-country communication between women who use ICTs is still severely restricted. Umbrella NGOs at national level can communicate with only a tiny fraction of their members, and regional NGOs are restricted to using their ICTs – largely limited to e-mail – for members in capital cities. For many, the World Wide Web is frustrating and inaccessible – often due to technical problems and costs of access, but also to lack of training and knowledge. With respect to other media, women's access is less limited overall, yet is still relatively more restricted than that for men, further limiting women's access to useful and relevant information. According to *The Global Information Technology Report 2002-2003*⁸, it is estimated that, of the 816 million people in Africa in 2001, only:

- One in 4 have a radio;
- One in 13 have a television;
- One in 39 have a fixed line telephone;
- One in 35 have a mobile telephone;
- One in 130 have a personal computer;
- One in 160 use the Internet; and
- One in 400 have pay television.

A report on the state of the Internet in Africa notes that the rates of growth in Internet use observed in the 1990s has slowed down as the bulk of users with the financial resources to afford a computer and telephone have already obtained connections. As of mid-2002, the number of dialup Internet subscribers was close to 1.7 million, 20 percent up from 2001. In Africa, the indicator of “number of users” is generally inadequate as an estimate of Internet users on the continent given that each computer with an Internet connection or email connection in the region usually supports a range of three to five users. This puts current estimates of the total number of African Internet users at around 5-8 million, with about 1.5-2.5 million outside North and South Africa: this is about 1 user for every 250-400 people, compared to

8. See <http://www.cid.harvard.edu/>

a world average of about one user for every 15 people, and a North American and European average of about one in every 2 people⁹.

Unsurprisingly, African women's Internet access and usage lag behind those of African men. In Uganda and Senegal, women Internet users only constitute about 31.5 percent and 12 percent of Internet users, respectively (0.1 percent of the total population in both cases), while in South Africa women users constitute 19 percent of Internet users (0.3 percent of the total population). In most parts of Africa, women users are part of a small, educated urban elite. Much still needs to be done to make ICTs accessible to women in rural Africa.

Low levels of education and illiteracy, reinforced by poverty, account in large measure for the problems African women face in accessing and using ICTs. About two-thirds of the world's illiterate people are women, and a large percentage of illiterate women are on the African continent. The low ratios of girls in science and technology courses in Africa also reinforce the negative dynamics that limit women's access to decision-making positions in the fields of science and technology.

Globally, women's access to information is a major concern. The United Nations places lack of access to information as the third most important issue facing women globally, after poverty and violence against women. The lack of access and democratic control over communication technology, the stereotyped portrayal of gender roles, and women's limited access to professional careers and to decision-making positions in traditionally male spheres all underscore the urgent need for African women to enter into the debate on the development potential and/or impact of ICTs, and to advocate a gender-aware approach. The domination of communication by a small powerful elite, mostly males, who use the existing communication technologies to coordinate and reinforce social/cultural dominance, is a very real threat for women.

Gender has not been central to the many efforts to establish and institutionalize free and pluralistic media in African societies today. For most African women, the exercise of the fundamental freedoms of expression and information is doubly constrained by patriarchal laws and practice, and by

9. *The African Internet - A Status Report*, <http://www3.sn.apc.org/africa/afstat.htm>

economic and political conflicts whose impact is also gendered. The failure to understand these rights from a gendered perspective compounds the situation, and also poses gender based difficulties for female media practitioners¹⁰.

Asia-Pacific

Most Asian countries are now connected to what is referred to as the information superhighway. The new ICTs that also serve as media distribution channels have provided women with opportunities to share information and resources, and link and network with each other faster. Yet while the region's online population grows rapidly, women's presence in this new communication space still lags behind. Access to this new medium is particularly difficult for women in poorer and less urbanized areas where telecommunications infrastructures are poor and unaffordable. Lack of skills, training and language accessibility also serve as major deterrents.

The main characteristic of ICT usage in the Asia-Pacific region is the diversity and disparity in access, infrastructure, policies, and programmes. Whereas countries like Korea and Malaysia have well-resourced government programmes and well-developed policies that include gender equality in ICTs in their stated objectives, their experiences differ markedly from countries like Nepal and Laos, where ICT problems circle mainly around basic telephone connectivity for all citizens, and are accentuated for women.

In the Asia-Pacific region, too, ICTs are still not being fully exploited by women's NGOs. Connectivity is low in Central Asia and the Caucasus, and even lower in the Pacific Island states, but is growing rapidly in other parts of the region. The most commonly used facility is once again e-mail, primarily for correspondence. Participation in mailing lists and on-line discussions is not extensive. Accessing information from the Web is infrequent, as is advocacy via the Internet. The reasons for not optimizing the ICT tools include technical problems associated with file transmission, connections and disconnections due to poor infrastructure, high usage costs and budgetary constraints, lack of awareness of potential uses and benefits, and inadequate skills to exploit the possibilities.

10. Plou, Dafne & Munuya, Alice 2003, *Is there a place for Women in the Information Society*, unpublished paper.

A collaborative study¹¹ of 24 countries¹² in the Asia-Pacific confirmed that more women are joining the cyber community and more women's groups now have better and easier access to donors and information on funding agencies, and to information on the regional and international activities of the women's movement. But the research also identified several barriers to women's ICT access and use in the region, chief among which are:

- Political, social and economic instability in areas like Caucasus – especially Armenia, Azerbaijan and Georgia – and the Central Asian sub-region, is manifested in high inflation rates, ongoing armed conflict or other forms of civil unrest, large-scale natural disasters and a high degree of centralized authority;
- Lack of national policies promoting ICTs as a tool for development, as shown by poor ICT infrastructure such as inefficient telephone services and a total lack of electricity in many of the more rural and remote parts of the Pacific and Asia, a situation influenced by both the difficult natural terrain – vast expanses of land area, scattered islands – as well as an intrinsic urban bias in ICT infrastructure development;
- Unaffordable computer hardware and proprietary software, as well as the cost of maintenance and connectivity. Even so, many of the women's groups in East and South East Asia which already have access to the ICTs, especially Internet and e-mail, noted that their communication costs had shrunk as a result of the new technologies;
- Lack of or limited computer technical skills in various areas, including hardware and software installation and maintenance, Internet and non-Internet based skills such as telnet, FTP, mailing lists, which cause some Pacific women, for example, unease and discomfort with the technologies, and accounts for an expressed preference for older ICTs like fax and telephone, or face-to-face interaction;

11. The study was conducted by the Asian Women's Resource Exchange and coordinated by three organizations, namely ISIS International-Manila, the Association for Progressive Communication-Women's Networking Support Programme, and the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP).

12. The research extended across seven countries in Asia (India, Indonesia, Japan, Republic of Korea, Mongolia, Nepal and the Philippines); eight countries in the Caucasus and Central Asia-Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan); and nine Pacific Island countries (Federated States of Micronesia, New Caledonia, Papua New Guinea, Samoa, Solomon Islands, Tonga, Vanuatu, and Fiji).

- Limited online information in languages other than English – often the third language for women in the region – where Russian (in the Caucasus and the Central Asian), Chinese (in China, Hong Kong, and Taiwan) or Bahasa (in Malaysia and Indonesia) are the dominant regional languages.

Hence the issues of infrastructure availability, costs, know-how, and the ubiquitous question of women's multiple burdens suggest the need for policy changes so that women can fully benefit from today's information and communication technologies.

In contrast, the issues for countries like the Philippines, India, and to some extent Malaysia, centre around gender and labour in contexts where women are heavily involved in teleworking, with call centres identified as the main growth area in these countries' ICT industries¹³. These developments have created contradictory realities for women, bringing new work opportunities (particularly in production of electronics and computer hardware, or in computer encoding) along with greater interaction, intercultural exchange and activism, at the same time as generating deeper exclusion, increased unemployment in certain sectors (bank tellers, telephone operators), and a widening gap between the information-rich and information-poor¹⁴.

Women have not been raised and trained to engage in science and technology. As a result, women are mostly concentrated in assembly and clerical work, while only a few are engaged in computer systems administration and technical development. Women in low-grade technical and service jobs also make up the largest group of computer users. Men continue to crowd out women in training for higher skilled work.

Latin America and the Caribbean

The Internet is central to the network revolution that is transforming the way people interact all over the world, and it has taken Latin America and the Caribbean by storm.

13. Email communication with Chat Ramillo Garcia of APC Women's Networking Support Programme.

14. *Information and Communication Technologies: A Women's Agenda Workshop Report*, The Asia Pacific Regional NGO Symposium, 31 August to 4 September 1999, Bangkok, Thailand

The number of domains in the region doubled in 1997 and 1998, and increased by 136 percent in 1999, compared to 74 percent for North America in the same year, 60 percent for Asia, 30 percent for Europe, and 18 percent for Africa. The largest numbers of domains are found in Brazil, with 38 percent of the regional total, Mexico with 35 percent, and Argentina with 12 percent, but the proportion of the population using the Net in those same countries ranges between 2.4 percent and 2.6 percent.

In 1999, the number of hosts grew by 30 percent in Europe, 61 percent in Asia, 74 percent in North America, but 136 percent in Latin America¹⁵. From this we might conclude that there is a technological revolution in progress that will achieve, with the passing of time, a balance between some people's advantages and other people's disadvantages. In this respect, the situation in Latin America reveals notable high and low points.

In comparison with developed countries, and in particular with the United States, the differences in number of hosts, number of users and number of PCs per inhabitant are substantial. The region accounts for a mere 1.6 percent of the world's total Internet infrastructure. Seventy five percent of all web pages are in English compared with only 3 percent in Spanish and 1 percent in Portuguese. In 1999, only 2 percent of the population of Latin America and the Caribbean used the Internet compared to 40 percent in the United States and 36 percent in Canada. The only country in the region with a high rate of use is Bermuda, at 39 percent. It is followed by Uruguay, with only 7.6 percent.

The Latin American and Caribbean region contains approximately 6 percent of the world population and accounts for about 3 percent of world IT investment, compared to the United States, which is home to 5 percent of the global population but accounts for 45 percent of world IT investment.

15. Hilbert, Martin, 2001, *Latin America on its path into the digital age: where are we?*, Santiago de Chile, Division for Production, Productivity and Management, Economic Commission for Latin America and Caribbean (ECLAC), June. Quoted in Bonder, Gloria 2002, "From access to appropriation: Women and ICT policies in Latin America and the Caribbean," Paper delivered at the UNDAW Expert Group Meeting on *Information and communication technologies and their impact on and use as an instrument for the advancement and empowerment of women*, Seoul, Korea, 11-14 November.

In this respect, the LAC region is relatively similar to Africa and the Middle-East¹⁶.

A survey of the number of people online in March 2001 estimated that of 407.1 million people globally, 16.45 million were located in Latin America – that is about 4 percent of the global population of Internet users, with 28 percent in Europe and 41.05 percent in Canada and the United States over the same period¹⁷. Within LAC, there are noticeable differences between countries. In Chile, 20 percent of the population uses the Internet, 10 percent in Argentina, and 7.74 percent in Brazil. Yet Mexico, which has the same population density as these countries, registers Internet use at just 3.38 percent of its population. In comparison, Bolivia registers 0.36 percent and Paraguay 0.98 percent¹⁸. Nevertheless, these figures do not give us enough information to speculate about the future: they say nothing about the digital gaps between geographical regions within each country, or those between generations, ethnic groups and genders¹⁹.

Furthermore, the achievements obtained so far could be lost due to the decline in living conditions of large segments of the population, as exemplified by the experiences of the Argentine middle class. One danger in this decline in income and living standards in parts of the region is that the digital divide between the countries in the region, and between the region and the developed world, could widen.

At a policy level, an overview of progress derived from discussions at regional meetings suggests that gender equality principles still have very

16. Callaos, N, 2001, "Latin America and the Caribbean," in *World Communication and Information Report*, 1999-2000, UNESCO: Paris, http://www.unesco.org/webworld/wcir/en/pdf_report/chap17.pdf

17. Source: http://nua.ie/survey/how_many_online/index/html

18. Data quoted in Bonder, Gloria 2002, "From access to appropriation: Women and ICT policies in Latin America and the Caribbean," <http://www.un.org/womenwatch/daw/egm/ict2002/reports/Paper-GBonder.PDF>

19. According to Emarketers' estimations, 18.1 percent of the richest 15 percent of Latin America's population was connected at the beginning of 2000, while only 2.7 percent of the total Latin American population was connected. It is expected that by 2004, 68.9 percent of the richest 15 percent of the Latin American population of 14 or over will be connected, while only 10 percent of the total Latin American population of 14 or over will be. See Hilbert, Martin, 2001, *Latin America on its path into the digital age: where are we?*

limited importance to policy-makers and government officials. This lack of consideration of the gender perspective in regional meetings on ICT policies persists in spite of growing attention to gender issues in the media, the proliferation of women's NGOs and of Women Studies in almost all Latin American Universities, and the numerous international recommendations in this respect from a range of governments. This resistance of policy-makers to considering issues related to the gendered digital divide underscores the need for gender practitioners and researchers, NGOs and a range of stake-holders seeking to promote gender equality to engage in debate over regional and national developments in the ICT arena, and to advocate more effectively gender-aware policies and infrastructure development.

Within LAC, as elsewhere, connectivity is mainly an urban phenomenon, and there are deep divides among users according to social class, educational levels, the quality of the education received²⁰, and age²¹. Reliable data about the gender digital divide remains inadequate. While available reports estimate an average of about 38 percent of women among LAC web users²², there is no information that cross-compares variables such as sex, age, social class, geographic location, educational levels, etc. This poses a great obstacle at the time of planning policies and programmes oriented to women and/or to balancing gender differences in this field.

