

ICTs, Globalisation and Poverty Reduction: Gender Dimensions of the Knowledge Society

Part I. Poverty Reduction, Gender Equality and the Knowledge Society: Digital Exclusion or Digital Opportunity?

Sophia Huyer and Swasti Mitter

Introduction

Preparation for the coming World Summit on the Information Society¹ has led to fresh assessments of the significance and relevance of gender issues in the technology policies of developing countries. Recent international fora have stressed the importance of integrating gender equality considerations into ICT policy, programmes and projects at all levels to promote the social, economic and political empowerment of women. These include the DAW online conference and Expert Group Meeting on “Information and communication technologies and their impact on and use as an instrument for the advancement of and empowerment of women” and the INSTRAW Virtual Seminars on Gender and ICTs held July 1 – September 18.² The UN Commission on Science and Technology for Development (UNCSTD) in its panel on “Technology development and capacity-building for competitiveness in a digital society” has also recognised the importance of integrating gender concerns into an agenda for supporting the entry of developing countries and countries in transition into the global information society.

In his report to the Forty-Seventh Session of the Commission on the Status of Women, the United Nations Secretary-General stated,

¹The World Summit on the Information Society aims to bring together Heads of State, Executive Heads of United Nations agencies, industry leaders, non-governmental organizations, media representatives and civil society in a single event to develop a better understanding of the information revolution and its impact on the international community. The roles of the various partners (Member States, UN specialized agencies, private sector and civil society) in ensuring smooth coordination of the practical establishment of the information society around the globe will also be at the heart of the Summit and its preparation. The Summit would be held under the high patronage of the UN Secretary-General, with ITU taking the lead role in preparations and will be held in two phases with the first phase to be held from 10 to 12 December 2003, in Geneva, Switzerland and the second November 11-15, 2005 in Tunis, Tunisia.

²The United Nations Fourth World Conference on Women held in Beijing in 1995. During the Conference, a platform for action was designed to create equal opportunities and empowerment and advancement of women. One of the platforms for action relates to ICTs and the empowerment of women. In September 1995, more than 180 governments signed the Beijing Platform for Action. Five years later in June 2000, a special session of the United Nations General Assembly was convened at United Nations headquarters in New York to review progress achieved and obstacles remaining to full implementation. Informally called Beijing +5, the review's official title was Women 2000: Gender Equality, Development and Peace for the Twenty-First Century. Beijing +5 redirected world attention to the progress made by governments toward implementing the Beijing Platform for Action (PFA), a 12-point global agenda for achieving gender equality. The shift in emphasis was from ICT, women and media to ICT, women and employment.

² See the Division for the Advancement of Women site at www.un.org/daw and the INSTRAW site at www.un-instraw.org.

A focus on the gender dimension of information and communications technologies is essential not only for preventing an adverse impact of the digital revolution on gender equality or the perpetuation of existing inequalities and discrimination, but also for enhancing women's equitable access to the benefits of information and communication technologies and to ensure that they can become a central tool for the empowerment of women and the promotion of gender equality. Policies, programmes and projects need to ensure that gender differences and inequalities in the access to and use of ICT are identified and fully addressed so that such technologies actively promote gender equality and ensure that gender-based disadvantages are not perpetuated.

At the same time, the United Nations has taken on the Millennium Development Goals (MDGs), agreed to at the United Nations Millennium Summit in 2000 and subscribed to by both developed and developing countries. The goals are to eradicate extreme poverty and hunger; achieve universal primary education; promote gender equality and empower women; reduce child mortality; improve maternal health; combat HIV/AIDS, malaria and other diseases; ensure environmental sustainability; and develop a global partnership for development. In 2001, the United Nations Global Assembly held a high-level dialogue on 'Responding to globalisation: facilitating the integration of developing countries into the world economy in the twenty first century' which included in part the goal to reduce the number of people living below the poverty line.

The discussion on information society and digital economy is pertinent to these initiatives on globalisation and poverty: as ICTs condition the extent and nature of current globalisation, so they can also provide tools and networks to expand the participation of all social groups, including women, in the information-driven economy and the knowledge society.

The Commission on Science and Technology for Development (CSTD) has addressed these issues in various fora since 1995. The CSTD Gender Working Group report, released in 1995 assessed the effects of the implementation of S&T for development, and found that women overall have less than equal access to technology. In fact it found that over the previous three decades of development and S&T interventions, women have become disproportionately poor in relation to men in their own communities.³

The CSTD Information Technology Working Group, in its analysis of information technologies and the knowledge society (1995), argued that national ICT strategies need to start with the consumer and citizen, on the premise that serving them will benefit the producers of products and services – and not only internet or computer-based products and services. Instead of beginning at the level of the affluent, sophisticated user, more will be accomplished if policy makers start from the perspective of the ordinary person. It suggested that ICT policies could be designed with the concerns of women and marginalised people in mind, and that “if national ICT policy-makers were to gear deliberations towards what people in these areas need each morning when they rise, cook, want medical attention, seek crop

³ Gender Working Group, 1995.

prices, need weather forecasts, and seek education and jobs for their children, their ICT strategies would be more balanced” and therefore more successful in promoting national development goals.⁴

Most recently, the CSTD selected for its inter-sessional period 2001-2003 the substantive theme "Technology development and capacity-building for competitiveness in a digital society". The work programme addresses different aspects of the main substantive theme, namely: technology transfer, diffusion and capacity-building with particular attention to absorption and applications of information and communication technologies (ICTs) for the purpose of enhancing competitiveness of developing countries and countries with economies in transition.

