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Gender Issues in ICT Policy in Developing Countries:
An Overview

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A bit of history

While advocacy for gender issues in ICTs gained their first international foothold at the fourth World Conference on Women in Beijing in 1995, the issue of gender issues in ICT policy has been on the international scene for only four years. It first came into international consciousness with a series of papers on gender issues, particularly in policy, presented at the World Telecommunications Development Conference organized by ITU in Valletta, Malta in 1998. The push to get the issue on the WTDC agenda came from UNIFEM, the United Nations University Institute on new Technologies and the Government of Canada, through the Canadian International Development Agency (CIDA). Governments, including several African countries, also presented papers on gender issues. The presentations had considerable impact on the conference, and resulted in ITU's establishment of the Gender Task Force. From the gender side, the issue first appeared internationally the same year at the ECA Fortieth Anniversary Conference on Women and Economic Development. One of four tracks at the Conference was gender and ICTs, with an important paper presented on gender in ICT policy (Marcelle 1998). Hopefully one of the results of this Expert Group meeting will be the maturing of the issue and its appearance on the agenda of next year's World Summit on the Information Society.

Until the ICT policy arena is itself engendered, it will be difficult to improve access for women and girls to the revolutionary tools of information and communication technology.

Engendering ICT Policy: Guidelines for Action (1999)

Policy issues

Engendering ICT policy is an area of great importance, perhaps the most important in securing the benefits of the information age for girls and women. If gender issues are not articulated in ICT policy, it is unlikely that girls and women will reap the benefits of the information age.

Decades of experience have shown that without explicit attention to gender in policy, gender issues are not considered in implementation. Despite the views of many government policy makers that a well thought out general policy benefits all, there is no such thing as a gender-blind or gender-neutral ICT policy.¹ Governments also say that the fact that they already have a gender equality policy obviates the need to spell out gender issues in every sectoral policy. On the contrary, there is much evidence to show that "policy-making in technological fields often ignores the needs, requirements, and aspirations of women unless gender analysis is included" (Marcelle 2000, 39). Without specific attention and action, the benefits do not accrue equitably to men and women, and it is inevitably women who are left out. As Sonia Jorge notes:

The evidence lies in the facts: women are vastly under-represented in government, business, political and social institutions; men still hold most of

¹ Some people want to avoid the term gender-neutral because of confusion over its meaning. By gender neutral I mean a policy or a program that purports to impact men and women in the same manner.

the management and control positions in telecommunication companies and regulatory or policy making bodies; regulatory decisions are made without any impact analysis; service licenses are attributed to companies without equal opportunity policies and controlled mostly by men. (Jorge 2001, 1).

The ICT sector is one of the last areas to open to a gender perspective. There is substantial evidence to support the contention that policy making in technological fields ignores gender issues. Gender analysis has advanced substantially in recent years. In social fields such as health and education and in economic fields such as agriculture and rural development, it has become rare to find projects that fail to take into account gender issues. However, the presence of gender issues rarely extends to information and communication technologies. A recent study of hundreds of development projects, either ICT as the major sector or with substantial ICT components, showed that more than one-third of all projects had a high degree of awareness of gender issues, but that the gender-sensitivity carried over to the ICT components over in to only 10 percent of the projects.

Categories of gender issues

Gender issues in ICT policy fall into two categories. Firstly, there are the gender issues that affect nearly all aspects of access, in the broad sense, and use of ICTs. Secondly, there are the gender issues in the topics that classically arise in ICT policy.

The first category of gender issues that result in differential access and impact of the new technologies on men and women have been articulated in many places and with numerous variations, but the major among them are:

Physical access to infrastructure

If the technology isn't there, you can't use it. Infrastructure 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. In developing communications infrastructure, many choices must be made that involve location of facilities, cost and choice of technologies. All of these affect whether the majority of women, who in most African countries are poor and living in rural areas, can access these facilities. If choices are made that have an urban bias and high cost, few women will have access. Internet connectivity is frequently available only within capital and major secondary cities in many developing countries, while the majority of the population lives outside these cities. Access to communication facilities is a vital concern that affects women's lives. The infrastructural deficit of the rural areas coincides with gender demographics- more women live in rural areas than men. Simply by being the majority of the population in rural areas, women have a smaller chance than men to access new technologies. It is likely that phone lines are fewer, that there are no relay stations for mobile phones and no earth stations for satellites. As UNIFEM and the UNU/TECH noted:

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

Social and cultural issues

Women tend to have less access than men to those ICT facilities that do exist. Frequently, rural information centers or cybercafes are located in places that women may not be comfortable frequenting. Since most communications facilities in rural areas are shared public access, women also have problems of time. Given multiple roles and heavy domestic responsibilities, their leisure hours are few, and the centers may not be open when women can visit them. Or they may be open evenings, when it is problematic for women to visit them and return safely to their homes in the dark. Their mobility (both in the sense of access to transport and ability to leave the home) is also more limited than that of men. Some accommodations that may be needed to ensure gender equality in access and use of ICTs are adaptation of schedules to suit women's hours and availability of women support staff and trainers.