In countries with higher connectivity, women have been able to put the new technologies to more effective use. For example, in Latin America and the Caribbean, women's NGOs started using e-mail extensively in the early 1990s. As equipment and connection costs fell during the decade, and as the number of organisations (and individuals) with connectivity rose, groups started to use the new information technologies in a wide variety of ways.

20. A study carried out in Uruguay in 1998 shows that people with tertiary education prevail among the ones who have ever been connected to Internet: *"two-thirds of university students use the Internet for email and searches, which goes down to 41 percent and 30 percent for secondary and primary education respectively."* (Sutz, 2002)

21. In Brazil, 15.8 percent of Internet users are between 14 and 19 years old, 11.3 percent between 20 and 35 years old, 5.6 percent between 36 and 45 and users over 46 amount only to 3 percent. These differences increase in the case of personal computers: 27, 19, 13.7 and 6.3 percent respectively.

22. This figure appears in the reports from Jupiter Communication and coincides with the survey carried out by MORI-USA from Princeton, based on interviews with 10,395 people in cities of over 50,000 people in 11 Latin American countries.

Electronic mailing lists, newsletters and magazines, information services, data bases and web sites on women's and gender issues can be found in many countries. There is also an array of electronic networks linking women across the region and beyond. Even if this type of usage amounts to only a small percentage of overall Internet use within the region, it is clear that ICTs and electronic networking have allowed women to co-ordinate and strengthen their advocacy positions within national, regional and even international contexts.

Latin American women's organizations have also been active in regional debates and processes to "democratize" connectivity. In this endeavour, they have been instrumental in facilitating access to training, especially for advocacy purposes, and in increasing the ability of other grassroots (women's) organizations to obtain relevant information that would strengthen their own political and social development programmes, and hence improve their organizational profiles²³.

Women's ICT access in the developing world, however, is generally confined to a small élite of high income, urban-based citizens. Although women represent a growing proportion of Internet users in many countries, in most of these the overall levels of access are extremely low. As Table 2 shows, truly significant numbers of women are currently online in only a small number of countries outside the OECD group. And even in the industrialized countries, where overall connectivity is high, gender-specific constraints shape and delimit ICT use.

North America and Western Europe

In the United States, more than half of all households (51.0 percent) have computers, up from 42.1 percent in December 1998. The share of households with Internet access increased from 26.2 percent in December 1998 to 41.5 percent in August 2000. As of August 2000, 116.5 million Americans were on-line at some location, 31.9 million more than were on-line only 20 months earlier. The share of individuals 3 years or older using the Internet rose by one-third, from 32.7 percent in December 1998 to 44.4 percent in August 2000.

23. Bonder, Gloria, 2002, "From access to appropriation: Women and ICT policies in Latin America and the Caribbean," p11. <http://www.un.org/womenwatch/daw/egm/ict2002/reports/Paper-GBonder.PDF>

Although Internet access varies by income, education, race/ethnicity, age, and location, access has been increasing across all of these groups. Internet use remains highest among households with the highest income, but people at every income level are increasing Internet access at home. More than two-thirds of all households that earn more than \$50,000 have Internet connections. Similarly, although people with the highest level of education are most likely to have Internet access, access is also expanding across every education level. Blacks and Hispanics continue to lag significantly behind whites and Asians/Pacific Islanders in both computer ownership and Internet access. In August 2000, the share of black households that owned computers was 18 percentage points below the national average (32.6 percent for black households compared with 51.0 percent for all households nationally). Likewise, the share of Hispanic households with a computer (33.7 percent) was 17 percentage points below the national average. The share of black and Hispanic households with Internet access was also approximately 18 percentage points below the national average in August 2000 (23.5 percent for black households and 23.6 percent for Hispanic households, compared with 41.5 percent for all households nationally). Lastly, the disparity in Internet access between men and women has largely disappeared. In December 1998, 34.2 percent of men and 31.4 percent of women had home access to the Internet. By August 2000, 44.6 percent of men and 44.2 percent of women had home access.

Research has found that half the adults in the United States do not have Internet access, and 57 percent of those who do not have access are not interested in getting access²⁴. This suggests that the booming growth of the U.S. Internet population in the past few years will slow down. Of those without Internet access now, 32 percent say they definitely will not get access, and another 25 percent say they probably will not get access. Among people without Internet access now, people over age 50 are the least likely to say they will go on-line eventually, and younger people are the most likely to say they will. The study also found that 54 percent of those who are not on-line believe the Internet is a dangerous thing, 51 percent say they do not think they are missing anything by staying away from the Internet, 39 percent say the Internet is too expensive, and 36 percent express concern that the on-line world is confusing and hard to negotiate.

24. Lenhart, A. 2001. *Who's Not On-line: 57 percent of Those Without Internet Access Say They Do Not Plan To Log On*. Washington, DC: Pew Internet and American Life Project. Available at <http://www.pewinternet.org/reports/toc.asp?Report=21>. Accessed June 20, 2003.

See also http://gender.ciscolearning.org/bestpractices/northamerica/canada_strategy.pdf

In Canada, women's Internet access is also promising. Women currently outnumber men as Internet users, 51 percent (women) to 49 percent (men). As of June 2001, Canada has 14 million Internet users, and 31 percent of Canadians have broadband access at home. While IT density in rural areas is lower than in urban areas, the telecommunications infrastructure for connecting rural Canadians is available. Canadians without Internet access cited access to a computer and the Internet, not enough time, and cost of Internet services as reasons for staying off-line. Furthermore, the low levels of French content (4 percent of online materials) compared to the number of French-speaking Canadians (27 percent) means that language is an important barrier for some Canadians' use of the Internet.

Within Europe, countries that are already economically prosperous and possess a good telecommunications infrastructure have higher levels of investment in information technology and infrastructure. This serves to widen an existing gap in infrastructure between northern (like Denmark, Sweden, and Norway) and southern (Greece, Italy, Portugal, and Spain) Europe. Members of the European Union have launched the e-Europe 2005 Action Plan, which broadly seeks as its objective to bring every citizen, in their homes, schools, or work environments, into the digital age. Through the action plan, the EU means to set in place by 2005 modern online public services (e-government, e-learning services, e-health services) and a dynamic e-business environment, to be stimulated by widespread availability of broadband access at competitive prices, as well as a secure information infrastructure²⁵. For countries that lag in terms of women's access to computers and the Internet, the aim of e-Europe 2005 to streamline Information Society policies in the European Community holds out hope and the prospect of real opportunities.

In the United States, early research²⁶ found that home computing was used primarily for education, play, work, and basic word processing. In North America and Western Europe, the fastest growing use of ICT services by women is for electronic shopping. In the USA, women made up 58 percent of

25. See <http://www.tiaonline.org/policy/regional/europe/eEurope2005.pdf>

26. National Science Foundation. 2001a. *The Application and Implications of Information Technologies in the Home: Where are the Data and What Do They Say?* Arlington, VA: National Science Foundation, Division of Science Resources Studies. Available at <http://www.nsf.gov/sbe/srs/nsf01313/exec.htm>.

those making Internet purchases in late 2001, and their number is increasing²⁷. The different patterns of female and male Internet use are instructive. In early 2002 European women were spending an average of seven hours online per month, compared with ten hours for men. Women are more task-oriented: they spend their time shopping (mainly for food items), organizing travel, and banking online. Men also do these things, but they use additional time to browse, read entertainment content and download computer software²⁸. Such differences illustrate well-known gender-based disparities: women have less free time, and assume greater responsibility for family and household work.

The Arab countries

The richest Arab countries owe their wealth to oil, but this may be a mixed blessing. Oil revenues are not always reinvested productively in the country, let alone in the region. Where such revenues have been used in physical capital formation, they have contributed little to growth, as efficiency still suffers²⁹. The region's economic development strategy is overly reliant on low-skill, low-productivity sectors, and needs to shift to more skills-intensive, knowledge-based activities. This would require greater access to computers and the Internet, more support for education and better education, combined with more access to the job market for Arab women.

There is a world of difference between Arab states when it comes to human development. The region is in fact one of extremes. Kuwait, the highest-ranking Arab country on the Global HDI for 2002, scored only slightly lower than Canada, which has often topped the Index. At the other extreme, the worst-scoring Arab country, Djibouti, is not much better off than Sierra Leone, which has the world's lowest HDI value in the same year. Per capita GNP in the region ranges from US\$260 (in Yemen) to over US\$17,000 (Kuwait and United Arab Emirates) in the Gulf region, where rich oil reserves yield high revenues that support a small population³⁰.

27. Pew Internet and American Life Project 2002. "Women surpass men as e-shoppers during the holidays." www.pewinternet.org/reports/pdfs/PIP_Holiday_2001_Report.pdf

28. Jupiter MMXI, March 2002. "European Women Know What They Want From the Web". http://uk.jupitermmxi.com/xp/uk/press/releases/pr_032102.xml

29. UNDP, *Arab Human Development Report 2002: Creating Opportunities for Future Generations*, New York.

30. Hallouda, A. M. & Ghonaimy, A., 2000, "Arab Countries," in *World Communications and Information Report*, 1999-2000, UNESCO: Paris, Chapter 14, http://www.unesco.org/webworld/wcir/en/pdf_report/chap14.pdf

Within Arab countries, the disparity between rich and poor is not as marked as in some other regions. The Arab Human Development Report 2002 suggests that earlier social policies, the solidarity inherent in Arab culture and the tradition of aid for the poor, whether expressed politically or religiously, have led to less dire poverty in Arab countries than in some comparable regions. The deficit in human capabilities, however, is significant. Arab unemployment, at 15 percent, is the highest in the developing world³¹. Most countries have an illiteracy rate of between 20 percent and 50 percent: 65 million Arab adults are illiterate, two-thirds of whom are women, and 10 million children are out of school. Data for 1995 indicate that, at primary school level, the changing enrolment rate and gender balance in schools might improve literacy rates for both men and women³². In many countries the enrolment of girls and boys was equal, and girls' enrolment outstripped that of boys in a few countries³³.

In most Arab countries, there is low penetration of ICTs, especially for the Internet. In 2002, only 0.6 percent of Arabs used the Internet, while the figures for 1995 showed that 98 percent of Internet users were male.

The main reasons for the digital divide between Arab countries include, among others, the lack of national information policies, weak regional organizations and the lack of a pan-Arab information framework, lack of interest among financial institutions in information projects that do not also generate profits, the substantial increase in education budgets that would be required to promote ICTs in education, and weak linkages between the available infrastructures³⁴. Within Arab countries, the digital divide is affected by a range of different factors, including:

- Language: Most of the content is in English, which most people in the regions do not understand;
- High levels of illiteracy; and

31. See <http://www.undp.org/rbas/ahdr/PR2.pdf>, p2

32. Though enrolment rates vary between 38 percent and 116 percent (in cases where the actual age distribution of pupils extends beyond the official school years).

33. Sources: UNDP 1998, *Human Development Report*, World Bank 1997, *World Development Report*.

34. UNDP, *Arab Human Development Report 2002*, http://hdr.undp.org/reports/detail_reports.cfm?view=600

- Cultural practices that limit women's work to certain sectors of the economy.

The Arab world is largely depriving itself of the creativity and productivity of half its citizens. Eight Arab countries have neither signed nor ratified CEDAW, the Convention on the Elimination of All Forms of Discrimination Against Women. Women also suffer from unequal citizenship and legal entitlements. In some countries with elected national assemblies, women are still denied the right to vote or hold office. And one in every two Arab women can neither read nor write.

New computer technologies offer a whole new field for women to participate in the workforce, and play their part in developing the new, technologically based Arab economies on which future development depends. The Arab HDR 2002 calls for reversing the feminization of unemployment by removing gender bias in labour markets – including gender-based occupational segregation and wage differentials – and addressing gender gaps in the quality and relevance of education and skills-training programmes. Projects are underway in the region to help connect Arab women through the use of ICTs and the Internet, and include advocacy campaigns for mainstreaming gender into regional and national ICT policies and programmes³⁵.

Central and Eastern Europe

Historically, women in the CEE countries have attained high levels of education that are in fact on a par with that of men in the region. Additionally, women have maintained a long tradition of working outside the home, and have traditionally constituted a large percentage of the technical workers, scientists and engineers in these countries (13 percent of women and 10 percent of men in 1998). The high overall level of education among women in the region contributes to the potential pool of women who can pursue careers in the IT sector.

Eastern Europe's economy, however, has suffered due to the unplanned liberalization of financial structures in the 1990s, and this has had a large impact on women's unemployment, which now far exceeds the unemployment

35. See www.arabwomenconnect.org

figures for men. The new levels of gender inequality have in part arisen as a result of the fact that women's equal rights were conferred by Socialist states in the region, but have never been very well defined. Men and women in the region have not been much involved in debating the principles of gender equality, and the role of the strong state for a long time masked the conservatism of male dominated cultures. While the policies of the state did serve to improve the lives of women (compared to women in other regions of the world at the time), it did not put women on an equal footing with men. Many women feel that things are improving, but they still experience problems in obtaining jobs that recognize their experience and education, suffer unequal treatment in the workplace, and earn salaries that are less than the average and less than men across all sectors. With the charge to become members of the European Union, more is being done to promote gender equity and to bring the countries' policies and practices in line with the principles and actions outlined in CEDAW and the UN³⁶.

