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**Development Cooperation in the Age of Information Technologies
–The Role of the United Nations and its Agencies**

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Development Cooperation in the Age of Information Technologies--The Role of the United Nations and its Agencies*

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1. Introduction

Many economies of East and South Asia have performed well during the last two decades thanks both to the economic policy reforms consisting of massive domestic deregulation, liberalisation of foreign exchange, trade and investment regimes and industrial restructuring policies and to capacity building and enhancement both in the public and private sectors initiated since the early 1980s. The external assistance from major donors such as Japan has also contributed substantially to this success.

However, the momentum of development has been threatened from three sources. First, the regional financial crisis mainly in East Asia. While coming to the end thanks to the return of confidence of the international community resulting from a series of domestic reforms and external official flows, it had led to a halving of foreign direct investment flows to the region and a sharp fall in their export growth in 1997-98, now fortunately being reversed since 1999.

Second, growth momentum has been slowing for internal reasons as in China, Vietnam and India, since over the past few years the vigour of the reform programmes has slackened, and the growth impact of the earlier reform has been fading. The governments of these economies must once again accelerate domestic reforms of both policy and structural nature to regain their growth momentum, while the assistance from external sources is badly needed to help their reform process and overcome their difficulties as quickly as possible. The slower the reform process, the more serious the possible adverse impact on their long-term development. The point is not to attract more ODA indiscriminately but to make more effective use of ODA, thus serving

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to enhance investment flows from private sector both at home and abroad particularly in favour of those sectors consistent with their long-term economic and social development strategies.(See Table 1)

Table 1 Growth of Asian Economies, 1980-98

Economies	1980-90	1990-98	1997	1998	1999	2000
NIEs	n.a.	n.a.	6.0	-1.4	2.3	4.3
Hong Kong, China	6.9	4.4	5.3	-5.1	-0.5	2.0
Republic of Korea	9.4	6.2	5.5	-5.5	2.0	4.0
Singapore	6.6	8.0	7.8	1.5	1.0	4.0
Taipei, China	n.a.	n.a.	6.8	4.8	4.9	6.3
ASEAN	n.a.	n.a.	4.0	-6.9	0.8	2.8
Cambodia	n.a.	5.5	2.0	0.0	4.0	6.0
Indonesia	5.1	5.8	4.9	-13.7	0.0	2.0
Lao PDR	n.a.	6.7	6.9	4.0	n.a.	n.a.
Malaysia	5.3	7.7	7.7	-6.2	0.7	2.7
Myanmar	0.6	6.3	4.6	4.0	3.0	4.0
Philippines	1.0	3.3	5.2	-0.5	2.4	4.0
Thailand	7.6	7.4	-0.4	-8.0	0.0	2.5
Vietnam	4.6	8.6	8.2	4.0	3.7	4.5
Northeast Asia	n.a.	n.a.	8.7	7.8	7.0	6.5
China	10.2	11.1	8.8	7.8	7.0	6.5
Mongolia	5.4	0.1	4.0	3.5	3.5	4.0
South Asia	n.a.	n.a.	4.7	5.7	5.5	5.8
Bangladesh	4.3	4.8	5.9	5.7	3.6	5.5
Bhutan	n.a.	n.a.	5.4	5.6	7.0	n.a.
India	5.8	6.1	5.0	5.8	5.9	6.0
Maldives	n.a.	n.a.	6.2	6.8	6.4	6.4
Nepal	4.6	4.8	4.0	1.9	2.0	2.7

Pakistan	6.3	4.1	1.3	5.4	3.4	4.0
Sri Lanka	4.0	5.3	6.4	5.3	5.0	6.2

Sources: Asian Development Bank (ADB), ASIAN DEVELOPMENT OUTLOOK 1999, Table A1, p.242, and World Bank, WORLD DEVELOPMENT REPORT 1999/2000, Table 11, pp. 250-251.