Another cultural aspect of gender and ICTs is gender bias in attitudes towards women studying or using information technology. Throughout the world, there are problems in attracting young women to science and technology studies.² The problem is worse in Africa than in any other region. Many (predominantly male) math and science teachers in Africa hold outmoded views that girls can't think or work scientifically and that science is too mechanical and technical for girls, thus discouraging female students (Quaisie 1996). At tertiary level in Africa, young girls make up only 2.1 and 1.6 percent of students in engineering in Ghana and in Kenya respectively (Rathgeber 1995: 187). In some Pacific countries (especially those of Melanesia) traditional cultural attitudes discriminate against women having access to education and technology. Girls are encouraged to take any job or get married rather than seek higher education. The alternative of doing two (or three!) things at the same time is not realistically entertained (Commonwealth of Learning 2001a: 28). Attitudes that information technology is not for women are not limited to formal education. In an ITDG project for farmers in Cajamarca, Peru, when women undertook information technology training with men, the men mocked them, saying that computers were for men, not women (Puican 2002).

Sometimes collateral cultural factors, other cultural attitudes based in gender bias, and not the immediate gender identification of technology use, prevent young girls and women from accessing and using ICTs. In Uganda, girls did not get access to the limited number of computers installed in school (under a WorldLinks Program) because of the socio-cultural norm that "girls do not run." As a result, boys ran and got to the computers first and refused to give them up to girls. Additionally, the earlier curfew hours for girls at boarding schools further constrained their access (Gadio 2001). In India, in the well-known "hole in the wall" experiment, the aggressiveness of boys pushing away girls prevented the girls from using the computers (Mitra 2001).

Education and skills

These involve literacy, language, computer skills and information literacy. In each case, women in developing countries are less likely than men to have the requisite education and knowledge. Two-thirds of the world's 876 million illiterates are women, and the number of illiterates is not expected to decrease significantly in the next twenty years (United Nations,

² Ironically, however, the percentage of young women studying information technology is higher in developing countries than in the most highly developed.

2000). ICTs that do not require literacy are being developed, but to date these are available in only widely scattered pilot projects.³ Women are also less likely to know the international languages that dominate the Web. Until two years ago, the Internet was predominantly in English. This year, the percentage fell rapidly to the point where English is no longer the primary language of the majority of Web users. However, after English the most Web pages are in Chinese, Japanese and German, languages that women in poor countries are unlikely to know (Nua Internet Surveys 2002). Given their limited access to schooling, women, especially those in rural areas, are also much less likely than men to have computer skills. Information literacy essentially involves using information contextually, a skill that women are less likely than men to have (Heeks 1999). This generally results from the limited exposure and isolation of many women in developing countries, particularly those living in rural areas.

Financial resources

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

Limitations of the media on gender issues

So far, stress has been placed on the constraints the women face in accessing and using ICTs. There are also constraints of the media for them to be useful to women. Here the issue of content looms large. Do ICTs carry content that meets the information needs of women in developing countries in a form they can use? In the vast number of cases, the answer is no. If ICTs are to be useful to women in developing countries, they must meet this test. If this is not undertaken, ICTs will remain of little interest and value to women in developing countries.

For what uses?

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

A number of the factors above fall into the category of financial and educational deficits in accessing and using ICTs. The positive aspect of this is that a number of organizations worldwide are working to overcome these constraints that affect women especially. They include work in translation (from English and other international languages to local

³Examples include a number of Indian initiatives, most notably NIIT Ltd.'s "Experiments with minimally invasive innovation," <http://www.niitholeinthewall.com/> and the IDRC-IWTC CD-ROM for illiterate women in Uganda (in English and Luganda), "Rural Women in Africa: Ideas for Earning Money," <http://www.womenink.org/23.html>.

languages), development and use of graphic and voice user interfaces for the illiterate, development of low-cost computers (notably, Simputer in India), open source software and low cost Internet access.

