

GENDER AND AGRICULTURE IN THE INFORMATION SOCIETY

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Excitement about new information and communication technologies (ICTs) is tempered by long-standing problems of gender inequality in development processes. In most developing countries, women make up the majority of the population working in agriculture, but they are marginalized with respect to access to ICTs for economic and social empowerment. Moreover, two-thirds of the world's 876 million illiterates are women, most of whom live in rural areas of developing countries.

This paper emerged from a partnership between ISNAR and the Technical Centre for Agriculture and Rural Cooperation (CTA) on the theme of gender and ICTs in agriculture and rural development. Its aim is to attract the attention of policymakers, donors, researchers, nongovernmental organizations, and farmers' organizations to the need for dialogue and action on issues of ICT and gender in the context of food security, poverty reduction, and sustainable development. These issues are on the agenda of many national development plans. Attention to them will increase with upcoming global fora, such as the III World Congress on Rural Women in October 2002 in Madrid, Spain, and the first stage of the World Summit on the Information Society in Geneva, Switzerland, in December 2003.

As a forerunner to these fora, CTA hosted the first-ever meeting on gender, ICTs, and agriculture in Africa, the Caribbean, and the Pacific in September 2002. Participants at that meeting issued a statement on gender and agriculture in the information society (box 1) to serve as one input to these future international deliberations. With this Briefing Paper and other collaborative activities, ISNAR and CTA endeavor to communicate issues of gender, ICTs, and rural development as widely as possible and with the broadest possible range of stakeholders in developing countries and internationally.

Introduction

The world today is an information society. Information is increasingly used in all aspects of human activity, and many technologies assist in providing information in a timely manner. Yet while information has always been indispensable in processes of political, economic, and social development, the way that information is accessed and controlled today is widely debated. For example, there is much discus-

sion about the "digital divide," in which some members of society or areas of the world are left behind others who have ready access to advanced ICTs. Those who prefer a positive perspective on ICTs for development talk of "digital opportunities." One organization that fosters debate on these issues is the Benton Foundation, through its Digital Divide Network (www.digitaldividenetwork.org).



Box 1: Gender and Agriculture in the Information Society

The following statement was prepared by the participants of the first-ever meeting on gender, ICTs, and agriculture in Africa, the Caribbean, and the Pacific, held at CTA, September 11–13, 2002, in Wageningen, the Netherlands.

Actions that *empower* the poor, broaden their social and economic *opportunities*, and reduce their *vulnerability* to disease, hunger, and disasters are key to eradicating poverty, which is also the primary focus of the millennium development goals agreed by the international and national development communities.

The advent of the information society offers increased scope for ICTs to be used to address poverty and enhance rural livelihoods. ICTs can empower rural people by amplifying their voices. They are “enabling” tools that can help poor rural women and men to capitalize on emerging opportunities, especially in education and income generation. Moreover, they can be used to help to cushion shocks and disasters such as disease and hunger.

However, gender disparities mean that these opportunities are not immediately available to the poorest of the poor—who are mostly women. This is compounded by the dwindling attention given to rural development itself.

To address these disparities, concerted action needs to be taken in two broad areas:

- enabling rural women to use ICTs, to improve their livelihoods and those of their families and communities and to amplify their voices in local and national fora;
- ensuring that development actors systematically adopt gender sensitive approaches in their programs, especially those in agriculture and rural development.

To achieve such action, five priority areas need to be addressed by all stakeholders, including rural communities, governments, civil society and the development community.

Priority areas for gender, ICTs, and agriculture

Mainstreaming. Gender must be mainstreamed in all development activities, from formulation and design through to implementation and evaluation. Ensuring the participation of poor rural women in these processes is key.

Policy. National policy on rural issues and ICTs should give high priority to actions that promote gender equity and provide an enabling environment for rural women to improve their livelihood opportunities.

Access. Affordable ICT infrastructure and support services must be brought to rural areas. Access to this infrastructure should be based on community priorities as well as local gender-sensitive principles.

Content. The knowledge of rural women is a valuable resource and driver of local livelihoods. Women have specific information and communication needs that should be explicitly recognized—and acted upon. The creation and exchange of local and locally relevant content by rural women themselves or customized to their needs (in local languages for example) should be top priority.

Human capacities. Education and learning opportunities should be made available to all rural women and men to realize the “education for all” principle. Girls and women should receive priority in ICT and related skill-development schemes, to ensure their active participation in rural development and in the information society.

The real challenge is to converge efforts on gender, ICTs, and agriculture for rural development. By adopting these actions and priorities, poor rural women will finally be able to use ICTs in ways that improve food security and provide sustainable livelihoods and ultimately the quality of life in rural areas.

