3 knowledge

"Scan globally, reinvent locally" (Joseph E. Stiglitz)

3.1 THE NETWORK AGE: CREATING NEW MODELS OF TECHNICAL COOPERATION

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Driven by economic globalization and technological transformations, the network age is rapidly replacing the industrial age. This historic shift is altering the rewards and penalties for acquiring and using knowledge and information in global markets and in national development efforts.

These changing realities are setting new challenges but also providing new tools for capacity-building in development, reshaping the agenda for the future of technical cooperation. This chapter reviews these implications and argues that while capacity-building is more critical than ever in this new environment, the conventional tools of technical cooperation are even more obsolete than before. The network age is also making possible the emergence of new modalities for knowledge-sharing, access to information and capacity-building, which in turn are helping to set new priorities for development cooperation that overcome many of the failures of conventional technical cooperation. A new model of development cooperation for capacity-building is emerging for the network age.

[1] This paper reflects the authors' personal views and does not represent the policy of the United Nations Development Programme (UNDP). The authors welcome comments.

The Network Age: Increasing the Rewards for Knowledge and Capacity

Technological transformations of the last decade have combined with economic globalization to change the structures of production and many other human activities into networks. What is special about today's technological advances?

- First, knowledge and information are being codified, stored and made accessible at levels unimaginable in earlier decades. Recent breakthroughs in biotechnology are enabling the codification of information about the genetic makeup of all living matter. And the rapid advances in information communication technology (ICT) have made possible storing, processing and communicating information at levels that were previously inconceivable. The exponential increase in web sites is making this information readily accessible, and the spread of the Internet is linking people in communications networks (see Figures 3.1.1, 3.1.2 and 3.1.3). Today it matters less what a person knows than what information and knowledge she has access to and can utilize.

FIGURE 3.1.1

Biotech information

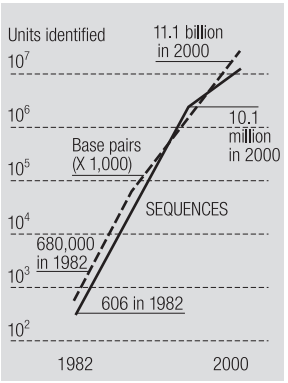


FIGURE 3.1.2

More people have access...
Millions of Internet users

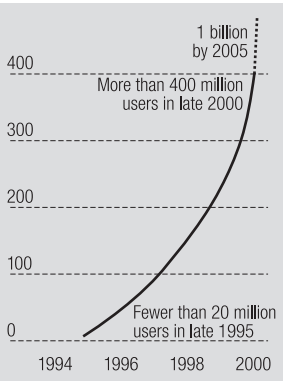
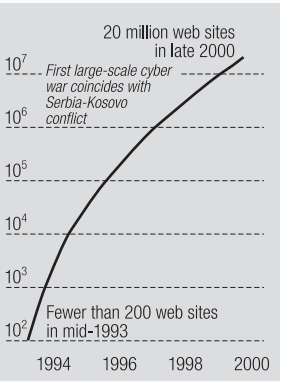


FIGURE 3.1.3

...to more information...
Number of web sites



- Second, information and communications are pervasive inputs into almost everything that we do—from producing food and weapons to participating in politics—and so have pervasive impacts. Thus, ICT and biotechnology are transforming societies and economies, not just making incremental changes (Freeman, 1988; Castells, 1996 and 2000; Cox and Alm, 1999; Gilder, 2000; Webster, 1995).

- Third, the scientific progress of today is more rapid and more fundamental than before. For example, as stated by Moore's Law, computing power doubles every 18 months. Individuals, organizations, businesses and countries need to be constantly aware of and adapting to the rapidly changing technological

environment. Such changes drive the global marketplace, and businesses that do not take advantage of technological advances can become marginalized.

- Fourth, technology-based activities are a burgeoning segment of the global economy—high-tech was the fastest growing sector of the global economy from 1985 to 1998, expanding by 13 per cent annually. A study of 68 countries accounting for 97 per cent of global industrial activity during this period shows high-tech production grew more than twice as fast as total production in all but one country.

