

Empowerment and Governance through Information and Communication Technologies: women's perspective

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Information and Communication Technologies (ICT) are for everyone and women have to be an equal beneficiary to the advantages offered by the technology, and the products and processes which emerge from their use. The benefits accrued from the synergy of knowledge and ICT need not be restricted to the upper strata of the society but have to freely flow to all segments of the women population. The gamut of areas in which ICT can put a greater control in the hands of women is wide and continuously expanding, from managing water distribution at the village-level to standing for local elections and having access to lifelong learning opportunities. ICT in convergence with other forms of communication have the potential to reach those women who hitherto have been not been reached by any other media, thereby empowering them to participate in economic and social progress, and make informed decision on issues that affect them. The paper explores the avenues created by ICT enabled networking processes for women in the areas of empowerment and governance, the hindrances faced in engendering of these processes and goes on to suggest ways to ensure that greater benefits accrue to women in a distributed manner.

The world is in the midst of a knowledge revolution, complemented by opening up of entirely new vistas in communication technologies. Recent developments in the fields of information and communication technology are indeed revolutionary in nature. Hundreds of million of dollars are being spent on Information and Communication technologies, reflecting a powerful global belief in the transformatory nature of these technologies. By definition, Information and Communication Technologies (ICT) are a diverse set of technological tools and resources to create, disseminate, store, bring value-addition and manage information. Interestingly, ICT when used as a broad tool for amalgamating local knowledge incubated by the communities with information existing in remote databases and in public domain heralds the formation of a new class of society – the Knowledge Society. Knowledge thereby becomes the fundamental resource for all economic and developmental activities in the knowledge society of which women form an equal part. The process of synthesis of knowledge possessed across communities, by men and women, with the global pool of knowledge with the scope for further enrichment lays the genesis for knowledge networking.

Knowledge networking opens up a new way of interactive communication between government bodies, NGOs, academic and research institutions, and the civil society. It helps communities, both men and women, to take appropriate steps to recognise and document the knowledge they possess and in reflecting this knowledge in a wider social domain for directed change through the use of information and communication technologies.

Women and Knowledge

The one resource that liberates people from poverty and empowers them is knowledge. Possessing knowledge is empowering while the lack of knowledge is debilitating. The World Bank organised forum called [Voices of Poor](#) which got feedback from 60,000 people in 60 countries concluded that people wanted access to knowledge and opportunities instead of charity to fight conditions leading to poverty. And knowledge is not a scarce resource - it is infinitely expansible and proliferates with its use. “.....*the capacity to acquire and generate knowledge in all its forms, including the recovery and upgrading of traditional knowledge, is perhaps the most important factor in the improvement of human condition.*” (Bezanson and Sagasti 1995:5-6) Knowledge and its widespread dissemination in an absorbable and usable form is therefore quintessence to initiate the change process for women’s development.

Historically, the isolation of women from the mainstream economy and their lack of access to information because of societal, cultural and market constraints have led them to become distant from the global pool of information and knowledge. This distance is reflected in the levels of empowerment and equality of women in comparison to men, and has enormously contributed to the slow pace of development in South. It is now a well understood fact that without progress towards the empowerment of women, any attempt to raise the quality of lives of people in developing countries would be incomplete. There is an increasing amount of evidence which substantiates that societies that discriminate by gender pay a high price in terms of their ability to develop and to reduce poverty. Ironically, the importance of bringing a gender perspective to policy analysis and designing of development tools and interventions is still not widely understood, and the lessons for development still need to be fully integrated by the donors and national policy makers.

In the context of knowledge sphere, the issues of gender equality, equity and empowerment of women become even significant as women have a strategic role in incubation and transfer of critical knowledge which often forms the blue print of survival for communities to adapt and minimise their risks in the adverse of circumstances. Women because of their biological and social roles, are generally more rooted than men in the confines of their locality They are therefore more aware than men of the social, economic and environmental needs of their own communities (Mitter, 2000). Women have been the traditional incubators and transfer media of knowledge relating to seed preservation and storage, food processing, indigenous health practices etc. Such forms of knowledge are often contextual, rooted in experience and experiments but are non-codified. Therefore it is essential that any knowledge sharing mechanism recognises the value of knowledge possessed by women and provides space for value-addition and the amalgamation of women’s knowledge in the global knowledge pool. This condition forms the basis of evolution of women as equal contributors and end-users of knowledge in a knowledge society.

Engendering Knowledge Networks

The most critical development issues relating to ICT and evolution of knowledge societies must be approached from both global and local perspectives through the

joint participation of the public, private, and non-governmental sectors and members of the civil society. Gender mainstreaming becomes a cross-cutting theme in all these issues. There is an underlying need to shape the knowledge networks to deliver benefits to all segments of the population so that they are responsive to the poorest and the most disadvantaged communities which include the women folk.

It is significant to reinstate that engendering of knowledge networks rests on an operational framework that values the contextual knowledge possessed by women and

Convergence Technologies

ICT does not include only the internet but a gamut of other tools which could be used individually or in convergence with each other to catalyse the process of change in a manner which reduces the skew in knowledge distribution between rich and poor, educated and uneducated, rural and urban, and men and women. The convergence technologies include community radios, internet radio, local area networks, tele-centres, information kiosks, mobile phones, WAP applications etc. They often enhance the reach and penetration of the ICT.

recognises their capacity to take judicious action based on a given knowledge set. Surveys of women innovators in Kenya and the Philippines show that women's inventions tend to have direct application to improving family and

community well-being or increasing efficiency. Examples include a power tiller built to women's physical specifications and their agricultural practices, an improved cloth diaper, improved diagnostic kit for *leishmaniasis*, and a fireless cooker. (IDRC, 1997) Support of women's existing technology activities, recognition of their role as possessors of most of the indigenous knowledge in developing countries, and support of their potential for contributions to community development therefore becomes one of the critical requirement for engendering knowledge networks.