The widely used acronym ICT captures a multitude of equipment and services. These range from satellite communication systems, telephone booths in rural areas, the Internet and electronic databases, to e-commerce services via the World Wide Web.¹

This paper uses ICT in a generic sense to refer to the new technologies that have emerged from the integration of information technology (IT) and communication technology (CT).

ICT encompasses an enormous variety of computer, telecommunication, and network hardware and accompanying software:

- *digital communications*, specifically satellites, mobile telephones, wireless local loops, and digital radio;

- *computers and software*, including personal data assistants, e-mail, speech recognition technologies, computer-assisted distance learning, global positioning systems, and of course, the Internet;

- *delivery mechanisms*, such as public access rural information centers and telecenters, mobile Internet vans, village kiosks, and radio listening groups.

This paper explores ICTs in relation to gender (box 2), specifically focusing on gender and ICT applications in agricultural and rural development in developing countries. Gender is an issue because access to and use of ICTs are influenced by the cultural and institutional contexts in which they are applied (Carr 1997). There are both opportunities and pitfalls in ensuring that ICTs are gender-responsive. Access to ICTs in agricultural and rural development can strengthen the social, economic,

¹ Definition provided by R. Engelhard of Contactivity (www.contactivity.com).

Box 2: The Gender Concept

It bears repeating: **women** and **men** are not homogenous groups. Differences in age, class, race and ethnicity, and disability status cut across human society and affect status, power, and access to resources. As the 2002 Rural Poverty Report of the International Fund for Agricultural Development indicates, in rural areas of developing countries there is no question that women are more likely to be resource poor, isolated, and less educated relative to men. **Gender** is the term used to refer to the socially constructed relations between women and men in a particular society. These relations and the roles that women and men may assume are culturally and institutionally embedded. Biological sex refers to being male or female. Gender is a social identity that changes over time (historically) and space (geographically). Therefore, the gender roles of men or women may differ from society to society.

and political position of rural women in developing countries and in the global information society.

At the outset, it is important to remark on the lack of reliable gender-specific ICT statistics. The major collector and disseminator of ICT statistics is the International Telecommunication Union (ITU) (www.itu.int). However, the ITU does not disaggregate any of its indicators by sex, although it is organizing an expert meeting in October 2002 to discuss ICT statistics with an emphasis on gender. As yet there are few, if any, reliable statistics on women's use of ICTs in developing countries.

Research conducted by or for firms that want to market products to women purport to show large numbers of women using the Internet. It is no surprise that these studies identify and project large numbers of women users for their clients. In other cases, studies are limited single-country surveys, generally based on the subscriber lists of a few, small Internet service providers (ISPs) or e-mail services. Few studies keep statistics on users of public Internet access facilities by sex. In virtually all that have done so, the number of women users is much smaller than that of men (Rathgeber 2002).²

Gender and Agriculture

There is a strong relation between gender and agriculture in developing countries. Women are twice as likely as men to be involved in agriculture-related activity, according to the 2000 United Nations report on the status of women. National averages of female workers in the agricultural labor force vary, but globally women have a principal role in agribusiness, food processing, and consumer-related activity.³ As producers, women who work in the field help feed their families. But it goes beyond farming alone, to encompass marketing and value-added food processing.

Women do not, however, tend to own or control the key resources, such as land, on which their agricultural activities depend. These are usually the domain of men. Historically, women have also had less access to formal information and communication systems associated with agricultural research and extension. Thus, complementary, conflicting, and collaborative gender roles and relations may characterize developing-country agriculture and rural development (Poats et al. 1988).

Nonetheless, the new ICTs are changing the way the world works, including the ways that agriculture and natural resource management are practiced. ICT

changes the management of knowledge. It has become instrumental for networking and rapid problem solving, and it conveys new information for investment and entrepreneurial activity (Mansell and Wehn 1998). ICTs can enable rural communities to address the concomitants of poverty: lack of access to education and health services, lack of productive opportunities, and isolation and lack of information.

Even in the poorest nations, ICTs are propelling change in agricultural knowledge and information systems. A farmer may place a call at a rural telecenter to request a cash remittance from a distant relative and receive the funds only a few days later by digital transfer. Farmers may use a mobile telephone to verify prices and arrange transport for a sale of produce. Rural radio programs may use e-mail, fax, or mobile telephone to enable rapid sharing and dissemination of information. In Zambia, for instance, the Federation of African Media Women (FAMW) uses these technologies to facilitate advocacy and communication between farmer radio listening/discussion groups and politicians. The groups listen to a radio program about some development issue, then discuss what they have heard and convey their opinions and ideas to the program producer, who in turn trans-

² The Academy for Educational Development's LearnLink telecenters in Ghana are an exception. By using special outreach strategies, the academy has increased the number of women telecenter users in Ghana (see <http://learnlink.aed.org>).