In its argument that gender should be considered a cross-cutting issue in this work programme (which was subsequently agreed by the Commission), the CSTD Gender Advisory Board argued that supporting women’s participation in the information economy would produce a range of benefits: increasing the pool of human resources in a country will contribute to increased creativity, expertise and competitiveness in the technology sector of a country; and increasing the pool of available expertise will allow a country to more quickly arrive at a "critical mass" of IT professionals to facilitate a national information economy. Investment in human capital is also a well-known precursor for increased productivity and economic growth.⁵

Benefits would also extend to a broader range of social groups, with an immediate impact on the society as a whole. In most countries women make up a substantial portion of the lowest income groups and play a central role in the well-being of their family and community. The value of information to women is enormous, and affects all aspects of their lives. Although more research is necessary, currently available evidence indicates that when women do have access to ICTs, they can substantially improve their lives and increase their income. A recent FAO study showed that women who are involved in meaningful ICT projects produce results for improved economic or social well-being in the community.⁶ ICT can provide women with skills, training, and market information for their small-scale enterprises. For example, information on reproductive health can contribute to women’s economic activities by improving health and decreasing the number of children, thereby improving their income-earning ability.⁷

Increased access by women to the information and knowledge resources which are important to development will by extension benefit their families and communities. The triple role of women, consisting of *productive* (SMEs, food production and trading), *reproductive* (child care, subsistence agriculture, health care and education) and *community* (community infrastructure, water and sanitation and natural resource management) responsibilities put them at the center

⁴Wehn and Mansell, 1998, p. 239.

⁵ Gender Advisory Board, 2001.

⁶ Michiels and van Crowder, 2001.

⁷ Mitter, 2001; Carr and Huyer, 2001

of national development. A recent World Bank research report “Engendering Development – Through Gender Equality in Rights, Resources, and Voices” demonstrates that societies that discriminate by gender pay a high price in their ability to develop and to reduce poverty. It also demonstrates that eradicating poverty depends on improving the situation of women and increasing the efficiency of their work, and that “countries with smaller gaps between women and men in areas such as education, employment, and property rights not only have lower child malnutrition and mortality, they also have more transparent business and government and faster economic growth, which in turn helps to further narrow the gender gap.”⁸

In this way, any strategies to increase the participation of women in the information economy will increase national IT capacity, reduce poverty, and help to raise the national standard of living.

These assessments and others have highlighted the urgency to investigate factors that explain the differential impact of information and communication technologies (ICT) on women and men in the emerging digital economy and the larger knowledge society. They have stressed the need to understand why women face challenges that are different from men in gaining entry into the digitally driven New Economy. Most significantly, they have pointed towards the importance of rigorous research for exploring the benefits and challenges that women encounter in the use of ICT for employment and livelihood opportunities, and for poverty reduction. This particular focus heralds a significant change in research orientation of policy circles, donor agencies and NGOs. The use of ICT in the context of women's empowerment has so far been limited to media, communications, and networking⁹. An emphasis on ICT as a tool of economic and social empowerment for underprivileged women raises new research questions that are relevant both for advocacy and project work by NGOs as well as for policy intervention by national and international bodies. More efforts and resources are beginning to be directed to supporting a wider range of women's activities around their health, income-earning, family well-being and natural resource management, but more work needs to be done in this area, including the development and refining of strategies and evaluation of best practices.

In spite of the growing emphases on the theme, there is a notable lacuna of methodologically sound information to base policy making in these areas; as a result, discourse in ICTs for

⁸ World Bank, 2001.

³The United Nations General Assembly in its resolutions 48/183 of 21 December 1993, 49/110 of 19 December 1994, 50/107 of 20 December 1995 and 51/178 of 16 December 1996 declared the observance of the International Year for the Eradication of Poverty (1996) and the first United Nations Decade for the Eradication of Poverty (1997-2006). At its 55th session, the Secretary General submitted a report on the implementation of the UN resolutions on poverty eradication, stating the progress made in the implementation of measures, recommendations and activities relating to the first United Nations Decade for the Eradication of Poverty, including an examination of the impact of globalization on the eradication of poverty. The report focused on progress achieved in global poverty reduction since the World Summit for Social Development, highlighting the need for more concerted and sustained efforts to eradicate poverty. The theme “Globalization and the eradication of poverty” is also addressed, with particular reference to the impact of globalization on the least developed countries which have so far not been able to take advantage of the opportunities offered by globalization. The report outlines a range of possible actions, policies and measures that may be undertaken both at the national and at the international level to enable developing countries to better benefit from globalization.

poverty women's economic empowerment, poverty reduction and entrance into the digital economy relies mostly on anecdotal evidence. This and the accompanying paper by Swasti Mitter aim to redress the situation by:

- synthesising the material already published in the fields, highlighting existing knowledge on which policy can be based;
- providing a conceptual framework that will facilitate collection of relevant material on a scientific basis, in critical identified areas;
- highlighting areas for further research and analysis.

The paper will briefly summarise international research and policy discourse around poverty reduction, in view of international focus on poverty reduction and the Millennium Development Goals, and the close connection of gender equality to achieving these Goals. The 2003 Human Development Report has identified six “policy clusters”, or areas on which poverty reduction depends: human development, food production; infrastructure investment; developing industrial development policies to bolster non-traditional private sector activities; human rights and social equity; and environmental sustainability and urban management. This paper, and the accompanying paper by Swasti Mitter, will address the use of ICTs by women in these six areas critical to achieving poverty reduction, as well as the potential use of ICTs to promote gender equality in poverty reduction strategies.

It is divided into three main sections: Part I, by Sophia Huyer and Swasti Mitter, *Poverty Reduction, Gender Equality and the Knowledge Society: Digital Exclusion or Digital Opportunity?* summarises international discourse on the connections between gender equality and poverty reduction, and defines the context of the knowledge society, including the digital and gender divides. Part II, *Livelihoods and Poverty Reduction: ICT for Social Development* by Sophia Huyer, assesses the access to and use of ICTs by women for social empowerment and poverty reduction. Part III, “Globalisation and ICT: Employment Opportunities for Women” by Swasti Mitter, analyses potential for women’s economic empowerment, as well as employment and income-generating trends ushered in by the “digital economy”.

The overall purpose of these papers is to provide policy makers with an awareness of key issues and understanding of strategies, approaches and resources; and to promote the development of ICT projects, systems and infrastructure which will contribute to poverty reduction and the development of national knowledge societies in which women participate and benefit equally with men.