Engendering of knowledge networks opens up avenues for women to freely articulate and share their experiences, concerns and knowledge with the possibilities of their further enrichment as the same pass through a gamut of network users. They are instrumental in helping women break from the stereotypical structures and narrow outlooks of the society and from the hegemony of male dominated societal structures. Other benefits include objective and targeted information flows, low communication costs, sharing of best practices and solutions, and opening up of alternate communication channels with women, hitherto un-reached or under-served, and accomplish a deeper geographic penetration.

Knowledge networking models however need not be confined within the closed boundaries of information flows but have the potential to evolve as alternate institutional models for developmental promotion. By focussing on the improved use of information and communication technologies, women can broaden the scope of their actions and address issues which were previously beyond their capacity. For example, knowledge networking for influencing decision-making strengthens the democratic processes and brings recognition to the power of women community as it enables the decision-making mechanism to perpetuate right below to involve women at the grassroots level without being confined to the bureaucratic straitjacketed approach of the more formal institutions. Alternative mechanisms to carry out these tasks would take a lot more time, resources and efforts. Engendering knowledge networks therefore bridges the knowledge gap existing between men and women, builds up awareness among the women communities and their representative leaders, and encourages their informed and active participation in areas which influence them.

Not the least, women's need for information are also structured according to their gendered roles and responsibilities, which in turn influences their participation and response to knowledge networking. The strategic need for mainstreaming women's contextual knowledge in the information highway therefore could not be more need felt.

Knowledge Networking: spaces for women

Women stand to benefit tremendously from the inroads laid by ICT in the domain of knowledge networking. The pertinent question is not whether they stand to benefit but how do they benefit and what are the mechanisms to ensure that the benefits accrued to the women community do not remain restricted to mere trickle-down effects? At the very conceptual level, ICT have the potential to digitally link each and every women in the world in a star topology network which opens up endless possibilities for information exchange. This mechanism could be used by women in creative ways, both to communicate with other people who are online, and also to disseminate information to people in the outside world who are not online through the use of convergence and hybrid technologies such as community emails, community radio broadcast, tele-centres, newsletters, videos etc. This mechanism forms the skeletal process through which women communities could overcome the constraints of seclusion, mobilise resources and support, reach out new markets, and open up avenues for life-long learning. We could broadly classify the spaces in which women stand to gain under the spheres of Empowerment and Governance.

EMPOWERMENT SPHERE

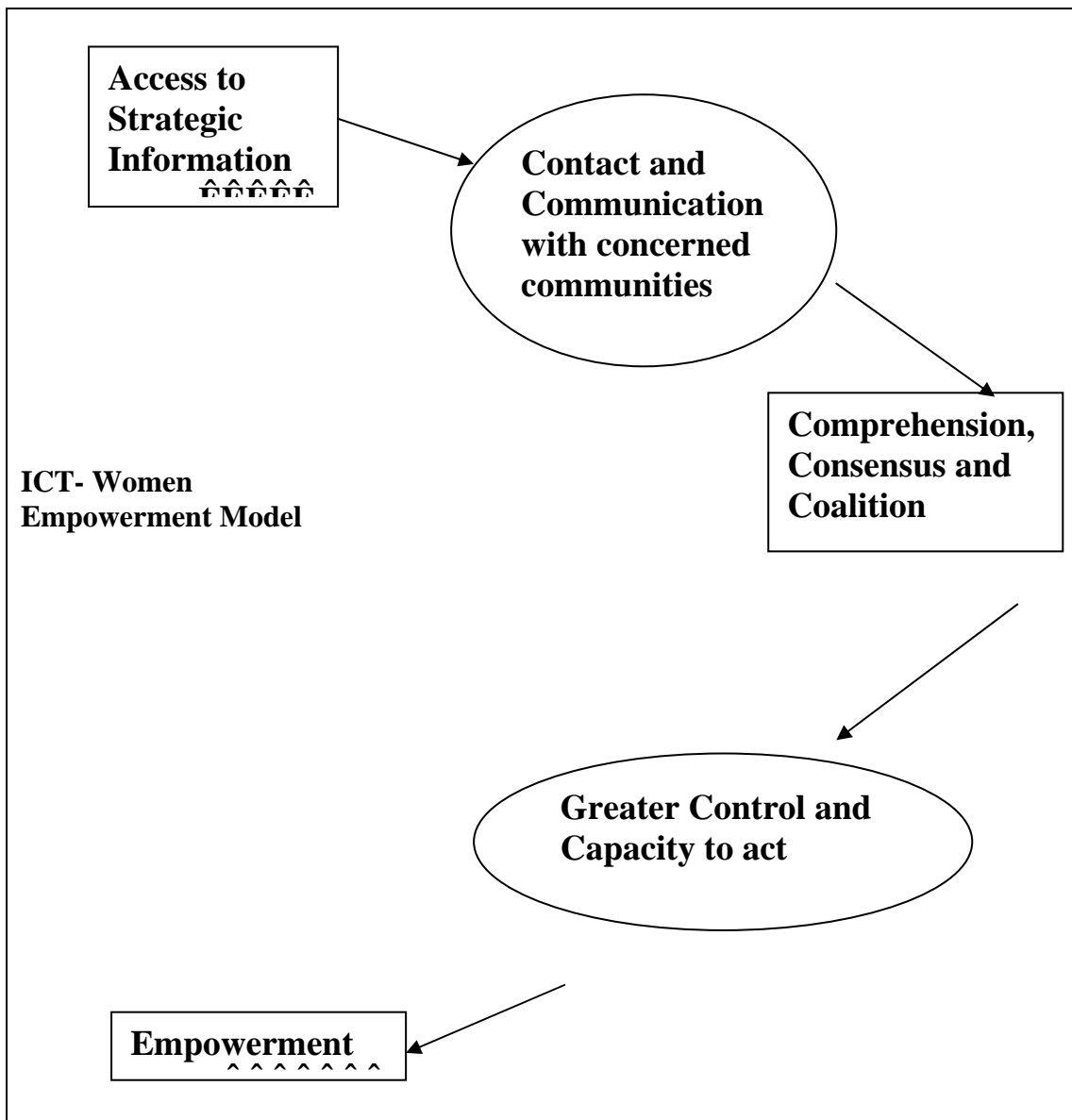
Empowerment of women in the context of knowledge societies is understood as building the ability and skills of women to gain insight of actions and issues in the external environment which influence them, and to build their capacity to get involved and voice their concerns in these external processes, and make informed decisions. It entails building up of capacities of women to overcome social and institutional barriers, and strengthening their participation in the economic and political processes for an overall improvement in their quality of lives.