³ Women's work in agriculture is largely unremunerated and is therefore undervalued and underrecorded (see <http://unstats.un.org/unsd>). It is often said that 70% of on-farm labor is performed by women and girls.

mits them to the relevant political leaders and government service agencies. Through this process, both politicians and constituents are brought into action.

Practitioners have long recognized that gender roles change in response to new technologies. The use of technology, likewise, affects local economies, culture, and the environment. ICT appears to follow these trends.

Access to ICTs can influence gender relations by, for example, helping women to achieve literacy and economic empowerment (Hafkin and Taggart 2002) (box 3). The connection to agriculture is important because in many developing nations, agriculture provides, directly or indirectly, opportunities for women to improve nutrition and income for themselves and for their families.

Promising Opportunities

Not all rural women are passively falling farther behind the digital divide. Many are unwilling to wait for wider poverty-reduction efforts to eventually improve their access to ICT and other benefits of social and economic empowerment. Around the world, often through women's groups or children's education, women are actively learning about ICT. They are seeking out access to ICTs to educate and employ themselves, to lobby governments, and even to communicate and cooperate in

new virtual "self-help" groups.

ICT's potential to improve gender equity by helping women find new opportunities for generating income and improving health and education is especially fast-moving. The activities described in table 1 illustrate how communities are using ICTs to address gender considerations in agricultural and rural development.

Key Constraints

Notwithstanding these innovative, action-oriented approaches to ICT and gender in agricultural and rural development, there are gender-related constraints that limit women's access to ICTs for social and economic empowerment. These relate to physical access to infrastructure, social and cultural norms, skills and opportunities, and financial resources.

Physical access to infrastructure

Telecommunications connectivity in developing countries is usually available only within the capital and in major secondary cities. Yet the majority of the population lives outside of these cities. Moreover, the lack of infrastructure in rural areas coincides with gender demographics: More women live in the countryside than do men. Together, these facts mean that women are much less likely than men to have access to new technol-

ogies. Although the quality of infrastructure varies across regions, invariably the communication infrastructure upon which ICTs depend is weaker and less available in rural and outlying areas. Telephone lines and Internet connections are fewer, and there are fewer relay stations for mobile phones and fewer earth stations for satellites. This is particularly true in the Pacific Islands, where some 500 populated islands lack connectivity of any kind (PITA 2002).

Social and cultural norms

Gender biases may prevent young girls and women from accessing and using ICTs, regardless of the physical availability of the technologies and the skills of the women involved. Rural information centers and cybercafes, for example, are often located in places that women feel uncomfortable frequenting. Communica-

Box 3: Empowering Women to Cross the Digital Divide

"The role of women is particularly crucial. Women make up 60% of the world's poor. Experience has shown that when women are empowered, the benefits are felt in entire families and communities. It is essential to promote access to and use of information and communication technologies among women. We must also encourage more women, in both developed and developing countries, to join the ranks of ICT creators, designers, and decision makers."

Statement by Kofi A. Annan, Secretary General of the United Nations on World Telecommunication Day 2002 on the theme "ICT for all: Empowering people to cross the digital divide."

"[T]he new information technologies hold out a unique opportunity for women in the developing countries to speak out, and to be more visible and less isolated. Women also contribute towards expanding political, social and economic participation once they can encourage access to and the sharing of knowledge, establishing networks and strengthening decision-making power."

FAO denounces the restrictions on access to information by rural women, Rome/Kampala, 29 July 2002 (www.fao.org/english/newsroom/news/2002/7600-en.html).

Table 1: Initiatives Using ICTs to Address Gender Considerations in Rural Development