Women's ability to access, use, and appropriate ICTs have been shaped by the deterioration of their position in the economy during the 1990s. Women bore the brunt of employment cuts, were shifted to occupy jobs at the lower end of the market, and had to deal with reductions in family benefits and social protection, all of which came amidst the persistence of traditional views on women's roles. These factors have coalesced to result in lower income for women in the region, less time for learning ICT-related skills, and a generally unfavourable social climate for using ICT-related opportunities. In Poland, women and girls have less access to and use of the Internet than in other parts of the region. Girls and women's Internet use in Poland, for example, lags behind that in other CEE countries. Women constitute only 18.7 percent of Internet users in Poland, compared to 34 percent in the Czech Republic, 47 percent in Hungary, and 41 percent in Western European countries.

As elsewhere, gender, geographical location (urban-rural areas), family status (single mothers) and age (difficult access for women over 40-45 years old) constitute barriers for women's access to and use of ICTs. The effects of these factors are compounded by the:

- lack of affordable Internet access for low income groups;
- low number of public Internet access points in the region; and

36. <http://gender.ciscollearning.org/bestpractices/europe/index.html>

- limited access to learning new skills (lack of information and encouragement to apply for ICT training), insufficient networks and perception of ICTs as a male sector³⁷.

Most EU countries have adopted (or are in the process of drafting) National Action Plans for Information Policy. These plans will form the bases of regional governments' implementation of ICTs in all parts of society (corporate, private, social, educational, in addition to public administration, telecommunications regulations, and in some cases even foreign investment). In EU candidate countries, these plans are mostly based on the frameworks and action plans for an e-Europe. Women's participation is mostly not specifically addressed in these documents. Unfortunately, most women's advocates and organizations in the region are not familiar with these Information Society policies and debates, and are not significantly connected with gender and ICT advocacy networks active in the process (which tend to be global, or particularly strong in some parts of Asia and Africa). Lack of access to information also means that women in the region are less involved in national processes around the lead-up to the WSIS.

The development of gender-aware ICT policies and infrastructure development, as well as gender-aware advocacy, is also constrained by the limited data on women's position in ICTs given that data for the CEE/CIS region are not easily accessible, or not always reliable, and are not sex-disaggregated. ICT data reports from various agencies vary in quality and reliability. Resources are often second-hand sources, drawn from unsubstantiated sources, or constitute estimates and approximations. Such methodologies may consequently provide an ambiguous and possibly conflicting picture of the situation of women's access to, use of, and/or participation in the ICT sector (or the Information Society).

In conclusion, it is clear that for women the world over access to ICTs is inhibited by factors that go far beyond questions of technological infrastructure and socio-economic environment. Socially and culturally constructed gender roles and relationships affect not simply women's

37. Summary Report: "Building a Gender Sensitive Information Society," European Preparatory Ministerial Conference for the World Summit on the Information Society Bucharest, Romania, 7 November 2002, http://www.undp.sk/uploads/bucharest_gender_side_event.pdf

technical skills, mobility and available time. They also help to determine perceptions of users' needs and preferences, design of hardware and software, location and staffing of access points, and many other gender-based decisions that impinge on the capacity of women and men to participate on equal terms in the Information Society.

The next section of this paper will analyze the fundamental, cross cutting role of gender in defining some major issues that need to be addressed in the creation of an Information Society based on principles of equity and justice.

3. Issues in the Gender Digital Divide

For those women with the resources to access and use the new information and communication technologies, there are real benefits. For society as a whole, ICTs offer immense possibilities for reducing poverty, overcoming women's isolation, giving women a voice, improving governance and advancing gender equality. But this potential will only be realized if the factors that contribute to the current gender digital divide are recognized and addressed.

Women's access to ICTs is not a simple question of whether there is a computer connected to the Internet that women can use. Numerous other issues are just as important in determining whether women can access technology.

Women, because of their biological and social roles, are generally more rooted than men in their communities. Hence women are often more aware than men of the social, economic and environmental needs of their own communities. In most societies, including in poorer ones, the advent of ICTs opens up possibilities of access to a global pool of knowledge, so long as potential users have access to adequate infrastructure and possess relevant skills. Information about reproductive health over the Internet can, for example, save or improve lives of many women (and men) facing the hazards of AIDS in Asian and African countries.

Socio-cultural and institutional barriers

Socio-cultural barriers refer to those factors that subtly or explicitly impel certain groups to censor their speech and behaviour, or exclude themselves from particular activities, in the belief that these are not intended for them. In

terms of ICTs, these factors can range from ideas about the nature and role of technology and machines, to perceptions about the accessibility of the technology, to insecurities based on social markers of identity like gender, race, age, and so forth.

Generally, women have less access than men to ICT facilities where they exist. Numerous invisible barriers limit women's and girls' participation in the Information Society.

One of the more pervasive but intractable problems is "technophobia," or fear of technology. Women often have complex relationships with technology and machines as a result of being socialized over time to believe that machines and technology are a man's domain and not for women and girls, thus generating a gender bias in attitudes towards studying or using information technology. Once girls do enter school, they are discouraged from studying science and technology, either consciously or unconsciously, by parents' and teachers' biases. The steady attrition of girls and women throughout the formal science and technology system, from primary education to decision-making level, has been characterized as a "leaky pipeline"³⁸. In some countries in Africa and the Pacific, girls are encouraged to get married or get a job rather than pursue further education. In many of these countries, there is a social preference for boy children, and decisions to invest in boys' education are often made at the expense of girls, who are required to help with domestic chores at home for all or part of the school day.

The "leaky pipeline" phenomenon means that fewer women enter into the science and technology fields, limiting the number of women scientists and technologists in academia, research and development, and at senior positions in the ICT arena. Gender biases against women in the cultures of university and research institutes also strongly influence the level of women's participation in university and research institutions. Women have greater difficulty finding employment in science and technology professions, receive fewer promotions, and have less access to supervisory positions.

38. Huyer, Sophia 2002. "The Leaky Pipeline: Gender Barriers in Science, Engineering and Technology." www.worldbank.org/gender/digitaldivide/g&dd.ppt

The social factors that produce these gender differences operate in both institutional and informal settings. In some societies, cultural norms discourage interaction between women and men outside the family, and women may be uncomfortable in situations where men are present either as trainers or as peers. Even in countries where women and men mix freely, women who are learning to use computers – in particular older women – may be uneasy if a man is in charge of the training. An awareness of these socio-cultural and institutional barriers is essential if decision-makers are to shape remedial programmes and design facilities that encourage women's participation.

Access, control, and effective use

Women's access to and control over ICTs is not equal to that of men. Here access refers to the ability to make use of the technology as well as the information and knowledge it provides, while control refers to the ability to decide how ICTs are used and who can have access to them. Effective use refers to the ability of women and girls to use ICTs strategically to advance social development goals.

There is a huge gap between women's and men's access to telecommunications infrastructure. Infrastructure is largely concentrated in the urban areas, while the majority of women in the developing world, particularly in Africa, are located in remote and rural areas. Simply stated, if the technology is not there, women cannot have access to it.

The development of infrastructure includes many choices that involve decisions about locations of facilities, the nature and choice of technology, costs and pricing decisions. If these decisions on location, technology choice and costs do not explicitly consider providing access to (women in) remote and rural areas, but favour urban areas with high-end and expensive communication services and technologies, women will have less access than men.

“The most basic point is that the communications infrastructure in Africa is a gender issue. At present, a huge gender gap exists in access to communications. Infrastructure is concentrated in

urban areas, and the bulk of women live in rural areas [...] If [technology/infrastructure choices] are made that have an urban bias and high cost, few women will have access. In building infrastructure, the starting point is policy. Thus, women advocates have to get involved in policy areas where they otherwise might not ... We need to ask constantly whether the infrastructure choices being made are ones that will benefit the majority of women. Universal access is a burning gender issue.”³⁹

The dimensions of this infrastructure divide stretch over international boundaries, and across developing and developed countries: one-third of the world's population has yet to make a phone call, and less than one-fifth has experienced the Internet. These figures illustrate the lack of telecommunications service to largely poor and predominantly rural peoples in different countries, of whom a great number are women.

The ability of women to use information and knowledge is dependent on many factors, among which are literacy and education, geographic location (North or South, rural or urban), and social class. Thus, as the information revolution develops and accelerates migration to the Internet, those without access will suffer greater exclusion.

There is a rising recognition that connectivity is not enough, and that the knowledge and resources to translate that access into effective use is equally important. Criticism has developed over ICT development programmes that concentrate excessively on access to technology and information sources in the mistaken belief that this will solve communities' development problems. The truth is rather that ICT initiatives will not be appropriated unless they also deliver information that is useful and relevant to the end-users, and where the end-users (women and men, girls and boys) have the capacity to act on it.

While ICTs can deliver potentially useful information, like market prices for women in small and micro-enterprises, for example, it is only one aspect of a longer chain of resources necessary to effect sustainable

39. Interview with Nancy Hafkin, www.developmentgateway.org

development. Where there is no access to roads, transport or credit, and other development inputs cannot be obtained (as is often the case for women), access to and use of ICTs will be limited in its impact. It is therefore equally important to support the provision of ICT facilities by providing additional services and training that will also build men and women's capacities to act on their newfound information and knowledge.

The way in which ICTs are used in developing countries is also a gender issue. Research has shown that most women in developing countries make limited use of ICTs, restricting themselves to email and email discussion lists, generally for advocacy and networking purposes. ICT usage is affected by factors like cost, limited bandwidth, and technical skills. To date, very few African women have used ICTs for business development, entertainment, educational purposes, or for information relating to the quality of life of either themselves or their families (such as health and nutritional information).

Education, training and skills development

Two-thirds of the world's 870 million illiterate people are women, and the world's lowest literacy rates among women are found in thirteen African countries. In some African countries, literacy is less than 30 percent in local languages.

Women face challenges in pursuing education at all ages due to lack of time to attend classes, family and domestic responsibilities, and socio-cultural practices that rate girls' education as less important than boys'. While the gender gap in primary and secondary school enrolment has begun to narrow in recent years, girls still represent 60 percent of the 100 million school age children in the developing world who grow up without access to basic education. Sub-Saharan Africa, southern Asia and the Arab States are home to 95 percent of these out-of-school children. In 35 countries around the world – 18 of them in sub-Saharan Africa, the rest in Asia and the Arab States – girls' net enrolment at secondary level is at least 6 percentage points lower than that of boys. In Central and Eastern Europe, there is less concern with girls' enrolment in primary and secondary school. Rather, the concern is with limited access to higher education due to prohibitive costs, and with training for IT occupations.

Literacy, language, computer skills and information literacy are critical skills for drawing some benefit from ICTs for development initiatives. Women and girls are less likely to have these requisite skills and therefore more likely to be excluded from local initiatives. Given the dominance of English on the Internet (though that is slowly eroding), women and girls are also less likely to know the international languages used on the Internet. The predominance of women in rural areas in developing country contexts means that they are also less likely than men to access computers, which are concentrated in urban settings. Information literacy is essentially the ability to evaluate different sets of information against each other, and apply it to real-life contexts. The isolation and limited exposure of women in developing countries means that women are less likely than men to have these skills. While software is being developed and used in ICT projects targeted at illiterate women, these initiatives are pilot projects that occur few and far between, and are relatively expensive to implement⁴⁰.

Literacy and basic education for girls and women are central concerns for UNESCO. Following the World Education Forum (Dakar, 2000), UNESCO has placed the six Dakar goals – which include a 50 percent reduction in female illiteracy and the elimination of gender disparities at primary and secondary levels – at the heart of its work during 2002-2007. Efforts to ensure the access of women and girls to technical, vocational and scientific education have also been intensified.

Content and language

In the twenty-first century, most of the world's population remains in Internet silence, while the rich and powerful, most of them men, predominate in the new medium. The excluded range from women to non-English speaking nations, national, religious and ideological minorities, the poor in poor countries as well as the poor in rich countries, and the majority of the world's children. Individuals with access to the Internet are able to access information and meet with people they would otherwise not know. At an individual level,

40. Hafkin, Nancy, 2002, "Gender Issues in ICT Policy in Developing Countries: An overview," paper delivered at the UNDAW Expert Group Meeting on Information and Communication technologies and their impact on and use as an instrument for the advancement and empowerment of women, Seoul, Korea, Nov 2002.

Internet users are getting rich. But the lack of diverse content means that as a global society we are becoming more impoverished.

The dominance of Western men, largely located in the Northern developed countries, as users of, designers of, decision-makers about, and content producers for the Internet also raises questions about what kind of content will prevail on the Internet. Furthermore, what will be the cultural biases of this knowledge, and how will women be portrayed in cyberspaces generally, including the Internet, video games, and virtual reality?

One of the reasons given by women to explain their low attendance at telecentres in Africa is language and content that does not 'speak to them'⁴¹, noting in this sense the 'mode of address' rather than a lack of proficiency in a foreign language. For a great number of women, however, lack of proficiency in international languages is a major problem, even for educated women in Eastern Europe, Latin America and Francophone Africa, excluding them or limiting the benefits they are able to draw from using ICTs. The majority of poor women in the world do not speak the languages that dominate the Internet – English, French, German, Japanese, and Chinese.

Women's viewpoints, knowledge, experiences and concerns are inadequately reflected on the Internet, while gender stereotypes predominate. These concerns around content relate both to issues of sexism and the portrayal of women in media generally, as well as to the need for women to systematize and develop their own perspectives and knowledge, and to ensure that they are reflected in these spaces.

