

## The Report of the Task Force on Financial Mechanisms for ICT for Development



***- A review of trends and an analysis  
of gaps and promising practices***

**December 22, 2004**

The World Summit on Information Society (WSIS), the first phase of which was concluded in Geneva in 2003, recommended that "while all existing financial mechanisms should be fully exploited to make available the benefits of information and communication technologies, a thorough review of their adequacy in meeting the challenges of ICT for development should be completed by the end of December 2004. This review shall be conducted by a Task Force under the auspices of the Secretary-General of the United Nations and submitted for consideration to the second phase of this summit." The Secretary-General asked UNDP to take the lead in setting up Task Force on Financial Mechanisms, in collaboration with the World Bank and the United Nations Department of Economic and Social Affairs and other key partners.

*The following report does not necessarily reflect the views of United Nations, which should not be held responsible for its contents.*

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## Executive Summary

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### WSIS Context

The WSIS Plan of Action requested the Secretary General of the United Nations to create a Task Force to study the issue of financial mechanisms for ICT and present a report to facilitate the discussions on the subject in preparation for phase II of WSIS:

“While all existing financial mechanisms should be fully exploited, a thorough review of their adequacy in meeting the challenges of ICT for development should be completed by the end of December 2004. This review shall be conducted by a Task Force under the auspices of the Secretary-General of the United Nations and submitted for consideration to the second phase of this summit. Based on the conclusion of the review, improvements and innovations of financing mechanisms will be considered including the effectiveness, the feasibility and the creation of a voluntary Digital Solidarity Fund, as mentioned in the Declaration of Principles.”

The Secretary General asked the United Nations Development Programme (UNDP) to lead the Task Force on Financial Mechanisms in collaboration with the World Bank, UN DESA, and other key partners.

Over the course of the past several months, the Task Force has conducted extensive consultations, research, and reviews of information surrounding the role and effectiveness of financial mechanisms to support ICT for development. The data, analysis, and findings presented in the report represent the Task Force’s best understanding of the broad and constantly changing scope of the ICT sector and the use of ICT in the developing world from a financing and development perspective. In the report of the Task Force, the main areas of concern have been clustered into five general categories which relate to the WSIS themes as follows:

<b>TFFM Categories</b>	<b>WSIS Themes</b>
Enabling Environment and Policies *security & ethical dimensions are not explicitly discussed in the report	4 -Building Confidence & Security, 5 - Enabling Environment, and 9 - Ethical Dimensions of the Information Society
Infrastructure	1 - Information & Communication Infrastructure
Access	2 - Access to Information and Knowledge
Content and Applications	6 - ICT Applications in all Aspects of Life, 7 - Cultural and Linguistic Diversity, Local Content, and 8 - Media
Capacity development	3 - Capacity Building

### Background

The financing of information and communications technologies for development (ICTD) needs to be placed in the context of the growing importance of ICT as a medium of communication and exchange that can contribute to a more inclusive global information society, and its role as a *development enabler* which can help to more effectively deliver the goals outlined in the Millennium Declaration. The achievement of these goals has become the focal point of subsequent policy and implementation initiatives by governments and international agencies around the world including most recently at WSIS-Geneva where the financing of ICTD was a central element of the discussion.

The potential to facilitate a broad-based deployment and use of ICT has been ratcheted up by technological transformations that have dramatically lowered the cost of goods and services and expanded the range of technology choices and development solutions. This in turn has stimulated the entry of new players, principally the private sector. The new

technologies have also increased the opportunities for civil society, local communities and entrepreneurs to actively participate in the emerging social and economic processes.

Traditionally, in developing countries, ICT infrastructure financing came either from Government budgets, including revenues generated by the state post, telegraph and telephone authorities (PTT), or from donor and international financial institution (IFI) programs that supported major capital infrastructure investments. But the transforming effects of the technological forces have resulted in a major shift in the financial strategies and options among ICT stakeholders, towards a significantly greater reliance on private capital.

The changes in the roles of the different stakeholders and actors has also been accompanied by a sharply increased recognition of the critical importance of the enabling environment for ICTD to facilitate investment and allow actors including those at the bottom of the pyramid to participate in the new information society.

Furthermore, as the effective use of ICT is becoming increasingly central to the development process, developing countries are faced with a whole new set of financing requirements with few roadmaps from the past to draw on.

The rapid transformations in the technological and financing trends for ICTD are reflected in the analysis and findings of this report. The findings represent the key substantive results of the extensive research undertaken by the Task Force, as documented in the body of the main report and its supporting materials.