Knowledge networking offers the unprecedented potential to empower every women as each women is a potential recipient and incubator of knowledge in a truly networked world. A range of ICT- models have been used to support the empowerment of women all around the world. In Africa, groups such as the Africa Women's Network of the Association for Progressive Communications (APC) have conducted training workshop to support electronic networking among women's group. In Uganda, the Forum for Women in Democracy uses the internet and email to research issues for the country's female MPs, and Women's Net is a similar initiative in South Africa. (World Bank, 2000) Knowledge networking catalyses the process of women's empowerment as it is based on the mechanism of knowledge sharing and provides avenues for women to come together, build up consensus on issues that affect them and act strategically to maximise benefits through different approaches elucidated in the subsequent paragraphs.

Knowledge Networks: alternate communication channels and information providers

Access to information can be seen as a central issue concerning empowerment of women. There is no worse form of human rights violations than to be deprived of the ability to think, create and communicate in freedom. Women in developing countries, however have been traditionally excluded from the external information sphere both deliberately and because of factors which inherently work to their disadvantage such as little freedom of movement, low education-levels etc. Under such circumstances, it is not uncommon for women to be little aware of information relating to market economy and local governance processes, which impedes their process of empowerment.

ICT however opens up a direct window for women to the outside world. Information now flows to them without distortion or any form of censoring, and they have access to same information as their male counterpart. This leads to broadening of perspectives, building up of greater understanding of their current situation and causes of poverty, and initiation of interactive processes for information exchange. Further, such forms of networking open up alternate forms of communication to those offered by the conventional or the government controlled media sources, and therefore catalyses the empowerment process. For example, when a devastating cyclone hit the south-eastern shores of India in 1999 killing hundreds of people, the women folks were able to comprehend through internet that the scale of disaster was much higher because of the negligence and ill-preparedness of the State government's disaster mitigation agency as a cyclone of similar intensity in US had led to the loss of only nine lives. The opening up alternate forms of communication with the external world made the women more informed and they were empowered enough to realise that their real causes of poverty were not natural disasters but ineffective state governance mechanisms. A link was therefore established by the women between bad governance and poverty- their first step to empowerment as they were able to identify the causal loop to their poverty and the players involved.



Knowledge Networks: connecting women to external world

The role of knowledge networking is not limited to extracting information from the global pool but is becoming increasingly significant in broadcasting information pertinent to individual women or women communities to the outside world. In Bangladesh, the internet became a principal tool for advocacy and garnering support, when women students from a university began a campaign against campus rape. Pressure that was exerted internationally and nationwide added to the massive physical protests by the students, forcing the establishment to conduct an enquiry. (Alam, 2000) Small as these processes may seem, but they open up a range of options for women to deviate from the conventional media for information transfer to those which offer a greater control over the information that they wish to broadcast and in the least possible time to the global civil network. Women for the first time have realised that they may be isolated or barred from participation in process within their immediate community but that does not prevent them from communicating to the outside world.

Knowledge Networks: Empowerment through employment of women

ICT makes the role of time and distance less significant in organising business and production related activities. As a result of the technology, a high proportion of jobs outsourced by big firms are going to women. Women therefore can work from anywhere and at anytime and raise that extra income to become more financially independent and empowered. Recently, companies like Ford and General Electrics have moved their back-end operations to Asia and employ a large number of women workers having basic information technology and data management skills. New areas of employment such as tele-marketing, medical transcription etc. have also opened up tremendous job opportunities for women. These jobs are definitely under-paid and fall at the lower segment of ICT jobs, nevertheless, they are opening up avenues where none existed before.

Significantly, the process of initiating knowledge networking by itself creating jobs in developing countries. Knowledge networking requires skilled and trained knowledge workers who can perform specific tasks of understanding, compiling, analysing, searching, providing value-addition and disseminating information etc. and a number of women get employed in such jobs.

Knowledge Networks: creating class of women entrepreneurs

One of the most powerful application of ICT in the domain of knowledge networking is electronic commerce. Electronic commerce refers not just to selling of products and services online but to the promotion of a new class of ICT-savvy women entrepreneurs in both rural and urban areas. Women over time have learnt the advantages offered by ICT and its potential in opening up windows to the outside world. This has put them in a greater control over the activities performed by them-laying the foundation for entrepreneurship development.