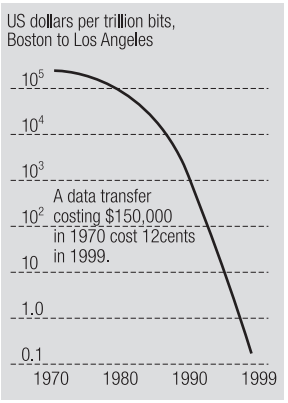
- Fifth, advances in ICT are driving down the costs of information storage and communications to zero. Computing power not only doubles every 18 months but does so at a decreased cost. For example, the cost of sending a trillion bits of information from Los Angeles to Boston declined from US $150,000 in 1970 to 12 cents in 1999. And the amount of DRAM storage available for $1 increased by 30,000 times, from 0.0002 to 5.9 DRAM (see Figures 3.1.4 and 3.1.5).

FIGURE 3.1.5

The cost of computing–how much memory will a dollar buy?
Megabits of DRAM storage

FIGURE 3.1.4

...at a lower cost.
Transmission cost



Economies are increasingly knowledge-based—dependent on the generation, distribution, and use of knowledge and technology (OECD, 1999). This is reflected by increased investment in intangibles, such as research and development (R&D), education and software. Between the mid-1980s and the mid-1990s, investment in intangible assets in the Organisation for Economic Co-operation and Development (OECD) countries increased by 3 per cent. Since the mid-1990s, the top 20 pharmaceutical companies have doubled their R&D spending (Arlington, 2000). Investment in these intangible assets is now as large as investment in fixed capital equipment (OECD, 2000). Knowledge-intensive business services, such as computers, R&D and training, are among the global economy's most rapidly growing sectors. Combined worldwide sales in the five most prominent knowledge-based service industries (communications, financial services, business services, education and health services) exceeded US $7.4 trillion in 1997, up from $5.8 trillion in 1990 and $3.4 trillion in 1980 (in 1997 constant dollars; OECD, 2000). World exports of goods and services as a percentage of GDP more than doubled from 1960 to 1999—from 13 to 27 per cent.

As knowledge becomes the basis for much economic activity, it also becomes the source of a firm's competitive edge. ICT has enabled the codification of much knowledge as well as easier and cheaper diffusion of that knowledge. As a result, firms tend to focus on their tacit knowledge, and externalize activities that do not involve core competencies. They participate in networks that provide them with valuable knowledge. Collaboration has become a fundamental component of many firms' strategies. The number of strategic alliances has grown in both number and scope, rising from just over 1,000 in 1989 to more than 7,000 ten years later; the number of deals made in 1999 alone increased by 40 per cent (OECD, 2000). Interestingly, the sectoral distribution of strategic alliances has drastically changed in recent years. In the early 1990s, manufacturing firms accounted for more than half of all alliances. Today, agreements in the services sector outpace those in all other sectors and represent almost three-quarters of all cooperative relationships. Most strategic alliances have an international dimension. Between 1990 and 1999, more than 67 per cent took place between firms from different countries.

Economies and societies are restructuring into networks that link actors across communities and countries. Networked structures of production and other activities are replacing hierarchically organized and geographically concentrated structures constrained by high costs of transport and communications. For example, global corporations are spreading production activities globally; outsourcing is a common feature of virtually all businesses and organizations; and global value chains of many actors—subsidiaries, consultants, contractors—make up competitive and dynamic structures (Sweeney, 2000). Globally, the outsourcing market is now worth more than US $100 billion.

These changes are the beginning of a trend that marks the historic shift from the industrial to the network age. Just as the industrial revolution replaced manual power with the steam engine, today's technology revolution is augmenting brain power.

A New Environment for Technical Cooperation

If development is about the transformation of production systems and society (see Part 1, Chapter 1), these historic shifts are reshaping the future. Change has only begun, and as writers like Sagasti and Castells point out, these historic shifts are redefining development challenges and priorities (Sagasti, 2001; Castells, 2000). For technical cooperation in particular, this new environment has several significant consequences in terms of the capacities needed and, more fundamentally, in the tools available to build capacities for development.

Changing Capacities

The network age alters the capacity-building challenges for developing countries. Capacity—meaning well-functioning institutions and policies, skilled people and a leadership with vision—matters more as the shift to the network age has increased the rewards and penalties for both individuals and organizations in terms of their knowledge and competence. Global value chains are creating niche opportunities for developing countries. India's success in exploiting the ICT and ICT-enabled outsourcing niche markets is a spectacular example (see Box 3.1.1). As this case shows, when local private initiatives exploit new market opportunities, the results can be astounding. The case of the pharmaceutical industry in Brazil also highlights how utilizing local and technical knowledge can be highly successful. The reverse also presents risks—the consequences of being out of the global value chains can mean being marginalized from the most dynamic aspects of the global economy, as well as the benefits of global progress. Where possible and necessary, local private sector activity should be encouraged and facilitated by the public sector.