Initiative	Description
Association for Support and Assistance to Women Entrepreneurs (ASAFE) www.asafe.org	ASAFE (Association pour le soutien et l'appui à la femme entrepreneur) in Cameroon encourages women entrepreneurs, including rural women operating agro-businesses, to use ICT to build their businesses. ASAFE was one of the first women's organizations in Africa to train its members in ICTs with specific application to business development (e.g., use of e-mail and Web surfing to locate possible business partners and development of websites for marketing).
Synergy, Gender, and Development (SYNFEV) www.enda.sn/synfev/synfev.htm www.famafrique.org	Located in Dakar, Senegal, SYNFEV (Synergie, genre et développement) is the gender program of ENDA (Environmental Development Action in the Third World). Through the FamAfrique website, SYNFEV has created communication and information space for francophone African women interested in sustainable development
Nakaseke Telecentre www.nakaseke.org.ug	The Nakaseke Telecentre of Uganda is particularly interesting because it has focused on women. It produced a CD-ROM titled <i>Rural Women Earning Money</i> , in both English and the local language Luganda, with graphic and voice interfaces to facilitate use by illiterate women. The International Development Research Centre and the International Women's Tribune Centre collaborated on the project. The telecenter is now working with Uganda's National Agricultural Research Organisation and CAB International to develop local agriculture-related content for delivery to communities by community telecenters like Nakaseke.
People First Network (PFnet) www.peoplefirst.net.sb	PFnet has been instrumental in bringing connectivity to the Solomon Islands, where 85% of the population lives without access to telecommunications. The project facilitates point-to-point communication in the remote provinces of the Islands using ICTs to further rural development and the flow of peace-related information among all social groups. To date 40% of users are women.
Self Employed Women's Association (SEWA) www.sewa.org	SEWA was founded in 1972 in Ahmedabad, India, as a union of women working in the informal sector. SEWA has now begun to introduce ICTs to its quarter of a million members. It has also developed technology information centers, which are distance-learning classrooms to provide training to their "barefoot managers," to build capacity of their women organizers and leaders, and to help members strengthen their microenterprises (embroidery, agriculture, incense, gum, and salt). The first distance-education training was on women's leadership role in regenerating forests. The centers are based on SEWA's Satcom facility, a satellite-based communications network that sends television signals from an earth station to a geostationery communication satellite and offers two-way communication possibilities. The system gives community groups quick and easy communication with block- and district-level functionaries.
Women of Uganda Network (WOUGNET) www.wougnet.org	WOUGNET is a nongovernmental organization established in May 2000 to develop the use of ICTs among women as tools to share information and address issues collectively. Its website contains links to information resources on women in agriculture. In June 2002, WOUGNET hosted an online conference on information access for rural women.
Fantsuam Foundation www.fantsuam.com	While not focused on agriculture, Nigeria's Fantsuam Foundation has an innovative approach to improving healthcare and education, primarily for women, through shared access to ICT facilities. Fantsuam offers ICT training at community learning centers and operates a van that is a solar-powered rural telecenter in southern Kaduna.

tion facilities in rural areas also tend to be shared public access, and women have more problems of time (due to their multiple roles and responsibilities) and mobility (in the sense of both access to transport and ability to leave the home) than men. To foster gender equity in access to and use of ICTs, the schedules of such facilities need to be devised to suit women's hours. In addition, support staff and trainers for women should be made available. The experience of radio listening groups suggests that women's group activities are relatively successful, precisely because they make use of existing cultural norms of rural women's collective activity (Panos Southern Africa 2001.).

Another culturally influenced gender bias is the attitude towards women studying or using IT. Throughout the world, schools and universities have difficulties attracting young women to science and technology studies (COL 2001). In addition, the view that information technology is not for women goes beyond formal education, to affect social interactions. In Cajamarca, Peru, for example, when women undertook information technology training with men, the men mocked them saying that computers are for men, not women (Puican 2002).

Education, skills, and content

Women may be marginalized in their access to ICTs by illiteracy, language barriers, and lack of computer and information user skills. In the rural areas of developing countries, women and girls are three times less likely than men and boys to have formal education (UNIFEM 2002). While ICTs that do not require literacy (e.g., voice recognition software) are being developed, to date these are available only in widely scattered pilot projects.⁴ Women are also less likely to know the international languages that dominate the World Wide Web. Indeed,

until two years ago, the Internet was predominantly in English (Nua 2002). Finally, given their limited access to schooling, women, especially those in isolated rural areas, are much less likely than men to have the skills to use computers and electronic information (Heeks 1999).

One example of how ICTs can challenge the link between literacy and technology is the use of mobile telephones in the developing world. Currently, mobile phones serve more users in developing countries than do land lines (ITU 2002). Mobile telephones are being made available for use by the rural poor through initiatives such as the Bangladeshi Grameen Phone. In this program, the Grameen Bank selects "village phone operators" from among its borrowers, to whom it provides mobile telephones as an in-kind loan. These operators then resell wireless phone service, generally from their homes, to fellow villagers. Three-quarters of Grameen phone operators are resource-poor, uneducated women who provide services to other women, as male operators interact with mainly male customers. The operators earn an average of USD 300 per year, more than the average per capita income in Bangladesh (Richardson et al. 2000).