In Lethem, a village in Guyana which has a community of only 2,000 people, an

The Mobile Ladies

GrameenPhone is a commercial operation providing cellular services in both urban and rural areas of Bangladesh, with approximately 40,000 customers. A pilot programme of GrameenPhone, through the Grameen Bank and a wholly owned subsidiary called Grameen Telecom, is enabling women members of the Grameen Bank's revolving credit system to retail cellular phone services in rural areas. For the 800 Bangladeshi women who have been give cell phones on loan by the Grameen Bank, enables rural women to re-sell GSM cellular phone services in rural Bangladesh. Village women - one per village - can borrow enough money to buy a cell phone, then pay back the loan with revenues from sales of phone calls. The instrument is more than a means of communication: it is being used as a weapon for empowerment - fight poverty. (For complete case study see <http://www.telecommons.com/villagephone/>)

organization - Rupununi Weaver's Society - formed by indigenous women of two tribes revived the ancient art of hand-weaving large hammocks from locally grown cotton -- and then took their exquisite wares online.

(<http://www.gol.net.gy/rweavers/>) They hired a young member to create a Web site. And last year, they sold 17 hammocks to

people around the world for as much as \$1,000 apiece- a gigantic sums in these parts. (Simon Romero, The New York Times Company, 2000) The path ahead has not been a cake walk for this women's group and the group has been struggling since then to get by as their success aroused new gender and social equations which opposed this process. Nevertheless, a space has been cast for women to emerge as entrepreneurs and use the ICT tool to their advantage.

Significantly, a number of non-profit organisations have diversified their services to provide support to this class of entrepreneur women. [PEOPLink](http://www.peoplink.org/) (<http://www.peoplink.org/>) is one such non-profit organization which has been helping women communities traditionally involved with handicrafts to put their products online in the world market. It is building up a global network of Trading Partners (TPs) that, in turn, will provide services to several community-based artisan producer groups. It equips the TPs with digital cameras and trains them to capture images and edit them in a compressed format suitable for transmission via the Internet. The images of the crafts are placed on the PEOPLink web page and efforts are made to promote them to retail and wholesale buyers in the industrialized countries.

Knowledge Networks: value- added services to women

As mentioned earlier, knowledge networks open up alternate channels of communication which have the potential to deliver the right information to the right person in the least possible time. This attribute of knowledge networks could be harnessed in a number of innovative ways in areas such as sustainable agriculture, tele-medicines, distance-education etc. for the benefit of women communities.

SEWA Bank in India uses the development communication wing of Indian Space Research Organisation (ISRO) to reach remote villages. Discussions on topics like *panchayati raj* (village governance institutions), women in development, nursery raising and forestry management, savings and credit are beamed to different villages through the use of satellite cable. The viewers can phone in their enquiries which are answered promptly by a panel of experts. Further, village Villianur of Pondicherry in India, has become the hub of an information revolution. People in the village, are connected through an online database which helps them access required information in their vernacular language. This novel experiment organised by the M.S Swaminathan Research Foundation (MSSRF) as part of its Bio-Information Village Experiment begun in December 1998 has transformed Villianur into the centre of a local area network. The villagers congregate around the centre to get connected with the latest local news. Women get information about the wholesale and market prices of vegetables. Women wanting some health-related information gets all the details about her particular ailment and the name of the doctor who can attend to her. Distance education is yet another one of those significant areas where women stand to gain tremendously. Internet and television broadcasts opens up avenues for women to continue with their education at their own pace and from the confines of their homes even after having discontinued it due to family or social responsibilities.

Sustaining Women Farmers in Ukraine

In collaboration with an NGO, the Council of Women Farmers, and the State Committee of Ukraine for Entrepreneurship Development, UNDP has started a telecentre project in Ukraine. This project applies information and communications technologies (ICTs) to agriculture and farm management in support of women farmers who identified lack of information and networking tools as the major obstacle in order to become successful entrepreneurs in a new market economy. In this project, women farmers will be provided with computers and Internet access in 8 telecentres managed by the Council and will be trained in computer usage, which will help them build capacity to achieve their business goals.

The trained women farmers will be able to access information via the Internet, such as commodity prices, laws and regulations related to agriculture and best practices in farm management. Utilising the computers also promote communications, networking and collaboration among women farmers and with other interested organisations such as state entities, the private sector, NGOs, and mass media. Access to information and networking will facilitate participation of women farmers in decision-making processes in the dynamic transition to a market economy in Ukraine. Through a series of IT training, women farmers will also acquire skills to capture local knowledge, create and publish online content in their own language, Ukrainian, and apply them to conducting e-commerce, with a view to increasing the income level and enticing investment.

Source: <http://www.undp.org/info21/pilot/pi-ukr.html>

The above examples are just an indication of the models on how ICT can provide better and value-added services to women, and there are several such innovative models which need to be tried out and replicated on a much larger scale through the involvement of public and private agencies. Last, but not the least, the inception of ICT have opened a window for lifelong learning for women.

Learning and training continues throughout women's lives as new skills and competencies gain value, and this ensures that avenues for women to expand their roles from household economy to a wider market economy remain forever open.

Knowledge Networking : changing Stereotypic Roles

The unrestricted flow of information through ICT processes opens up avenues for men and women to view each other from a different perspective. The sharing of views between communities living in different geographical and cultural sphere will lead to broadening of views and changing of mindsets over time. It is a fact that horizontal level of communication has a greater impact than the vertical communication structures and knowledge networking promotes horizontal flow of information. Men may learn more about the productive roles of women in the wider economy in different cultures and regions, and may become more willing to provide equal spaces to women. The removal of this stereotypic mindset would certainly be a big step towards the empowerment of women.