BOX 3.1.1: Exploiting Niche Opportunities in Networked Production

India is exploiting the growing niche opportunities of the global ICT and ICT-enabled networks in such areas as credit card administration, insurance claims, business payrolls, and customer, financial and human resources management. Some 185 Fortune 500 companies are outsourcing their software requirements to Indian firms. There are 1,250 companies exporting software. As a result, ICT sector output rose to 330 billion rupees by 1999 (US $7.7 billion), 15 times the level in 1990. Exports grew from $150 million in 1990 to nearly $4 billion in 1999. One study estimates that this figure could reach $50 billion by 2008, leading ICT to account for 30 per cent of India's exports and 7.5 per cent of its GDP. (Human Development Report 2001; Chandrasekhar, 2001.)

The network age not only increases the rewards for capacity but also alters the types of capacity that are needed. Network structures require more:

- specialized skills—to find niches in global networks for research, production, services and other activities;
- adaptability and flexibility—to be able to follow the rapidly changing economic environment and global technological advances, and to adopt and adapt new ideas, methods and technologies that can best meet emerging needs and opportunities; and

- science- and technology-based knowledge, skills and training—studies consistently show basic education increases the rate of technological innovation and adoption among farmers and workers.

The new environment also requires different kinds of capacity to manage the process of development in a technology-driven global marketplace. Examples include:

- the capacity to negotiate rules of globalization;
- the capacity to negotiate intellectual property rules that safeguard social objectives, such as protection of indigenous knowledge systems, access to essential technology products and promotion of technology transfers; and
- the capacity to participate in global networks, especially those related to production and to knowledge creation and diffusion.

New Tools and Approaches to Sharing and Creating Knowledge Networks

The restructuring of activities along globally networked value chains is most visible in manufacturing production but is also taking place in other activities. Networks are now an important part of global research and technology development. Scientific research is increasingly collaborative across institutions and countries. Between 1981 and 1995-97, the share of scientific publications with a foreign co-author more than doubled in many OECD countries. In Brazil, cross-country collaboration increased by nearly 25 per cent, and in Kenya, it increased by 9 per cent. In 1995-97, scientists in the United States co-authored articles with scientists from 173 other countries, scientists in Brazil with collaborators from 114 countries, in Kenya with 81 and in Algeria with 59 (National Science Foundation, 2001). An increasingly collaborative approach to knowledge creation is also evident in rising instances of cross-border ownership of inventions. The share of patents invented in collaborations between OECD and foreign co-inventors almost doubled between the mid-1980s and the mid-1990s (OECD, 2000).

Networks of development practitioners across the globe are emerging, sharing relevant knowledge, information and know-how about best practices. These networks link development practitioners in different sectors and project areas, fostering collaboration between individuals and institutions and providing forums in which knowledge and information on best practices can be shared. UNDP's internal Subregional Resource Facility (SURF) systems, the World Bank's Global Development Network (GDN) and the networks among Southern African Development Community (SADC) countries are all examples of such linkages.

The establishment of knowledge communities around specific areas of practice through UNDP's SURF system has allowed the programme's 134 country offices truly to become a network on which UNDP's strength is based. Eighteen months after the creation of the SURF system in the latter half of 1999, membership had reached over 12,000 (see Box 3.1.2).

The World Bank's GDN encourages capacity-building, networking and knowledge creation across institutions—among research institutes, policy-makers and donors. The network focuses on critical research areas and builds on seven regional networks that span the developing world and draw on networks in the OECD. The GDN helps research and policy institutions by fostering vibrant global, regional and electronic networking activities designed to ensure the latest research, best practices and new ideas are shared across the development community. It is intended to strengthen the capacity of these institutions to contribute to national and global policy debates.

Among the SADC countries, knowledge-sharing initiatives enable practitioners in different areas—water management, food security, seed security, health care, etc.—to exchange experiences in building capacity. The South Africa Health Network, a national network of health professionals established in South Africa, is a particularly well-developed network that makes full use of information and communication technologies to connect people in the health profession, providing a forum in which they can share ideas and the latest health care knowledge. Through modules covering topics ranging from malaria to traditional medicines, the system aims to facilitate and enable interaction and an iterative information flow among researchers, health services professionals, industry players, health policy-makers and communities.