Third, there has been an increasing gap between those developing economies that have been successful in their race toward a knowledge-based economy with a fuller utilisation of new information and communication technologies (the so-called IT) and those that have not. Hong Kong, Malaysia, the Republic of Korea, Singapore and Taiwan illustrate the former and Cambodia, Indonesia, Lao PDR, the Philippines, Thailand, Vietnam, Bangladesh, Nepal, Pakistan and Sri Lanka the latter. (See Table 2) It is also important to observe that in geographically large and heavily populated economies such as India and China there has been in recent years a growing gap within the country between those areas and regions that have made a notable progress toward an IT-based economy and those that have not.

Table 2 Information Flows in Selected Countries, 1996 (per 1000 people)

Countries	Main telephone lines	Fax machines	Personal computers	Internet hosts
High HD	502	44.6	204.5	34.5
Canada	602	26.7	243.6	53.5
United States	640	64.6	362.4	88.9
Japan	489	113.7	128.0	11.0
United Kingdom	528	30.8	192.6	23.3
France	564	32.7	150.7	7.9
Germany	538	22.0	233.2	14.9
Italy	440	31.4	92.3	5.8
Singapore	513	29.6	216.8	15.1
Hong Kong	547	49.8	150.5	20.5
Republic of Korea	430	8.9	131.7	4.3
Medium HD	54	0.7	7.2	0.74
Malaysia	183	5.0	42.8	2.09
Thailand	70	2.1	16.7	0.03

Philippines	25	0.7	9.3	0.21
Sri Lanka	14	n.a.	3.3	0.04
Maldives	63	14.3	12.3	0.34
China	45	0.2	3.0	0.02
Indonesia	21	0.4	4.8	0.10
Vietnam	16	0.3	3.3	0.001
Mongolia	39	n.a.	5.8	0.05
India	15	0.1	1.5	0.01
Cambodia	1	0.0	n.a.	0.01
Pakistan	18	1.1	1.2	0.02
Low HD	4	0.2	0.01	0.001
Lao PDR	6	n.a.	1.1	0.001
Nepal	5	n.a.	n.a.	0.01
Bhutan	10	1.7	n.a.	0.001
Bangladesh	3	0.0	n.a.	0.001

Source: United Nations Development Programme (UNDP), HUMAN DEVELOPMENT REPORT 1999, Table A1.3, pp.53-56.

There has been a growing concern in the international community in recent years with the widening IT gap, or “information divide” so called, between urban and rural areas in developing economies and between the rich and the poor economies. It is this concern that prompted the United Nations Economic and Social Commission at its last session in the fall of 1999 to request its Committee for Development Policy to analyse major issues involved and recommend doable policy initiatives that the high-level segment of ECOSOC could consider in July 2000 under the theme of “Development and international cooperation in the twenty-first century: the role of information technology in the context of a knowledge-based economy” and, if appropriate, adopt for relevant bodies and agencies of the United Nations to follow.

This paper addresses itself to this request of the ECOSOC, by presenting as input at the coming CDO deliberations a Japanese perspective on the issue under consideration, and it is the author’s view that possible solutions to this issue will greatly assist developing economies in facilitating their economic and social development process and making a progress in their fight

against mass poverty, environmental degradation and rising external indebtedness. For this reason this paper will first look at the current situation of management and utilisation of IT in developing economies and secondly at possible strategies and measures that the United Nations could take to assist developing countries to improve the management and utilisation of IT for efficient, effective, equitable and sustainable development.

2. Management and Utilisation of IT in Developing Economies

1) An overview of the current IT applications in developing countries

While varying among developing countries depending on the stage of economic and social development, surveys done by the Asian and Pacific Development Centre headquartered in Kuala Lumpur show that IT applications are currently found most frequently in the following three major functions of an organization both in the public and private sectors.^{1/} They are for the delivery of clerical services, management services and public participation system.

a) Clerical function

The application of IT has been most commonly observed in the delivery of clerical services to introduce order and timeliness into clerical routines, resulting in a vast improvement in the productivity of clerical work. It is found in statistical compilations for various uses such as population census, livestock surveys, company database, consumer price surveys, household income and expenditure surveys, trade and investment surveys and crop reports. Speed and accuracy have been the main advantage of the IT application.