Speaking of the absence of women's voices in Zapatista discourses on the struggle of indigenous peoples in the Chiapas region of Mexico, Marisa Rius notes:

There are methodologies to deal with the translation and expropriation of the Zapatista discourse inside cyberspace, such as the deconstruction or meta-ideologization... but what do you do with silence? How do we deal with the absence inside

41. Morna, Colleen Lowe and Khan, Zohra 2000. *Net Gains: African Women Take Stock of Information and Communication Technologies*. Association for Progressive Communications/FEMNET.

national projects, nationalist discourse, transnational technologies?

The battle over the nature of the Internet is not closed or lost. Women and women's projects that have a presence on the Internet and seek to advance gender empowerment have started to think about where the silences are, and what can be done about them. There are a growing number of projects that have begun grappling with the issues of women's access to ICTs and the creation and sharing of relevant content for women's empowerment. As some women activists caution:

The technology is only a tool, and only as useful as the information it carries. Thus we must continually be aware of the need for [diverse and relevant] content. We cannot become so entranced by the magic of how we put information into cyberspace as to forget that what we put there is actually delivering an impact. The medium is not the message⁴².

To improve women's access and relevant use of ICTs, there needs to be a massive investment of time and other resources into content development at the local level, based on local information needs. The relevance of ICT initiatives also falls short where the focus is on "plugging in" women and other marginalized groups into existing global information flow, without any attention to local knowledge systems and content. This flawed approach reinforces marginalized groups as consumers of the Internet and information, and concomitantly neglects the local knowledge that may be of more relevance to women and other marginalized groups. There should therefore be greater attention paid to recognizing women and the poor as information producers, and providing relevant training in collecting, packaging and disseminating local knowledge, based on an understanding of local information needs, and that of women specifically. Such information may well be more useful for local communities in meeting their everyday challenges than "foreign" information available on the Internet⁴³.

42. Bray-Crawford, Kekula P, 1999, "The Ho'Okele netwarriors in the liquid continent," in Harcourt, Wendy (ed.), *Women@Internet: Creating new cultures in cyberspace*. SID in association with Zed Books and UNESCO, p.166.

43. UNDP Evaluation Office 2001, "Information Communications for Development," in *Essentials: Synthesis of Lessons Learnt*, No. 5, www.gipiproject.org/practices/essentials5_web.pdf

Pornography, trafficking, violence against women and censorship

The picture that emerges from most analyses of new information and communication content is of a masculinist rhetoric, and a set of representations which are frequently sexualized and often sexist. Pornography, e-mail harassment, “flaming” (abusive or obscene language), and cyber-stalking are well documented. It is estimated that 10 percent of sales via the Internet are of a sexual nature, whether in the form of books, video-clips, photographs, on-line interviews, or other items. New technical innovations facilitate the sexual exploitation of women and children because they enable people easily to buy, sell and exchange millions of images and videos of sexual exploitation of women and children. These technologies enable sexual predators to harm or exploit women and children efficiently, and anonymously. As a result of the huge market on the web for pornography and the competition among sites, pornographic images have become rougher, more violent, and degrading⁴⁴. Affordable access to global communications technologies allows users to carry out these activities in the privacy of their homes⁴⁵.

Even more disturbing is the use of the Internet as a tool in the prostitution and trafficking of women. In 1995 an estimated 1.8 million women and girls were victims of illegal trafficking, and the numbers are growing. The Internet is used in multiple ways to promote and engage in the sexual exploitation and trafficking of women. Pimps use the Internet to advertise prostitution tours to men from industrialized countries. The men then travel to poorer countries to meet and buy girls and women in prostitution. Traffickers recruiting women from the Baltic States use the Web to post advertisements for unlikely jobs in Western Europe (such as waitress or nanny). Information on where and how to find girls and women in prostitution in cities all over the world is posted on commercial Web sites and non-commercial newsgroups⁴⁶. In 2001, the Council of Europe established a

44. Rich, Frank, “Naked Capitalists,” N.Y. Times Magazine, May 20, 2001.

45. Hughes, Donna M, 2002, “The use of new communications and information technologies for sexual exploitation of women and children,” *Hastings Women's Law Journal*, Vol 13:1, http://www.uri.edu/artsci/wms/hughes/new_tech.pdf

46. Hughes, Donna M, 2001, “Globalization, Information Technology, and Sexual Exploitation of Women and Children,” *Rain and Thunder – A Radical Feminist Journal of Discussion and Activism*, Issue #13, Winter 2001, <http://www.uri.edu/artsci/wms/hughes/globe.doc>

working group to study the impact of new information technologies on trafficking in human beings for the purpose of sexual exploitation.

There are numerous organizations working on the issues of women's trafficking and have done much to raise concern over the use of the Internet for trafficking women and children, and the explosion of pornography on the Internet. While recognizing that traffickers and pornographers have moved their businesses to the Internet, women's organizations have also been aware of the dilemma of calling for government measures to curb this.

One of the fiercest debates in the area of Internet Rights regards the issue of freedom of expression and censorship. Some organizations have used the presence of pornography on the Internet to call for stricter policies for monitoring and censoring content on the Internet, including the development of software devices that would track down the creators and consumers of pornographic materials. Other women's organizations have been at the forefront of pointing out the danger of inviting censorship measures that could very easily be extended to other content areas, and limit freedom of expression far beyond the realms of pornography and trafficking. Legislation can be interpreted widely, leaving it open for states to decide what they would consider "illegal" or "harmful practices."

Above all else, women should be informed, made aware and included in the discussions and debates taking place around these trends, and consulted in the development of any policies and practices that are advocated by state agencies and other bodies.

In this spirit, UNESCO is already carrying out a number of research and awareness-raising projects to combat trafficking in women and children in the Asia-Pacific region, and has been collaborating with the Open Society Institute in the creation of the "Stop Trafficking" network in Central and Eastern Europe, as well as in Central Asia. In December 2002, UNESCO also co-hosted an international symposium on the theme of freedom of expression in the Information Society, where discussion focused on three issues: the new possibilities for freedom of expression generated by cyberspace; the obstacles limiting freedom of expression in cyberspace; and regulation of content in cyberspace. The participants concluded that:

We must resist the temptation to demonize the Internet. The offences committed on the Internet are not particularly original (apart from attacks by hackers); they reflect behaviours that are specific to social life, and which have already found carriers in the traditional media. Thus we need to look at the *Internet as a tool for democracy*, and not from the angle of its real or potential failings⁴⁷.

Cost, time and mobility

In many developing countries there is a limited supply of national and international connectivity, a situation shaped and compounded by a number of intersecting shortages: optical fibre may not be available, satellite links are limited and expensive, while internal telecommunication infrastructures are typically concentrated in few main cities and betray severe shortcomings in rural areas. In rural and remote areas, the combination of low population densities, poverty and geographical distance from established telecommunications networks and markets mean that there is little commercial incentive for undertaking the huge investments required to extend the technical infrastructure. These technical challenges, together with telecommunications policies and regulations that promote state monopolies and limit competition, lead to highly priced services which severely hinder the ability of poor communities, and especially women, to access and appropriate these technologies⁴⁸.

Equipment and connection costs are prohibitive for all but the wealthy in most developing countries. Monthly Internet access charges amount to 1.2 percent of average monthly income for the typical user in the USA, compared with 278 percent in Nepal, 191 percent in Bangladesh and 60 percent in Sri Lanka. Similarly, the 2001 figures for average costs for 20 hours of Internet access as a percentage of GDP per capita reveal huge disparities between more developed and less developed countries: whereas in Sweden the proportion is 0.12 percent, it is 81.07 percent for

47. UNESCO, 2002, *Freedom of Expression in the Information Society*. Final Report. International Symposium, organised by the French National Commission in partnership with UNESCO, <http://www.itu.int/ws/is>

48. http://www.unicttaskforce.org/groups/members/public.asp?cod_tema_menu=34

Bangladesh⁴⁹. Currently, the average total cost of using a local dial-up Internet account for 20 hours a month in Africa is about US\$60 (telephone line rental costs excluded)⁵⁰. The Organization for Economic Cooperation and Development reports costs for 20 hours of Internet access a month, in 2000, of US\$22 including telephone charges in the United States. While costs in Europe were higher (US\$33 in Germany, US\$39 across the EU), these countries have per capita incomes that are at least ten times that of the African average⁵¹.

Practically all communications facilities cost money. Due to a range of intersecting factors, women are less likely to have money to buy televisions, radios, or to access them when they wish, particularly when the household technology is controlled by someone else (typically a husband or father). Women are also less likely to have the disposable income needed to pay for information services, especially when other needs (food, education, etc.) have higher priority.

Furthermore, women have less time available to seek out ICT connections or spend time online than men, as suggested by the findings of time use surveys conducted in a number of countries, which showed that women use ICTs for communication (mainly email) and electronic banking, while men spend time browsing the Internet, downloading software, and reading newspapers. Women's greater family and nurturing responsibilities mean that they usually have less time, and less choice, when it comes to spending their money. Even community access, often seen as the key to Internet diffusion in the developing world, may be outside the financial reach of many women. Nor can it be assumed that women will have access through associations or NGOs. In most cases where women in developing country contexts have access, they are typically part of a highly educated group of professional elite women who access ICTs through corporate networks.

49. Kirkman, Geoffrey, (ed.), 2002, The Global Information Technology Report 2001-2002. Readiness for the Networked World. Oxford University Press, www.cid.harvard.edu/cr/pdf/gitrr2002_data.pdf

50. But ISP subscription charges vary greatly - between \$10 and \$80 a month, largely reflecting the different levels of maturity of the markets, the varying tariff policies of the telecom operators, the different regulations on private wireless data services, and access to international telecommunications bandwidth.

51. <http://www3.sn.apc.org/africa/afstat.htm>

For almost all women, time is in short supply. They are less likely than men to have the leisure to use ICTs – whether at home, work, or in public Internet centres. This problem is particularly acute for poor women in developing countries, but it is also a phenomenon in more affluent societies, and has important implications for the kind of content that women are likely to perceive as useful and worthwhile. As most facilities in rural areas are shared public access, women's ICT access will be further inhibited when the operating hours of community access facilities do not take account of women's time use and target them for ICT access, and/or when facilities are located in settings and institutions that women are unable or unlikely to frequent. Operators of public access facilities need to accommodate women's schedules and adapt their own schedules to ensure gender equality in access to and use of ICTs.

In most countries, women's mobility is much more restricted than that of men. This may be the result of social customs that forbid women to travel unaccompanied, or because of family and caring responsibilities that make it difficult for women to move far from home, or the effect of unaffordable public and/or private transport in the context of women's limited earnings (compared to that of men in similar socio-economic levels). This lack of mobility is fundamental given the absence of connectivity in rural areas, where women account for up to 70 percent of the population.

Gender segregation in employment

Telecommunications and teleworking are opening up many new opportunities for employment of women, especially in the service industries. Patterns of gender segregation, however, are already being reproduced in employment within this comparatively young sector. Stereotyped views of women's skills and abilities have made them preferred employees for certain kinds of work, particularly in banking, telecommunications industries, and insurance. Men are more likely to be found in the high-paying, creative work of software development or Internet start-ups, whereas employees in single-tasked ICT jobs, such as cashiers or data-entry workers, are predominantly female and low-paid. Countries where women have made inroads into skilled jobs as software programmers or computer analysts include Brazil, India and Malaysia, where national policies have promoted science and technology

education for all. But many of these women are from privileged backgrounds, and the numbers remain relatively low.

The standardization and miniaturization of telecommunications components have spurred the physical separation of components design (taking place in the North) from components manufacturing (located mainly in the South). Thus large factories have been able to decentralize their manufacturing operations to take advantage of cheaper labour in developing countries. Similarly, service industries have been able to take advantage of developments in telecommunications by relocating low-skill, often repetitive jobs (such as invoicing, payroll administration, routine accounting) away from headquarters to low cost locations – a phenomenon that has become known as “teleworking” or “distant working”. Many of these operations are located in Free Trade Zones in developing countries, where they benefit from a range of concessions (or incentives to move there) conferred by governments. In many Free Trade Zones, such as Jamaica and Barbados, workers are denied the rights to organize.

ICT developments also reproduce gender inequalities present in the broader fabric of society. Teleworking – work done from home or at a site that is separated from the central office – is sometimes promoted as being convenient for women with child-care and household responsibilities. The danger is that women must combine simultaneously two jobs – the professional and the domestic. Surveys have shown that women in Malaysia and India are reluctant to opt for home-based work, even when it is skilled. Teleworking, especially when conducted at home, tends to reinforce the historical gender division of labour.

Call centres will be one of the most important sources of employment in the next decade. In the United Kingdom, 67 percent of call centre employees are women. Call centres have become widespread in Malaysia and India, and are making inroads in the Philippines. By 2007, it is predicted that India will have a million jobs in call centres, largely filled by women. The physical separation of these jobs from headquarters has also had implications for the bargaining powers of women doing telework. Most of these jobs are non-unionized, and feature stringently enforced productivity targets that are designed to encourage competition between workers and discourage a collective work ethic and/or collective bargaining. As a consequence, many

teleworkers in developing countries have very little input into determining skills and additional training.

On average, women are paid 30 to 40 percent less than men for comparable work. In its employment report released in January 2001, the ILO reveals a “digital gender gap” with women under-represented in new technology employment in both developed and developing countries. The ILO report also finds that patterns of gender segregation are being reproduced in the information economy. The report adds:

Although pay inequality exists between those who have ICT skills and those who do not, pay polarization also exists within ICT use itself. This polarization is often gender-based.