These are just three examples of the universal trend in the last few years of growth in the numbers of global knowledge-sharing networks at different levels—within and between institutions, and among development stakeholders at the regional and global levels. Almost all global development institutions have established some form of knowledge-sharing to ensure the best knowledge of the organization is available to all whenever it is needed. Some other examples include the organizational learning work of Bellanet, an international initiative working with the development community to increase collaboration; the Food and Agriculture Organization's FarmNet, which facilitates the exchange of knowledge and information among rural people; Healthnet's global network of networks of health professionals; and the OneWorld network, which connects nongovernmental organizations (NGOs) working for human rights and sustainable development around the globe.

Regionally, there has also been an explosion in the numbers of knowledge-sharing networks. A few examples are: in Latin America, the Technology Foresight Network of the United Nations Industrial Development Organisation (UNIDO) and the International Centre for Science and High Technology (ICS); in sub-Saharan Africa, the African Development Policy Network and the Southern African Development Culture and Communication Network; in East and South Asia, Electronic Networking for Rural Asia Pacific, which is supported by the International Development Research Centre (IDRC) and the International Fund for Agricultural Development (IFAD); and in South Asia, Bytes for All. Every month, Bellanet is contacted by five to ten civil society organizations in the South, who introduce their programmes and invite Bellanet to enter a dialogue regarding areas of possible collaboration.

BOX 3.1.2: Creating a Human Development Network

SURFs in UNDP

The role of UNDP and its country offices is to help governments do their jobs better. Providing the right information at the right time is crucially important. In 1998, the question arose as to how UNDP headquarters could ensure it provided country offices with the information they needed. As an experiment, UNDP established a small network on sustainable livelihoods between New York and eight country offices around the world. When one of the eight offices questioned headquarters on an issue, that office and all other country offices (often facing the same issues) would receive a response. But as the questions began, the eight selected offices also started answering each others' questions, discovering an immense pool of knowledge among the network members. In the following January, UNDP scaled up the network to around 40 people, and in the second half of 1999, email groups were organized around six thematic focal points. These were common to many country offices and were subjects in which staff had developed considerable expertise—poverty, environment, government, microfinance, ICT for development and the National Human Development Reports (NHDRs). Full-time facilitators anchored in the corresponding units at headquarters were recruited to support the networks.

Since then, the SURF networks have generated knowledge-sharing within UNDP and facilitated the emergence of communities of practice through a format that is inexpensive and based on demand. Some SURF networks work better than others, however, and in all cases, it has been hard to foster the sense of community among network members that is needed to turn these networks into communities of practice. There have also been problems in bringing headquarters in and in changing the culture of UNDP to create incentives for knowledge-sharing. Now that the networks have been established, there is a need to ensure that the knowledge shared over the last few years is not lost. A comprehensive knowledge collection exercise should accompany this revolutionary step in connection.

The National Human Development Report SURF

The NHDR SURF network brings together over 330 people. It was established with the aim of supporting members of UNDP's country offices involved in producing NHDRs. The network has been a huge success in meeting this objective over the last two years. Now it comprises UNDP staff, NHDR teams, and a number of experts and consultants, and is turning its focus to building capacity for furthering the objectives of human development nationally, regionally and globally.

Within UNDP, the NHDR SURF is considered the most successful of these networks. Like all effective networks it is:

Demand-driven: There was a real need for the network in the form of unmet demand for advice on producing human development reports. Most country offices had staff working on the production of national or regional reports. While they worked autonomously, they faced many of the same issues.

Purpose-driven: The NHDR SURF worked well quickly because it is output-oriented—discussion and best practices evolve around the issues related to producing the NHDRs.

Tightly focused in its purpose: The NHDR network concerns a specific topic—how to make the NHDRs better. Members know why they are on the network and what they expect to get out of it.

Based on high levels of trust: Trust is crucially important to the development of knowledge communities and is built both through repeated good contributions and through direct and indirect personal knowledge. Since it is vital to bring network members together, NHDR participants met in Beirut in June 2001.

How It Works

During the course of preparing an NHDR, a country team needs external advice on a variety of issues, such as on the use of a Purchasing Power Parity (PPP) measure of income within the statistical work of the report, or on the outline of the report being proposed. As a part of the NHDR network, the team can post a question on PPP or ask for advice on the outline and receive immediate expert feedback from members around the world who have produced similar reports. They may receive a response in 24 hours and are guaranteed a response in five days—much quicker than the weeks it used to take.

