



Why New Technology is a Women's Rights Issue

New technologies impact women's lives all over the world. This is transforming our work for gender equality and presenting new challenges to women's rights and sustainable development. This primer will explore the complex ways new technologies affect women's rights and their place in a global agenda for gender justice.

The existence and uses of new technologies are changing how different women and men experience the world, the choices they make, and the work they do.

At the same time, certain new technologies, like the internet, GM crops and other biotechnologies, and even imminent nanotechnologies are considered important tools for development, meaning they are increasingly presented as key components of solutions to long-standing problems like hunger, poverty, and environmental degradation.¹ The technologies themselves have the promise of "fixing" these endemic problems or enhancing lives and livelihoods, but many of them pose threats to women's rights when utilized alongside powerful global forces.

New technologies raise the stakes for gender equality advocates. They are not neutral; they reflect and, in fact, incorporate social arrangements and power relations. Moreover, the science and technologies themselves are interrelated; the governments seeking to regulate them are linked by trade and aid relationships; the companies looking to develop and sell them use the processes of globalization to reach larger markets and to locate more resources and raw materials for that development.

Technological development often brings benefits to large numbers of people, and is often appropriately understood as a testament to human prowess. But today, the development and adoption of powerful new technologies often takes place very rapidly, with little pause for investiga-

tion of potential risks and downsides. Further, in an era of increasing privatization, new technologies are often brought to market with few or no regulatory mechanisms in place. And some new technologies have the potential to drastically change our environment and our lives. The convergence of these trends brings us to a crucial historical moment.

Some new technologies are more permanent and more invasive than most of the tools that have come before. Once technologies like inheritable genetic modification and GM foods, are adopted, there will be no turning back. A few organizations and individuals have already been active in certain areas, but the

When women have less control over technology than men globally, it becomes a women's rights issue.

majority of civil society has thus far been silent on these potentially *life-changing* issues.



As certain technologies become more pervasive and invasive, they can and do transform gender relations and roles and exacerbate the differences between rich and poor. The following are some concrete examples of the different kinds of effects that technologies have on gender equality and women's rights. Each of these cases shows how technology influences or reflects gender inequality. Of course, this is not an exhaustive list of either technologies or their effects or potential effects, but an effort to illustrate the issues that arise and how they fit together with gender equality and social justice work.

"Missing Women" Around the World

The widespread availability of ultrasound technology in India and China (and elsewhere) has triggered radical decreases in girl to boy ratios. India's 2001 census recorded a significant ten-year decline in the child sex ratio from 945 to 927 females per 1000 males. In urban areas, the ratio dropped even more dramatically: from 935 to 903 girls per 1000 males.² While sex selective abortion is banned in both countries, prenatal testing continues to be used for sex selection purposes.

The use of the technology strengthens patriarchal attitudes and institutions.

In both places, there is a strong cultural preference for male children. When technologies like ultrasound allow parents to more accurately choose the sex of their future children, the use of the technology strengthens patriarchal attitudes and institutions. In this case, **reproductive technologies ensure the continuation of gender inequalities** by reinforcing or enabling social or cultural inequalities. Some argue that sex determination trends will increase the "value" of women within societies as they become scarcer. However, it has been observed in India and China that

in fact a 'shortage' of women instead leads to greater restrictions and control placed over them.³ In China, the "shortage" of women for men of marriageable age has been associated with increasing violence against women in the form of kidnapping and trafficking. Ultrasound and other reproductive technologies give women expanded personal reproductive choice and better medical technologies with which to diagnose and treat real medical problems, encouraging better reproductive health. However, when used for sex selection, the technologies enhance gender discrimination.

"Missing women" is a term coined by Nobel Laureate and development economist Amartya Sen referring to an imbalance in sex ratios, where women are scarcer than men due to homicide, neglect, poor healthcare, infanticide, and now, sex selective abortion.

As reproductive and medical technologies become more advanced they will present new challenges—much like ultrasound has in India and China. For example, "new" reproductive and genetic technologies like pre-implantation genetic diagnosis and sperm sorting will make sex selection easier and more accessible, by making intervention at earlier stages of pregnancy possible and eventually allowing sex differentiation before conception. These pre-conception selection techniques are already being used and marketed in some wealthier parts of the world. The existence and use of these technologies force gender equality advocates to ask new questions and develop new analyses on reproductive rights.

High-tech sex selection procedures are becoming more available around the world. Many advertisers on the internet, like the Fertility Institutes, (located in the United States and Mexico), claim accurate preconception sex selection services.