The second major application of IT under this function is found in the periodic generation and reporting of high volume transactions such as tax collection administration, vehicle registration, personnel administration and banking, accounting and auditing administration. This way, organizations, public or private, are able to reduce cost, improve speed and release staff from paperwork for more productive use. Another major advantage of IT is its ability to provide

rapid answers to intra-organisational and public queries and provide ad hoc analysis on the data. The detailed data and analyses are often needed for future corporate and government planning. The third area of IT applications under the clerical function is found in office automation to speed up organizational decision making by word processing and electronic mails between different departments and units of the organization.

b) Management function

IT is also applied to assist corporate and government managers to improve their management capability through better control and planning. Through IT applications managers are expected to be more capable of designing effective management systems, monitoring the activities for which they are responsible and comparing actual performance with prescribed and/or planned targets and highlighting significant deviations. They are quite useful to improving the managerial capability in financial and budgetary planning and control, monitoring the progress of large construction projects, family planning programme monitoring, and monitoring trends in imports, exports, production and distribution of goods and services.

The IT application is now increasingly found in building computer models for planning decisions through the installation of mathematical and simulation models which provide managers with an experimental laboratory setup. The IT applications are found most frequently in building and revising macro-economic planning models for national economy, sector and region/district, capital investment analysis models, location models for a set of social and educational services, and forecasting models on population, market demand, land use and so on. A decision support system has been installed in many organizations in developing countries to blend the capabilities of models with the intuitive judgment of the decision-making corporate managers and public administrators. What the Decision Support System (DSS) does is to provide a computer environment in which the decision maker can interact with a computer model so as to use his judgment on the fuzzier aspects of the decision which are not explicitly evaluated by the model.

c) Public participation function

The application of the IT to public information disclosure and participation has been found less frequently in most developing countries, although it is increasingly seen today under the mounting public pressure at home and abroad (particularly from ODA donors) for a greater degree of transparency and accountability as well as people participation in project, programme, sectoral and national planning, implementation, monitoring and evaluation. It is said that community participation can provide a major stimulus to improving the effectiveness of developmental efforts by national, provincial and local governments. Public information disclosure and participation put pressures on local leaders and officials to improve their performance and accountability, as seen in public works programmes, adult education, malaria eradication and family planning.

An easier and cheaper access to public and private information has in recent years been increasingly made possible by online, wireless and satellite internet services across national borders. According to the International Telecommunication Union, there are today 250 million internet users all over the world which will increase to a staggering number of 1 billion by 2010.^{2/} In Asia and the Pacific region alone nearly 70 million internet users are registered and the number is increasing very rapidly. Today 95 percent of internet users are computer based, but given the staggering rise in the number of mobile phones from 11 million in 1990 to 500 million in 2000, non PC-based users will undoubtedly surpass the PC-based in a few years' time. There are, however, censorship and some other restrictions in some developing countries on people's access to the contents provided by internet service providers (ISP), as in China, Indonesia, Lao PDR, Singapore and Vietnam, while they have been nearly completely liberalised in Hong Kong, Malaysia, Mongolia, the Republic of Korea and Taiwan. There are still technological and financial constraints on the extent of internet services extended by ISP, whether online, wireless or satellite in many developing countries.

2) Advantages of IT applications in developing countries

a) Economic and management efficiency

The applications of the IT has had innumerable favourable impact on improving productivity both in terms of cost reduction, speed and accuracy in all these functions mentioned above, i.e., clerical, management and public participation functions. They have improved the efficiency and effectiveness of project management at local levels, sectoral and programme management and national economic management through better planning, implementation, monitoring and evaluation processes. With a widespread use of personal computers user friendly IT applications have become essential and, when supported by a central information centre as seen in the Housing and Development Board in Singapore, data standardization, integration among government agencies, evaluation of hardware and softwares, provision of technical services including the training of end users become more readily available, resulting in the organisation's overall efficiency and effectiveness. With many applications of the IT observed in many sectors and functions of development in developing countries, there is now a clearer opportunity for technical cooperation among them and between industrial and developing countries.

b) Transparency, participation and decentralized governance

IT applications have also been quite beneficial in promoting transparency, accountability and people participation in decision-making process, thus contributing to good governance in developing countries. Had it not been for these IT applications, public information disclosure would have been quite costly, if not technically difficult, and public pressures for such disclosure would not have been so decisive as seen in so many developing countries today. In fact, IT applications have promoted public pressures for political reforms and democracy, along with those for smaller government and lesser government intervention in the market as well as a greater reliance on the market. With an ever increasing networking among individuals, and organizations, decentralized system of management is an inevitable process both in the public and private sectors, and national governments find it increasingly difficult to make rational intervention in the management of the marketplace. Contributing to the generation of individual initiatives, IT applications have done a lot in improving their intellectual, professional and technical competence and strengthening their belief in individual freedom, human rights and human development.