The Impact

The NHDR network has had a huge impact in building capacity on national human development issues and measurements, and has allowed UNDP headquarters to have access to the expert knowledge that has been established. Network members working on NHDRs in Cameroon, Lao and Yemen are just some of those who have received advice on the outlines of their reports, and recommendations on data and people to work with as they complete their reports. Best practices in the production of regional human development reports have also been shared.

Capacity-building has not been limited to the production of reports, although at first this was the main role of the NHDR SURF community. In 2001, debates also took place on sustainable human development equilibrium models, the contribution of NHDRs to the monitoring of the 2015 development targets, the creation of training materials on human development, operationalizing human development for strategic planning and the role human development policies play in poverty eradication. The debate on building sustainable human development equilibrium models, for example, enabled members of the network to receive advice on building such a model, examples and articles detailing where such models had been constructed, and the data required. The community member in Vietnam who had originally posed the question was thus equipped with the tools needed to understand the feasibility of using such a model for formulating and evaluating policy there.

Another way in which capacity has been built is through the development of national networks. The production of an NHDR brings together many different actors, and these actors can be institutionalized in a network beyond the production of a report. Some national networks were established relatively early, such as in the Philippines in 1992. Other networks have started to develop through the capacity built by the SURF network—such as those in Armenia, Benin, Bolivia, Kyrgyzstan, Mozambique and Russia. The recently established network in Kyrgyzstan has developed an inward-looking national human development portal (in contrast to the national development gateway designed more for external audiences). The portal connects business people, government officials, donors, consultants, students and scholars. It is designed to engage the local population in discussions on concrete issues related to the country's development priorities throughout the year, not only during the preparation of the NHDR. They get feedback on the NHDR but also on issues such as Poverty Reduction Strategy Papers (PRSPs), the Comprehensive Development Framework (CDF), regional development plans and the government's national development strategy.

Recent and Future Developments

In its first two years, the focus of the NHDR network has been on the individual products—the reports themselves. As the network expands in membership, and becomes more mature, it is entering an exciting new phase in which the focus is shifting towards making contributions to the field of human development and its measurement. The network is becoming a lobbying force and instigator of change at the national, regional and global levels.

In some countries, country-specific NHDR networks have emerged, and in some areas regional and professional NHDR networks are starting to form as well. The global NHDR network will benefit from the development of these local networks, and thus it has encouraged their growth. Local NHDR networks further encourage national capacity-building and the adoption of the human development approach. It is also easier for non-UNDP actors to become more involved in local networks. UNDP now needs to learn to participate as a partner and not as an owner, as these networks must live in the country and be demand-driven. The human development approach is a composite bringing together many different elements, and national networks benefit similarly with respect to the membership of the network. Ideally, the network should involve experts in different fields, representatives of different social groups, and members of national and regional research institutions, political and economic commissions, universities, media and statistical agencies. These networks can bring a passion to issues of national human development. By facilitating knowledge-sharing, they can build the national capacity to succeed in meeting these challenges and help provide the tools needed to overcome them.

(Tadjbakhsh, 2001a and 2001b; Glovinsky, 2001.)

Such sharing and creation of information and know-how is replacing the transfer of know-how through the "expert-counterpart" model of technical cooperation and knowledge transfer. But such networks can be subject to the same weaknesses of being donor-driven (see Box 3.1.3).

ICT makes possible not only the creation of networks but also access to global information in a way that was never possible before. The remotest village has the possibility of tapping a global store of knowledge far beyond what one would have imagined a century ago, faster and more cheaply than anyone imagined only a few decades ago. A school in rural Tanzania can go from having few textbooks to having access to the world's best libraries through connecting to the Internet. In Chile and Mexico, FAO projects have applied computer technology to establish information networks for agricultural producers and farmers' associations. These networks have provided essential information on topics such as crops, markets, prices, weather, social services and credit facilities.

Networks among development practitioners and access to global knowledge systems can substitute for conventional technical cooperation, by which knowledge was thought to be embodied in an individual (expatriate) to be imparted to other individuals (nationals).

Towards a New Model of Development Cooperation in a New Paradigm

Increasingly, entrepreneurs in developing countries will find niches in the networks rising across the globe. In particular, organizations and businesses will participate in and benefit from networks of production and of knowledge creation, diffusion and use.