Statistics and indicators

Our knowledge of gender issues in ICTs is hampered by the lack of reliable statistics. The major collector and disseminator of statistics on ICTs is the International Telecommunication Union (ITU 2000, 2001). However, the ITU does not disaggregate any of its ICT indicators by sex.⁴ As a result there are few, if any, reliable statistics on women's use of ICTs in developing countries. In the absence of reliable statistics, those looking for data have to fall back on sources of dubious reliability. Many of the country studies that propose to show large numbers of women Internet users are marketing studies, conducted by or for firms that want to market products to women consumers. It would not be remarkable to find that they identified and projected large numbers of women users for their clients. In other cases, the studies are limited country surveys, generally based on the subscriber lists of a few, small ISPs or email services. In countries where public access is the dominant mode, subscriber lists may identify only a third (or less) of users. Few studies have kept gender statistics on the users of public access facilities by sex. In virtually all that have, the number of women users is much smaller than that of men (Rathgeber 2002).⁵

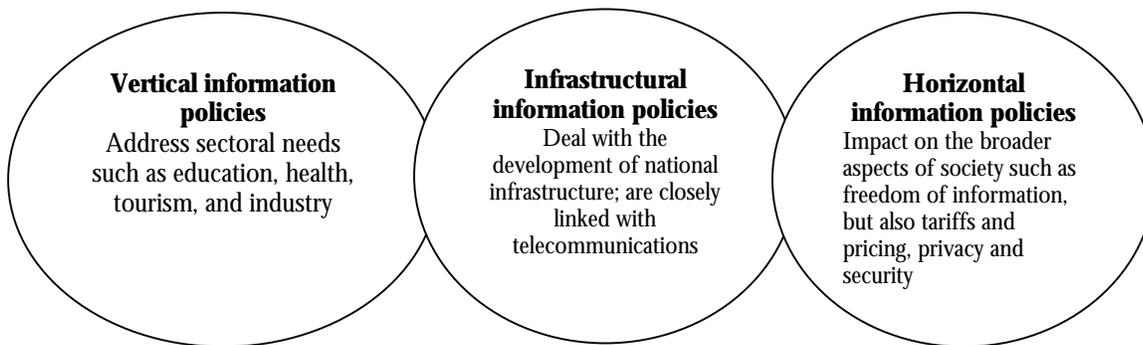
In addition to these issues, there are the issues of gender representation in the power and decision-making arenas of ICTs, of privacy and security as it impacts gender, of gender representation in the ICT industry and labor force.

Getting gender issues into ICT policy

The above section delineates the major gender issues that affect women's access to and use of ICTs overall. In addition to these general issues that permeate every aspect of ICT, there are the specific issues that arise in policy frameworks. Clearly, there is no general framework for an ICT policy, nor should there be. Policies have to be formulated within national contexts and reflect those contexts as well as the focus that policy makers choose. Thus there is a tremendous variation in the content of national ICT policies. Rowlands (1996) points out that ICT policies can be categorized into three major categories: infrastructural, vertical and horizontal policies.

⁴ However, ITU is working on this area. In October 2002 they are organizing an expert meeting in Geneva on ICT statistics, with an emphasis on gender.

⁵ The Academy for Educational Development LearnLink telecenters in Ghana are an exception. In the case of AED, the introduction of special outreach strategies increased the number of women users of telecenters in Ghana. See Mary Fontaine, "AED/Learnlink in Ghana. AED/LearnLink: ICT Applications for Development: Ghana." (2000). http://learnlink.aed.org/Projects/ProjectBriefs/pb_pdf/OS_Ghana.pdf.



Some national policies focus almost entirely on one area; most typically, one area will predominate, but the policy will include elements of all three. The gender point is that there are crucial gender issues in all three categories, even infrastructure that on first examination may seem to be gender-blind. Virtually every component of each one of these categories can affect the majority of women differently, and often negatively, than they affect men. It is crucially important to undertake social and gender analysis of each and every component. The biggest fallacy that gender advocates can make is to assume that ICT policy is only about technology!

The concerns about gender issues in information and communications technology are not confined to ICT policy alone. Sometimes national governments will incorporate ICT into telecommunications policy. Others will include ICT with media in communications policy. A more recent tendency, recognizing the importance of people-centered rather than technology-centered policy, is the trend towards information policy, incorporating ICTs in the framework of information society goals. Additionally, sectoral policy in health, education, agriculture, labor and industry, among others, frequently include significant ICT components. Policies in all these areas need to be integrated with each other. As Alison Gillwald (2001) points out, “ICT policies should also be integrated with other policy areas to ensure that efforts towards sustainable development are co-ordinated and cohesive.” It goes without saying that national gender equality policy needs to be aware of the opportunities that ICTs offer for the advancement of women. Advocates of gender equality in ICTs will need to be aware of developments in all of these areas. Wherever ICTs or gender are involved, the awareness of gender issues needs to be raised.