1. Gender Equality and the Knowledge Society: Digital Exclusion or Digital Opportunity?

The “information society/economy” and the “information revolution” are some of the various terms used to portray new information technologies as the answer to economic and social development, allowing developing countries to leapfrog over older, less efficient technologies into the digital age. They are said to allow marginalised countries and

populations to insert themselves into the global economy and reap major economic benefits both at the individual and national levels.

However, as currently implemented, ICTs continue to benefit comparatively few and access continues to be determined – both on the global scale and within nations – according to wealth, education, geographical location and, to a great extent, sex. The digital divide has been broadly defined as "unequal possibilities to access and contribute to information, knowledge and networks as well as to benefit from the development enhancing capabilities of ICT."¹⁰

The Working Group on Information Technology for Development of the UN Commission on Science and Technology for Development set out a series of recommendations to national governments in developing countries covering the range of social and economic impacts of ICTs on the economy as well as the social, cultural and political lives of developing country citizens. It took as its theme the promotion of the “knowledge society” in assessing how developing countries could use and develop information technologies for sustainable development.

This approach shifts emphasis from ICTs as ‘drivers’ of change to a perspective where these technologies are considered tools which may provide a new potential for combining the information embedded in ICT systems with the creative potential and knowledge embodied in people. “These technologies do not create the transformations in society by themselves; they are designed and implemented by people in their social, economic, and technological contexts.”¹¹

The focus of knowledge creation as a product of people rather than technologies leads us away from the conception of the information society or economy carried solely by computers and telecommunications, and characterised by rapid transfer of digital data. We know that the overwhelming majority of Internet users live in industrialised countries, and that less than 1% of the population in many developing countries has access to the Internet and computers and as a result is able to take advantage of rapid digital transfer. The concept of the knowledge society, in contrast, incorporates the wide range of technologies that can serve as carriers of the knowledge people possess, as well as contribute to new forms and uses of knowledge.

ICTs do possess the potential to improve the lives of people, and to contribute to social development in developing countries. They have proved useful in: health care delivery; distance education; enhancing rural productivity through access to market information and access to finance; promoting empowerment and participation in national and international policy processes; improving service delivery by governments; improving environmental monitoring and response systems; and facilitating environmental activism.¹²

¹⁰Digital Opportunities Task Force, 2001.

¹¹Wehn and Mansell, 1998: 12.

¹²Digital Opportunity Initiative, 2001

At the same time, developing human capacity, or a base of citizens who are at home in an information and knowledge-based society, is a complementary requirement if that society is to reflect the concerns, aspirations and culture of its citizens. Information literacy has been defined as the ability to access, know where to find, evaluate, and use information from a variety of sources. It involves communication, critical thinking, and problem solving skills. The digital divide reflects a divide in the opportunities to develop and use such skills, much more than merely a divide in access to the Internet.

Active participation in the knowledge society includes more than just access, either to ICTs, or to the Internet. Gender and social equality with respect to ICTs and the knowledge society can be defined as:

Equality in ICT access, knowledge and use – across all races, sexes and classes – as measured by technology fluency; mastery of analytical skills, computer, technology, information and communication concepts; ability to imagine innovative uses for technologies across a range of problems and subjects; and ability to find and use information and knowledge to improve one's life, expand one's choice.¹³

2. The Links between Poverty Reduction and Gender Equality

The goal of poverty reduction has gained prominence in international development policy during the 1990s, when it became evident that the earlier strategies of the 60s, 70s and 80s which focused on liberal economic and structure adjustment policies to prompt economic growth were failing to achieve expected results. The 1990 World Bank *World Development Report* moved to a new agenda for “pro-poor growth” characterised by two main strategies to address poverty, supplemented by transfers to the most vulnerable groups:

- labour-intensive approaches to generating income-earning opportunities for the poor, taking advantage of the labour power of developing countries; and
- social investments in health and education to improve productivity.

The 1990 UNDP Human Development Report at the same time promoted a human-centred approach to growth and development, thereby putting human agency at the centre of development.

From these beginnings, during the 1990s almost every major international and bilateral development agency adopted poverty reduction as an overarching goal. By 2000 there was a larger understanding of the complex relations between economic growth and social and human development, which was integrated in the 2000 World Development Report. The WDR outlined three themes: “opportunity”, that is, access to labour, human, natural, financial, social and physical assets; “security”, or protection against fluctuations in

¹³ This definition builds on the definition of gender equality and computing found in Kirkup, 2002 and Castells' work.

international capital flows in a globalised market; and “voice”, the ability of the poor to influence policies directly affecting their lives¹⁴.

The adoption of the Millennium Development Goals in 2000 grew out of these developments. The eight Goals are:

- eradicate extreme poverty and hunger
- achieve universal primary education
- promote gender equality and empower women
- reduce child mortality
- improve maternal health
- combat HIV/AIDS, malaria and other diseases
- ensure environmental sustainability
- develop a global partnership for development.

Each of the goals contains one to two targets and 2-7 indicators to measure progress. While gender equality is an explicit goal in itself, it continues to be relegated to social development: education (particularly primary education)¹⁵, maternal mortality and HIV/AIDS. There is limited recognition of the gender components of economic policies and production strategies. As Kabeer argues, “closing the gender gap in indicators of health and education not only requires better service delivery. It also means increasing women’s economic agency and the value they give themselves and are given by their community¹⁶.”

Nevertheless, there is some recognition that gender equality issues are not limited to social development. The 2003 UNDP Human Development Report identifies six “policy clusters” which are critical and inter-related components of successful poverty eradication strategies to achieve the Millennium Development Goals, and in which gender equality is acknowledged to play a central role:

- Investing in human development – nutrition, health, education, water and sanitation;
- Helping small farmers increase productivity and break out of subsistence farming and chronic hunger
- Investing in infrastructure – power, roads, ports, communications – to attract new investments
- Developing industrial development policies to encourage non-traditional private sector activities, especially small and medium-size enterprises
- Emphasising human rights and social equity to promote the well-being of all people, and to ensure that poor and marginalised people – including girls and women – have the freedom and voice to influence decisions that affect their lives
- Promoting environmental sustainability and improving urban management.

¹⁴ Kabeer, 2003.

¹⁵ Target 4 is “Eliminate gender disparity in primary education and secondary education”.

