Statement at Development and International Cooperation in the Twenty-first Century: The Role of Information Technology in the Context of a Knowledge-based Global Economy

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Thank you very much, Mr. President.

Mr. President, Distinguished Delegates:

I am delighted to be participating in this high level policy dialogue with my colleagues in trade and finance, Rubens Ricupero, Michael Moore, and Eduardo Aninat.

Today, I would like to speak with you about several themes - (1) the importance of knowledge and information and communications technology (ICT) in a global knowledge economy; (2) the relationship between technical knowledge gaps, information problems and the digital divide, the fact that they are worse in developing countries and among the poor and their impact on development; and (3) the ways that international institutions, like the World Bank and others, working in partnership with developing-country governments, the private sector, and NGOs can better address these issues.

I would also like to emphasize at least one overarching message and that is the necessity to think of ICT and knowledge working in harmony and with other factors - as opposed to emphasizing one without the other - as the key to future development in a global economy. While ICT is the means through which knowledge is shared and learning takes place, in and of itself, without the simultaneous development of "learning communities", improvements in education, and other elements of societies, the spread of ICT will not be sufficient to address many of the development challenges that lie before us.

At the Bank, our approach has been to develop a collection of programs that address the various aspects and needs of the knowledge economy and ICT for development - these include areas of stimulating the development of information and communications technologies (facilitating infrastructure and software financing, supporting competition and privatization policies, investing in digital literacy, launching, testing and mainstreaming successful pilot projects); distance learning at a number of different levels, especially in tertiary education around technical knowledge such as engineering and business; exchange and
dialogue on knowledge about sustainable development and poverty reduction; global learning networks and more.

Economies are built not merely through the accumulation of physical and human capital, but on the foundation of information, learning and adaptation.

II a. The Nature and Implications of a 'knowledge economy'

We are increasingly living in a "knowledge economy" - in which money is just another commodity and knowledge and learning are supreme - having knowledge and knowing what to do with it matters most. The only sustainable comparative advantage in such an economy is the ability to learn faster than one's competitors.

For example, forty years ago, Ghana and the Republic of Korea had virtually the same income per capita, but by the 1990s Korea's income per capita was six times higher than Ghana's and it is estimated that over half of that difference can be attributed to Korea's greater success in acquiring and using knowledge.

Understanding how people and societies acquire and use knowledge is essential to improving people's lives, especially the lives of the poorest.

The information revolution makes understanding knowledge and development more urgent than ever before.

New communications technologies and plummeting computing costs are shrinking distance and reducing borders and time - and the advantages of greater knowledge and superior ability to learn become even greater.

The remotest village has the possibility of tapping a global store of knowledge beyond what one would have imagined a century ago, and more quickly and cheaply than anyone imagined possible only a few decades ago.

And distance learning offers the potential to extend learning opportunities to millions who would otherwise be denied a good education.

II b. The Opportunities and Challenges of A New Age

But with these opportunities come tremendous challenges -- the globalization of trade, finance, and information flows is intensifying competition, raising the possibility that the poorest countries and communities will fall behind even more rapidly than before.

In our excitement about the information superhighway, we must not forget the villages and slums without telephones, electricity, or safe water, or the primary schools without pencils, paper, or books.

For the poor, the promise of the new information age - knowledge for all - can seem like a distant hope.
To make sure that the poor reap the benefits of this new age, we must make sure that the implications of the information revolution is part of the overall development agenda.

In addition, the whole process of development is changing - it is not only a transfer of resources and advice from north to south, but rather a process of groups, communities and networks learning to learn faster, facilitated by financial flows where appropriate.

In a knowledge-based economy, it is insufficient to simply provide the "hardware" of ICTs alone - they are the means through which knowledge sharing, learning and adaptation take place in this new age and we must assure that the organizational arrangements necessary to benefit from ICT are in place.

Technical knowledge gaps and information problems are worse in developing countries than they are in more technologically advanced countries, and these inequalities especially hurt the poor and negatively impact development.

In 1998, the World Bank's World Development Report (WDR), Knowledge for Development, examined the role of knowledge in advancing economic and social well-being - through this report, we learned and rediscovered the following lessons.

Knowledge is like "light" - it illuminates the lives of people everywhere, yet billions of people still live without access to even the most basic knowledge.

For example, knowledge about how to treat diarrhea has existed for centuries - but millions of children continue to die from it because their parents do not know how to save them.

Poor countries - and poor people - differ from rich ones not only because they have less capital but because they have less knowledge.