"SEX SELECTION WITH 99.9% GUARANTEE OF CHOSEN GENDER" for \$18,480 US!

Another company has advertised in the *New York Times* Sunday Style section, asking,

#Do You Want To Choose the Gender Of Your Next Baby?™

Email is a Girl's Best Friend

Globalization and Information and Communication Technologies (ICTs) have connected people around the world and made learning, educating, and social justice organizing easier. Information has been decentralized and made more accessible. ICTs have the potential to bring information and education to women and men in many parts of the world, increasing their individual and organizational capacities, and enhancing networking, participation and advocacy. ICTs can also provide ways to extend and support participatory democracy by increasing participation and transparency of information. At the same time, these tools are used profitably for exploitation—pornography, human trafficking, gambling, extortion, and fraud.

ICT policy is only beginning to reflect gender concerns.

The potential positive impact of ICTs, particularly as tools for development and as a competitive advantage in the global economy, has become a priority for many international institutions and national governments, as evidenced by the focus of the World Summit on the Information Society, first held in Switzerland in 2003. The goal of the WSIS process is to develop policies for global coordination of ICTs and propose actions to “bridge the digital divide.” Countries in the North and South are now investing in infrastructure to attract ICT firms and jobs to “corridors”, “technology parks”, and “valleys” in places like India, Thailand, and the Philippines. These initiatives focus primarily on ICT policies as economic development and create new opportunities for some women and at the same time further exclusion for others.⁴

Access to ICT is dependent on location, class, language, education, and as with other technologies, men have more access to and certainly more control over these technologies. ICTs become important for women’s rights, for example, when access to information is conflated with education for women, and when the right to education is considered met by providing minimal access through ICTs without focusing on full engagement and appropriate information.

“This difference in the ability of countries, regions, sectors, and socio-economic groups to access knowledge through ICTs, and to use them for a range of different purposes, has been coined the ‘digital divide’ or ‘information poverty.’”⁵ Despite the expansion of new ICTs in the South, access and connectivity is still concentrated in large cities, which means that for rural areas in particular, and **in much of the world, the radio remains the primary source of information rather than the Internet.** ICT policy is only beginning to reflect gender concerns, but there remains much more work to be done to ensure gender equality as policies further develop.

Our Transformed Food

The introduction of certain genetically modified (GM) crops into agricultural systems is a controversial political decision. The debates centre on food production, agricultural technology, yield improvement, economic benefits and the uncertain long-term effects on the environment, biodiversity, and on human health impacts of widespread use and consumption of GM foods. Some governments, scientists, and companies producing higher-yield crops through genetic modification claim that these inventions will help farmers and economies, particularly in developing countries. Environmentalists and others question the validity of these claims and criticize the widespread use of GM crops because of concerns, for example, for farmers who lose their right to save seed, that the GM crops will harm biological diversity, and that crops and other plants might develop an increased vulnerability to pests.

Women constitute the majority of the world’s subsistence farmers, particularly in developing countries. Yet new high-yield crops often displace subsistence farming in large part because it is more profitable to grow the high-yield crop in the less fertile areas typically used for this purpose. Where women are responsible for feeding families and are principally subsistence farmers, GM agriculture will have a disproportionate effect on them compared to men. The



impact may alter a woman's ability to fulfill her social role of feeding her family, her health and that of her family, and her livelihood. With the industrialization of agriculture in the South, more women are the hard labour in the fields and are exposed to more chemicals than ever before, including pesticides specific to GM crops. **Neither appropriate technologies for this work nor the specifically gendered impacts have been adequately considered.**

Many people and organizations hail GM crops as a way to end hunger in the developing world. "Genetically modified crops with increased nutrients to counter specific deficiencies" was listed by one study as one of the top ten biotechnologies for improving health in developing countries, promising "malnutrition could be ameliorated using enriched GM crops."⁶ For example, vitamin A enriched "Golden Rice" is often held up as the example of using biotechnology as a tool for development, although it is not yet available for commercial use. Golden Rice is engineered to produce high levels of β -carotene, which helps fight severe vitamin A deficiency in malnourished children who can develop childhood blindness and other diseases. However, there are as yet unanswered questions about the practicality and efficacy of this GM crop.⁷

Dependency on GM seeds, the ability to alter the production of a certain crop, and the development of diseases that could infect crops create real **possibilities of using food as a weapon.**⁸

The possible negative impacts of the technology are vast—potentially harming natural environments and magnifying hunger by shifting production to cash crops for export. However, transnational corporations with the cooperation of governments, rather than communities, decide. The most outspoken on GM crops have thus far been environmental groups and consumer

groups, but now, others are starting to pay attention, including farmers, human rights and women's rights organizations, as the impacts of these technologies go beyond environmental concerns and touch on women's health, food security and labour rights.