¹⁶ Kabeer, 2003, p. 20.

The HDR further argues that women's empowerment promotes development. But what is our understanding of women's empowerment or gender equality, and its relation to the achievement of poverty eradication? The definition taken here builds on the gender and development literature, which considers empowerment to consist of two components: i) a process of change from a condition of disempowerment; ii) human agency and choices which are made from the vantage of real alternatives and which do not result in punishingly high costs.¹⁷ This form of agency can relate to social inclusion, or systemic change initiated from above (policy), most often the result of group advocacy, but it also has implications at the individual or household level, in the form of self-efficacy, or the realisation by individual women that they can make change in their own lives. It involves options, choice, control and power, or the ability to make decisions and affect outcomes for oneself and one's family. Maholtra et al refer to the social effects that increased confidence or status of individual can bring.¹⁸ Such changes, as they spread through a community, can eventually influence larger political and legal systems through public opinion and social change. The components of empowerment include resources (or the conditions under which choices are made), agency, and achievements. Other definitions add "voice", or the ability to make oneself heard, rights, control, relations and power.¹⁹

Where do ICTs fit into this? They are included in MDG #8, as Target 18 to "make available the benefits of new technologies, especially information and communications." According to UNDP, a focus on mainstreaming ICT will effectively contribute to achievement of the MDGs, particularly those related to income poverty reduction, education, health, environment and gender equity through:

- creating economic opportunities & contributing to poverty reduction;
- managing the processes of providing basic services (e.g. healthcare, education) at lower cost and with greater coverage;
- facilitating access to information and the involvement of stakeholders through greater transparency and support to networking at every stage; an
- enhancing the capacity to measure, monitor and report progress on the goals and strategize.

Additionally, increasing evidence is emerging which indicates that ICTs can provide many opportunities for women to improve their income generation, health, gain information and awareness concerning their public and private rights, and improve the wellbeing of themselves and their families. As argued by the Expert Group Meeting convened by the United Nations Division for the Advancement of Women in November 2002, "when there is an enabling environment, ICT can provide diverse avenues for women's social, political and economic empowerment."²⁰

¹⁷ Kabeer in Maholtra et al, 2002

¹⁸ See also Huyer and Sikoska, 2003.

¹⁹ See for example, the World Bank and Canadian International Development Agency policies on gender equality; Sen, 1993; and Batliwala, 1994.

²⁰ UNDAW, 2002, p. 3.

In examining the potential for ICTs to incorporate gender equality into poverty eradication, and increase women's empowerment, we examine the use of and implications of ICTs in the areas identified above as critical for poverty reduction by the UNDP. Specifically, we assess the interaction between ICTs, gender and poverty reduction in:

- health, education, and other basic human development factors
- agriculture and food production
- ICT infrastructure and telecommunications policy
- IT Employment and use of ICTs in women's SMEs (see Mitter)
- e-governance and advocacy
- natural resources management.

To identify the role of ICTs in women's empowerment, we will consider their role in supporting or facilitating a process of change from a condition of disempowerment; and their ability to enable agency and choices for women. This agency can involve group advocacy to change laws or policy, or support changes at the individual or household level, in increasing self-efficacy and women's opportunity for change at the level of the individual. We will focus on this latter arena for advocacy and change, since the role of ICT for networking and lobbying to make "change from above" is well covered elsewhere.

We begin with an assessment of women's access to and participation in the knowledge society.

3. The Digital Divide

The global online community has grown rapidly in the last 5-6 years, from 16 million Internet users in 1995 to 580 million users in 2002, with *one billion* users predicted by 2005. At the end of 2002, 80% of users were in industrialised countries, where two of every five people have access, compared to one in 50 in developing countries.²¹

However, overall, the number of global users remains a small, albeit rapidly increasing, percentage of the world's population: nine percent, made up primarily of users living in the OECD countries. The 2001 UNDP Human Development Report noted that, while 54 percent of those living in the United States are Internet users and 28 percent of the population in high-income OECD countries has access, in the rest of the world the numbers are drastically lower. Eastern Europe and the CIS rank next, with 3.9 percent of the population using the Internet, followed by Latin America and the Caribbean at 3.2 percent, East Asia and the Pacific at 2.3 percent, the Arab States at 0.6 percent and South Asia and Sub-Saharan Africa at 0.4 percent. However, high growth rates are predicted for Asia, particularly in China and India, where it is predicted Internet users in Asia will make up 27 percent of the global Internet user population by 2004.²² The International Data Corporation reports that 90 per

²¹ UNDP, 2001; ITU, 2002.

²² UNDP, 2001.

cent of Internet usage occurs in industrialized countries, with 60 per cent of that usage occurring in the USA and Canada. However, with an annual growth rate of 38% by 2005 the forecast is that US will fall to third place in terms of Internet usage, trailing behind Asia-Pacific, which is expected to capture 27 % of the market and Europe, which may garner more than 30 %.

Figure 1: Percentage of Global Population and Internet Users, by Region

Region	Population	% of Global Population	Users	% of Global Users
Africa (including North Africa)	788,340,000	13.0	6,781,200	1.3
Latin America	524,000,000	8.6	26,607,300	5.3
North America	314,930,000	5.2	156,335,000	31.1
Asia	3,613,880,000	59.5	156,897,800	31.2
Europe	800,570,000	13.2	147,269,200	29.3
Pacific	31,160,000	0.5	8,467,000	1.7
Total	6,072,880,000	100.0	502,357,500	100.0