Indigenous knowledge and intellectual property rights

In many rural and indigenous communities across the world, members create knowledge over long periods of time, drawing on their local experiences and influenced by the natural, socio-economic, and human resources that constitute their local ecology. Such knowledge – often referred to as “local,” “indigenous,” or traditional – belongs to the community, and not to any particular individual in that community. It is also a body of knowledge that develops over long periods of time, the product of many generations within a community. Since the primary social differentiation is often based on gender, specific activities and the knowledge that guides those activities are often gendered. Thus the local knowledge of men is frequently different to that of women.

Intellectual property rights (IPRs), on the other hand, are more often focused on protecting corporate and individual knowledge, and have left a variety of cultural products and forms of community knowledge open to exploitation. The critical issue for women in indigenous communities, as shown by the debate over IPRs, involves their control over, access to, and potential compensation for the knowledge they have acquired. The fact that most of their knowledge is considered “old” places it outside the scope of protection by industrial property laws. Under current international legal mechanisms, local and indigenous women’s knowledge are at increasing risk

of exploitation in the race for genetic resources (which in terms of plant-based herbal remedies, for example, has traditionally been the realm of women's knowledge) and the hunt for profit maximization⁵².

In the information or knowledge society, a new legal instrument is needed that would recognize and protect knowledge created, developed and enhanced by communities of people, and which acknowledges that men and women have differential access to the structures that shape knowledge systems. Such an instrument needs to be developed with the full participation of all parties who hold such knowledge, including men and women.

ICT Policy and Governance

Global and national ICT policy can either foster full participation in the information society, or inhibit people's access to technology, information and knowledge. Many countries are implementing programmes to attend to these issues, but concerns remain over the inclusion of remote and marginalized groups, especially women. These concerns are particularly acute for developing countries.

In most developing countries, women are predominantly located in rural areas that have poor infrastructure. The poverty of rural residents makes these areas less lucrative for private telecommunications operators seeking to maximize profits by offering more sophisticated, high-end telecommunications services. Little investment is therefore directed to the expansion of basic telephony, let alone public ICT access infrastructure, that would link women and others in remote and rural areas to information resources and populations in urban areas. As a result, these women's isolation and silence are reinforced.

ICT policy and regulatory frameworks keep tight control over telecommunications services in some developing countries, with the result that use of ICTs is negatively affected. This is particularly true where policies

52. Appleton, Helen; Fernandez, Maria E.; Hill, Catherine L. M. & Quiroz, Consuelo, 1995, "Claiming and using indigenous knowledge," in Gender Working Group, UN Commission on Science and Technology for Development, *Missing Links: Gender Equality in Science and Technology for Development*, pp 55-82.

and regulations limit the implementation of valued-added services that could bring down the cost of telecommunications services, like voice-over IP and wireless connectivity. The desire to maintain state telecommunications monopolies means that competition is reduced, resulting in inflated costs for services that are unaffordable for the poor, most of whom are women⁵³.

Governments and telecommunications policy makers in developing countries need to consider how to introduce regulatory measures that will require themselves and private telecommunications operators to invest in rural connections in addition to those in more lucrative urban areas, and not just focus on money-spinning services. Service requirements can be attached to the licenses of private or state-run operators to ensure a minimum level of telecommunications development across the country. These can be in the form of rollout targets for public and private lines, along with conditions regarding the quality and speed of such services. Alternatively, the license-tendering process can incorporate rollout targets as a criterion for evaluating different bids. In such cases, telecommunications policy and government departments must explicitly state that women and other marginalized groups are included in the targets.

Without such explicit references to gender issues in ICT policy, the chances that women and girls will reap developmental benefits from the information age are slim. Experience so far has shown that even where policies have been gender-aware, women's and girls' needs are likely to be neglected or ignored when it comes to policy implementation. Where governments have claimed that an overall gender policy is sufficient and that no specific mention of gender is required in ICT policy, the evidence so far suggest that "policy-making in technological fields often ignore the needs, requirements and aspirations of women unless gender analysis is [explicitly] included⁵⁴."

There is a large body of evidence showing that when women's needs and aspirations have been included in policy and programmes, projects

53. Interview with Mercy Wambui, <http://www.developmentgateway.org/node/133831/sdm/docview?docid=346180>

54. Marcelle, Gillian, 2000, "Getting gender into African ICT Policy: A Strategic View," in Eva Rathgeber and Edith Ofwona Adera (eds), *Gender and the Information Revolution in Africa*, Ottawa: IDRC, p. 39.

implemented within these frameworks have had greater success in meeting the needs of their target audiences and have proved more sustainable in the longer term. In social development sectors such as health, agriculture and rural development, projects that include gender analyses rarely fail. Yet gender analysis rarely extends to technology and information projects. A study of hundreds of development projects with substantial ICT components showed that more than 33 percent had a high awareness of gender issues, but that the gender sensitivity carried over to the ICT components in only about 10 percent of them.⁵⁵

Typically there are three dimensions to ICT policies – infrastructural, vertical, and horizontal – where:

- Vertical information policies address sectoral needs like education, health and industry;
- Infrastructural information policies address issues related to national communications infrastructure; and
- Horizontal information policies are those that impact on broader social concerns like freedom of information, tariffs and pricing and security⁵⁶.

Each of these information policy dimensions has implications for women, and failure to take account of these effects will certainly harm women more than men. It is also important to ensure that the social goals in each of the information policy dimensions cohere with those in others, thereby positively reinforcing the potential developmental impacts of ICTs.

The challenge of incorporating gender issues into ICT policy requires an advocacy campaign on two fronts: sensitizing ICT policy-makers to gender issues, and sensitizing gender advocates to ICT policy issues. It is imperative that both ICT policy makers and gender advocates understand the systems that are proposed in policies and the implications for access, content, affordability and so forth for men and women in their particular countries. Women have to become knowledgeable about the technology as well as the policies if they are

55. Hafkin, Nancy, 2002, *Gender issues in ICT Policy in Developing Countries: An Overview. Paper* delivered at the UN DAW Expert Group Meeting on Gender and ICTs, Seoul, November 2002, p. 4.

56. Rowlands, Ian, 1996, "Understanding information policy: concepts, frameworks and concepts," *Journal of Information Science*, Vol 22 No 1, pp. 13-25.

to advocate real access for all. Women activists must get beyond the myth that technology is a domain for predominantly male specialists, and tackle the complexities of ICT policy and technology.

Absence from decision-making structures

Although the number of women in jobs involving ICT expertise is constantly rising, the same is not necessarily true of women's access to decision-making and control of these resources. Whether at the global or national level, women are under-represented in all ICT decision-making structures, including policy and regulatory institutions, ministries responsible for ICTs, and boards and senior management of private ICT companies. One problem is that at both the global and national levels, decision making in ICTs is generally treated as a purely technical area (typically for male experts), where civil society viewpoints are given little or no space, rather than as a political domain. Deregulation and privatization of the telecommunications industry is also making decision-making in this sector less and less accountable to citizens and local communities, further compounding women's exclusion from decision-making and control of resources⁵⁷.

The under-representation of women in senior decision-making and politically influential positions in the ICT sector worldwide is striking given that the sector is fairly new, and is expected to be less burdened by historical practices of gender discrimination. In spite of these expectations, in 2001 women held only 9 percent of senior management jobs and 9 percent of positions in the supervisory bodies of the telecommunications industry across 18 countries in Europe⁵⁸. In the United States in 2001, women held 13 percent of top executive positions, and made up just 9 percent of board members of major telecommunications and e-companies⁵⁹. The result is that

57. Association for Progressive Communications Women's Networking Support Programme (APC - WNSP), 2002, *Gender and ICTs*, [http://www.apcwomen.org/gem/Gender ICTs/index.htm#power](http://www.apcwomen.org/gem/Gender%20ICTs/index.htm#power)

58. European Database on Women in Decision-making 2001. *Women in the Telecommunications Industry*. www.db-decision.de/index_E.htm

59. Jamieson, Kathleen Hall 2001. *Progress or No Room at the Top? The Role of Women in Telecommunications, Broadcast, Cable and E-Companies*. Annenberg Public Policy Centre, University of Pennsylvania. www.appcpenn.org/internet/publicpolicy/progress-report.pdf

decisions and policies that lead to particular technology outcomes are not gender-neutral.

In 2001 there were female ministers of communication or telecommunication in just three countries – Mali, South Africa and Colombia – and deputy ministers in six others: Angola, Belarus, Czech Republic, Ghana, the Kyrgyz Republic, and Tanzania⁶⁰.

The reasons for women's slow progress up the ladder into decision-making positions can in part be explained by differences in experience and education between men and women in the sector. Women have also been slower to understand and grasp the organizational cultures that operate in the male-dominated sector, and which work to their disadvantage. Until a critical number of women reach senior management positions, it will be difficult to counter gender-based discriminatory practices effectively⁶¹.

Of the 19 countries responding to questions about gender equality in the 1999 ITU Regulatory Survey, 12 had no women in their national telecommunications regulatory body⁶². Leading the way were Canada, Sweden and South Africa, which according to the survey was the only country with a specific policy to increase women's participation in the telecommunications field. Its 1996 Telecommunications Act includes provisions for the promotion of women's empowerment and advancement in all aspects of the telecommunications industry.

Privacy, security, and surveillance

The Internet has introduced new risks alongside the promise of enhanced cross-boundary communication. In particular, it has increased the opportunities for surveillance of interactions between targeted groups and individuals, and for harassment.

60. Hafkin, Nancy & Taggart, Nancy 2001. *Gender, Information Technology and Developing Countries: An Analytical Study*. Washington, DC: AED/USAID.

61. Mitter, Swasti, 1995, "Who benefits? Measuring the differential impact of new technologies", in Gender Working Group, UN Commission on Science and Technology for Development, *Missing Links: Gender Equality in Science and Technology for Development*, pp. 219-242.

62. Marcelle, Gillian 2000. *Transforming Information & Communication for Gender Equity*. New York: UNDP.

Privacy, security and Internet rights are important thematic areas for women. Women's concerns include having secure online spaces where they can feel safe from harassment, enjoy freedom of expression and privacy of communication, and are protected from electronic snooping. A corollary of this is the need for campaigns against ICT legislation that can threaten human rights. While many developing countries are grappling with basic access and IT infrastructure issues, some countries in the global North are now defining the basic rights framework for Internet use and governance.

The Internet has created private online spaces across national boundaries, enabling oppressed peoples to share their experiences. It also allows people living under undemocratic regimes to communicate safely and privately, with a view to advancing struggles for democracy for women and men.

Nevertheless, governments and states are earnestly seeking to end private communication on the Internet. Legislation, such as the *Regulation of Investigatory Powers (RIP) Act in Britain and the Wiretapping Act in Japan*, is being put in place together with the necessary technical resources to pave the way for state interception and monitoring of private Internet communication. International agreements are being made between states to combat "cybercrime" by intercepting private email correspondence. The danger of this kind of legislation and deployment of technical resources lies in the ease with which it can be used to monitor private conversations that fall outside the definition of cybercrime, and which may involve civil society activism in supposed democratic states.

Another justification for interception of Internet communications often presented to the general public is that it is needed to combat the sexual exploitation of women, and particularly children, and to combat the activities of racist groups. But the fact is that the creation of private spaces, where victims of abuse can discuss amongst themselves and with others they trust and have chosen to talk to, has proven to be the most powerful weapon against both sexual exploitation and racial oppression⁶³.

63. Association for Progressive Communications Women's Networking Support Programme (APC - WNSP), 2002, Gender and ICTs, http://www.apcwomen.org/gem/Gender_ICTs/index.htm#privacy

For women seeking to build cross-boundary, cross-cultural communication spaces, the growing incidence of surveillance on the Internet, sometimes involving state institutions, is a source of concern. Even so, many believe that privacy issues will be forgotten dimensions of the debate on digital futures once we have our own self-encryptors, preventing anyone from reading other people's communications without authorization⁶⁴.

Right to communicate

There can be no doubt that advocacy for a new information and communication environment should fully integrate gender concerns and women's advancement. The challenge is to ensure that individuals, communities, nations, and the international community gain access to, and are able to use effectively, the information and knowledge they need to address their development concerns. At the core of this new environment is the democratization of people's access to information and communication facilities and technological resources.

Over fifty years ago, the Universal Declaration of Human Rights recognized the right to information as a fundamental human right. The assertion of this right has become even more urgent at a time when technological advancement in the production of information and knowledge is reshaping the organization of our societies globally. Equally important is the call for recognition of the right to communicate as a fundamental human right.

The exercise of our democratic freedoms and the full and equal participation in current economic development are the bases for the assertion of our right to information and communication. Within this domain come women's rights to equal and democratic access to information and communication technologies.

The right to communicate counters the current hegemonic ownership structure of national and global information networks. Campaigns to this

64. Inayatullah, Sohail & Ivana Milojevic, 1999, "Exclusion and Communication in the Information Era: From Silences to Global Communications," in Harcourt, Wendy (ed.), *Women@Internet: Creating new cultures in cyberspace*. SID in association with Zed Books and UNESCO, p. 80.

effect are stirring a groundswell of support from civil society worldwide, most of which has no voice in the national and international agreements and legislation on technological resources and information.

Rights related to access and use of the Internet and electronic communication infrastructure allow the voices of ordinary people to be heard. The Internet has allowed the voices of ordinary citizens and organizations lacking strong financial resources to gain a much wider audience. With over 200 million users worldwide and an estimated 1 billion users by 2005, the Internet provides a unique public sphere where decisions that shape people's lives can be freely debated and considered. It allows small groups and individuals, men and women – previously working in isolation from one another – to communicate, network, share information and prepare actions in ways they have never been able to do before.