The basic objective of the Task Force has been to identify sustainable ways to ensure the continuation of current trends and innovative approaches to accelerate the use and availability of ICT resources to a wider range of developing countries and to a broader, subset of the population in individual countries.

## **Findings**

### *Development Context and ICT Trends*

**1. The global ICT sector is extremely dynamic and transformational; there is virtually no “status quo”.**

Technology and especially the new ICT are in a state of constant, rapid change. Technological change has dramatically lowered the cost of ICT goods and services and expanded the range of technology choices and solutions. It has also stimulated the entry of new players – principally the private sector - and increased the opportunities for communities and the private sector to provide a range of services to the bottom of the pyramid populations. Our effort to examine the financing options facing developing countries as they facilitate the growth in the use and deployment of ICT recognizes that this process of transformation is likely to continue and the existing set of conditions may only be indicative of the future.

**2. ICT are rapidly emerging as a vital factor in economic and social development to facilitate innovative and scalable solutions for achieving major development objectives.**

The potential for ICTs to have a decisive impact on achieving fundamental development goals, including those articulated in the Millennium Declaration is increasingly recognized. Information and ICT-enabled services can serve to increase economic opportunities for the poor and disadvantaged, creating prospects for new jobs and small businesses along with increased knowledge to be applied in enhancing traditional livelihoods. Women stand to gain by being empowered through access to communication and learning networks. Health care systems can be vastly more effective. Learning can be enhanced and access to education made more equitable. Governments can provide more efficient and transparent services and respond to

public needs more directly. The media and citizens are also able to empower themselves and become key players in local and national governance issues.

#### *Enabling Environment*

3. **Experience shows that attracting investment in ICT depends crucially upon a supportive environment and a level playing field for business as a whole, and on an ICT policy and regulatory environment that encompasses open entry, fair competition and market-oriented regulation.**

The explosion of ICT sector investment in most developing countries correlates closely with an improved environment for private investment to take place and the transformation of formerly closed, monopoly ICT markets to allow competitive entry. Where Governments have actively pursued an open, equitable market environment, investors have generally welcomed the opportunity to compete. The introduction and strengthening of independent, neutral sector regulation has helped to reinforce investor confidence and market performance, while enhancing consumer benefits. [0,1,2]

4. **There is evidence to suggest that the broad-based deployment of ICT also depends on a supportive development policy environment for ICTD particularly the establishment of national e-strategies and the integration of ICT into poverty reduction and/or other national development strategies and the PRSP process.**

Over 90 developing countries have developed or are in the process of completing national ICTD strategies. These strategies, typically designed on a multi-stakeholder basis, have been important in establishing national ownership and in outlining a set of key priority areas for intervention. Many of these have also linked to priorities outlined in the national poverty reduction or other development strategies, the success of which critically depends upon effective information management tools and applications, communication, and coordination across all public agencies and programs. The process and content of the poverty reduction and other development strategies are also key for donors who align their aid and partnership strategies to the priorities outlined therein. [3,4]

5. **Policy and regulatory incentives and more open access policies are also needed if private investment, CSO and community networks are also found to be effective in expanding ICT access to high cost (predominantly rural) and low income populations to address the "bottom of the pyramid" populations.**

Addressing policy barriers, removing restrictions on competitive entry by ICT companies and local community network operators, and permitting the use of cost effective technologies (e.g. VOIP, and on unlicensed spectrum), and other innovative practices have been found to be helpful in moving the network frontier to address the needs of currently under-served populations. Continued cooperation between various development partners and stakeholders can also help in addressing the problems of providing rural access using new technological applications including wireless broadband devices, offering incentives to Internet cafes, phone shops and community communications networks. [5, 5a]

- 6. Stimulated by the technological dynamism and profitability in the industry and opening up of market, since the early 1990s, the international private sector has quickly become the dominant player in infrastructure investment, and has catalyzed rapid growth of the sector in developing countries.**