- c) Redefinition of the role of government and growing importance of non-governmental organizations (NGOs) at the national and international levels

IT applications are now rapidly becoming widespread at every level of decision-making process in many countries, increasing people's access to public and private information and their right to know and enhancing their interest in educating themselves to be better capable of surviving in an increasingly competitive global economy. IT has thus contributed enormously to the people's interest in their own capacity building and individual identity. IT has also enhanced people's interest in their own local culture, traditions and community living as well as, as evidenced by a growing popularity of CNN and BBC news, in what is going on in the rest of the world which is shrinking in time and space at an incredible speed. People in developing countries are no exception.

As people in developing countries become more IT-literate and acquisitive regardless of their financial conditions and as people begin to interpret participation in public affairs as their own inalienable rights, the decision-making process under IT applications is now increasingly decentralised at the corporate, local and national levels. As a result, the local and central governments have in recent years been under an increasing pressure to redefine their role in public administration including the reduction of their power that had traditionally been considered as almighty and invincible and that had often dictated the lives of individuals, corporations and other entities. The policy thrusts to this effect have invariably been a part and parcel of the Structural Adjustment Programmes as endorsed by the International Monetary Fund, the World Bank and regional development banks in many developing countries since early 1980s.

In this process of making and managing public decisions at local and national levels, those issue-oriented NGOs, particularly with enhanced capacity of IT applications, have gained a growing public recognition as convincingly versed with changing economic, political and social issues in terms of the breadth and depth of information gathering and analysis in industrial countries. With the assistance of such international NGOs, the capacity of those issue-oriented NGOs in developing countries has also been increasing quite rapidly. NGOs have thus now

become a full-fledged partner of public management in industrial countries and increasingly so in many developing countries.

The growing participation of issue-oriented NGOs has now come to be reflected in the installation and management of international rules, regulations and conventions, as evidenced at a series of global conferences organized by the United Nations since 1990. There is, however, a growing criticism at those international and national NGOs that disrupted the inter-governmental negotiation at the recent Seattle meeting of the World Trade Organisation (WTO), as being irresponsible and non-accountable. The rapid growth of IT applications will probably increase, rather than restrain, such problem of national and international governance, leading possibly to some consensus and rules over the governability of national and international NGOs at the national and international levels.

3. Major Problems Resulting from the Wide-Spread IT Applications

While pointing to the fact that “computing and communications – especially through the Internet – has broken the bounds of cost, time and distance, launching an era of global information networking,” and “communications change economic competition, empowerment and culture, inspiring global conversation,” and noting that “knowledge is the new asset: more than half of the GDP in the major OECD countries is now knowledge-based,” and “with such importance placed on these technologies, the new rules of globalization – liberalization, privatization and tighter intellectual property rights – are shaping their control and use, with many consequences to human development,” UNDP in its last Human Development Report 1999 warned the international community that “tightened intellectual property rights keep developing countries out of the knowledge sector,” and that “the rush and push of commercial interests protect profits, not people, despite the risks in the new technologies.”^{3/}

In spite of these prospects, developing countries have no choice but to integrate themselves into the international trade and economic regimes set by major industrial countries and join their race for knowledge-based economies through fuller utilisation of IT both in the

public and private sectors. It is vital that industrial countries and multilateral development and finance institutions as well as multinational corporations assist developing countries not to be left out in the cold and to capture the benefits of IT for the latter's accelerated development.