Incorporating gender issues into ICT policy needs to proceed on at least two fronts:
 sensitizing policy makers to gender issues, and
 sensitizing gender advocates to information technology issues.

Sonia Jorge has documented well the need to sensitize ICT policy makers to gender issues. She has done groundbreaking and significant work in developing a curriculum proposal for gender perspectives in telecommunications policy (Jorge 2000c).⁶ In the online discussion Jorge underlined the important of training ICT policy makers in gender issues:

⁶ Much of the section below is based on Jorge’s work.

Very few policy makers are trained to think from a gender perspective and unless they are educated on how to do so at all steps of the process, we simply do not get gender integrated into policy. I believe that training of policy makers (both at the country level and international organization level) on how to engender the policy process is of the utmost importance. (Jorge quoted in Marcelle 2002b).

Sally Burch points out that "training policy makers may be a useful tactic to help strengthen the arguments of those supporting change, or to break down resistance of those opposing it." (Burch quoted in Marcelle 2002b). On the other hand, as Emem Okon from Nigeria pointed out in the online discussion, "Policy makers, such as we have in Nigeria, will not willingly and readily engender the process without some people being on their neck" (Okon quoted in Marcelle 2002b).

Sensitizing women's organizations and civil society in general to the gender impact of ICT policy issues may pay greater dividends, in terms of awareness raising of a large segment of society to the social implications of technology policy. It is not an easy task because women's organizations and civil society are not accustomed to working in technical policy areas. However, awareness needs to be created that the impact of ICT policy is the realization of the women's right to communicate and access productive resources for their benefit and that of their families. Women and other gender-sensitive individuals need to educate themselves on the technical areas, translating the technical terms into the reality of how the choices will serve people, whether they will serve the few or many and whether they will reach women as well as men. This is the crux of gender analysis of ICT policy.

Almost everywhere women's organizations already know how to influence policy. Women organizing locally and internationally at the policy level has become a global phenomenon over the last three decades. They have learned how to participate, formulate demands, organize and build alliances. We have seen it with Beijing and Cairo and Rio and Vienna and Johannesburg. They know how to utilize new technologies to do so thanks substantially to the work of the Association for Progressive Communications Women's Networking Support Program. The time has come to utilize these skills – the ability to organize to influence policy and to use new technologies- to undertake gender analysis and incorporate gender issues into ICT policy. As Emem Okon said in the online discussion "We can foster a commitment to the engendering process in ICT policy makers by mobilizing women to embark on intensive advocacy" (Okon quoted in Marcelle 2002b).

Engendering ICT policy involves many women in unfamiliar territory with unfamiliar issues. However, by mastering the terminology, women can demystify a technical field and discover how to turn new technologies into people-centered development.

In order to achieve the right to communicate as a basic human right for women in developing countries, women have to take on themselves the difficult task of the social analysis of technology. This means understanding the systems that are proposed and the implications of these systems for access and use (physical, financial and cultural) by the majority of people in the country. It means becoming competent, confident and comfortable with the complexities of new technology. Mansell supports the idea that women must be

involved in the technical complexities of information technology in order for policy to reflect gender issues:

If policy and regulation are to encourage more equitable access to electronic means of communication, the social and economic issues raised by the technical design and implementation of the intelligent network must be addressed by a community far wider than network engineers (1998).

Sally Burch expressed this idea in the DAW online discussion:

For women's organizations and other gender-focused groups to be able to take on these issues from an advocacy standpoint, a widespread endeavor of awareness-raising is needed, to have a better understanding of the serious implications of the present trends. . . Through a deeper understanding of the issues, gender advocacy groups could play a leading role in proposing a more people-centered technological development. (Burch quoted in Marcelle 2002b).

There are formidable obstacles to this. As Gillian Goddard noted in the DAW online discussion, "[There is] frustration because of the lack of belief in our female constituents that they can engage with ICT in different arenas." Sally Burch, a gender and information society activist in Latin America, echoed this sentiment:

ICT policy, perhaps even more than other policy areas, is often perceived as an issue reserved for specialists. It's therefore not often seen by women's organizations or other gender-focused groups as something with important development and social implications that they should therefore take on in the framework of their advocacy initiatives. (Burch quoted in Marcelle 2002b).

Not only is the sector seen as an area for specialists, women as well as men regard it as the province of men. The African Information Society - Gender Working Group argues that in falling into the trap of saying "these are not things for us to deal with" women are accepting gender stereotypes. In order for women and girls to enter the information age and for ICT policy to be engendered, women must transcend these attitudinal barriers.