There seems to be very powerful pressure that *because we can develop these technologies, we should.*

More Infinite Possibilities

In addition to the three illustrative examples here, **there are countless other new technologies that impact on women's rights**, including: military and surveillance technologies, pharmaceuticals and medical technologies, energy technologies, reproductive and genetic technologies, and soon, nanotechnologies.

Nanotechnology's infinite possibilities have attracted the attention of industry and governments. "Nanotechnology represents the **convergence of robotics, molecular biology, chemistry, physics, information and communication technology—every kind of modern science.** It is focused on bottom-up construction, in which molecular machines assemble molecular building blocks to form products, including new molecular machines."⁹ Considered by many to be **the next technological "wave,"** worldwide government investment in nanotechnology has grown from \$825 million in 2000 to \$3 billion in 2003. For example, in medicine, nanoscale medical robots might be able to repair arteries when injected into the bloodstream—a huge potential benefit for those with heart disease. If nanotechnology fulfills any of its promise, it will have major repercussions for medicine, pharmaceuticals, manufacturing, and so on. With nanotechnology as with other technologies, there seems to be very powerful pressure that *because we can develop these technologies, we should.* This puts all the decisions currently made about science and technology in the hands of scientists, engineers, universities, and private industry—very male-dominated realms. Gender

equality activists don't often see these issues as a priority.

From the examples here and many more, **it is obvious that new technologies have had very real impacts not only on women's individual lives but also on gender relations as a whole.** With nanotechnology, and other "new" or developing technologies, we therefore, have an opportunity to get involved at the earlier stages of development.

Technology Transforming Gender Roles

A specific problem of women's entry into debates about science and technology is the (perceived) level of expertise and specialization required or "technophobia"¹⁰—a fear of technology. So far, women's participation in developing technologies is certainly less than our representation in populations at large. **Where are women in production of these technologies?** Women tend to be presented as the labour or the receivers of the technology, rather than as the creators. New technologies are also often tested on women.

Women's rights are particularly threatened by new genetic technologies because their development requires extensive testing on women and their genetic materials. Now, as debates rage on about cloning and other reproductive and genetic technologies, the issue of experimentation and testing is often overlooked. Much of the stem cell research and cloning mentioned in these debates will require huge amounts of eggs, which must be donated by women. Egg donation is invasive and potentially dangerous.

Debating the merits of cloning and this kind of human experimentation is premature without considering the health and safety of the women that would be required to pursue the research. Beyond safety, there are a number of other specific women's rights issues that need to be addressed: access and equity, reproductive choice,

commodification of life and specifically, of women's bodies. Some women are involved in developing new technology but many more can become involved in critically interrogating it, asking important questions about its use, and presenting alternatives.

In terms of GM foods and other agricultural technology-related issues, a gender analysis is crucial yet often missing. While women are the majority of the world's farmers, in most patriarchal systems they have very little access to resources and very little power. In other words, they are doing the work to feed their families and communities but are disempowered when it comes to getting their needs met or demanding appropriate technologies for that work. Women have typically been the holders of indigenous knowledge and wisdom, including seed saving and food and medicine preparation. Many of the new technologies discussed here are eroding these positions. **Technologies can and do transform gender relations and roles.**

Gender relations are also transformed as reproduction, thanks to assisted reproductive technology, moves into the laboratory and the domain of (often male) scientists and biomedical enterprises. Some

kinds of technologies are immediately related to women and their specific social or biologically defined roles, but this does not mean that women should not be involved in debating other technologies such as biological weapons. **It is important to highlight not only what impacts on women directly, as women, but also what impacts on their equality and their ability to access and enjoy their rights.**

Women tend to be presented as the labour or the receivers of the technology.

The Big Picture

When taken together, the examples listed above begin to show the larger picture of how the introduction of new technologies might affect different women (and men) in different parts of the world or economic situations.



Also, these examples show that it is not possible to examine one specific technology without recognizing the influence of others. For instance, it is primarily through access to information through globalized information technology that women around the world are learning about and engaging on issues about cloning and GM foods. How do we take these intersections into account? One thing is clear: **At the very least, new technologies are enhancing existing inequalities and at the most, they are creating new inequalities and new challenges to the struggle for women's rights and social justice, directly threatening women's rights by interfering with rights to food, right to health, and bodily integrity.**

It is important to note how technology develops and is used in different parts of the world. New technologies are pervasive and invasive, particularly in developing countries where they tend to "leapfrog" over more traditional technologies. For instance, the fastest growth rate for wireless telephone users is in Africa, largely because the infrastructure required for landlines is far more expensive and difficult to build than the newer, more adaptable cell phone. In this case, the newer technology is more appropriate than the older one. "Leapfrogging" makes technology offer particular promise for the South as a tool for development.