a) Widening gap between initiators and followers

Like any other technologies that had come in the history of mankind, the IT has had both dimensions, costs and benefits. Like all the technologies that has surfaced in agriculture, mining, fishing, commerce and industrial sector, the innovating individuals and enterprises of IT have reaped the full benefits of such technologies as the latter has rapidly spread to millions of people, enterprises and organisations around the world since the start of the 1990s. It is said that there are today one personal computer for every 3 to 5 persons (one per family) in industrial countries and 250 million Internet users in the world, a rise of 100 million users since mid-1998. This number is expected to increase to more than 500 million people by end 2001. To register 50 million users in the world, radio receivers took as long as 38 years, personal computers 16 years, television sets 13 years and the World Wide Web only 4 years. The creation of the WWW and the distribution of free browsers made computer users to point and click the mouse to do their jobs and mobile phone users to access to any data publicly available at any time during the day and night and at any place in the world.

As mentioned earlier, the IT applications have borne those individuals and organizations utilizing it effectively such benefits as: a) productivity gains and falling costs, b) quality improvement, c) product and service diversification, d) speedier delivery of products and services, and e) minimisation of loss accident. As pointed out by HDR1999, these benefits of IT are obvious, as exemplified by the comparison among different tools of communication for the delivery of a 40-page document from Madagascar to Cote d'Ivoire. A five-day courier service for US\$75, 30-minute fax for \$45, and 2-minute email for less than 20 cents. And the email can go to hundreds of people at no extra cost. The IT promotes network communications, creating a network society where every Internet user is connected with everyone else, whether individual or organisation, with all its contradictory impact such as diversification vs. recentralisation, fragmentation vs. integration, and homogenisation vs. diversity. Which impact will be greater

depends on what the leadership and managers want out of their network communications and network society.

b) Political consequences of IT applications

While the IT could bring all these benefits and contradictory impact in developing countries, their poverty in finance, human capital formation, management capacity and governance preclude such IT benefits. It is true, as pointed out in HDR1999, that “email is no substitute for vaccines, and satellites cannot provide clean water. High-profile technology projects risk overshadowing basic priorities.”^{4/} It is equally true that IT applications are not effective at all in national economies and local communities lacking of information and business infrastructures including legal framework and enforcement capacity.

It is hastened to be added, however, that IT can provide needed information, whether on market demand, technical requirements or resources availability and prices, to everyone at little cost and at a high speed, and that IT applications, by reducing cost, improving speed and accuracy and encouraging people participation in the production of goods and services and in problem identification, analysis and solving processes, could make vaccines and clean water more readily available to the poor. IT applications in fact may induce political decision in developing countries to respond more effectively through allocation of more budget to those critical needs of the poor. This means that IT applications not only are transactions of an economic or technical nature, but also have a tremendous impact on the political and social dimensions of development in developing countries. IT applications can be a powerful tool of promoting individual initiatives, decentralized management and diversification of views and opinions as well as empowering the technical competence and political will of all the partners of development including nongovernmental organizations, business sector organizations and local governments.

IT applications, as shown in the PEOPLink (linking over the Internet the work of more than 130,000 artisans across 14 countries of Africa, Asia and Latin America), certainly open up a new opportunity for small businesses both in urban and rural areas. However, “fulfilling the

potential of global communications for development demands relentless effort in reaching out to extend and enhance the loop.”^{5/} UNDP also warns that the international community must ensure through broadening governance, greater public investment in technologies for development, and pushing for change in multilateral agreements, that IT applications “promote innovations and sharing of knowledge, restore social balance, favour precaution, bring benefits for the many, respect diverse systems of property ownership, empower people, and make technology accessible to those who need it.”^{6/}

The biggest question now confronting us in the international development community is: HOW DO WE ENSURE THE UNDP PROPOSALS WITHOUT SACRIFICING, AND FURTHER ADVANCING IF AT ALL, THOSE BENEFITS OF IT APPLICATIONS MENTIONED EARLIER AND WHAT AND HOW THE UNITED NATIONS BODIES AND AGENCIES COULD DO TO ASSIST DEVELOPING ECONOMIES TO DO JUST THIS.