GOVERNANCE SPHERE

A key element to better governance is to "democratise" people's knowledge and understanding of complex social, economic and welfare mechanisms and processes, and to "demystify" the political choices available to their elected representatives. Knowledge networking is impacting the governance processes by reshaping the

current socio-political equations and revolutionising the way government does its business. Till now, Southern governments have been making sporadic efforts in fostering the involvement of women in governance process through reservations, creation of separate departments to handle women issues etc. Nevertheless, it is seen, that even in their official roles, women function in a pseudo manner and they do not have the real power or the capacity to make decisions. A women headperson in a village may not be able to effectively render her duty as she may not be able to attend village meetings which are held at far-off places or during night times or require direct communications with men. In such cases, ICT tools can come in handy and open up alternate and easier channels for women to communicate without moving outside their homes or village.

The marginalization of women in political processes and governance in general has been both the cause and effect of slow progress made in the advancement of women. Knowledge networking is changing the very nature and magnitude of women-governance interface. By their virtual potential to connect every women in a network of information exchange, it offers endless possibilities for women to play a pro-active role and impact on governance processes at the local and global level. The new networking technologies are eliminating the boundaries between the various branches of the governing institutions, and between the different levels of governing institutions. The ICT - governance models are marked by a shift towards community based approaches. And this model will see widespread growth and adoption in the coming years as people come to realise the control ICT-models puts in their hand to

	Conventional Media	ICT Media
Mode of Participation	Representative	Individual / Collective
Forms of Participation	Passive/ Reactive	Pro-active/Interactive
Impact of Participation	Indirect	Direct

influence the governance mechanisms. Women would definitely be one of the major stakeholders to benefit from this transformation as they have been traditionally denied participation in decision-making platforms.

The new models of governance opens up avenues for direct participation of women which so far has been limited to representative forms of participation in which women were insufficiently represented. These models would lead to a more interactive and pro-active form of communicating with officials in the local governance spheres a process which will lead to greater transparency and accountability of their actions. The notion of distance and time would become meaningless as the technologies have the capability of working at all times and from all geographical locations. It also means that women in rural areas for whom time is a scarce commodity and for whom it is absolutely impossible to commute to public offices- the new technologies would enable them to leap-frog to an altogether different platform where they can voice their opinions and communicate to the concerned person without additional burden on their time or commuting large distances.

The women themselves have been exploring ways and taking independent initiatives to promote diverse, gender-entrenched approaches to play a more influential role in the governance processes as we will see in subsequent paragraphs.

Knowledge Networking for access to Government Information

One of the main functions of the government is to provide information with regards to policies, rules and regulations, administrative and service delivery matters etc. This information forms the basis of informed participation of the civil society in matters relating to governance.

Women because of their isolation from mainstream activities do not have easy access to government issued information and therefore are unable to take part in governance

Gyandoot : a lifeline for Indian women

Gyandoot is an intranet project in Dhar district of Madhya Pradesh in India which connects 21 rural cybercafes called *Soochanalayas*. Each *Soochanalaya* provides services to about 10 to 15 Gram Panchayats, 20 to 30 villages, 20,000 to 30,000 population. The net covers 5 out of 13 Blocks in the district and 3 out of 7 tahsils in the district. The *Soochanalayas* are located on the roadside of the central villages where people normally travel. They together serve a population of over half a million. The services provided by it include stating farm gate prices of agricultural commodities, providing copies of land records, providing facilities to file applications for caste, income and domicile certificates, and landholders passbook of land records and loans through emails. Women benefit from such interventions as now they have a greater understanding and control over the local processes. They may file complaints regarding common public grievances through the net and an email reply is assured within 7 days. These complaints include handpump disorder, teacher absence, mid day meal, sanction/disbursement, poor seed/fertiliser, etc.

issues. Knowledge networking however changes this situation and enables information to perpetuate right below till the last digital node of the society so that women can access government websites to know more about issues such as name of the local officials

and their roles and responsibilities, working hours of government offices, application forms available for download, latest rules and regulations etc. Provision of this basic information to the women communities would imply their greater awareness and interest about governance issues leading to their greater participation in future.

Knowledge Networking for Service Delivery

This area would emerge as the single most strategic area for the participation of women

Connecting to Help Line

In Trichy, in India, an NGO has created a helpline for women in distress to handle issues such as rape, sexual harassment, battering and dowry harassment, and eve-teasing. The complainants can disclose information anonymously which is routed to the All Women Police Station for further action. The service has initiated active interest among the women as they avoid the social stigma of having to go to a local police station, which means most often having to encounter redtape and corruption. For other kinds of complaints, there is also an option of e-mailing the police control room. (By Deepa from Trichy, India through One World List Server on Government and Content, <http://www.oneworld.org/>)

communities in government mechanisms. Knowledge Networking paves the way for interacting with the government on-line for various issues such as Grievance Redressal,

demanding a service, seeking status of a service etc. Enabling application forms to

be filled up on-line could be one of the simplest ways to initiate online-service delivery and their utility could be advanced by setting up services to keep track of the status of application and the reasons for delays in grievance redressal if any.