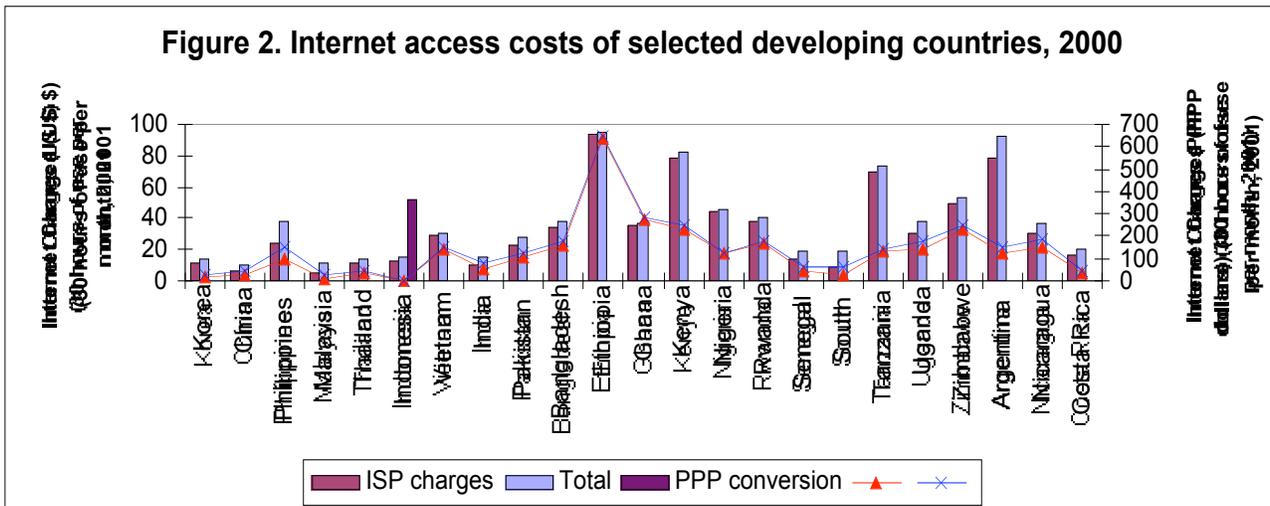
Source: ITU, 2002

Needless to say, access rates do not match global population figures. For example, Sub-Saharan Africa has 13 percent of the world's population but just over one percent of Internet users, while 5% of the world's population, in North America, constitute almost 1/3 of total Internet users. Seventy percent of workers in the European Union are engaged in technology-intensive occupations. At the same time, over half of the world's population has not even made a telephone call: while two phones per person is the norm in the industrialized countries, in Africa there are 21 million phone lines for 788 million people. In Congo, for example, less than 10% of the population owns a telephone, and less than 5% of the population has access to the Internet. Even privileged professional women in many parts of Asia and Africa encounter difficulties in accessing the Internet not only because they do not own computers but simply because they do not even have telephone line – currently a basic Internet infrastructure.²³

The digital divide is also found within countries. Access is clustered in major urban areas, and in industrial regions and centers. In China, the 15 least connected provinces, with 600 million people, have only 4 million Internet users, while Shanghai and Beijing, with 27 million people, have 5 million users. Among India's 1.4 million Internet connections, more than 1.3 million are in the five states of Delhi, Karnataka, Maharashtra, Tamil Nadu and Mumbai.

²³ ILO, 2001; ITU, 2002; Bianda, 2002.

Accessing the Internet is one thing, owning a computer another. Home access to a computer and to the Internet in developing countries is hardly a phenomenon – the cost of equipment and Internet access is prohibitive in many countries. Figure 2 shows some comparative Internet access costs for selected developing countries based on the latest World Telecommunication



Source of basic data: ITU, 2002

Development Report 2002 of the ITU. Total Internet charges are generally comprised of Public Switched Telephone Network (PSTN) monthly subscription, PSTN usage charges for amounts payable to the telephone company for local telephone charges while logged on, and Internet Service Provider (ISP) charges for Internet monthly subscription. The highest total Internet monthly charges in US dollars were found in Ethiopia (\$95), Argentina (\$92), Kenya (\$82), and Tanzania (\$74). These figures compare with much lower average costs of \$14 for Europe and \$26 for the Americas. If purchasing power parity (PPP) conversion rates²⁴ were used instead, (i.e., the number of local currency units required to buy the same amount of goods and services in the domestic market as a U.S. dollar would buy in the United States), the ISP charges reach as high as \$646 in Ethiopia! Hafkin and Taggart report that:

In Ethiopia, 20 hours of Internet access per month for a year amounts to 8.4 times the GDP per home pay. The cost of a computer can be ten times the annual GDP per capita of many LDCs in Africa. In Vietnam, yearly dialup access to the Internet costs \$360, while the annual per capita income is less than \$350.²⁵

Language is also a determinant of the digital divide. The predominance of English and other European languages in most regions of the world is a barrier for most users globally. Speakers

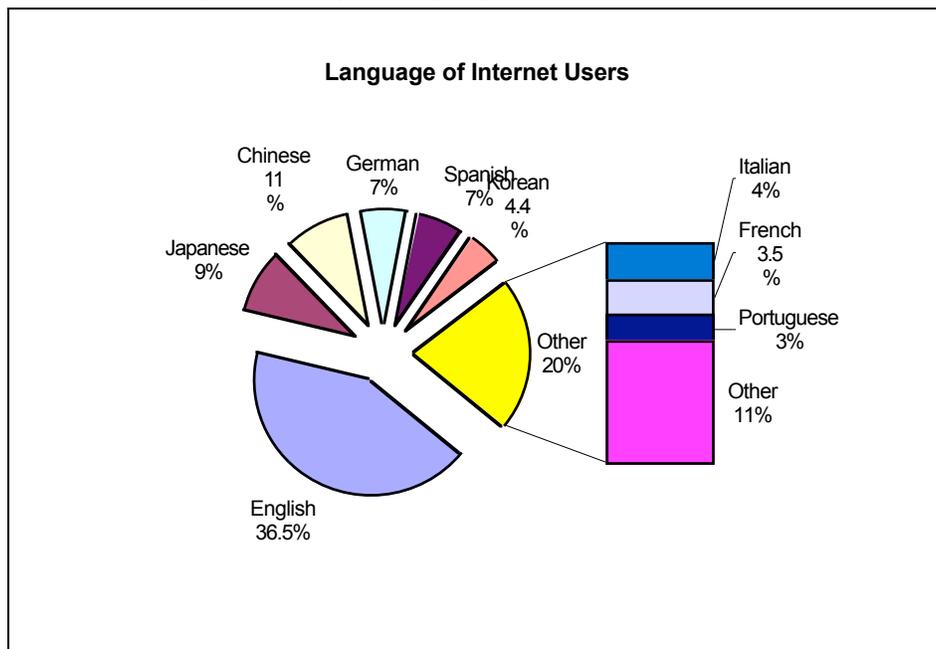
²⁴ Defined as the number of local currency units of a country required to buy the same amount of goods and services in the domestic market as the U.S. dollar would buy in the United States. The PPP conversion factors to the official exchange rate ratios were taken from the latest World Development Indicators of the World Bank. The ISP charges from the ITU were thus converted to year 2000 PPP conversion factors data.