Since science and technology are domains historically ascribed to males, women and girls tend to find technology intimidating and alienating. We tend to see the ICT sector as a realm of society that is unfriendly and dominated by men. We associate technology with men and assume that its production, application and maintenance are areas that fall more easily into the male domain. In these ways we ourselves sometimes play an unconscious role in reproducing the gendered nature of our society and the ICT sector at large. These internal barriers to participating in the ICT sector must also be overcome (AIS-WIG 1999).

In addition to mastering the technology and conquering technophobia, women need to maintain a political perspective, bearing in mind that the essential context of policy is politics. According to Martinez and Reilly (2002), "in order for ICTs to empower women,

we need to be thinking about policy formation, including the various actors participating in policymaking, their interests and agendas.” ICT policy is frequently driven by the politics of the ICT sector (Marcelle 2002a), often impelled by commercial interests. Not surprisingly, multinational technology firms have vested interests in making deals with ministries for infrastructure, tools and applications favoring their products. They are not very interested in social analysis of how the products will impact people in the country, nor in distributive goals and objectives to address gender and other social inequalities.

Another obstacle is the difficulty of getting policy makers in technical areas to recognize gender issues. Goddard terms this “the lack of any gender awareness and commitment in those who hold the reins of power” (Goddard quoted in Marcelle 2000b).

If these multiple obstacles can be overcome, there are long-standing benefits to getting women’s organizations involved in ICT policy advocacy. As Sally Burch pointed out, “training in advocacy [for ICT policy] for women’s organizations may require a long process, but the longer term impact is likely to be lasting” (Burch quoted in Marcelle 2002b).

How can women’s organizations participate in ICT policy making? The AIS-WIG document “Engendering Policy” is an excellent guide that women and gender-sensitive individuals and organizations in developing countries can use to map out a course of action to follow at the national level. It gives suggestions on specific actions and strategies to accomplish the actions, and it is particularly strong on helping women and organizations overcome internal barriers to working in an unfamiliar area. It does not, however, attempt to educate on the policy content that advocates will need to be deal with. (AIS-WIG 1999).

In the end, educating policy makers on gender issues, and women educating themselves on technical issues as well as on the politics of policy making are both necessary. Neither by itself is sufficient. Together, the impact can be formidable.

Gender analysis of national ICT policy frameworks

We have observed that there are gender issues in virtually every aspect of ICT policy, whether the policy is dealing with infrastructure, applications or relations with society. The point of gender analysis is to examine each policy element to discover the gender opportunities and pitfalls, the gender implications and gender differentials. If the initial formulations have negative implications for gender equality, gender advocates will need to devise alternatives that will promote equitable impact. The overall aim is to arrive at a policy and implementation strategy that will encourage girls and women to use and produce ICTs and ensuring equitable access to ICTs and the benefits they can offer.

A rather lengthy listing follows of the sorts of issues that appear in ICT policy, along with notes on possible gender issues in that area. It is not comprehensive; but rather only indicative of the task that gender policy advocates have to take on at the national level. As noted above, national ICT policies differ widely, and no two contain the same elements. However, every policy will contain many of the topics appearing in the left column of the following table.

Table 1
Gender aspects of ICT policy issues

ICT policy issue	Gender aspect
Network modernization	Does the proposed modernization provide infrastructure that is affordable to most women?
Network architecture	Ensure that equipment and service providers offer cost-effective and appropriate solutions for the majority of women.
Network deployment	Plan network infrastructure for the majority, focusing on universal access to ICTs and not on expensive high-capacity specialized access. Use affordable and forward-looking technology such as wireless alternatives that ensure low cost and affordable access When new technologies are used, ensure that women are included in training Ensure that the location of infrastructure facilitates access for women
Infrastructure	Is the infrastructure to be deployed throughout the country in the areas where women predominate? Are there provisions for high technology applications in areas where many women live outside of the capital and major cities? Women may be restricted from accessing ICTs even when they are available in their communities as a result of social, economic, cultural or technological constraints. Gender awareness is essential in planning and implementing infrastructure.
Technology choice	The affordability of service is a key issue to women. Limiting technology choice can militate against new players and new technology in the market that might bring down costs-e.g. many developing countries ban Wi-Fi Internet ⁷ and VOIP (Voice Over Internet Protocol) telephony. While limitation on the choice of mobile standards (e.g. GSM, CDMA) can prevent fragmentation of markets in initial stages, continued insistence on standards can block the entry of mobile technologies that are cheap and effective for underserved areas. Assessments should be undertaken to determine appropriate technology choice- who will use it and for what purpose. Support and promote user-friendly-technology, particularly in the context of low literacy levels.