The online service delivery approach could also be applied outside the government institutions for the benefit of women. For example, the computerisation of SEWA Bank in India – the largest women’s bank- has helped to expand the self-help groups involved in financial services at the village level. Use of computers in district level organisations has helped expand business by maintaining up-to-date records and increasing productivity. It has opened up new markets for craftswomen at Banaskantha and Kutch. The wares of these skilled artisans are displayed on the Net, generating a lot of interest and bringing in more business. This has helped the women command a better price for their products and has benefited more than 40,000 women in these areas.

Knowledge Networking for Monitoring Governance

Citizens and consumers of government services now demand that the government be more open in their dealings. On the face of it, the core principles of a democratic set up are violated when people, especially women, are excluded from the decision-making processes. People have the power in democracy and in this age where information is power, access to information by the people becomes the root to a thriving democracy. If the strategic information relating to governance such as fund dissipation, policy on key issues, taxes generated, budgetary spending, overhead costs etc. are stored digitally and made available in public domain then women can analyse and conclude from the available information on their own and can make informed choices about their selection of candidates and parties for the electoral processes.

Through innovative ICT-models which harness the potential of knowledge networks

Connecting Communities

Andhra Pradesh State Wide Area Network (APSWAN) is the backbone network for voice, data, and video communication throughout the state of AP. This network connects the State Secretariat with 25 centres including all the District Headquarters towns. This is progressively connecting the campus network in the A.P. Secretariat and the Headquarters of various departments with Local Area Networks in District Collectorate and other district offices, thus forming the backbone for the Government Intranet. Apart from linking Government offices, the network is also offering connectivity to major educational and health institutions across the state. The services provided by APSWAN includes Data Communication, Reliable and dedicated voice communication and Video transmission. Some of the applications of such a network would be Data sharing and interchange among different wings of the government resulting in effective, efficient and transparent administration, providing E-Mail and Internet facility to all the departments and offices of the Government, and providing high quality video connectivity that helps in these applications pave the way for convenient "anytime, anywhere services" for the citizens. Women stand to enormously benefit from them as they now have the power to write directly to the chief minister cross-cutting the hierarchial layers. In subsequent phases APSWAN would be extended to all the towns and eventually to all the villages either with dedicated lines or Wireless or Dial Up facilities paving the way for remote governance by individuals.

Source: <http://www.ap-it.com/apswan.html>

to reach each individual women, women could be included in all aspects of governance through on-line polls, and their views solicited on issues affecting them through emails, bulletin boards, discussion groups etc. The opinion polls conducted over the multi-media have the potential to make known the decisions favoured by a

large section of the women to the policy-planners and decision makers. The Andhra Pradesh cyber model (see box item above) in India has proved that good policies and clear vision need to be shared with people and their support cultivated for effective governance and Information and Communication Technologies have an important role to play in this process of reaching out.

Knowledge Networking for Mobilisation and Public Advocacy

Knowledge networking helps build alliances and develop issue based solidarity among the women's group which is a pre-requisite for concerted action. A women's group raising a voice against environmental degradation caused by unethical practices of the government or a trans-national company no longer finds itself waging a lone battle but strikes an ally in groups located across the continents raising their voices against similar unethical practices.

Virtual communities is yet another powerful, upcoming force in the knowledge societies. Knowledge networking could help women groups to come together digitally

WomenAction 2000 : Influencing Beijing Platform for Action

The WomenAction Global website is a pioneering initiative to develop a communications network and information-sharing strategy that allows women in every world region to participate in and impact on the 5-year review of the implementation of the 1995 Beijing Platform for Action. The Global website launched in November 1999, provides women's organisations with a platform that links regional activities strategizing around the Beijing Platform of Action review process. It has a special focus on Women and Media with information on how NGOs can get involved in online critical discussions, create an alternative global report and highlight the work of women's groups to redress women's portrayal and position in the media. The website and the dynamics around it paves the way for wider involvement of women in the international spheres of decision-making.

and form virtual communities which support a common view point and value framework. The virtual communities movement is directed at giving individuals,

local communities and regional groupings the chance to advocate policies which protect their welfare interests and promote better governance at all levels. The thrust is on creating spaces for decision-making within the existing governance mechanism that would be democratically governed by welfare and human rights principles, sustainability and social development objectives. Formation of such virtual communities could be very effective in influencing policies and debates which are trans-national in nature and need strong and persistent lobbying at the international level. In a way, knowledge networking strikes alleys between women groups based on common value framework and objectives rather than common geographical boundaries.

Barriers to engendering Knowledge Networking processes

With the inception of ICT and convergence technologies, it may be possible to bring up a significant fraction of women communities in a more symbiotic digital network which focuses on localized information and customized solutions, and works on the theme of Global Technologies for Local Use. Women, however, are still very much in a minority among the beneficiaries of knowledge networking. Women still face huge imbalances in the ownership, control and regulation of these new information technologies, similar to those faced in other areas. (UNIFEM, 2000) They face a lot of obstacles to harness the full potential offered by these technologies which prevents them from attaining the full benefits of development. This is because of a number of

factors which act to the detriment of women's participation - some of which are generic to all social development models such as low levels of literacy, little access and control over economic resources, low decision-making power, cultural attitudes and gender blind approaches to development, while the others are specific to the ICT enabled knowledge networking processes which are discussed below.

Awareness

Governments and civil society organisations have still not fully absorbed the full potential of ICT in gender development and therefore are far from the stage of creating enabling frameworks and spaces for the growth of engendered ICT-models. This is often because the use of ICT in knowledge networking is a fairly new process and requires a modicum of sensitisation and belief on the technology which is a factor of time as well as the willingness to adopt.