In trying to understand the impacts of new technologies, it is also important to follow the money, as in the case of medical and pharmaceutical technologies. The majority of medical and genetic research now funded by profit-oriented private companies favour pills and chemicals rather than changes or improvements in diet, behaviours, social support or other factors that influence health. The focus by pharmaceutical companies and therefore medical researchers on "lifestyle" drugs that improve the quality of life (profitable by selling to the healthy and wealthy) ensures that diseases of the poor remain unaddressed or that the pharmaceuticals to address them remain too expensive to manufacture.

Health advocates have identified this as the "10/90

Gap", where only 10% of resources are available to 90% of the population and vice versa.

Debates around the cost of medicines for HIV/AIDS in Africa reveal that pharmaceuticals are developed for *paying* customers.

Given the unequal funding and the complicated impacts of new technologies, there is an obvious need for deeper understanding and analysis. Anyone working in development or for gender equality is hard-pressed to agree that a single technology has the potential to fix endemic and inherent problems like hunger or poverty. While certain new technologies might have great potential and enthusiastic supporters, like all other social and cultural factors, **new technologies must be considered non-neutral.**

Seeking Technological Justice

Ensuring social and gender justice requires an understanding of the intersectionality of identities and discriminations, paying attention to systematic oppression. This approach should also be applied to our evaluations of new technologies. Gender analysis plays a role in obvious technologies related to human reproduction, various genetic interventions and advances in 'moulding' or designing our future offspring. However, gender considerations go well beyond a woman's reproductive capacity. Women have a distinct set of interests and gender roles along with the many factors that affect their ability to exercise their rights, in different parts of the world and in different realities. It will be vital therefore to find a balanced approach to technologies that takes into account these differences with the ultimate goal being: **find and encourage technologies that promote and improve quality of life and help secure human rights for all by prioritizing the needs of those who are suffering most.** This will depend largely

on who controls the development and use of technologies, what access

Who knows what might happen next?

they have, and what space they have for regulation and control.

It is evident that definitions of social justice must necessarily include technological justice. Many new technologies affect women differently and potentially threaten women's rights. For this reason, new technologies cannot be ignored or considered neutral by gender equality advocates. **The conception, development, dissemination, and application of new technologies should be held to the same democratic standard that social justice activists are demanding of other global processes. Decisions should be openly debated and subject to public scrutiny.** These crucial questions cannot be left for businesses and individual scientists to decide.

As technological rhetoric promising greater benefits becomes more common, and seemingly more irrefutable, gender equality advocates everywhere will need to not only be more familiar with the language and the technology itself, but with a “big picture” vision of what the **implications of such technologies are, for their communities, their environments, their bodies, food, work, safety—their lives.**

Endnotes

¹ Some examples of international institutions looking to technology as a tool for development include the UNDP (*Making New Technologies Work for Human Development*, Human Development Report, 2001) and the WHO (*Genomics and World Health*, Report of the Advisory Committee on Health Research, 2002).

² India Census, 2001. <www.censusindia.net>

³ S. Sudha Ph.D. and S. Irudaya Rajan Ph.D., “Female Demographic Disadvantage in India 1981-1991: Sex Selective Abortion, Female Infanticide and Excess Female Child Mortality,” <<http://www.hsph.harvard.edu/organizations/healthnet/gender/docs/sudha.html>>.

⁴ Primo, Natasha, *Gender Issues in the Information Society*, UNESCO (2003), p. 24.

⁵ *Ibid.*, p. 17.

⁶ Daar, Abdallah S., Halla Thorsteinsdottir, Douglas K Martin., Alyna C. Smith, Shauna Nast, and Peter A. Singer, “Top ten biotechnologies for improving health in developing countries,” in *nature genetics*, vol. 32, October 2002.

⁷ Pollan, Michael, “Great Yellow Hype”, *New York Times Magazine* (4 March 2001).

⁸ In 1999, *Scientific American* published a report by researchers at the University of Bradford (UK) that chronicled crop and livestock biowarfare research in South Africa, the UK, the US, Russia, and Iraq dating back to World War II. The Iraqi work took place in the 1990's and included bioengineering of wheat pathogens that could have devastated food security in the Middle East.