²⁵ Hafkin and Taggart, 2001.

of non-European and indigenous languages – including a large proportion of women – tend to be left out of the information loop. Except in Asia, the dominant internet languages are not spoken by all members of society. Even among the educated, proficiency in the dominant European language of a region may not be such that the user feels comfortable in using the Internet or training and listservs.

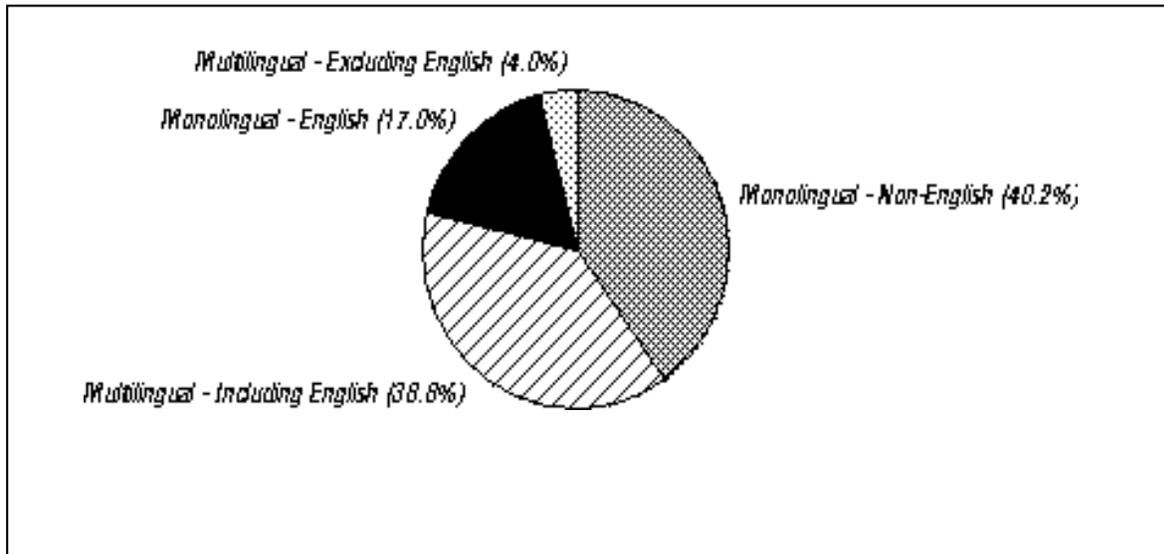
According to a survey by the online marketing research firm Global Reach, the dominance of European languages on the Internet continues. The IDC eWorld 2001 Survey revealed that about 43 per cent of all Web sites are multilingual, although English is still included for multilingual sites (38 per cent). So while the share of English speakers online has decreased to 36.5 percent, with European speakers accounting for 35.5 percent and Asia language speakers at 25.8 percent, if we count multilingual together with monolingual English sites (17 per cent), English still dominates as the language of the Internet with 56 percent.

Figure 3: Major languages used on the Internet



Source: Nua Internet Surveys, WWW.NUA.COM

Figure 4: Worldwide Website Language Availability



Source: *www.idc.com*

Some contend that a common global language for the Internet could become a major advantage and there is a case to be made for increasing access to formal schooling where English as a second language can be learned. In Thailand the government is faced with the dilemma of either increasing Thai content, or expanding English language instruction to its citizens or a mixture of both in the form of a 'Thailish' web site²⁶. In India, in contrast, a great deal of work is being done to develop software in indigenous languages, and computer chat programs in Hindi, for example, are touted to improve India's low-literacy rate and overcome any fear of new technology.²⁷

The support of local languages and local content for ICTs has been identified as a major issue to promote ICT use in developing countries at the World Summit on the Information Society (WSIS),²⁸ and identified as a major block to women's use of ICTs (see below).

In addition to language, other factors affecting access to computers and the Internet include education, income, age, and ethnicity. The typical Internet user worldwide is less than 35 years old, with a university education and high income, urban-based and English-speaking. In most countries in the world, these requirements are enough to disqualify all but a very small percentage of the population.

In view of these disparities in access, and the increasingly integral nature of ICTs in international, institutional, economic and political processes, the digital divide will have

²⁶ See Kelly and Minges, 2002.

²⁷ See Hermida, 2002.

²⁸ See the WSIS Draft Declaration and Plan of Action at www.itu.int/wsis.

adverse effects on economic opportunities, social empowerment and development for countries and persons on the wrong side of the divide.