Knowledge is often costly to create and that is why much of it is generated in industrialized countries.

But developing countries can acquire knowledge overseas as well as create their own.

The WDR considered two types of knowledge - (1) technical knowledge and (2) knowledge about attributes (information) and argued that both knowledge gaps and information problems are worse in developing than developed countries, are especially difficult for the poor and can reduce people's quality of life worldwide.

To recognize the power of knowledge to give people control over their own destiny, governments and the international development community must address both types of knowledge problems.

III a. Narrowing gaps in technical knowledge (e.g. about farming, health, accounting)
Typically, developing countries have less technical knowledge (e.g. about nutrition, birth control, software engineering, accounting, etc.) or "know-how" than industrial countries, and the poor have less than the non-poor.

For example, better knowledge about nutrition can mean better health and knowledge about the transmission of AIDS can save millions from debilitating illness and death, in addition public disclosure of information about industrial pollution can lead to a cleaner and more healthful environment.

As knowledge spreads, for example, infant mortality falls for rich and poor countries alike. A country with an income per capita of $8,000 in 1950 had on average an infant mortality rate of 4.5% compared to 3% in 1970 with the equivalent real income and 1.5% in 1995.

There are at least three critical steps that developing countries must take to narrow knowledge gaps:

1. acquiring knowledge - tapping and adapting knowledge available elsewhere in the world - for example, through an open trading regime, foreign investment, and licensing agreements - as well as creating knowledge locally through R&D. For example, FDI of capital, ideas and technological infrastructure and know-how tend to encourage growth.

2. absorbing knowledge - involves, for example, ensuring universal basic education; creating opportunities for life-long learning; and supporting tertiary education.

3. communicating knowledge - involves taking advantage of new information and communications technology - and ensuring that the poor have access.

Development requires an institutional transformation that improves information and creates incentives for effort, innovation, saving, and investment.

III b. Addressing information problems

Knowledge about attributes - e.g. the quality of a product, the diligence of a worker, or the creditworthiness of a firm, -- are crucial to effective markets and are critical to development.

Without knowledge about attributes, markets cannot function properly and it is lack of knowledge that causes markets to collapse, or never to come into being.

For example, in India, some producers began diluting milk and consumers could not determine its quality before buying it - without that knowledge, the overall quality of milk fell - producers that did not dilute their milk were put at a disadvantage, and consumers suffered.
Mechanisms to alleviate information problems, such as product standards, training certificates, and credit reports are fewer and weaker in developing countries --

Information problems and the resulting market failures especially hurt the poor.

While the unequal distribution of information can never be entirely eliminated, it can be ameliorated, in part through institutional innovations designed specifically for developing-country settings.

The 1998 WDR suggested promising solutions in three areas where these problems are most severe: (1) processing the economy's financial information; (2) increasing knowledge of the environment; and (3) addressing information problems that hurt the poor.

Most of the difficulties that developing countries face involves both knowledge gaps and information problems and to be effective, the solutions must address both issues.

Information and Communication Technologies (ICTs)

Since our 1998 WDR study and beyond, we have continued to examine the role of ICT in the development process.

As we emphasized in the 1998 WDR, one of the critical steps that developing countries must take to narrow knowledge gaps involves taking advantage of new information and communications technology and ensuring that the poor have access.

There are many, including some in the UN, that recognize that development can be a problem of ICT — the digital divide is keeping countries from developing faster.

While the provision of ICT alone will not solve the problems of economic productivity or welfare in the developing world, in combination with the building of learning communities in the developing world, the dissemination of ICT can have tremendous benefit and it is central to the effort to escape poverty.

IV a. ICTs and Broad-Based Development

In conjunction with, and indeed as result of, providing a means through which to communicate knowledge, ICTs are linked to broad-based development and poverty reduction in a number of different ways.

The "digital divide" and the reduced and unequal access to ICTs impacts negatively on development.

ICTs provide access to information that can increase competitiveness; create earnings and economics opportunities; improve access to basic services or increase the impact of education and health interventions; reduce vulnerability to natural disasters; and enhance individuals empowerment and security.
For example, in terms of macro stability, it is believed that overall the ICT sector contributes between 3% and 5% to GDP. ICTs play a central role in facilitating trade and investment.

For example, in terms of earning possibilities, 25,000 Indians are already employed in remote services using new ICTs, and software exports from the country are already worth $2.7 billion per year. It is now the fastest growing sector in the Indian economy and its share of GDP has increased from 0.3% of GDP in 1990/1991 to 1.5% of GDP in 1998/1999, representing a 40% annual growth rate.