The opening of markets and privatization of national telecommunications operators has led to an influx of tens of billions of US dollars into the ICT sector across many developing country markets, and has allowed access to fixed and mobile telephones, computers, the Internet, and other ICTs for over a billion people in the space of a decade and a half. Initially, the vast majority of this investment came from companies and institutional investors in the industrialized "North", pursuing expanded business and profit opportunities. The peak of "North-South" international investment in the ICT sector was around 1999-2000, following which the "crash" of the global telecom industry and of the "dot.com" boom resulted in significantly lower levels of new ICT investments in the developing world. This partly reflects the fact that many major investments (e.g., major operator privatizations and cell phone licenses) were already completed by 2000, combined with the drastically lower market capitalizations of major international technology companies and investment portfolios. Recent trends suggest that FDI is again increasing, and there remain numerous opportunities for foreign investors in developing country ICT *infrastructure* markets. [6]

- 7. While private sector investment and financing in the ICT sector remains high as evidenced by the continuing and rapid roll-out in infrastructure, particularly in mobile telephony, there has been a shift in the nature of that investment towards domestic, regional, and south-south financing and investment.**

New investments by some of the major developing countries, such as Brazil, China, India, Malaysia and South Africa, and regional players combined with increasing reinvestment of existing operators, has continued to spur growth throughout the ICT sector, at rates that greatly exceed those in the developed world. Domestic companies, often financed by rapidly growing local financial and capital markets have been important in facilitating the growth of this sector in many countries. [7]

- 8. New ICT investments in developing countries are also being stimulated by a variety of domestic financial mechanisms and multi-stakeholder partnerships, including pro-active and catalytic public sector financing and initiatives.**

Promising trends to build the domestic ICT sector in developing countries is also found to be dependent upon partnerships and cooperation between public, private, civil society organizations, community and financial stakeholders. These partnerships and investments have helped to mitigate risks, demonstrate market potential, enhance capacity, and stimulate demand for ICT. The support and development of local financial and capital markets, including capacity in new areas such as venture capital are also helping to spur entrepreneurship and innovation. [8,9]

- 9. In the context of infrastructure financing, reflecting the growing importance of private sector investment, Multilateral Development Banks and International Donors re-directed public resources from direct financing to policy reforms and other mechanisms to support infrastructure development.**

Whereas public financing of basic infrastructure costs, particularly backbone telecommunications networks, was previously a dominant component of MDB and ODA support for ICT development, the trend toward private investment in this sector was viewed as greatly reducing the need for *direct* donor and IFI financing of such

government-owned infrastructure in the majority of developing countries. ODA and public investment on ICT infrastructure declined substantially since the late 1990s. The MDBs refocused the bulk of their public support on encouraging and implementing market-oriented policy reforms to help encourage new private investment. The MDBs and other donor-supported private financing vehicles (including a large group of bilateral institutions) also considerably expanded the level and scope of support for private infrastructure rollout.<sup>1</sup> Some bilateral donors and selected MDBs have also been exploring ways to enhance their support to developing countries in advancing their infrastructure development through taking pro-active roles to stimulate private investment through the use of creative financial mechanisms, incentives, and partnership initiatives to reduce risk and catalyze investment particularly in “backbones” which given their 'public-good' nature can facilitate the delivery of services and stimulate other private sector investment. [10,11]

- 10. National Universal Service/Access Fund and other mechanisms to lower costs of delivery to under-served markets and promote community access can play an important role in helping to address ICT access gaps, but require substantial institutional and implementation capacity to succeed.** More than sixty countries have begun to establish Universal Access Funding mechanisms as a core component of their ICT development policies, to bring together financial resources in support of extending access beyond the market frontier. Successful models of UAFs introduced in Latin America and elsewhere have indicated that, when properly implemented in a *competitive* environment, these mechanisms can play a critical role in leveraging market forces to expand access to public telephone service, multi-purpose community telecenters, and other ICT facilities. Experience to date is mixed as this trend is very new in much of the developing world, and most countries are just beginning to address policy, regulatory, governance, institutional, and capacity issues required for successful management of these Funds. There are also possibilities for scaling up these funds through innovative financial mechanisms and schemes. Periodic assessment and evaluation of these mechanisms, together with other Universal Access development programs, can help define their future role in the sector within many countries. [12]
- 11. Regional cooperation, multi-stakeholder partnerships, and seed financing appear to be critical elements for addressing critical infrastructure gaps and can in turn help promote further development of national backbones and last mile solutions in countries where gaps persist.** In countries with relatively low population density and low per capita incomes (e.g. some of Africa's under-served sub-regions and Small Island States), financing constraints have become severe with neither the private nor the public sector being in a position to act alone. In these instances, regional infrastructures can also help serve national infrastructure in less developed regions, rural and under-served areas, and cost effectively leverage resources. In some cases additional partners can be brought into the process as well. Regional organizations and institutions can help facilitate cooperation and coordination and international financial institutions and donors can then play a vital role in seeding and facilitating the financing for such regional infrastructure projects. There is likely to then be increased market interest once the coordinated policy framework is in place. [13,14]

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<sup>1</sup> Support for the private sector now represents 70% of the World Bank Group's portfolio in the ICT sector (through its private sector arm, IFC) and EBRD and EIB also provide support mainly to the private sector. This support in turn catalyzes private foreign and domestic investment by a factor of more than 5:1.