⁷ Wireless fidelity (Wi-Fi) is a network standard rapidly gaining in popularity in developed countries that creates wireless local areas networks in homes, offices and, increasingly, restaurants, hotels and airports at speeds faster than advanced mobile-phone networks. Wi-Fi LANs can be accessed with a relatively inexpensive network card.

Sector liberalization	While monopoly system operators understandably dispute this, opening the telecoms and ICT sector to competition can bring in needed investment and force down end user prices to make access more affordable, notably to women.
Tariff policy	This covers both import duties and taxes on computer equipment and pricing schemes for communications services. High customs duties on mobile telephones and computer equipment as well as high prices for telephone service are deterrents to women users. In preparation for competition in the telecoms sector, many countries are rebalancing international and domestic tariffs to eliminate existing subsidies, most frequently on local service. This rebalancing has meant higher rates for local calls in many places, which hit the poor, the majority of whom are women, the hardest. Although it is expected that competition will lower prices in the long run, in the interim many users cannot afford local service. Among the ways to compensate for rebalancing costs are basing tariffs on forward-looking costs and establishing regional (e.g. rural vs. urban) tariffs.
Regulation	Regulation is a vital area for advocates of gender equality in ICT. Regulators do not set policy but rather help in its implementation. Regulation produces a set of rules for market behavior- who can provide what service and under what conditions- and sets the framework for achieving desirable outcomes established by national policy, particularly in the two areas of the greatest interest ICTs and to the empowerment of women: universal access and affordable services. It is an area that gender proponents should focus on.
Independent regulators	An independent regulator can compel profit-driven private sector players to deliver on social and gender policy objectives such as universal access (see below). In return for granting licenses, regulators can compel service providers to provide service to underserved areas where women predominate. As regulators have the authority to set service priorities, gender-equality advocates need to lobby to ensure that service to poor women in rural areas is a priority. Regulators can provide funds for research, development and testing of technology that will serve women. Those that secure licenses, particularly for cellular phones, are often required to fulfill community service obligations. Elements to ensure gender equality could be written into these obligations.
Regulatory frameworks	Regulatory frameworks can permit the resale of mobile phone services, often profitable businesses for women to establish Regulatory frameworks can reduce licensing fees, spectrum prices and interconnection charges that can make ICTs more accessible to women.
Licensing ⁸	If fees for telecommunications, ISP and mobile service licenses are high, they will be passed on to users, limiting the affordability to the women and the poor. High fees increase the cost of telephonic and ICT services, discouraging women-owned communications businesses. (including telecenters, phone-fax-Internet shops and mobile telephony). A certain number of telecommunications licenses should be allocated to

⁸ This section owes a heavy debt to Sonia Jorge, *Gender Perspectives in Telecommunications Policy: A curriculum proposal*. ITU: Geneva, 2000.

	<p>women-owned businesses or businesses with women in management positions.</p> <p>A gender-equality licensing policy could waive license fees for communications businesses run by women entrepreneurs or those that provide services to underserved areas, particularly where women are concentrated.</p> <p>Fees could be reduced for operators with gender-equality and pro-handicapped employment policies.</p> <p>Licenses can obligate providers to provide discounted service to certain customers such as poor women in rural areas.</p> <p>Licensing procedures should be transparent so that women applicants can have ready access to the information.</p> <p>License awards can contain certain conditions that promote gender analysis and mainstreaming for the particular company.</p>
Universal access	<p>Universal access concerns the establishment of telecommunications development funds and other programs, funded by carrier fees and other revenues collected by regulators, to facilitate the expansion of access to the underserved. It is the avenue for gender <i>par excellence</i> that has real possibilities of positively affecting the lives of the mass of women. As telecoms development funds reflect extremely important policy and set the rules for implementation of ICT projects in underserved areas, they deserve great attention from gender advocates.</p> <p>Develop gender-aware universal access policies stressing public access points as an alternative to more capital-intensive choices (one line/home) and ensure that locations of public access points are gender-sensitive (e.g. not in bars or auto shops).</p>
Universal service obligations	<p>Universal service obligations are specific obligations that regulators put on operators in return for licenses to contribute to universal service goals. Under universal service obligations, regulators can mandate the provision of telecenters in underserved areas. Telecenter plans need to take into account the different needs of men and women in the concerned communities.</p> <p>Gender advocates could lobby for incorporating gender-based issues in universal service rules. In most places it hasn't happened yet because women's groups haven't pushed for it.</p> <p>Demands could include that service to underserved areas be delivered reflecting male-female distribution in the population, that priority be given to disadvantaged women such as single mothers, widows, handicapped women, etc. Service providers could be mandated to offer telephone subsidies or price packages targeted at rural women, the handicapped and aged.</p>
Radio frequency spectrum	<p>This issue also involves fees and licenses. Lower fees will encourage applicants to provide services to new markets, including women.</p> <p>Licenses should be equitably and transparently distributed, so that women-owned business and businesses that serve women have a chance to secure licenses. In several African countries where government maintains a monopoly on radio frequencies, public/private access to radio frequency is still an issue. In a number of places women-run community radio stations have obtained licenses.</p>
Research and development and innovation	<p>Are there incentives directed at encouraging women in ICT research and innovation?</p> <p>Are tools and software being developed using local languages? Is there R</p>