4. The Gender Divide and the Knowledge Society

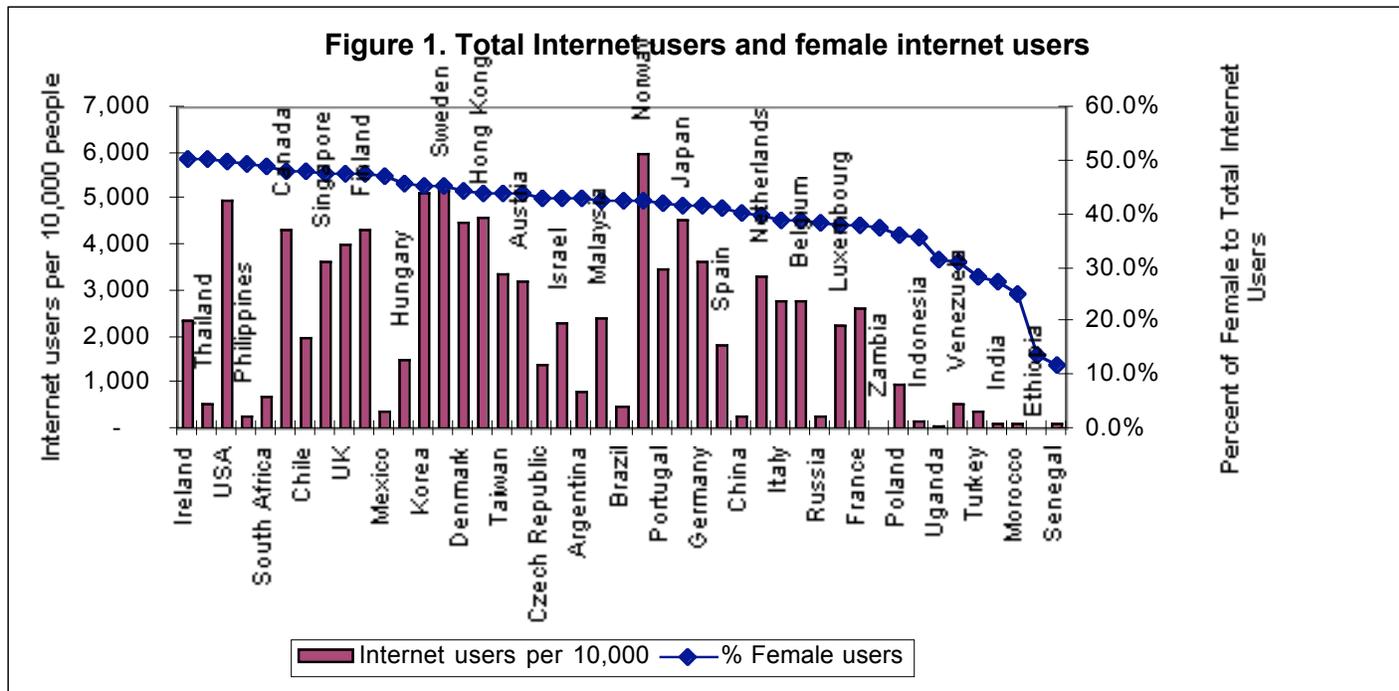
The digital or knowledge society divide is especially acute with respect to women. As stated by the Women's Forum at the Global Knowledge II Conference (Kuala Lumpur, 2000) GKII, the digital divide is not just an issue of the polarization of information rich vs. information poor – it is also a divide between women and men everywhere. The young, university-educated, affluent, urban-based and English-speaking Internet user is also overwhelmingly male.

The gender divide has implications for every level of the knowledge society, including access, training, scientific and technical employment, national capacity building, and women's participation. If women are not active participants and contributors to the shaping of the knowledge society, they risk exclusion from the opportunities it presents, and, further, they may be in danger of losing the gains they have made in the last 20 years.

We do not yet have good figures globally on women's use of the Internet. Most government statistics agencies do not provide a breakdown by gender, so that globally comparable and consistent data are not yet available. Further, traditional ICT statistics are either provided by telecommunication organizations (i.e. telephone companies), or estimates based on shipment of, for example, personal computers.²⁹ However, we do know that women's access to and use of ICTs is much lower than men's around the world, while several recent project reviews have indicated that women continue to benefit less than men from the implementation of ICTs.³⁰

²⁹ M. Mingos, 2003.

³⁰ See Thioune, 2003; Rathegeber, 2002; and Hafkin and Huyer, 2003.



Source: ITU, 2002

There are some signs that the gender gap is narrowing in certain countries. In the US and Canada, women have recently overtaken men in their use of the Internet at 51 percent, while in Singapore, Chile, Hong Kong, Iceland and Thailand the percentage of women users has increased in the last few years to between 47 and 49 percent. In several countries, such as China, South Africa and the Scandinavian countries, the percentage of women users is at or over 40%. But even in countries with a high use of ICT, women users are often greatly outnumbered by men. For example, in India, male Internet users outnumber women 77:23.³¹ It should also be remembered that in developing countries where women's representation is high, users represent a very small elite, often less than 1 percent of the population.³²

Women's participation in the IT sector is also low. In the US, where women have the greatest representation as Internet users, their participation in IT-related employment lags far behind men. According to UNIFEM, women hold 9 percent of mid- to upper-level IT related jobs in engineering and make up 28.5 percent of computer programmers and 26.9 percent of systems analysts. Only among data entry workers do they form the majority at 85 percent. Research carried out for Cisco Systems in the UK found that even if the number of women in the computer networking industry in Western Europe doubles by 2004 to 94,000 women, they would still constitute only just over 7 percent of the workforce.³³

³¹ India National Association of Software and Service Companies <http://www.women.or.kr/apwin/www.nasscom.org>.

³² For example, the number of Internet users in Indonesia is only 0.715 percent of the population, of which 20% are women. (Indonesian Association of Internet Service Providers (APJII) <http://www.apjii.or.id>).

³³ UNIFEM, 2000; "Women shun 'nerdy' hi-tech jobs", 2001. Laafia and Larsson, 2001.

Nevertheless, in some developing countries, computer science is seen as more appropriate for women. Kandaswamy noted that in India there is a comparatively strong participation of women in the IT and software industry as well as other technology careers. The enrolment of women in technical institutions has increased in the last 20 years from just 5% to 45%. 90,000 women engineers graduate in the ICT fields from colleges in the 4 southern states each year, and in fact it is seen as a more feminine field than other engineering disciplines.³⁴ This is in contrast to the US and Canada, where enrolment of women in computer science has been decreasing for several years. The reasons for the increased participation of women in the IT sector in some developing countries are not entirely clear. Some factors could include sociocultural attitudes which allow or promote women's participation in S&T and IT; (in the case of India) a national strategy to promote an IT workforce as well as national information society; and nature of the national education system.

4.1 Barriers to women's participation in the knowledge society

Women experience low rates of access to information and communications technologies for a number of reasons, ranging from socio-cultural attitudes and preconceptions about women's interaction (or lack of) with technology to a lack of understanding of the resource and situational obstacles experienced by women. Specific barriers include literacy and education, domestic responsibilities, training, language, time, cost, and the value to women of the information carried by ICT.