Poverty and financial constraints

Almost all communication facilities cost money. Poor women are less likely than men to own radios or televisions, or to have access to these devices when they want. When paying is involved to access information—such as at rural information centers or cybercafes—women are less likely to have disposable income to spend (or they hesitate to use family food, education, and clothing money for information). Access to ICTs through established cost-sharing arrangements in women's groups may be one way to provide women access to information resources.

Looking Forward

To investigate and guide further discussion and action on gender and agriculture in the information society, CTA commissioned a special report in September 2002 (Hafkin and Hambly Odame 2002). This report identified three critical areas for improving ICT policy and management with respect to gender in agriculture and rural development: through coordinated policies, capacity building, and developing partnerships.

Coordinated policies

While dialogue does exist on gender, ICT, and agriculture, it remains scattered. Improved coordination can help ensure that policy in one thematic area supports related decisions in another. Donor agencies, international organizations, and national public bodies can also

coordinate their decision-making to improve their collective investment in these three areas. One example of this is the World Summit on the Information Society (WSIS) in 2003.

In the run-up to WSIS, an unofficial gender caucus has been created that merits attention and support (see table 1). Further, organizations that are implementing national and regional action plans as follow-up to other major world conferences—such as the World Food Summit +5 meeting of July 2002, the World Summit on Sustainable Development conference of August 2002, and the III World Congress on Rural Women (October 2002)—are urged to harmonize their ICT-related efforts with WSIS and the gender caucus.

⁴ Examples include a number of Indian initiatives, most notably NIIT Ltd's Experiments with Minimally Invasive Innovation (www.niitholeinthewall.com) and the IDRC-IWTC CD-ROM for illiterate women in Uganda (www.womenink.org/23.html).

Through such coordinated policy and associated resource allocation processes, a vast but disconnected array of information can be pulled together and conveyed to stakeholders and complementary and conflicting policies can be identified and acted upon. Sex-disaggregated data from rural areas is especially relevant for further analysis of gender and ICTs. Investments can be made in ICTs that support female education. Policy analysis can identify and share successful cases of women's improved access to ICTs. Small grants that favor rapid mobilization of resources at the local level is another approach that seems to underlie some success stories in ICT and development. Mainstreaming gender in these funding schemes is needed, however. To this end, the World Bank InfoDev program is undertaking gender analysis of its projects (see www.infodev.org).

Gender and ICT capacity development

Gender can be mainstreamed in agricultural policy and project management by providing training and information networking, by generating sex-disaggregated data and by developing skills in gender analysis. Organizational and professional performance assessment in agricultural and development-oriented institutions can also

include attention to gender issues. Effective leadership by both women and men helps organizations integrate gender vertically in virtually all aspects of agricultural and rural development management—including the use of and access to ICTs and their associated processes and products.

Partnership development

Rural women can gain voice and influence over agricultural research and development processes through representative organizations. Such organizations deserve attention because they seem to have the greatest potential for bringing ICTs within rural women's reach. Existing partnerships in the use of ICTs, including rural radio, telecenters, and mobile telephones, suggest that women can benefit in social, economic, and political terms from collective activities. It is important that ICT-focused development partnerships with rural women's organizations do not overwhelm but strengthen their capacity to genuinely represent women's concerns (Hambly Odame 2002). As the Grameen Phone example suggests, constructively involving men, whereby women also gain access to new opportunities offered by ICTs, can improve the success and sustainability of activities.

Conclusion

It is hard not to be encouraged by new developments in ICTs around the world, since these hold great promise for agricultural innovation and rural development. Yet the bleak outlook for food production systems in most developing countries tempers this optimism. The world has substantial knowledge and information to mobilize in the fight against food insecurity. But the question of access to technologies for information and communication is still too often overlooked.

Gender is a development issue. Gender considerations in improving the efficiency of resource use, promoting equality, and empowering women are difficult to incorporate into social institutions and structures—policies, laws, markets, and public agencies. The purpose of calling attention to gender as it relates to ICTs in developing-country agriculture is to bring about positive outcomes that benefit not only resource-poor rural women but also the entire global information society.

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The **Technical Centre for Agricultural and Rural Cooperation (CTA)** was established in 1983 under the Lomé Convention between the ACP (African, Caribbean, and Pacific) Group of States and the European Union Member States. Since 2000 it has operated within the framework of the ACP-EC Cotonou Agreement.

CTA's tasks are to develop and provide services that improve access to information for agricultural and rural development, and to strengthen the

capacity of ACP countries to produce, acquire, exchange, and utilize information in this area. CTA's programs are organized around four principal themes: developing information management and partnership strategies needed for policy formulation and implementation; promoting contact and exchange of experience; providing ACP partners with information on demand; and strengthening their information and communication capacities.

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