	<p>& D on developing technologies for the illiterate and neo-literate? Research efforts and programs that promote women innovators can be subsidized. Scholarships and grant programs for women in science and technology can be created. Ensure that technology programs promote and accept women's participation. Create and support technical programs at universities by providing grants or scholarships for women students and/or researchers.</p>
Systems for learning and training	<p>Do women have equal access to technical training? Programs to train women in ICT technical and management programs, followed by internships, can be supported.</p>
Software and applications	<p>Do women have a say in what applications are being promoted? Are they ones that are usable or accessible to many women? Does the policy support open source software and Linux operating systems that can make software available to communities with limited budgets?</p>
Building technological capacity	<p>Are opportunities extended to women as well as men? Are there mechanisms for women to enter these fields and training programs? to develop role models for young girls? to stem the brain drain? Are training opportunities available not only for technology professionals but for non-professionals to use ICTs?</p>
ICT industry development and labor policies	<p>Encouragement and incentives must be given to encourage women to enter all segments of the ICT labor force, not just the menial electronic assembly jobs they have dominated in the past.</p>
ICT business development and E-commerce	<p>Enabling legislation for e-commerce should encourage women entrepreneurs. SME ICT and communications businesses, with possibilities for ownership by women and women's groups, should be encouraged. Telecenters can provide economic opportunities for women; they should be promoted for business development, with consideration for women owners. A number of telecommunications licenses should be allocated to women-owned businesses. All carriers could be obligated to do a certain percentage of business with women-owned businesses. Training programs could be promoted to establish ICT-related business opportunities (e.g., e-commerce, telecenters, wireless company ownership)</p>
E-government	<p>Women could benefit from many e-government services especially land and voter registration and license applications. They would especially profit from online availability of services that would otherwise require travel to the capital city.</p>

Best practices: are there any?

This discussion of best practices in incorporating gender issues in developing countries is confined to Africa, since the two other papers on this agenda item cover Latin America and Asia.

A review of the ICT policy over the last ten years outlines the African experiences regarding the incorporation of gender elements.

From 1993-1995 the United Nations Economic Commission for Africa conducted a study of informatics policy instruments in 10 African countries, five of them primarily francophone and five primarily Anglophone. It examined policy instruments rather than policy itself because no African countries had ICT policies at that time. Despite the fact that many areas prime for gender analysis (all of the countries suffered from a shortage of trained manpower in informatics, and all had policies and instruments to promote the development of human resources in information technology) were delineated in all the national policy instruments, there was no mention of gender in any of the ten studies (Hafkin 1995).

In 2000 Gillian Marcelle looked at the evolving ICT policies of four countries that were leaders in the ICT-policy making area that also were countries known to be advanced in the area of gender equality in national policy (Mozambique, South Africa, Uganda and Senegal). These were her observations on the treatment of gender issues (adapted from Marcelle 2000, 76-83).

Table 2
Treatment of Gender Issues in four African Countries (2000)

Country	Treatment of gender issues
Mozambique	Existing policies do not include any treatment of social issues, including gender
Senegal	Telecom policy formulation has focused almost exclusively on performance of the operator and sector structure; women's NGOs and other stakeholders concerned about gender issues are active in Senegal but have not been able to influence the development of national ICT policy.
South Africa	The Telecommunications Act includes provisions to redress gender imbalance and other areas of disadvantage. The consultative process to draft the Act did not deal explicitly with gender issues.
Uganda	The Telecommunication Sector Policy Announcement supports the establishment of a fund for rural communication development but does not explicitly identify women as a group for special treatment within rural communities.

Thus, up to 2000 only South Africa showed any awareness of gender issues in ICT policy.

Developments since 2000

When Mozambique's ICT policy was approved in December 2000, there was much hope that this would become a best practice on gender issues because the policy contained an entire chapter on gender and youth, covering a wide variety of policy areas from decision making to training, e-commerce, applications and content development (Mozambique, 2000). However, the strategy for implementation of the policy adopted in July 2002 has proved disappointing on the incorporation of gender issues. It contains no references whatsoever to women using or producing gender and ICTs. The only reference to women, along with children, is as victims of pornography, abuse, and violence on the Internet. Obvious opportunities for including gender issues were missed in specific references to mobile ICT services to reach remote areas, in human resources development, in capacity

building, in ICTs to promote literacy, and in the chapter on youth. (Although youth and women were discussed together in the 2000 Policy, in the Strategy women dropped out entirely!). Significantly, no women's organizations were mentioned as participating in the national Consultative Forum (Mozambique 2002).