In the areas of greater transparency ICTs can improve the efficiency of government procurement, reduce corruption and increase civil society participation and in terms of greater empowerment for the poor, ICTs have the ability to allow the poor to better communicate their concerns and access the public sector to demand representation.

ICTs are also an important means for reaching the rural poor by helping to alleviate shortages in teachers and physical materials, to link teachers and students across countries, to expand distance learning opportunities and to enhance ICT skills to enable populations to adapt to new technologies.

A good example of ICTs alleviating poverty while increasing technological know-how in rural areas is the GrameenPhone project -- loans averaging US $350 to rural woman in India provided 1,100 telephones and sustainable and profitable businesses through reselling airtime to others in the village. In addition to providing a new business sector which generated jobs and income, the telephones enabled access to outside knowledge-sources reducing information barriers that faced rural farmers and workers.

Another example of ICTs' capacity to increase poor peoples' voice, power and security comes from the NGO Sakashi in India which used international women's networks to access advice and technical assistance on legal issues surrounding sexual harassment. The knowledge generated was used to affect Supreme Court guidelines and to bring the issue into the purview of human rights violations.

An example of the ability of ICTs to improve internal and external business prospects is a 1995 project initiated by the local government in Alexandria township, South Africa. Creating a database of local resources, that was accessible over the internet, gave community members the opportunity to obtain information about local capabilities and also enabled community enterprises to win contracts from larger firms in nearby Johannesburg.

The impact of improvements in the capacity for information exchange will depend critically on how the rest of the economy functions, suggesting the centrality of a holistic approach, like the CDF, in judging the impact of ICT development.
For example, the impact of improved ICT access on farm earnings through increased knowledge of market prices will be muted if there are no roads to carry crops to markets, or no markets because of an unreformed agricultural sector.

In addition, the level and provision of ICT services themselves are heavily influenced by the broader environment - e.g. efficient, affordable, and widespread ICT access is also dependent on macro policy factors (e.g. those governing FDI, the provision of reliable electricity, literacy, etc.).

IV b. The Digital Divide - The Threat of Exclusion

The 1998 WDR in conjunction with a number of other studies both inside and outside of the Bank have emphasized the way in which telecommunications and computing have transformed society - but they have also noted that throughout the developing world access to even basic communications technology is available only to the fortunate few.

For example, Rwanda has a population of over six and a half million. It has fewer telephones than the World Bank and in Ethiopia, 98% of Internet users have a university degree (in a country in which more than 60% of the adult population is illiterate).

Today, 90% of Internet host computers reside in high income countries with only sixteen percent of the world’s population.

There are more Internet hosts in Finland than the whole of Latin America and the Caribbean.

New York has more Internet hosts than the whole of Africa.

We must avoid a growing digital divide - we must not allow the networked economy to widen the development gap - and we must respond with strategies that increase connectivity through competition that leads to decreased prices; subscriber growth & new technology development and through government involvement in infrastructure support systems and universal education (the ultimate enabler).

In addition to these specific ICT agenda items, responding to the digital divide will necessitate a holistic approach, centered on the fibers, computers and switches, but also reaching out far beyond the physical infrastructure itself.

For example, evidence suggests that several factors --- education, openness to trade and the availability of communications infrastructure---enhances knowledge and information flow--ultimately leading to higher growth rates.

The broad and interconnected nature of networking is suited to the CDF - the information revolution depends on numerous underpinnings - such as education and knowledge communities - and has effects across the development landscape - from the environment to governance. It also
requires all development actors to work together as partners and in conjunction with the private sector.

The Role of the International Development Community.

V a. What can the international development community do?

The 1998 WDR argued that international organizations, such as bilateral donors, multilateral institutions, NGOs and the private sector must work together to strengthen the institutions needed to address information problems.

In a knowledge-based economy, the process of development becomes one of building consensus and partnerships within which networks of knowledge communities can share know-how more effectively than in the past.

The lessons from the 1998 WDR suggest that there are a number of areas of action for developing country governments, the private sector, NGOs and for the international development community more broadly, including universities and colleges — in particular, international institutions can act by creating new knowledge, and transferring and adapting knowledge so that it is kept accessible and constantly updated.

V b. A World Bank Agenda for Action in a Networked Economy.

At the World Bank we are convinced that knowledge and information are central to the development process and we are committed to ensuring equitable access to the knowledge economy.