The appeal of networks as a new model of technical cooperation for capacity-building is that they bypass the root causes of the failures of the last decades of technical cooperation, which are by now well known (Berg and UNDP, 1993; Fukuda-Parr, 1996). These causes include, among others, the donor-driven nature of technical cooperation and a faulty notion of the expert-counterpart model in which knowledge is transferred from a Northern expert to a Southern counterpart.

Old models of technical cooperation have been entrenched in a paradigm of knowledge and society that gave little recognition to the dynamics of how knowledge is generated, adopted and used (Sagasti, 2001). The paradigm assumed that knowledge resided in the North and could be transplanted in the South. A more realistic paradigm of knowledge and capacity-building would be to recognize that:

- much of the knowledge on development resides in the South and not in the North (Denning, 2001);
- knowledge not only resides in individuals but also in institutional experiences and databases; and
- capacity development is fostered through learning by doing.

BOX 3.1.3: The Global Development Gateway: A Critique

The Global Development Gateway (DG), is one of the knowledge-sharing activities conceived by the World Bank. The DG aims to create a common platform for knowledge-sharing and dialogue through a global gateway and series of country gateways that are "easier to access and navigate than the often bewildering wealth of information on the Internet" (World Bank, 2001). As people share information, they may build communities of practice around particular development challenges.

This aspect of the World Bank's knowledge management strategy has been criticized heavily. While some critiques are based on real problems with the initiative, many of the complaints about the DG arise from frustrations with World Bank activities in the past. The main issues have been:

- **Supply - not demand-driven:** The overall budget to date for establishing the Development Gateway has been US $7.2 million. An additional $1.8 million has been allocated to finance the start-up phase of country gateways in 32 countries. Yet there is no guarantee that the information collected and uploaded is the information that people want. Honest consultation needs to establish whether there is real recipient need. Similar projects already exist, so there has to be an analysis of what is being done elsewhere and an outline of project need. The World Bank could play an important role in financially supporting existing initiatives.

- **Lack of participation in the development of the gateway:** The focus on supply rather than demand is also evidenced by the lack of real participation of the development community in the creation of the DG. There was a strong reaction against the formation of a portal such as this by the World Bank, but the concerns were not heeded. There are feelings that this is another example of the World Bank's top-down relationship with the community it hopes to serve.

- **Governance issues:** A balance of power needs to be struck between the World Bank and other partner organizations in running the Development Gateway Foundation, the independent organization that will manage the DG portal. Particular attention should be given to ensuring the full participation of people from the South in managing and controlling the DG.

- **Creating a monopoly of development information:** There is a fear that through the DG the World Bank will begin to monopolize development knowledge. The large sums of money behind the gateway relative to the sums of money available to other similar initiatives brings about unfair competition.

- **A hierarchy of development knowledge:** The aim of the portal is to provide access to premier information on development, which creates an uncomfortable authority situation. It establishes a hierarchy of knowledge—suggesting that if something is accessible through the DG it is a universal truth. Yet the World Bank is not a neutral provider of development information. Offering high-quality information requires an editorial policy, but this may result in a bias towards the information accessible through the gateway. Editorial activities are needed, but there should be a plurality of them—the DG offers only one. A huge amount of knowledge won't be accessible by the gateway, and the omissions will be unintentionally systematic. Knowledge that is outside the technocratic and scientific community—indigenous knowledge—will tend not to be included. "Just as it is difficult for the Polish or Malian filmmaker to win international film distribution, let alone a Hollywood Oscar, so it is difficult for the uninvited to contribute to the mainstream web sites, and of course impossible for the unconnected" (Panos Institute, 1998). Yet it is this unconnected knowledge that is often most important.

- **Fails to exploit the empowering nature of the Internet:** ICTs have driven the cost of storage, retrieval and communication down, enabling the smallest entity to develop web sites and information bases. Economies of scale are now applicable to the network, not to the individual producer—allowing a multiplicity of sites to develop and a multiplicity of voices to be heard. The DG suggests the Bank has failed to understand that the Internet encourages

> horizontal networking and multiple voices rather than centralized planning and coordination. Country development communities have complained about a top-down approach in the design and content of country development gateways. External consultants have often come in and established the gateways themselves. As two commentators note:
>
> > For the Internet to become an empowering tool for the billions of people living in poverty, what is needed is to stop seeing it as a broadcasting tool for those with a message, gospel or dogma wanting to reach "them" and to see it instead as a tool for communities to articulate their own message, reduce the costs of transactions they conduct themselves, communicate with whom they want to communicate.... The challenge is to find ways that allow for investors, industry and the international development community to play their role in bridging the "digital divide" by empowering communities (Roberto Bissio, 2000).
> >
> > What we need in the new "knowledge society" is diversity; a multitude of knowledge brokers, a Babel of banks. Where ICTs can make a real difference is in providing access to these different and competitive databanks, which in turn enables all of us, through the media and civil society forums, to engage in well-informed, constructive and democratic debate (Panos Institute, 1998).
>
> Knowledge does not exist without ownership by someone. As conceived now, the DG cannot exist as a neutral portal allowing a forum for development debate. The structure of the DG could alter to encourage this to a greater degree, but maybe what is best is for a plurality of development portals to exist.