Research and analysis on the effects of development on women, specifically development technologies, has found that gender biases exist in determining who receives technologies and who receives the education, credit and other resources for technologies. These decisions are influenced by a number of assumptions. They include:

- a tendency of governments and development agencies to treat technologies as neutral, value-free tools without taking into account the social, environmental and economic effects of the technology being introduced;
- an assumption that adoption of technologies naturally leads to development;
- a tendency to overlook women's technological skills and use of technologies;
- unequal access of women to development resources – including credit, training and information.³⁵

A common assumption with respect to ICT is that the presence of the technology itself is assumed to be sufficient to deliver benefits to the community. A study of a national program to provide public access computers in all libraries across Canada, found that if no training was provided in the use of the computers, Internet access, or information retrieval, the computers tended to be used for games, chat rooms, and email – mostly by men and boys. It recommended that directly more resources towards citizenship skills such as learning about government services and how to access them; and learning how to critically evaluate

³⁴ See Kandaswamy, 2002.

³⁵ Stamp, 1989.

information made available through the internet would go further toward achieving the goals of “better informed citizens”.³⁶

Specific Barriers to Women’s Use of ICTs

A series of constraints to women's use of technologies and their participation in the knowledge society follow from or exacerbate the results of gender misperceptions framing ICT implementation. *In general, women are more likely to lack basic literacy and computer skills. Girls are less likely than boys to enroll in math and computer science courses.* Socio-cultural barriers to the education of girls and women in science, math and technology further restrict their interaction with technology as well as their entrance into S&T fields.

Gender-based constraints to women’s use of ICTs include:

Lower levels of literacy and education. Illiteracy is the number one barrier around the world to women's participation in the knowledge society. Women comprise 543 of the 854 million illiterate adults globally (63 percent), and this number is not expected to decrease substantially in the next 20 years.³⁷ Girls make up 2/3 of children in the developing world without access to basic education.

The participation of women and girls decreases as one moves up the educational ladder, especially in science and technology subjects and disciplines. They also have less access to vocational training.

Language. As a result of their lower levels of access to education, especially after primary school, women tend to have less proficiency in English. The experience of an NGO in Africa is that failure to address multilingual issues in ICT access and use will disadvantage women more than men.³⁸

The result is lower incomes for women and less access to resources.

Cost. While cost of equipment and Internet access is not solely a problem for women, it remains a major obstacle to their use of ICTs in greater proportion than for men as a result of their lower levels of access to resources. An evaluation by the ACACIA Programme of the International Development Research Centre (IDRC) of telecentre access noted that cost of access is a primary barrier for women.³⁹

Most Internet users in developing countries have access at their place of work. Women’s high representation in low-paid, non-formal sector employment mitigates against this form of access.

³⁶ Balka and Peterson, 2001.

³⁷ UNDP, 2001.

³⁸ Osborn, 2001.

³⁹ Thioune, 2003.

Domestic and reproductive responsibilities: Another important restriction for women is their domestic responsibilities, including daycare, childbearing and subsistence activities. Women's double and triple roles in the family and community mean that around the world their workday is consistently longer than that of men's, by two hours or more.

As a result, **time** is a precious resource for women, and a major constraint to the use of ICT by women. They are less likely to have free time to use or learn to use the Internet. Any systems or activities meant to improve their lives and increase their empowerment must be perceived to save time or increase their efficiency, and be made available at flexible hours.

Cultural attitudes and practices can preclude both opportunities for use of ICTs as well as training in their use, in restricting or prohibiting women's interaction with men in public and, in some areas, preclude women's travel outside the home. Additionally, in many cultures women and girls are considered to be less capable of understanding scientific and technical concepts.⁴⁰

Geographical location. In developing countries in Asia and Sub-Saharan Africa, women tend to outnumber men in rural areas, a result of male migration to urban centres for employment.⁴¹ Internet access is less available in rural areas as a result of lack of reliable infrastructure (electricity and phone lines) and the cost of setting up and maintaining equipment.

Public and community access sites (including telecentres and cyber cafes) can be a solution, but the few evaluations done to date indicate that women do not have the same rates of access as men. Public access is sometimes located in an environment where women do not feel comfortable or in locations women have difficulty travelling to. Cyber cafés, for example, often have a predominantly male customer base and tend not to provide a separate space for women. Further research is needed to determine what women's rates of access are at public access points, the factors affecting their access, and strategies to increase their rates of access.

Local knowledge: the need for relevant content

To the extent that women have income at their independent disposal and can move freely, they tend to be reluctant to invest time or money in using ICTs until they experience the value of the information they can obtain using it. The dearth of information currently available via ICTs which is of practical value to women affirms this skepticism.

The IDRC Gender and Information Working Group in 1995 identified a key missing ingredient in ICT projects: little research has been done or attention paid to women's information needs in developing countries or to supporting their access to appropriate information. "The content and format of information made available to women is usually

⁴⁰ See Kandaswamy, 2003.

⁴¹ UNIFEM, 2000.

determined without their advice or consent.”⁴² It argues that as a result, most of the positive effects of the information revolution have bypassed women.

Lack of useful content for and by women is a major barrier. The experience of a community access project in El Limon, Dominican Republic was that the women in the community rarely used the ICT facilities. The reasons included lack of time, lack of literacy, and lack of locally specific and relevant information in Spanish on day-to-day issues such as healthcare, nutrition, and agriculture. One finding of the study was that relevant content is crucial to women’s participation in ICT-based networks.⁴³

Finally, it has been argued that the experiences of groups such as WOUGNET (Women of Uganda Net), which promote the development of Internet content by women, show the importance of local ownership and volunteerism as the key to unlocking the development potential of rural women.⁴⁴

⁴² Gender and Information Working Group, 1995: 269.

⁴³ See Maren Landschulze, "Relevant content," 13 September 2002. ictnet@un-instraw.org (Accessed December 12, 2002; Huyer, 2002 "Final Summary"; Hafkin and Taggart, 2001.

⁴⁴ Ballantyne, 2002.