**12. International Donors are seemingly redirecting their attention to both ICT policy and strategy development and mainstreaming of ICTD initiatives.**

While it is difficult to get an exact measure, it appears that many donors have also begun to increasingly shift their ICT program support toward the deployment of ICT within mainstream development projects such as health, education, and poverty reduction, while continuing to promote infrastructure development through ICT policy and regulatory reform-often through the provision of technical assistance and donor trust funds. [[15](#), [15a](#)]

**13. Current evidence indicates that ICTs that deliver relevant and valuable information applications, services and content are the most relevant to developing countries. The focus of these set of interventions is on ICT as a catalyst for both the achievement of development goals and the facilitation of access to knowledge and other global public goods.**

The overwhelming emphasis of ICT development and financing debate has focused upon infrastructure investments. However, ICT facilities and networks are ultimately only as valuable as the information and knowledge that they deliver to end-users. While there are many signs that the marketplace will eventually provide a variety of content and applications that can appeal to diverse populations, this segment has developed far more slowly than the supply of infrastructure and equipment. It would benefit from increased attention and creative initiatives across the developing world including expanding the public domain to ensure that knowledge can be disseminated where it is needed most and through providing support to community and local private sector for the development of locally adapted content. Also critical is the development of content and applications relating to the mainstreaming of ICT in the various development sectors, particularly in health, education and poverty reduction. These sectors while in a position to benefit from the use of ICT do not typically have budgets that would permit them to make the upfront investments required to leverage the gains of ICT for development. [[16](#), [16a](#)]

**14. Myriad ICTD initiatives and experiments are being financed by a wide spectrum of donors, NGOs, foundations, and international organizations; more may be better, but coordination and support for “scaling-up” strategies is urgently needed.**

New and innovative projects are being launched every day, and there are numerous encouraging examples of how strategic integration of ICT elements in development agendas can enhance education, health care, governance, business and job development, women’s opportunities, and crisis intervention. This trend of broad-based, local level experimentation should be encouraged, even though some initiatives will inevitably fail to meet the ultimate goals of sustainability, scalability, and replicability. Greater coordination of programs, experience, findings, and ICTD financing in general is needed particularly in the context of national poverty reduction and ICTD strategies, to maximize the potential impact of limited resources and accelerate development benefits and the global learning curve. Creating conditions that would facilitate more open access to low cost technologies and ICT networks can also help to make many of the community based approaches to the “last mile” more viable. [[17](#)]

**15. The role of ICT in Government (and hence of Government in ICT) can be the lynchpin of successful “e-strategies”; enhanced international and domestic support for public sector ICT capabilities is thus a first-level priority.**

Public budgets in developing countries, however, are far from adequate to support wide-scale implementation of integrated systems although in the long run, efficiency



gains should help offset the upfront costs of introducing new technologies. The international development community should thus actively consider the short- and long-term benefits to be gained from supporting selective public sector programs. Among the many target areas for ICT-based development interventions, the role of ICT in governance is arguably amongst the most crucial. In addition to the benefits of improved delivery of public and social services and increased participation, “e-governance” networks and facilities with multi-stakeholder partnership initiatives can help reinforce market opportunities, especially for start-up small and medium enterprises, as well as for service providers in remote locations while the proliferation of shared e-government programs and applications, stressing interoperability, sustainability and security, could help stimulate the development of domestic IT industries. [18]

**16. Building human resource capacity (knowledge) at every level is a central requirement for achieving Information Society objectives.**

By their nature, ICTs depend upon, and reinforce, the knowledge and intellectual skills of those who use them. In the long run, a virtuous cycle of learning, innovation, adaptation, and growth can derive from access to expanding levels of knowledge and information, and the tools to take advantage of them. But for the overwhelming majority of people in developing societies, there are steep entry barriers to enjoying most of the benefits of advanced ICTs. With strong public awareness, basic education, specialized training, and other capacity building measures, everyone from young students and private employees to public officials can become active participants in the Information Society. Without this commitment to fundamental human resource capacity, however, the return on investment in hardware and software risks could be limited and the pace at which the digital divide is narrowed could be decelerated. [19]