Building a new model of development cooperation that recognizes these realities will give greater ownership to local communities in establishing programmes for change. A model is needed that strengthens the ability of the local private sector to act and increases the capacity for relevant development knowledge to be tapped into easily.

Such networks—in which businesses, public institutions and civil society institutions create partnerships, with each focusing on their niche specialization—present an alternative to traditional forms of technical cooperation. But while private businesses and civil society organizations might find profit and other incentives to participate in networks, public strategies and investments are needed to bring public institutions into networks. Institutional innovations and new forms of incentives need to be created. Public institutions in the North and the South are already doing this on a small scale. Initiatives fostering access to information, sharing of knowledge and best practices through networks, and partnerships among institutions that cross national borders can be a more empowering form of development cooperation that can strengthen capacities based on the utilization of expertise and knowledge in the South.

Knowledge networks and communities of practice enable knowledge-sharing and capacity-building. While information and communication technologies allow collection, storage and access to explicit knowledge that has been codified, much knowledge remains tacit, embodied in individuals and institutions. Such knowledge is "sticky" in that it is hard to pass it from one person to another. "We know more than we can say" (Stiglitz, 1999). Communities and networks enable this knowledge to be transferred. Also, access only to information without knowledge of the local situation is of little use. The context in which knowledge arises is often crucial to understanding and exploiting it. Through the connection of practitioners in a knowledge network or a community of practice, a forum is established in which knowledge can be shared, allowing global information and knowledge to be successfully adapted to the local context. Building capacity through knowledge-sharing thus does not only involve the storing of data and information, but also human interaction and understanding.

Within institutions, knowledge networks and communities of practice ensure full utilization of the wealth of knowledge built up by years of experience among the people of the organization. As organizations mobilize their knowledge base through such networks, it becomes possible for all individuals in the organization to utilize the best knowledge the organization has at any given point. These tools of knowledge-sharing are increasingly being used beyond organizational boundaries. They are applied to areas of practice across organizations, allowing best practices in the field to be shared and used. They are also starting to exist along regional and national lines, allowing people from different areas of practice but with the same goal—poverty reduction, for example—to communicate, share experiences and ideas, and develop a comprehensive approach to the problems at hand. The same principles ensure effective development of such networks and communities. Briefly:

1. The better defined a network is, and the more focused it is on a specific issue, the more useful the knowledge-sharing will be.

2. The higher the level of trust within the network or community, the greater the volume and honesty of knowledge flows. Trust between members of the network or community can be facilitated by sharing pictures of other network or community members, setting up face-to-face meetings, and keeping the network or community small, including by developing sub-networks when the original network becomes too big.

3. Networks and communities need to live, and as such need to be developed from the bottom up and allowed to follow their own agenda, sharing knowledge the individual members need. There does, however, also need to be a network or community facilitator ensuring that questions receive an answer and that debate remains active and alive. Striking the balance is key.

Much can be learned from the World Bank, which has developed a comprehensive approach to knowledge-sharing both within and across its organizational boundaries (see Box 3.1.4).

As knowledge networks and communities of practice increasingly develop across organizational boundaries, the old hierarchies of knowledge-sharing are broken down. As southern membership of these global networks increases, the greater the flow of knowledge from South to North will become, allowing so-called experts in the North to learn from the realities of experiences in the South. Encouraging active southern membership of communities of practice is vital to allowing this to happen. The South can benefit from membership in such communities, as local cultures are able to draw on their local and indigenous knowledge, which they can then reinterpret and develop in light of the most useful approaches from elsewhere. But the benefits in the way development institutions in the North do development will be much greater, as knowledge systems in international institutions become responsive to knowledge flows from the South.