Sharing knowledge is critical to getting faster poverty reduction and knowledge flows need to be supported by appropriate funding.

This is the thinking that is behind our approach to development — the CDF.

In the CDF, we believe that money in development needs to be focused on getting results (e.g. reducing poverty) and that waste and inefficiency in the use of resources needs to be eliminated in both the developing world (e.g. corruption) but also in the development process itself (e.g. procurement and other processes framed for the convenience and interests of donors at the expense of getting results).

This kind of thinking is reflected in the Bank's knowledge sharing strategy and in our efforts to build the knowledge bank.

As a result, we have developed a collection of programs that address the various aspects and needs of the knowledge economy and ICT for development — these include areas of stimulating the development of information and communications technologies (facilitating infrastructure financing, supporting competition and privatization policies, investing in digital literacy, launching, testing and mainstreaming successful pilot projects); distance learning at a number of different levels, especially in tertiary education around technical knowledge such as engineering and business; exchange and dialogue on knowledge about
sustainable development and poverty reduction; global learning networks and more.

Universities and colleges, as institutions of higher learning, have much to offer in addressing these issues.

Our development agenda is focused on bringing together the relative strengths of the private, public and non-profit sectors. In the area of ICT in particular, the focus is heavily on the private sector as the development of these technologies is increasingly private-sector lead. However, in the area of knowledge creation and dissemination, due to the public good aspect of this aspect, the focus is heavily on the public sector as the provision of public goods falls squarely on shoulders of governments and institutions like ours.

InfoDev - a venture fund for ideas that bring together public and private donors to promote innovative applications of information and communications technologies for development.

Global Distance Learning Network - improving development potential by using distance learning to connect development decision makers (e.g. in government, para-government agencies, NGOs, academia, civil society) to a global knowledge exchange.

Global Development Gateway - an internet portal to information, knowledge and dialogue about sustainable development and poverty reduction - a global space for interaction and transactions within the development community and a multi-partner initiative.

World Links for Development Program - establishing a global learning network, linking millions of students and educators around the world via the Internet to improve educational opportunities; to prepare youth for the 21st century and to build global awareness and understanding.

African Virtual University - using ICT to increase enrollments in science, engineering and business education and to increase the overall quality of university education; building management and technical capacity of African universities; and integrating African academics into the worldwide community of learning. Degree programs in computer science, computer engineering, electrical engineering and certification or non-credit courses in ICT training, business and professional development seminars, language instruction, teacher training programs.

Education Advisory Services and Thematic Groups: The Bank has an extensive knowledge sharing program including our thematic groups within the overall areas of poverty reduction and economic management, human development (education, health, nutrition and population, etc.), environmentally and socially sustainable development, and finance and private sector development and education advisory services.

World Bank Award: The World Bank recently (June 5, 2000) joined the likes of General Electric, Arthur Anderson, Cisco Systems, and Microsoft, in receiving a Most Admired Knowledge Enterprise 2000 Award -- named one of the top 10 most admired knowledge enterprises by Fortune 500 executives
and chief knowledge officers. The Bank ranked 10th overall in its knowledge performance efforts — edging out 129 other organizations. The Bank is the first non-commercial organization selected for such an award.

However, the Bank's official "knowledge management" efforts are less than five years old and we still have much more to accomplish in this area.

In addition, the World Bank is just one of the many players in the development process — NGOs, the private sector, multilaterals and governments must work together.

V c. What can Developing-Country Governments Do?

Along with other actors in the international development community, developing country governments can help in strengthening the institutions needed to address information problems.

In addition, as our 1998 WDR study found, these country governments must institute policies — such as making efficient public investments in lifelong education opportunities; maintaining openness to the world; and dismantling barriers to competition in the telecommunications sectors — that will enable them to narrow the knowledge gaps that separate them from rich countries. This requires public and private sector activities.

VI. Conclusion

Putting knowledge and information and communication technology at the center of the development agenda will improve the functioning of markets and enhance people's quality of life throughout the world.

Developing societies require policies and institutions to facilitate the acquisition, adaptation, and dissemination of knowledge, and to mitigate information failures, especially as they affect the poor.

This implies an expanded mandate for public action — we must all work together to help countries and communities address these challenges in their own way. It is also a call to institutions of higher learning — that has the capacity to help in addressing many of the issues about which I have spoken today.

In my view, a world without poverty — one in which we help developing countries grow and prosper — is a more secure and sustainable world — it is a more peaceful world.