**17. ICT-related capacity building needs in the public sector represent a high priority in all developing countries, and current financing levels have not been adequate to meet these needs.**

The demands on Government budgets and personnel in any country are always difficult, but in an area as dynamic and technically complex as ICT, public agencies and officials in the developing world confront an exceptional challenge. Public agencies must understand and embrace ICTs themselves before they can effectively integrate them in the range of development and poverty reduction strategies. Any realistic plans to pursue Information Society goals through strategic ICT policies must recognize the primary need for intensive and ongoing capacity building measures across the spectrum of these key public sector functions. In this important area, current trends suggest that available funding fall short of what is needed. Governments themselves have little budget flexibility to pay the added costs for training and high-skills personnel arising from new ICT policies and initiatives. Although donors, foundations, and the development banks support a wide variety of training and knowledge transfer programs as part of their ICT-related assistance, to date these have generally been insufficient to sustain the necessary levels of permanent capacity enhancement. Substantial increases in financial resources would be necessary, in most administrations, to establish capacity building programs commensurate with the goals and needs of effective e-governance and ICT sector policies.[20]

## **Conclusions**

The Task Force's conclusions, based on the extensive research, analysis and discussions undertaken by the Task Force members, are a response to the substantive issues that were identified by the World Summit. They are organized into four main categories, which include a range of suggested priorities, options, and considerations for the participants in the Tunis Phase to take into account during their deliberations.

### **C1. Concerning "fully exploiting" existing mechanisms:**

The scope and diversity of the existing financial mechanisms to support ICTD investments is quite extensive, as documented by the Task Force report. Many of the mechanisms studied are not unique to ICTD and are also supporting other development areas and sectors. While quite extensive, it appears that nevertheless, most developing countries are not yet been able to leverage the full benefits of these existing mechanisms.

In the case of ICTD, most of the major financing mechanisms are primarily designed to promote the ongoing expansion of ICT infrastructure by assisting private companies to leverage public and private capital, to push back the access frontier and bring services to new customers. This is particularly true with respect to financing of "hard" infrastructure and access facilities to expand the availability and use of ICT among under-served, rural, lower income, and other marginalized populations. As barriers to such investments are eliminated, new entrepreneurs and additional funds are often quick to rush into newly opened markets. However, there are gaps, particularly where country risk (economic or political) is perceived to be unacceptably high and/or the enabling environment is weak. Investors may hesitate, and development financial institutions and donor support can assist by stepping in to provide technical support and financing to facilitate risk-sharing and stimulate additional financing and investment.

*In the context of infrastructure development and enhanced access to ICT, national Governments and other stakeholders have many tools and opportunities available to them to enhance the attractiveness of their ICT markets for investors and financiers:*

1. Continued promotion of a level playing field for ICT investments and regulatory policies that entice open access and fair competition for enhanced service provision, and new entrepreneurial investment in under-served areas.
2. Refinement and efficient implementation of targeted public finance mechanisms such as loan guarantees, Universal Access Funds, and partnership investments
3. Continued support and promotion of domestic, regional and South-South investment and increased sub-regional and regional cooperation to address current infrastructure and last mile gaps
4. Enabling tax, tariff, import, and business regulation policies designed to reduce risks and financial burdens for and provide incentives to ICT investors and financiers
5. Coordinated "e-governance" networking, service delivery, education and training, and procurement plans, which leverage ICT industry competition policies and private sector development to encourage new business opportunities

*In the context of ICTD initiatives and mainstreaming, securing funding from available (primarily ODA) resources have proved to be a challenge for many stakeholders and developing country governments. First, ICTD is a relatively new area and "mainstreaming" capacities within the development sectors of ODA departments and developing country stakeholders are still evolving.*

Secondly, stakeholders also often confronted by “process” challenges ranging from a lack of easily accessible information about available resources and mechanisms to tap, to high transaction and information gathering costs and time lags in finalizing requests for ODA support.

And finally, the list of “content” challenges include differing assessments of potential and risk, development priorities to be funded, and capacities to absorb, mainstream and effectively transition to self-financing, up-scaling and/or sustainability.