ICTs must be made available to all at an affordable cost, while the development of infrastructure must ensure that marginalized groups are not further disadvantaged. This should be the strategic starting point for all concerned with gender equality and social transformation. In a globalized world that continuously undermines localized democratic institutions, the Internet provides an essential means for defending and extending participatory democracy.

The Internet and ICTs can be used to strengthen diversity and provide a platform for a multitude of voices, a pluralism of ideas and opinions and a place for cross-cultural exchange. But this can only be true if developments are driven by a desire to preserve and enhance local and regional linguistic diversity, while civil society must have a voice in the policy formations regulating control and ownership of the Internet.

Women, place-based activism and virtual politics

Some argue that networks (such as women's) are the source of new political actors and promising cultural practices and possibilities – a new digital culture – that resist, transform or invent new alternatives to the dominant virtual and real worlds. But the effectiveness of networks depends on the combination of people and technology they organize and bring together. Networks are also

part of a larger world that may be indifferent or hostile to their aims and development. The capacity of virtual networks to bring about social transformation is also shaped and measured by their abilities to effect changes in physical (or place-based) spaces. Hence, while cyberspace can be the source of new knowledge about the world and of new identities, we need to be careful to ensure that the medium does not create a “terminal-citizen” alienated from the rest of the world. Thus:

This cybercultural politics can be most effective when and if it fulfils two conditions: awareness of the dominant worlds that are being created by the same technologies on which the progressive networks rely (including awareness of how power works in the world of transnational networks and flows); and an ongoing tacking back and forth between cyberpolitics (political activism on the Internet) and [...] place politics, or political activism in the physical locations at which the networker sits and lives⁶⁵.

Social movement activists on the Internet should thus be engaged in double activism, both on the nature of the Internet and new ICTs, and on the nature of a restructured world that is being affected by ICT-led transnational capitalism. Women, environmentalists, and social movements based in developing countries are especially suited to this double activism, and many are engaged in activism that straddles and combines the real and virtual worlds, melding environmental, gender and development issues into a complex, intersecting political and cultural practice.

Networks have important political effects, mainly by establishing a way of looking at the world in terms of possibilities for collaboration and coalitions, rather than fragmentation. Coalition politics – facilitated by networks – are generally based on positive notions of difference. The notion of coalitions of difference resonates strongly with the stress placed by many women’s and feminist movements on the relationship between space, place and identity.

The growth of differences, evident in the proliferation of rights-based struggles in different parts of the world, raises more possibilities for coalitions

65. Escobar, Arturo, 1999, “Gender Place and Networks: A Political Ecology of Cyberspace,” in Harcourt, Wendy (ed.), *Ibid.*, p 32.

and critical engagement with the dominant worldview and its practices. The challenge for all is to identify such possibilities and act upon them – both in the virtual and/or real worlds. For women, the sharing of knowledge and experiences across differences is an essential process in promoting gender transformation in real spaces and on the Internet.

The Internet has particular significance for women's struggles, in terms of both its virtual nature and its transformative effect on dominant cultural and political practices implicated in women's subordination in real spaces. The Internet can be said to have transformed the conditions for women's communication, that is, the circumstances within which women communicate and which shapes the possibilities for imagining alternatives for political and cultural practices⁶⁶. Though it is new, the Internet builds on the achievements of women to break their social isolation – framed within the private/public context of women's lives – in order to work collectively towards social change, across cultural, national, and other boundaries. Away from wider social gazes that may constrain women from breaking boundaries and social norms, women's communication on the Internet provides the opportunities for developing new agendas for priority areas as well as a means for implementing programmes⁶⁷.

Various projects by women engaged in fostering women's access to and use of the Internet also stress the importance of improving the circumstances in which women use the technology and extending the freedom to conceptualize the opportunities for empowerment it provides. Increasingly, "the challenge for women is not only, nor mainly the problem of access – though this is still the case for a large sector of women – but how to harness the technology for their own goals and how to stake out the spaces that will enable them to make an impact on this new medium⁶⁸."

One example where women's Internet activism has made a significant impact is in assessing women's roles (and presence) in national and international politics. It is a historical fact that women's involvement has been

66. Youngs, Gillian, 1999, "Virtual Voices: Real Lives," in Harcourt, Wendy (ed.), *Ibid.*, p 59.

67. *Ibid.*, p 66.

68. Burch, Sally, 1999, "ALAI: A Latin-American experience is social networking," in Harcourt, Wendy (ed.), *Ibid.*, pp 197-203.

limited, and that politics is an arena mainly defined by masculinist principles and dominated by the activities, ideas, and associations of men. The limited participation of women in national politics has had a knock-on effect on their presence in international politics, making women largely absent from this scene. Where women have entered national and international politics, they have been subsumed into masculinist practices, structures and cultures. Some argue that there is a reverse hierarchy between the virtual and concrete realms of politics at the international level, or equality in some respects. A reversal via the Internet has occurred in the respect that women have been able to communicate across many boundaries and form new political associations, exchanges, and organizations⁶⁹.

Concluding remarks

In summary, the challenges facing gender activists in the digital world can be grouped into four areas. First, women must not be left behind in the gap between those with and without access to the new information technologies, and must be prevented from predominating among the information-poor. Second, women should be actively involved in ensuring the potential of ICTs as directed towards promoting human well-being rather than existing power monopolies. Third, we need to capitalize on the new forms of communications and expression brought by the new millennium, and navigate them for our knowledge and action. Fourth, we need to capitalize on the growing expressions of creativity by women and young girls so women and girls become partners in shaping the basic concepts and form of cyberspace, and not stop at facilitating women and girls' access to ICTs⁷⁰. As some argue:

We need to do more than empower women to use this technology and convince them that it is available to them. In general, it is not. The new technology has to be conquered and it will not be conquered only by increasing the number of users. The master's tools need to be deconstructed and dismantled in

69. Youngs, Gillian 2002, "Closing the Gaps: Women, Communications and Technology," in *Development*, Vol 45 No 4, pp 23-28.

70. Arizpe, Lourdes, 1999, "Freedom to Create: Women's Agenda for Cyberspace," in Harcourt, Wendy (ed.), *Women@Internet: Creating new cultures in cyberspace*. SID in association with Zed Books and UNESCO.

order to be used not only by female cyborgs expert in technical languages, but also by subjects capable of interpreting multiple systems of mediation, translation, impersonation and representation of the voices of “others”⁷¹.”

Cyberspace has the potential to greatly enhance our capacity to create and build new institutions and new values. This will help encourage women to participate in designing models of economic development, constructing stable democracies, and working towards ensuring that different cultures co-exist without violent confrontation. Such a task calls for women who are rooted in their local cultures to promote initiatives for social change while also keeping a stake in national and global civil society.

Women who are different in class, race, sexuality, nationality, age, physical ability, and religious affiliation need to be represented inside the languages that cyberspace is producing. Cyberspace needs to be transformed into cyberculture, into an infinite number of ways of representing diversity⁷².

71. Rius, Marisa B, 1999, “ Crossing Borders: From Crystal Slippers to Tennis Shoes,” in Harcourt, Wendy (ed.), *Ibid.*

72. *Ibid.*, p 24.

4. Bridging the divide: new initiatives, best practices

Each issue in the gender divide has specific implications for policy, strategy, and action. Various initiatives already exist that help to point the way forward. Within the context of specific national and regional situations, all stakeholders have a role to play in developing relevant and appropriate approaches.

Policy frameworks

Just as technology is not gender neutral, neither is the policy environment in which it is developed. Whether at the level of national policy frameworks, or of policy development for a specific project, gender is rarely considered relevant. Yet policy involves the prioritization of resources across different groups of users and sectors, signifying that gender is bound to be an implicit component in policy-making. A survey of national information technology policies and strategic plans in six countries of the Asia-Pacific region found that, by and large, they are silent on gender or women-focused concerns⁷³.

There are some exceptions. In the Republic of Korea, the Ministry for Gender Equality has taken a strong public position on the gender dimensions of the digital divide, and works with both the telecommunications and science and technology ministries to address the issue. Different ministries in the Korean government have targeted housewives, unemployed women and women farmers. In South Africa the 1996 Telecommunications Act includes gender-specific provisions in line with the South African Constitution, which

73. Ramilo, Concepcion Garcia and Villaneuva, Pi 2001. "Issues, Policies and Outcomes: Are ICT Policies Addressing Gender Equality?", www.unescap.org/wid/04widresources/11widactivities/01ictegm/backgroundpaper.pdf

enshrines the equality principle. The Gender Unit of the Department of Communications, Women'sNet, and the African Information Society Gender Working Group have all been active in organizing women to participate in the development of policy in South Africa. Similarly, Guinea includes gender issues in its national ICT policy, and sees it as necessary for participatory, equitable human development. The Economic Commission for Africa, in its work to implement the African Information Society Initiative, emphasizes the importance of including gender considerations in policy. This has been particularly effective in Rwanda, where women's organizations have been part of the ICT policy elaboration process from the outset. In Japan, the National Women's Education Centre (NVEC) is conducting a series of consultations with women's groups in local communities to develop a three-year plan on "women and informatization" which will guide the Centre's own policy intervention initiatives. The ITU Working Group on Gender Issues has also developed a gender briefing document for delegates to ITU meetings, in order to raise awareness of the need for government and private sector delegates to include women into their deliberations, and the ways in which this can be achieved⁷⁴.

Outside the state sector, the Acacia initiative, established in 1997 by the International Development Research Centre (IDRC) to develop the potential of information and communications technologies for the empowerment of poor African communities, is a good example of a programme that systematically ensures the participation of women and representatives from other marginalized communities in policy-making processes. Acacia has proved from its work in Senegal, South Africa and Uganda that the participation of a wide range of interest groups improves the policy-making process. The Acacia initiative exists alongside similar IDRC initiatives in Latin America and Asia.

To build on these developments, the Association of Progressive Communications (APC) – an organization with members from all regions of the world – piloted a course on ICT policy for non-governmental organizations in March 2003 with sponsorship from the Commonwealth Telecommunications Organisation (CTO). The aim of the course was to raise awareness among NGOs in the social development sectors of the importance of ICT issues for

74. <http://www.itu.int/ITU-D/gender/briefing/briefing.html>

development, and the need for broad-based advocacy for development-oriented ICT policy. The course includes a module (one of eleven) on gender issues and ICT policy. The APC is planning to roll out the training to various regions to help build capacity in ICT policy analysis, and lobbies for transformation from a perspective of equity and democratic participation.

UNESCO has mainstreamed gender perspectives into its own programming, and has devised five areas of critical concern for the Organisation to guide its programming activities. The three areas, which tie into issues of gender and media, and women's and girls' access to and meaningful use of ICTs, include: the facilitation of equal access to education for women and girls; women's access to the media and their image in the media; and the girl child's access to education and literacy.

These cases illustrate an essential point about any serious commitment to engender ICT policy. It is not enough simply to add the word "gender" or "women" here and there in a policy or strategy that has been developed from a starting point which is essentially gender blind. The participation of women and individuals with expertise in gender issues is essential at all stages of the policy elaboration process, so that the gender dimensions of policy areas can be identified and addressed. Likewise, the collection of sex-disaggregated statistics and indicators are integral to policy frameworks that aim to track women's participation in the planning, production and use of ICTs, and are key to initiatives that want to learn from their experiences by following an action-learning dynamic.

Connectivity and access

Most women in developing countries live in under-served rural and peri-urban areas. Cost is a major impediment to women's access. If women's connectivity is to be increased, the emphasis needs to be on common use facilities that provide women with affordable information and communication services. UNESCO has taken a lead in the establishment of community multimedia centres in Africa, Asia and Latin America, and will soon extend this activity to Central and Eastern Europe. These centres are crucial information and communication resources for the entire community, and support the goal of universal access in remote and rural areas.

In Senegal, the telephone company Sonatel and their French equity partner Manobi provided connectivity to rural women farmers through cellular phones with Web Access Protocol (or WAP-enabled) while the IDRC, through a new initiative called Connectivity Africa, provided personal digital assistants (PDAs) to the Kampala-based Healthnet and Satellife to improve the speed, accuracy and security of surveillance health data. Both these devices introduce an element of mobility not found with computers, and are especially preferred by women agricultural producers. The combination of old (such as radio) and new technologies are also useful in overcoming barriers and obstacles posed like illiteracy, affordability and physical access, while also appealing to oral-based cultures.

Frequently cited examples of women-run projects include telephone kiosks and telecentres in Cameroon, Colombia, Ghana, India, Senegal and Ukraine. But gender considerations have seldom been built into the design or evaluation of these centres. Emerging evidence suggests that the facilities are more patronized by men than women. Targeted campaigns for increasing access by women are needed. Relatively simple matters – like the times when training is held, the merit of women-only and women-led classes, the provision of assistants to type e-mail messages dictated by illiterate users, and making men aware of the value of women's access to ICTs – could greatly increase women's use. In this spirit, UNESCO has recently launched a project to assess and cross-analyze gender-specific learning needs and the impact of ICTs in selected communities in Southern Africa, building in particular on the multipurpose community telecentres (MCTs) that the Organization has sponsored.