4. The Role of the United Nations

The United Nations and its bodies and agencies could take following measures, in collaboration with bilateral and other multilateral donors, when appropriate, to assist developing countries and territories to take advantage of all the advancing IT in their pursuit of efficient, effective, equitable and sustainable development and in particular strengthen the management and utilisation of IT applications at the corporate, local and national levels.

1) Assist developing economies to build, expand, consolidate and renew the business and internet infrastructures in favour of an easier and less costly access to IT applications in developing countries. In this connection, it will be vital that as recommended by the Global Internet Project in March this year, the United Nations and its regional commissions, in collaboration with the World Bank, International Finance Corporation (IFC), an affiliate of the World Bank Group, and regional development banks (RDBs), support the Asian Internet Infrastructure Initiatives announced by the Asian and Pacific Internet Association (APIA) and similar efforts for other developing regions;

- 2) Urge the international community to set up the third generation internet standards as quickly as possible so that every party associated with the emerging wireless standards, including Internet users most importantly, will benefit from them. In this connection it is equally vital that the United Nations and its relevant agencies support the initiatives taken by the Mobile Wireless Internet Forum under its “Third Generation Partnership Programme” for setting such standards and by the Wireless Application Protocol (WAP) Forum, a non-profit industry association open to all industry all over the world, to provide operators, infrastructure and terminal manufacturers and content developers a common environment for the development of Internet access and other value-added services for mobile phones and other wireless data devices;^{7/}

- 3) Assist developing economies to reorient and strengthen their human capital formation to be consistent with the advancing demand of IT applications, particularly for seamless, global, high-speed, efficient and economic wireless access solutions through broadband and third generation technologies. In this connection, it is vital that the United Nations and its relevant agencies promote not only North-South cooperation but also South-South Cooperation as some advanced developing countries such as Asian NIEs have already built advanced IT infrastructures and made a remarkable inroad into IT applications both in the public and private sectors at corporate, local and national levels;

- 4) Assist developing economies to promote private and public sector financing and joint ventures in IT and IT-related business sectors in developing countries. In this connection, it will be important that the United Nations and its relevant agencies support the private sector initiatives to work with the IFC, RDBs and interested multinational corporations for the installation and management of Information Superhighway projects;

- 5) Urge the international community to reduce and in a timely manner eliminate through WTO negotiations all tariffs and NTBs in industrial and more developed developing countries in favour of imports of IT goods and services from the rest of the developing world. In this connection, it is also vital that the United Nations and its relevant agencies promote the development of IT applications in developing countries through the installation of an

international technology transfer mechanism such as the improved protection of intellectual property rights;

6) Cooperate with bilateral and other multilateral donors to expand technical cooperation with developing countries in science and technology policy formulation, monitoring and evaluation with a special emphasis on IT applications by increasing scholarships and fellowships at universities and research institutes in industrial countries. In this connection, it will be vital that the United Nations urge the international community to support the Developing Country Internet Foundations proposed by the Internet Society for students coming from different developing regions for enhancing cyberspace capacity including online, wireless and satellite internet servicing capability;

7) Assist developing economies to provide greater training opportunities in IT applications for primary and secondary school children, technicians, engineers and professionals through enhanced South-South cooperation. In this connection, it is essential that the United Nations and its relevant agencies support further strengthening of regional and subregional institutions set up in developing countries to train IT technical and management personnel;

8) Urge the international community to assist developing countries in installing and upgrading IT applications in national and local healthcare programmes including the training of hospital administrators, medical and dental doctors, nurses and other health personnel through North-South and South-South Cooperation Programmes; and

9) Urge the international community to work more closely with international organizations including the United Nations and its bodies and agencies, Bretton Woods institutions and Regional Development Banks in promoting technical and financial cooperation with developing countries in the IT applications and IT-related sectors. In this connection, it is highly recommended that bilateral donors support the initiatives of the “Women on the Net Project” taken by the UNESCO in collaboration with the Society for International Development to “create a space for networking, sharing, support and solidarity, to review policy making on ITU to build

up a unique source of understanding on communication's policy from a gender perspective in support of women's advocacy at important policy making junctures, and to push forward new frontiers of knowledge and power for women in cyberspace, integrating the tools of cyberspace into their political work towards the goal of social justice."8/

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