Access Issues

The new technology comes at a financial cost which hinders its penetration to the individual and sometimes even at the community level. The problem is even compounded with the fact that women in developing countries have little control over the household income and do not have the decision-power to invest in these technologies. Further, there are associated physical and infrastructural requirements such as electricity, telephone lines, spare parts, internet gateways etc. which are unevenly distributed in developing countries and add to the cost of initiating knowledge networking. The availability of ICT in these countries is therefore skewed towards the urban areas and women in rural areas constitute one of the main marginalized groups.

Capacity and Skills

Initiating knowledge networking processes and benefiting from them requires a threshold level of capacity and trained human resource power to handle technology and networking issues. Women because of their low levels of literacy and lack of access to technical education are therefore at an even more disadvantaged position than men in developing countries to fully benefit from knowledge networking.

Linguistic Barriers

Ironically, much of the knowledge present in the global pool is in English language which is not understood by the poorest communities. There is very little content in the global pool in the vernacular language of non-English speaking communities. This makes the amalgamation of local knowledge of women with the global knowledge a difficult task. The low levels of literacy among women further distance them from these processes.

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Changing Power Equations

Knowledge is power and knowledge networking leads to distribution of knowledge which in effects leads to redistribution of power in the society. There is redistribution of power between men and women, between communities and the government at all levels etc. Thus, there are clear losers and winners in this changing power equations. Relinquishing power is a difficult process especially when the power has been closely held by a few for a long time and therefore there is a steady resistance to this knowledge networking process.

Innovations

ICT models thrive on innovations, customization and people's participation. The stress in the design of ICT models has so far remained restricted to mere digitisation of available information and automation of processes earlier done manually. This is certainly a welcome step but there is also a need to explore the specific tasks which can only be performed through such ICT models and which would directly benefit women. If an agency takes up innovative approach to the use of ICT in the area of local governance, e-commerce, e-advocacy, e-income generation activities etc. then there is no limit to the benefits that would be accrued to the women community. Innovation rather than re-invention is the approach that needs to be followed for setting up engendered ICT models.

Key Issues : the way forward

It is a hard truth, that the majority of the poor are women and they experience vulnerability and powerlessness to a much higher degree than men. Equitable access to ICT technology and the autonomy to receive and produce the information relevant to their concerns and perspectives are therefore critical issues for women. ICT strategies and models can succeed in bridging the poverty gap only if there is a concerted effort towards formulation of enabling policy frameworks and avenues which create opportunities and incentives for women to participate and benefit from the networking processes. Recent important international policy documents have recognised the gender implications of the new technologies. The "Platform for Action of the Fourth World Conference on Women" states that, *"women should be empowered by enhancing their skills, knowledge and access to information technology. This will strengthen their ability to combat negative portrayals of women internationally and to challenge instances of abuse of power of an increasingly important industry..."* Women therefore need to be involved in decision making regarding the development of the new technologies in order to participate fully in their growth and impact.

Creation of Intermediary Organisations

The starting point for any successful gender entrenched knowledge networking approach is the development of relationships that make it easier for women to talk about their needs, share information, and work together. This entails an initial scooping process to define the nature of the system under consideration, the needs and opportunities facing the different interest groups that may be involved, who should be involved, what can or should be changed, etc. This is where the intermediary organizations can provide a platform for women to get actively involved within the processes. Knowledge about other comparative ICT based systems could be provided by these organisations to the women communities to catalyse the entire process and set-up prototype ICT-models for customisation over time. Later in the process, these organizations have a significant role to play in managing the rapidly growing body of knowledge about development, and in building capacities of the women communities to transform information and knowledge into ingredients of empowerment and equitable development through outreach and training of direct beneficiaries.

The personal ownership of ICT for the vast majority of women in developing countries is not feasible for the foreseeable future, which implies that the question of where and how they can gain access to ICT becomes central to the knowledge

networking processes. The intermediary organizations can facilitate in bridging the "last mile" of connectivity by providing community based technological interface for the networking process. This is an area where there is a maximum potential for intermediary organizations- to act as knowledge nodes at the village or community levels. Intermediary organisations can ensure that email accounts, bulletin boards, search engines, mailing lists, listservs and other useful functions serve as communication, networking and collaboration channels among the women's group, and between women and the external sphere.

Intermediary organisations could also contribute to building capacities of women by providing them training in basic computer literacy skills, internet access, surfing skills and access to information via internet, desktop publishing, website creation and e-commerce. In order to facilitate access for women from other classes and sectors, these intermediary organisations need to be strategically located in local institutions to which women have open and equal access, such as health centres, women's NGOs, women's employment centres, libraries, women's studies departments and institutes, community centres etc.

Imparting Technical Skills and Education

The potential of ICT for women in developing countries is highly dependent upon their levels of technical skill and education, and is the principal requirement for accessing knowledge from the global pool. The sophistication of any ICT infrastructure introduced into any environment becomes meaningless if women don't have the skills to operate the system and use it to their best advantage. This implies that the government and the NGOs need to focus on interventions which lead to skill development and raising of education levels among women. It could be done through imparting of technical education on the use of ICT as a part of both formal and informal educational systems and initiating distant-learning and vocational courses on the same. Further, start-up CD- ROMS could be created for women communities having access to ICT. These start-up kits should contain the elementary tools of website designing, such as website designing manual and designing software, search engine codes, guestbook and counter codes, links to sites providing free web-space, translation/transliteration software, image file compressor software etc. A group of local ICT volunteers could then be trained to impart training on the use of these kits which would lead to an accelerated spread effect of technical skills at the village level as the volunteers would be able to deliver training in the vernacular language of the women.