In a similar vein, the APC's Women's Networking Support Programme (WNSP) developed the Gender Evaluation Methodology (GEM), an evaluation tool to facilitate the process of learning about using information and communication technologies for gender equality. GEM is a guide to integrating gender analysis into evaluations of initiatives that use Information and Communication Technologies for social change. It provides a means for determining whether ICTs are really improving women's lives and gender relations, as well as promoting positive change at the individual, institutional, community and broader social levels. The guide provides users with an overview of the evaluation process (including links to general evaluation resources) and outlines suggest strategies and methodologies for

incorporating a gender analysis throughout the evaluation process. Gender evaluation methodologies, therefore, can be used to investigate whether ICTs are being employed in ways that change gender biases and roles, or simply reproduce and replicate existing ones. The evaluation tool can also be used to ensure that gender concerns are integrated into a project planning process⁷⁵. The GEM is currently being tested by around 30 projects – some women-specific, some mixed-gender – with a strong ICT component in Africa, Asia, Latin America, and Central and Eastern Europe.

The women who until now have had least access to the new information and communication technologies are probably those who could benefit the most. Poverty and illiteracy prevent the marginalized from using the very instruments that might help lift them out of their penury. Technological solutions exist or are in development, including the low-cost multiple-user Simputer, non-text based computer interfaces using iconographic software or voice recognition, wireless radio modems, solar powered technology and so on. UNESCO in 2002 launched a project in South Asia to test and demonstrate effective models for putting ICTs and relevant content into the hands of people living in poverty. The aim is to use innovative, low-cost ICT approaches to help the poor address their own information, knowledge and communication needs. A crucial matter for international debate, however, concerns how projects like this can be transformed into national programmes, supported by financial and policy commitments.

Content and technology choice

If women are to be able to make use of the Internet for education, advocacy or income-generation, there must be more relevant content. This is a matter of both substance and language. It is also important that the new technologies such as computer and Internet should not deflect attention from technologies that have been around for longer – radio, television and video, print, CD-ROMs.

One example is FIRE (Feminist Interactive Radio Endeavour), created in 1991 as a shortwave radio programme in Costa Rica. In 1998 FIRE launched an Internet Radio initiative to broadcast women's perspectives on

75. See <http://www.apcwomen.org/gem>

issues and events around the world. Its web page contains text images and embedded sound files for “on demand” listening. Another example comes from South Africa, where just 7 percent of the population can access the Internet, but 90 percent has radio. Here, the Women’sNet community radio project is based on appropriate technology use. It includes a web-based clearing house of radio content on women’s issues, whose main features are a database of searchable audio features, clips and news, links to gender resources for “radio on the Internet”, and a help section that includes information about how to get connected and where to get the right software.

There are some similarities between the Women’sNet approach and Kothmale Community Radio, a UNESCO-supported initiative in Sri Lanka. In Kothmale’s radio-browsing programme, the presenters search the web in response to listeners’ queries and discuss the contents of pre-selected web sites on air with studio guests. This formula offers indirect but mass access to cyberspace. Kothmale has also set up free community Internet access points and has developed a multilingual database, available at the access centres, containing information that has been downloaded from the Internet. Approximately 49 percent of users are women. Given the success of Kothmale, UNESCO is launching similar projects to integrate new and traditional ICTs in Africa, Asia, Latin America and the Caribbean.

UNESCO’s project *Women speaking to Women: Women’s rural community radio in least-developed countries* addresses the specific communication needs of rural women, especially in their struggle against poverty and marginalization. It provides fully operational local radio stations, designed for and run by women. Such community radio stations have been established so far in Cameroon, Cape Verde, Côte d’Ivoire, India, Malawi, Nepal, Surinam and Trinidad and Tobago. The content aired by these stations is based on the everyday life of the community and deals with women’s concerns, providing advice on health, childcare, nutrition, improved agricultural methods, vocational training, literacy, job opportunities, etc. At the same time, these programmes help train women journalists and enhance women’s creativity in general. In addition to the above-mentioned topics, these programmes also provide feature stories on discrimination against women and gender equity, the portrayal of women and sexist stereotyping, women’s rights as human rights, etc. UNESCO also provided the necessary equipment and training of the core staff in broadcasting, programming and management. In

this regard it is actively rolling out and adding to ICT infrastructure that will enhance women's access to and meaningful use of ICTs.

The provision of relevant local language content, via affordable and easy to use technology that is accessible to an audience with few or no reading skills, is crucial if ICTs are to meet the needs of women in developing countries. A model of how this can be achieved comes from a recent collaboration between the International Women's Tribune Center and the IDRC. The starting point was discussions with women living close to the community multipurpose telecentre at Nakaseke, Uganda, about their information needs. It quickly became clear that, as farmers and small businesswomen, they needed ideas to help them make more money. The women imagined a programme that was simple, did not require a keyboard, and spoke to them in their own language. The end product, "Rural Women in Africa: Ideas for Earning Money," is packaged as a CD-ROM, and uses browser software, graphics and spoken text.

Awareness, training and education

Gaining access to information and communication technologies will not, in itself, contribute to women's advancement and social development. At the most basic level, it is clear that in many countries there is still a profound lack of awareness about the benefits to be gained from information and communication technologies and the uses to which they can be put. Much work needs to be done to promote awareness of the organizational applications of ICTs – for instance, their possible impact on research, networking, lobbying, and conferencing. Work is also needed to demonstrate the role that ICTs can play in advancing gender equality – through trade, agriculture, health, governance, education and so on.

Some organizations have begun to launch awareness-raising initiatives. In Nouakchott, Mauritania, "Internet Days" have been successful in creating public enthusiasm and interest. In South Africa, the Link Centre has run well-attended basic ICT literacy courses for the general public in different localities at weekends. When such courses are women-led, they can be influential in terms of providing female learners with new role models, and opening up horizons.

The Women and the Media, which includes two special projects – *Women Working on the Net*, and *Women speaking to women: Women's rural community radio* in least developed countries – are part of the Organization's efforts to build capacity in the use of different communication technologies, including community radio, film, and the Internet, helping participants to shape and produce relevant content, and to manage information and communication resources. Projects it supports in Africa, Asia and in Arab states train women journalists in advanced publishing techniques, produce films and magazines that give women in these regions a "voice," and provide the technical infrastructure that women need to access new information and communication technologies through multimedia community centres and multipurpose community telecentres. Specifically, the *Special Project: Women Working on the Net*, implemented in partnership between UNESCO and the Society for International Development (SID) in Rome, seeks to strengthen women's use of new communication technologies by enabling them to challenge and correct the inherent gender biases of cyberculture. The key strategy is to adapt the new information technology in an appropriate manner so that it supports the everyday work and lifestyles of women. One of the key objectives of this project was to deal with international communication systems through a multicultural perspective. By strengthening women's skills in networking and policy-making, and by encouraging them to use the Internet as an empowering space, the project focuses on how men and women approach and perceive the net as a communication tool with immense social and political potential.

The future of this kind of activity undoubtedly lies in the use of the Internet itself as a resource and documentation centre. The establishment of an Online Learning Centre for Women (OLC) in Seoul, supported by UNESCO through the Asian Pacific Women's Information Network Center (APWINC) and the Association for Progressive Communications WNSP programme, is one example. The OLC is intended as a first step in the construction of a regional ICT Centre for Women in Asia and the Pacific.

It is clear that if women are to take full advantage of information technologies, training needs to go beyond a focus on how to use the new communication tools. Training women in ICT must also involve education in how to find, manage, produce and disseminate information, and how to develop policies and strategies to intervene effectively in the shaping of ICTs.

That is the philosophy behind the course developed by the Asia Women's Resource Exchange (AWORC), offered annually since 1999 at Sookmyung University. The training explicitly aims to build the capacities of women and their organizations to use new information and communication technologies in social and policy advocacy. In March 2003, the APC Africa Women Network ran the first Women's Electronic Network Training in Africa (WENT Africa), a course modelled on that offered annually at Sookmyung University. The course was the first of what is hoped to be an annual programme, targeted at African women, based in Africa, and actively oriented towards project implementation.

In the same spirit, the World Association of Community Radio Broadcasters (AMARC) has developed a course designed to show how women can use new technologies critically and creatively in their community radio work.

Promoting the inclusion of gender analysis in ICT training, coordination, and dissemination of materials and experiences is essential. The creation of resource centres and clearing houses will play a significant part in this. The Online Learning Centre for Women at APWINC is one example. Another – focused exclusively on training – is the pilot Women's Online Resource Centre (WORC), being developed by Women'sNet, South Africa, in collaboration with the Association for Progressive Communications. This will be part of the ItrainOnline site, an online guide to training resources targeted at NGOs, development organizations and civil society.

ICTs can play an important role in the formal and non-formal education of girls and women, particularly through distance education. One example is India's "Distance Education for Women's Development and Empowerment in India". Jointly operated by the Department of Women and Child Development and the Indira Gandhi National Open University, the programme aims to make women's self-help groups sustainable through developing decision-making ability and resource management skills, and by helping them to gain access to credit. The programme provides a Certificate level course based on a multi-media training package, with tutorial support through teleconferencing, enhanced by a satellite-based Direct Interactive Communication System in 150 low literacy districts.

Combining access with social empowerment for women

Many ICT projects have succeeded in combining access – for women who would not usually be targeted – with economic empowerment. This has gone some way in creating awareness of the relevance of ICTs beyond the simple acquisition of technical skills and towards improving employment and other income-generating opportunities. In Argentina, Uruguay, Paraguay, Brazil, India, and various African countries, young women have either been given access to advanced training with a view to them becoming IT professionals, or have been introduced to the Internet as an avenue for marketing their crafts and handiwork, enabling them to build their income as a result.

In many cases this has had other spin-offs for local community development, especially in remote areas, where it has reduced the inclination of young women to move to large cities in search of work. In some cases, ICT training was accompanied by training that helped young women develop more gender-aware attitudes and values, as well as encouragement to be more informed and active citizens. Together these technical and social skills prepare women and young girls to meet and overcome gender-based obstacles.

In Senegal, the *parente conjointe* project, a collaborative initiative involving UNIFEM (Dakar), Oxfam America, ENDA Third World, and the IDRC Acacia has sought to stimulate debate and awareness of joint parenting issues in Africa, as part of a project to promote ICTs for women's empowerment and gender equality. The partners ran a electronic forum to raise awareness of joint parenting rights in francophone Africa⁷⁶. Similarly, the Development through Radio (DTR) project in Sierra Leone is an attempt to use ICT to set up a two-way flow of information between policy-makers and women's groups about the abuses suffered by women in the civil war. The project includes workshops that teach the basic DTR skills to participants, who are in turn expected to train others in the different war-affected communities in how to conduct and record group discussions that could provide content for radio development programmes. Furthermore, the training includes discussions around the right to speak out, and allows women and girls to share their experiences of the war. Thirty groups of women access policy-makers and the broader development aid community through weekly

76. See <http://www.famafrique.org/parenteconjointe/forum/summary.html>

broadcasts. The project coordinator serves as intermediary between the women and policy-makers, and obtains a response, aired on the same programme, from the relevant policy-makers⁷⁷. The government of Uganda has also recently engaged in a partnership with UNIFEM and the UN ICT Task Force in launching the Digital Diaspora Initiative, to link African information technology entrepreneurs in the Diaspora with women's organizations and business associations in Africa, with a view to harnessing existing resources to tackle feminized poverty.

Through their project *Open Learning Communities for Gender Equality with the support of ICTs* in local communities in Mozambique and South Africa, UNESCO seeks to promote community building and learning for gender equity through critical ICT use and content development in areas of concern to the local communities, including malaria, HIV/Aids, youth unemployment, and so forth.

There is an increasing number of projects that specifically target women, and that combine access to information and training with efforts to empower marginalized women, often through the simple act of giving women a platform for voicing their concerns. There is a need to encourage information sharing about best practices that can be replicated, while attending to local issues and social dynamics in different places.

77. See <http://www.dtronline.org/prjects.html>

5. Towards and beyond the WSIS

There is increasing recognition that gender advocacy has a legitimate presence within the ICT debate, though there is still an ingrained tendency to regard it as something separate from the core issues. Given what is at stake in the development and deployment of ICTs, it is imperative that gender be incorporated into mainstream “core” discussions and decisions at national, regional and international levels.

Initiatives have sprung up among civil society groups to campaign for the inclusion of a gender perspective and women’s rights in the deliberations of delegates as they develop a vision for the Information Society and start the task of exploring issues of access and applications.

At the first regional preparatory meeting of the WSIS process, held in Bamako, Mali, in July 2002, a group of about 12 organizations who attended the Regional Preparatory meeting responded to an invitation by UNIFEM to contribute to ensuring that gender dimensions are included in the process of defining and creating the Global Information Society. The caucus is multi-stakeholder, including women from government, private telecommunications services providers, women located in UN agencies, as well as women in non governmental organizations and other civil society bodies. These organizations came together as the founders of what is set to become a global WSIS gender caucus, intent on advocating for the inclusion of gender concerns during the preparatory processes and WSIS summits, as well as in the outputs of these processes. The WSIS gender caucus produced a statement at the Bamako Regional Preparatory Meeting in which they urged African states “to ensure better balance in ICT uses while instituting specific programmes that address the needs of women, particularly those aimed at rural and disenfranchised areas.” The group also made several recommendations that entreated African governments and all relevant

stakeholders to ensure they build measures for African women's advancement into their policies and action plans. Women participating in the other Regional WSIS Preparatory Meetings (LAC, Europe, Asia-Pacific, etc.) similarly advocated, with varying degrees of success, the inclusion of gender issues in the regional Declarations and Action Plans.

At the first WSIS Preparatory Conference held in Geneva in July 2002, a group of women's non-governmental organizations active in gender and the ICT field argued for the need for a separate but parallel gender caucus to make sure the particular concerns of the gender and ICT activists located in NGOs are well represented, both within the multi-stakeholder gender caucus and the broader WSIS civil society structure caucus.