⁹ Gary Stix, “Waiting for Breakthroughs,” *Scientific American* (April 1996).

¹⁰ “Women often have complex relationships with technology and machines as a result of being socialized over time to believe that machines and technology are a man's domain and not for women and girls, thus generating a gender bias in attitudes towards studying or using information technology.” (Natasha Primo, *Gender Issues in the Information Society*, UNESCO (2003), p.38).

The Association for Women's Rights in Development is an international membership organization connecting, informing and mobilizing people and organizations committed to achieving gender equality, sustainable development and women's human rights. A dynamic network of women and men, AWID members are researchers, academics, students, educators, activists, business people, policy-makers, development practitioners, funders and others, half of whom are located in the global South and Eastern Europe.

AWID's goal is to cause policy, institutional and individual change that will improve the lives of women and girls everywhere. Since 1982, AWID has been doing this by facilitating on-going debates on fundamental and provocative issues as well as by building the individual and organizational capacities of those working for women's empowerment.

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Definitions:

- **Pre-implantation genetic diagnosis (PGD):** allows the testing of very early stage embryos produced using IVF (In Vitro Fertilisation) in the laboratory. PGD was originally developed to allow parents at risk of passing on serious genetic conditions to have children unaffected by these targeted conditions. But PGD is increasingly being used for purposes of “family balancing” or a parent’s desire to even out the sexes of their children.
- **In Vitro Fertilization (IVF):** refers to the fertility procedure in which a woman’s eggs are removed and fertilized in a laboratory. The fertilized eggs are placed in the woman’s uterus in hopes of achieving pregnancy.
- Originally developed to sort bull sperm, **sperm sorting** is a technique that separates sperm carrying an X chromosome (which would create a female embryo) and those carrying a Y chromosome (which would create a male embryo). The sperm are sorted in the lab prior to IVF or artificial insemination.
- **Information and Communication Technologies (ICTs):** refers to the Internet, email, telephony, mass media and communications, as well as the related hardware and software to support them.
- **Genetically modified** (or “genetically engineered”) in general means some sort of direct manipulation by scientists of the DNA (genetic code) of an organism through laboratory processes of modern biotechnology. This can mean transferring a gene sequence from one organism to another.
- **Nanotechnology** is the manipulation of matter at this incredibly small “nano-scale”, on the level of single atoms and molecules. One nanometer is one-billionth of a meter.
- **Cloning** refers to the creation of an exact copy of existing genetic material. This can hypothetically be done for research purposes or for reproductive purposes, creating an embryo or child with only one genetic parent.

For **further information** on some of the issues illustrated in this publication, please visit AWID’s Gender Equality and New Technologies website (www.awid.org/gent) or see some of the organizations listed below:

Sex Selection

Center for Enquiry Into Health and Allied Themes (CEHAT)

Online: www.cehat.org

Post: Survey No. 2804 & 2805, Aaram Society Road, Vakola, Mumbai 400 055 INDIA

Telephone: (91) (022) 26673571, 26673154

Fax: (91) (022) 26673156

Email: cehat@vsnl.com

Center for Health and Gender Equity (CHANGE)

Online: www.genderhealth.org

Post: 6930 Carroll Ave., Suite 910, Takoma Park, MD 20912 USA

Telephone: +1-301-270-1182

Fax: +1-301-270-2052

Email: change@genderhealth.org

ICTs

Association for Progressive Communications (APC)

Online: www.apcwomen.org

Post: Executive Director’s Office, PO Box 29755, Melville 2109, SOUTH AFRICA

Telephone: +27 11 726 1692

Fax: +27 11 726 1692

Email: apcwomen@apc.org

WSIS Gender Caucus

Online: www.genderwsis.org

Post: SchoolNet Africa, PO Box 31866, Braamfontein Centre, Braamfontein, Johannesburg, 2017 SOUTH AFRICA

Telephone: +27-11-339-2300

Fax: +27-11-339-5912

Email: secretariat@genderwsis.org

GM Agriculture

Biowatch South Africa

Online: www.biowatch.org.za

Post: 2nd Floor Community House, 41 Salt River Road, Salt River, Cape Town 7925P O Box 13477, Mowbray, Cape Town 7705 SOUTH AFRICA

Telephone: +27 (0)21 447-5939

Fax: +27 (0)21 447-5974

Email: biowatch@mweb.co.za

Genewatch UK

Online: www.genewatch.org

Post: The Mill House, Manchester Road, Tideswell, Buxton, Derbyshire, SK17 8LN, UK

Telephone: + 44 (0)1298 871898

Fax: + 44 (0)1298 872531

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