South Africa entered the new millennium with the basis for gender awareness in the dissemination of ICTs in the country, largely through the advocacy of women's organizations and other gender-sensitive groups. The foundation was laid in the country's White Paper on communications (1996):

Besides referring to those who were disadvantaged by the apartheid system in the past, the term 'disadvantaged' also applies to those South Africans who have been historically disadvantaged through discrimination on the grounds of gender and/or disability.

The White Paper also stressed the need to ensure gender equality in issues such as licensing, procurement and training. The Telecommunications Act of 1999 establishing the Universal Service Agency of South Africa provided the policy and legislative framework is present for positively impacting gender.

However, implementation has fallen short on gender impact. Gender has not been mainstreamed into the activities of regulators and operators. A major reason for the shortfall is that current policy does not address issues of affordability, because technical features of the network are presumed to be gender-neutral with respect to cost considerations, and because insufficient attention has been given to seeking innovative ways of addressing women's information needs. Who will benefit from the policy is a relatively small percentage of women through their inclusion in the ownership and control of new companies or from increased employment or promotion opportunities in the telecommunications sector (Gillwald 1999).

In nearly every other African country (and at least 34 of 53 are actively working on elaborating ICT policies) gender issues have yet to be introduced into ICT policy making in Africa. A 2002 examination of ICT policies described on ECA African Information Society Initiative Web site showed that in ICT and rural development- the key area of gender issues for women in Africa, only one plan made any reference to gender. The sole exception was that of Cote d'Ivoire, and the citation was not substantive, but rather a passing reference to the need to consider women (Opoku-Mensah 2002). While Uganda is making good progress in delivering service to rural areas, but gender focus is still not yet explicit.

Thus, the African record on the inclusion of gender in ICT policy does not present any best practices. However, this record is not as pessimistic as it might appear. Since most African countries have not yet promulgated ICT policies, but are either about to embark on policy making or are currently in the process, the time is ripe for women's organizations and their supporters to prepare themselves to participate in the ICT policy making.

All of this points to the urgent need for gender analysis of the technical areas of ICT policy as it is being elaborated. In most cases it is not the policy makers who are not going to do this. It requires gender advocates acquiring expertise in technical aspects of ICT policy as

they impact women, and mobilizing women's and other organizations to lobby for inclusion of gender-sensitive choices and measures.

Global ICT policy

Although this paper is directed at engendering national ICT policy, it would be amiss not to discuss the importance and opportunity of the World Summit on the Information Society (Geneva, 2003 and Tunis, 2005). It is clear that the international arena establishes the standard for policy goals and that many national policy objectives are set with reference to developments in the international arena. It is thus essential for WSIS to set an important example on the incorporation of gender issues. If WSIS fails to do so, national policies will not take the lead. Rather, they will feel justified in maintaining ICT policy as a gender-blind area, assuming that all policy will impact men and women equally. However, if WSIS does set an example and a standard for mainstreaming gender concerns, there is no question that women will reap major dividends at the national policy level. It can reverse the present situation that Sally Burch describes: - "We are not invited to shape and define the society we want to live in the digital era. . . We are expected to adapt to the technology, not to see how to adapt technology to our needs." - and make women into designers of the information society" (Burch quoted in Marcelle 2002b).

Recommendations

In Table 1, this paper made numerous recommendations for specific measures that could be incorporated into ICT policy in developing countries to ensure gender equality. In order to make these measures reality, the paper will concentrate on one recommendation for the process of incorporating gender issues in ICT policy: that gender advocates undertake self-education in gender analysis of ICTs and become actively involved in national ICT policy making. This covers a great deal of territory. It involves women's organizations and advocates developing a high level of consciousness and sophistication on ICT issues and engaging in organization and activism on the policy front. It also requires women and gender-sensitive individuals acceding into decision-making positions in ICT policy making. Involvement in WSIS is also an essential element in this process: if WSIS establishes a positive model in the inclusion of gender issues, this will offer important reinforcement for gender advocates for national policy making. This recommendation is addressed to women's organizations and gender advocates in government and civil society at the national level as well as to bilateral and multilateral organizations that can support their efforts. DAW in particular is requested to develop a program to support women's efforts to engender ICT policy at the national level in developing countries and to publicize these activities in international fora.

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