This group, the NGO Gender Strategies Working Group, developed the "7 Musts: Priority Issues for Gender Equality in the WSIS Process"⁷⁸, at the second WSIS Preparatory Conferences held during February 2003. The "musts" set out some broad principles that should underpin the WSIS deliberations if they are to include women and their gender concerns successfully:

An Intersectional Approach that takes account of the diverse needs of women located in different geo-political, historical, class-based, racial, ethnic and other contexts.

Build on Global Consensus and reaffirm commitments made at previous UN conferences and summits, in particular the World Conferences on Women in Nairobi and Beijing, as well as those focused on the rights of the child, on environment and development, human rights, population and social development.

People-Centred Development that embraces the principles of social justice and gender equality by addressing the needs of women and starting a process of redressing fundamental economic and socio-cultural gaps.

Respect for Diversity that also recognizes the role and importance of traditional and indigenous forms of media and communications, rather than

78. See <http://www.genderit.org>

the singular focus on digital technologies. The diversity of needs should be reflected in a diversity of solutions and strategies.

Peace and Human Development where ICTs are harnessed in the service of peace and in opposition to wars.

Human Rights Framework: Women's human rights instruments together with fundamental communication rights – such as freedom of expression, the right to information, and the right to communicate – must be reiterated in the final outcomes of the WSIS processes and summits.

Supporting Local Solutions: The current framework for ICT infrastructure development is too reliant on “creating stimulating regulatory environments and fiscal incentives” to encourage investments from corporations in the North into countries in the South. There is urgent need to also encourage local low-cost and open source solutions as well as South-South exchanges, and to encourage local content producers through public funding to support the prevention of “content dumping” from large entertainment corporations in the North.

The complexities of creating digital opportunities within a gender-centred conceptual framework are formidable. They call for multi-level initiatives and sometimes require difficult policy choices.

A cursory analysis of the language of the submissions made by different country delegations, with the exception of a strong statement on the need to include women and men by the government of Canada, show that there is scant recognition of the need to include gender concerns explicitly into either the Declaration of Principles or the Action Plan. United Nations agencies like UNESCO and UNCTAD, for example, have also included statements urging the need for a gender perspective in the Vision and Principles for the Information Society and the Action Plan that ensues from that document⁷⁹. It appears therefore that a need remains for vigorous advocacy before sympathetic governments and international organizations for inclusion of a gender perspective in the WSIS deliberations and the reports that result from the summit.

79. Notes developed by Karen Banks (of APC Women's networking Support Programme) and shared via email communication.

The latest version of the Draft Declaration of Principles⁸⁰, in which all the text is in square brackets and hence subject to discussion and negotiation at the WSIS Intersessional Meeting in Paris (July 2003), does include statements about the need to use ICTs to advance the Millennium Development Goals, including improving the status of women (para. 11), addressing power differentials that shape men and women's status and constrain women's access to and participation in the Information Society (para. 15), and the need to address barriers that shape women's access to information and knowledge (para. 25). A gender perspective, however, needs to be built into all aspects of, and actions towards, the construction of the Information Society, by all stakeholders (governments, private enterprises, NGOs and civil society organizations, and international organizations). Specifically, it is vital to refer back to the imperative to involve women at all levels, on the basis of equality in all spheres of society, including accessing power and participation in decision-making, in order that equality, development and peace may be achieved in the Information Society⁸¹.

In turn, the latest version of the WSIS Draft Action Plan⁸², for which all text is also in square brackets, sets out the need for a "flexible" Plan that would be used as a reference framework and a guide to governments and other stakeholders who find themselves at different levels of development. While this is probably a pragmatic approach, it does allow regions and governments to select those aspects that they favour, to the potential postponement and neglect of others that they do not agree with or are considered too costly to implement. Currently, there is little to no mention of the need to target women and gender imbalances in the Action Plan. A flexible Action Plan reinforces the need for strong gender statements to be incorporated throughout the Declaration of Principles.

UNESCO, with its unique mandate to promote the free exchange of ideas and knowledge, plays a key role in the WSIS preparations. UNESCO's contribution incorporates the ethical, legal and socio-cultural dimensions of

80. See http://www.itu.int/dms_pub/itu-s/md/03/wsispcip/td/030721/S03-WSISPCIP-030721-TD-GEN-0001!!MSW-E.doc (version dated 21 March 2003).

81. See Art. 16, Beijing Declaration, BPFA.

82. See http://www.itu.int/dms_pub/itu-s/md/03/wsispcip/td/030721/S03-WSISPCIP-030721-TD-GEN-0002!!MSW-E.doc (version dated 21 March).

the Information Society, and helps to grasp the opportunities offered by ICTs by placing the individual at their centre.

As part of the preparatory process for the Summit, UNESCO proposes a number of underlying *principles* and as well as specific actions for consideration and discussion by all stakeholders. The creation of the necessary structures and environments will ultimately depend on decisions and actions taken by nations and communities themselves.

Principles

- Human rights and freedoms, of which women's human rights and freedom of expression are an integral part, must be at the core of the Information Society.
- There must be media freedom in the Information Society. New media using ICTs must be afforded the same freedom as traditional broadcast and print media.
- The Information Society should be based on principles of gender equity, human dignity and gender justice, and should be geared towards the eradication of gender disparities in education and training, socio-economic status, civic and political decision-making.
- The Information Society is only equitable if disadvantaged people, including people with disabilities, indigenous people, people living in extreme poverty, as well as women and youth, benefit equally from ICTs.
- The pursuit of universal and equitable access to the Information Society must be underpinned by an understanding of the gender digital divide and of the rural-urban divide.
- Access is fundamental in the Information Society. It is based on universal principles and on commonly agreed values, such as recognition of privacy in the use of information; respect for the right of others to information; willingness to share knowledge as a resource which will not diminish with usage; recognition, promotion and safeguarding of cultural and linguistic diversity in organizing access to information; promotion of empowerment and participation in the Information Society. Generally acknowledged commercial interests in exploiting and profiting from knowledge and cultural resources should not compromise the primacy of the public interest.

- The Information Society must ensure the diversity of languages, scripts and cultures, with a view to facilitating meaningful participation of all, especially women, in the Information Society.
- The Information Society must be based on the sharing of information and the genuine participation of social groups at various levels, including decision-making.
- The use of ICTs should be encouraged as a means of empowering local communities, and thereby helping them to combat poverty, marginalization and exclusion, especially in the Least Developed Countries.

Actions

Preparations for the World Summit on the Information Society:

- Include the pursuit of gender equality as a goal within analyses, assessments, discussions, conferences and other preparatory events for the Summit.
- Consult with national machineries for women, with women's NGOs and with the gender focal points within the UN system in drawing up proposals for inclusion in the Declaration of Principles and the Plan of Action to be adopted at the Summit.
- Take positive steps to ensure the participation of women, including those with expertise in gender and ICTs, in all delegations to regional pre-conferences, Preparatory Committees and the Summit itself.
- Encourage linguistic diversity, as well as a diversity of scripts, to facilitate the full participation of all social groups, especially women, in the Information Society.
- Increase the participation of women and men in civic life, through access to and use of ICTs.
- Support the development of common use ICT facilities especially in remote and rural areas, where women predominate in least developed countries, to facilitate their full participation in the Information Society.
- Promote the creation and sharing of content at local level, especially content that speaks to rural and poor women's information needs.
- Improve training for women in ICT literacy and technical skills.

Policy Frameworks and Tools:

- Apply gender analysis techniques, and ensure the participation of gender specialists in the appraisal of existing policies and programmes and the development of new ones.
- Develop models and implement systems to increase the participation of women and gender equality experts in decision-making processes with a view to ensuring good governance and accountability to stakeholders.
- Carry out studies and disseminate information on the applications of ICTs for women's empowerment – for example regarding employment and trade, agriculture, education, improved health, advocacy and networking, civic and political participation.
- Ensure the inclusion of gender as a category in all databases and observatories on ICTs and the Information Society.
- Establish data collection systems that include sex-disaggregated data on all aspects of ICT use, and develop qualitative as well as quantitative gender-related performance indicators.
- Develop publicly accessible databases of best practice in the use of ICTs for women's empowerment and the pursuit of gender equality.

Connectivity and Access

- Develop low-cost technologies and non-text based computer interfaces using iconographic software and voice recognition to facilitate ICT access for poor, illiterate women.
- Design community access points that take account of gender differences in mobility, available time, income, literacy levels, and general socio-cultural factors.
- Finance the development of open source technologies and open software that will facilitate women's access and reduce costs for marginalized communities and social groups.
- Support projects that use ICTs themselves as tools to improve women's access, for example by providing web-based content on available software, basic skills and know-how, and links to gender resources.

Content and Technology Choice

- Design content on the basis of research into women's stated information needs, in local languages and accessible media formats.

- Encourage innovative combinations of new technologies and traditional technologies that enhance women's opportunities to access information.
- Carry out pilot projects to investigate models of information presentation that respond to women's preferred learning styles, and develop appropriate ICT content packaging.
- Promote critical debate and awareness-raising projects to combat the use of ICTs for the transmission of pornography, especially violent pornography, and for cybercrimes such as cyber-stalking and sex trafficking.
- Support the development of community media to foster local content production that is also relevant to the communities' information needs.

Awareness, Training and Education

- Make maximum use of ICTs – for example, through distance education, e-learning and other ICT-based delivery systems – to eliminate gender disparities in literacy, and in primary, secondary and tertiary education.
- Take positive steps to ensure equitable gender access to ICT facilities in both formal and informal education and training.
- Develop teacher-training courses on gender and ICTs to raise awareness of issues that influence different levels of ICT take-up among girls and boys.
- Support the production of training materials and training methodologies that are gender aware and recognize women's and girls' learning processes.
- Disseminate best practices and knowledge related to the use of ICTs in education and learning processes, and their impact on women and girls' learning and take-up of ICTs.
- Demonstrate the impact of ICT-based education delivery systems through pilot studies.
- Promote the use of traditional and new communication technologies in ICT-based education delivery systems, together with appropriate methodologies, for both formal and non-formal education.
- Develop training and capacity building programmes to increase the ICT skills of girls and women at all levels, from beginners to experts.
- Create computer and information literacy programmes that promote a critical approach to ICT use among girls and women.

- Develop training and capacity building programmes to increase women's participation in content creation, decision-making and policy-making in the ICT sector.
- Develop awareness-raising programmes to sensitize decision-makers and policy-makers to the gender aspects of the Information Society.

Process

Strenuous efforts will be needed to capitalize on the opportunities offered by the WSIS to bridge the gender divide already apparent within the emerging Information Society. To help achieve this, UNESCO wishes to foster the broadest possible participation of decision-makers, professional communities, representatives of civil society, bilateral and multilateral partners, and the private sector.

The regional conferences leading up the Summit will enable assessment, dialogue and debate, and the development of strategies and measures appropriate to individual regional contexts. The Declaration of Principles and the Plan of Action to be adopted at the Summit itself should reflect these regional proposals, in a concerted international effort to work towards an Information Society in which the promotion of gender equality and the empowerment of women is unequivocally articulated as a goal.

Table 2
Female Internet users, 1998-2000

	Internet users as percent of total population 2001	Women as percentage of All Internet users 1998/1999	2000
AFRICA			
Ethiopia	< 0.1	...	16.0
Morocco	1.3	...	25.0
Senegal	1.0	...	14.0
South Africa	7.0	19.0	49.0
AMERICA, NORTH			
Canada	43.5	38.0	47.0
Mexico	3.5	...	46.0
USA	49.9	49.0	51.0
AMERICA, SOUTH			
Argentina	8.0	...	43.0
Brazil	4.6	25.0	42.0
Chile	20.0	...	47.0
Venezuela	5.3	...	31.0
ASIA			
China	2.6	18.0	41.0
Hong Kong SAR	45.9	...	43.0
India	0.7	...	27.0
Indonesia	1.9	...	35.0
Israel	23.0	...	43.0
Japan	45.5	36.0	41.0
Korea (Rep.)	51.1	...	45.0
Malaysia	23.9	...	42.0
Philippines	2.5	43.0	49.0
Singapore	36.3	...	47.0
Taiwan	33.6	...	44.0
Thailand	5.6	...	49.0
Turkey	3.8	...	29.0

Table 2 (continued)
Female Internet users, 1998-2000

	Internet users as percent of total population 2001	Women as percentage of All Internet users	
		1998/1999	2000
EUROPE			
Austria	31.9	...	43.0
Belgium	28.0	38.0	40.0
Czech Republic	13.6	12.0	43.0
Denmark	44.7	...	44.0
Finland	43.0	...	46.0
France	26.4	42.0	38.0
Germany	36.4	35.0	37.0
Hungary	14.8	...	46.0
Iceland	67.9	...	49.0
Ireland	23.3	31.0	45.0
Italy	27.6	30.0	40.0
Luxembourg	22.7	...	38.0
Netherlands	32.9	13.0	41.0
Norway	59.6	...	42.0
Poland	9.8	...	37.0
Portugal	34.9	...	41.0
Russian Federation	2.9	15.0	39.0
Spain	18.2	19.0	41.0
Sweden	51.6	46.0	45.0
Switzerland	40.4	...	36.0
United Kingdom	39.9	38.0	46.0
OCEANIA			
Australia	37.2	43.0	47.0
New Zealand	28.1	24.0	47.0

Source: Compiled from ITU *World Telecommunication Development Report 2002*; United Nations *The World's Women 2000: Trends and Statistics*; UNDP *Human Development Report 2001*.