Creating Virtual Networks and Remote Volunteers

KnowNet Initiative: a virtual help point

KnowNet Initiative (<http://www.knownet.org>) is a virtual network with its entire activities being carried out through the help of remote volunteers. The initiative centres around propagating ICT models for creating an open system for recognising, valuing and sharing local knowledge, in parallel with building of human capacities. It envisages to create a team of ICT- volunteers to train one person in each rural village to open up a two-way communication channel for extracting and hosting information on the net.

KnowNet Initiative has created some simple and easy to use on-line resources to enable communities and individuals to take full advantage of the ICT revolution. KnowNet Weaverä, for example, is a collection of freeware or shareware software which enables communities to create their interactive websites, give it a domain name and host it on the World Wide Web without incurring any monetary cost. "TechKnow" is a website-based as well as e-mail administered web designing course for individuals and communities working towards sustainable development. Simple-to-use Modules have been created to enable even a layperson to design and host a website. Remote help is provided by KnowNet Volunteers through emails and quite a few organisations and individuals have benefited from this service.

ICT offers an unprecedented potential of providing help to local women communities through virtual networks backed by team of ICT volunteers and professionals working from

any part of the globe. Virtual networks can help build technical capacities of women groups to use ICT to their advantage and can help them get linked with other communities sharing similar interests. These networks could capture the institutional learnings and knowledge products, and build a database of which ICT models work under what conditions, and later enable sharing of these products with different women groups. Remote volunteers could bring about a transfer of expertise to these women groups and also facilitate in trouble shooting and sourcing relevant software and codes for their use. The United Nations Information Technology Services (UNITEs) of the United Nations Volunteer (UNV) is already working in this direction. Through the mobilisation of volunteers, both online and on-site, UNITEs provides training on the use and opportunities of information and communication technology (ICT). The application of information technology in areas such as health, education, environment and small and micro-enterprises is expected to result in significant benefits to those who have been marginalised by poverty and lack of access to basic services. The programme intends to foster the participation of developing country nationals as volunteers to the greatest possible extent and will give priority to South-South exchanges.

Setting up Prototype ICT Models

Women will not be able to benefit from knowledge networking processes unless specific ICT-models are created which are targeted to the needs of the local women community. This learning could then be disseminated by creations of start-up CD-ROMS or websites which contain information and the necessary software tools for setting up of simple ICT-models that women can initiate at the community level. For example, prototype models of a website which displays email and postal addresses of all the local district level government officials could be created so that women could use email or email-to-fax technologies to influence local area governance. Models may also be created on the lines of setting up of virtual shops for marketing of local handicraft and skills or on how to search for information pertinent to the local women community such as on health issues, horticultural information etc. Further, emphasis needs to be given to the creation of gender sensitive local content portals which would encourage local participation and lead to generation of knowledge relevant to local communities.

Building Partnerships

In order to build effective and sustained engendered knowledge societies- it is necessary to involve strategic stakeholders from both the public and the private sectors. These could include the government bodies, corporate firms, financial institutions and the NGOs. Fostering corporate partnership in ICT ventures and raising of venture capital fund for social development projects becomes an important line of thought. This could be done through a plethora of ways such as ICT based advertisement, using existing corporate infrastructure for opening of telecentres, bringing about transfer of technical expertise from corporate to the development sector etc. World Computer Exchange (<http://www.worldcomputerexchange.org>), for example, brokers donations of working, surplus, internet-accessible computers and monitors from large U.S. companies and ships them to schools in developing countries to facilitate the use of technology and experiential education in education reform. There is a need to explore many more such useful models of participation of the private sector in social development projects.

Focusing on Research and Innovation

From a macro-level perspective, there has been very little research done to understand the information needs of women- in terms of the strategic information they wish to receive or produce. A knowledge sharing model which puts women in a greater control over the kind of information they need and produce becomes fundamental to the empowerment for women. For an all encompassing Knowledge Networking which empowers the women, the governmental and international agencies need to follow an innovative approach to ICT based knowledge networking supplemented by start-up and capacity-building support, and making full use of available technologies in the simplest ways. Incubator initiatives therefore need to be launched for the creation of dynamic, result-oriented ICT models which focus on social benefits rather than individual profits.

UNDP, for example, in partnership with the Cisco systems have started the [NetAid Initiative](http://www.Netaid.org) (<http://www.Netaid.org>) which uses the Internet to fight extreme poverty. This has resulted in not just flow of funds but technical expertise and skilled human resource power from corporate entities to explore new ways of eradicating poverty. The NetAid recently launched its Mother and Baby Survival Program to provide cleaner and safer environments for childbirth to expectant mothers and newborns in Rwanda. This programme is based on generating funds through individual donors in the North using e-commerce tools. Prospective donors can log on to the website and donate online which will make it possible to provide a mother and baby survival kits to mothers in Rwanda at an affordable cost. Needless to say, the innovative ICT-initiative has met with tremendous success.

End Note

Expectations are high when it comes to ICT opportunities for women in developing countries, including new forms of learning, education, health services, livelihood options and governance mechanisms. However, on a cautious note, it needs to be realised that information and communication technologies by itself cannot be an answer and elixir to all problems facing women development but it does bring new information resources and can open new communication channels for the marginalised communities. It offers new approaches for bridging the information gaps through interaction and dialogue, building new alliances, inter-personal networks, and cross-sectoral links between organizations. The benefits include increased efficiency in allocation of resources for development work, less duplication of activities, reduced communication costs and global access to information and human resources.

Come what may, these technology have started to carve their impact on the villagers's lives as mothers do want their children to learn computers so that they can lead a better quality of life.

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