BOX 3.1.4: Knowledge-Sharing at the World Bank

The World Bank has taken knowledge management seriously, deciding to adopt a comprehensive knowledge management strategy costing US $43.25 million per year that will transform the Bank into a "knowledge bank." The knowledge-sharing network within the Bank includes, among other activities initiated in the last few years, the Global Development Network to foster knowledge-sharing among research institutes, policy makers and donors, and the Development Gateway, which establishes a mega development portal.

This level of commitment to knowledge-sharing has paid off. In 1999, Larry Prusak, director of the IBM Institute of Knowledge Management, led an external panel of knowledge management experts to assess the relevance and impact of the Bank's knowledge-sharing programme. The knowledge management strategy was found "far-sighted in conception and sound in its fundamentals. It positions the Bank to play a key role in the world economy of the 21st century." In February 2000, the World Bank was acknowledged as one of the five top knowledge management organizations in the United States. In June 2000, an annual survey of experts of Fortune 500 companies also selected the Bank as one of the top ten Most Admired Knowledge Enterprises (MAKE) in the world.

As these knowledge-sharing activities of the Bank become more established, further institutional change is needed to ensure the realization of the goal of a knowledge bank:

- Partnership is key to the horizontal networks the Bank is seeking to develop, yet the experience of some NGOs who have partnered with the Bank has been that there needs to be more institutional change at the Bank in order to allow this to become a reality.
- The Bank's operating paradigms have not changed, despite the fundamental indications suggesting they should that have been generated by knowledge-sharing. The Bank still operates in a very centralized way that does not fit with the fact that it operates around the world in many different local contexts. Fostering ownership has thus not been possible. Structural change is needed to allow increased ownership.

In 1992, the Centre for Indigenous Knowledge for Agriculture and Rural Development (CIKARD) began an effort to collect and preserve indigenous knowledge pertaining to development. Indigenous knowledge networks in 131 countries are maintained on topics such as indigenous innovations and decision-making structures. Intended to facilitate sustainable local development, this information is available both to professionals, practitioners and lay individuals within the local community and experts around the globe. South-North knowledge flows need to be fostered, and knowledge systems in international institutions need to be responsive to these knowledge flows. Development cooperation based on such flows is empowering and effective.

As southern networks develop through the establishment of regional and national networks, the opportunity for the South to learn from the South also becomes greater. The South holds much relevant development knowledge for other southern countries. The real experts on development are those who live the reality on a day-to-day basis. In this age of accelerating change, it is even more important for different stakeholders in the South to share knowledge, which allows quick learning on best practices as contexts change rapidly. In Cameroon, for example, 44 organizations and individuals subscribe to WAZA (the Sustainable Development Networking Programme Cameroon mailing list), receiving several short articles each week on a variety of subjects related to sustainable development in Africa. WAZA provides networking

opportunities to subscribers, who add their own news bulletins to the mix and break off into smaller email discussion groups based on specific topics. Dr. Martin Sama, a researcher in tropical medicine and medicinal plants, is a WAZA subscriber. "Just yesterday, I got information about the Ebola virus," says Dr. Sama. "That is important to me as a medical researcher." South-South knowledge flows need to be encouraged. As international institutions learn how to share their knowledge more effectively, they can help developing countries devise similar capacities.

It is crucial that local entrepreneurial activities are encouraged so as to allow this increased knowledge transfer to be utilized. Private sector initiatives need to be facilitated by the provision of necessary credit and legal institutions as well as investments in infrastructure. The capacity of a community to reinvent locally will depend crucially on the opportunities for entrepreneurial activities available to individuals and firms.

I do not want my house to be walled in on all sides and my windows to be stuffed. I want the cultures of all lands to be blown about my house as freely as possible. But I refuse to be blown off my feet (Gandhi, 1959, 159).

The strength of southern involvement in communities of practice and of the local private sector to act is necessary to ensure that local communities are not blown of their feet.

Conclusion

The network age offers a fundamental challenge to the reform of technical cooperation. Will technical cooperation be able to reform so that the transfer of knowledge and the building of capacity that it hopes to achieve take into consideration the advances in our understanding of knowledge transfer, namely the importance of connection rather then codification? If technical cooperation operates through a new mode, establishing knowledge networks and recognizing the fundamental truth that the South has much to learn from the South, then knowledge becomes a powerful force for action, and a two-way flow of knowledge can be established. When knowledge is shared in this manner, local ownership of development processes becomes possible. Facilitating local entrepreneurial activity is necessary to allow these knowledge flows to make their way into action. The ideal embodied in the phrase "scan globally, reinvent locally" becomes a reality.

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