Possible actions include:

1. Specification of the key role of ICT in national poverty reduction strategies (PRS), as identified in Poverty Reduction Strategy Papers, which clarify the high priority placed on ICT projects among broad development goals
2. Elaboration of national “e-strategies” in conjunction with PRS/P priorities, designating the specific key areas of policy initiatives and investment needs, including coordination of cross-sectoral infrastructure and service development plans
3. Peer-partner reviews to assess blockages as well as to collectively identify priorities, design effective approaches to support mainstreaming and learn from participant and action-oriented research
4. Encouragement to pool proposals on similar themes or from same region to enhance synergies and learning and to reduce transaction costs
5. Ensuring that initiatives proposed for funding explicitly build capacity and ensure a concrete focus business/development models to maximize efficiency and scalability
6. Commissioning shared e-government application frameworks for common applications such as procurement, accounting, and tax administration which can be collected in a global or regional resource and used by most developing countries.

## **C2. Concerning the “adequacy” of existing mechanisms:**

The above considerations address means by which existing sources of financing can be more successfully exploited. However, even where these initiatives are ambitiously pursued, there remains the question of whether the existing array of financial mechanisms is “adequate” to “meet the challenges of ICT for development”.

As the Task Force Findings indicate, there are a number of areas in which current approaches to ICTD financing, by both the public and private sectors, have not devoted sufficient attention to date, and which represent fundamental challenges to the financial and development communities. These include:

1. ICT capacity-building programs, materials, tools, educational funding, and specialized training initiatives, especially for regulators and other public sector employees and organizations.
2. Communications access and connectivity for voice, mobile, and data services in remote rural areas, isolated islands, and other locations presenting unique technological and market challenges.
3. Regional backbone infrastructure to link networks across borders in economically disadvantaged regions requiring coordinated legal, regulatory, and financial frameworks and seed financing.

4. Broadband capacity to facilitate the delivery of services, catalyze investment and provide Internet access at affordable prices to both existing and new users.
5. Coordinated assistance for small islands and countries, in order to lower otherwise prohibitive transaction costs in access to international donor support.
6. ICT applications and content aimed at facilitating the integration of ICT into the implementation of development sector programmes particularly in health, education and poverty reduction. There is also a need to focus on applications and processes that can ensure development of content relevant to the needs of the developing world, including material in indigenous languages, information accessible to non-literate audiences, user-friendly and affordable software platforms and interactive applications, and diverse, locally produced multimedia content.

The reasons that existing mechanisms and traditional approaches may not be adequately oriented to address these emerging needs are several:

- Private sector investors and businesses are often reluctant to commit capital to projects with high risk/low return profiles.
- Donors have taken initiatives in many of these areas, but do not have sufficient resources to cover the broad scope of needs across the developing world.
- Development Banks have to date focused on supporting private sector initiatives and concerning public financing have concentrated mostly on policy reforms.
- Governments have very limited resources and multiple commitments, as well as inexperience with many of the key areas of need.

Many of these new areas of attention will depend greatly upon the active and creative participation of local entrepreneurs and SMEs, civil society, community groups, and others who are most intimately aware of the needs and opportunities of developing populations. This implies that a renewed emphasis on domestic modes of finance, including microfinance, venture capital, and small business development, must play a central role in filling many of the key gaps, particularly in such realms as content, applications, capacity building, and knowledge sharing, by stimulating and leveraging market demand together with public development initiatives.

At present, domestic financial mechanisms, and financial systems in general, in many developing countries are far behind industrialized and international institutions; their level of "adequacy" is partly a function of their degree of experience, which will increase with more time, effort, and resources. Many of these, from private domestic banks and lending funds to public financial instruments and procedures, have the potential to improve their operations and expand their scope of influence substantially.

Recently established Universal Access Funds and their equivalent, with proper political and organizational mandates, can play an important coordinating role for the channelling of both industry and outside funds toward a variety of complementary ICT development projects, and can also be scaled up through innovative financing instruments. All of these types of mechanisms offer the promise of shifting the emphasis of ICT finance and implementation increasingly toward local involvement, and deserve support and encouragement from the international community.

The issue of the "adequacy" of the existing financial mechanisms for ICTD should be seen in the context of available financing for the broader set of development agendas and goals. From one vantage point, it seems clear that ICT, although unique in itself, is not the only "sector" or area that requires the attention of donors, IFIs/MDBs and private investors. On the other hand, ICT's importance lies in the fact that it is an enabler of development and

can contribute to meeting the broader set of development objectives. Its financing thus needs to be framed in the context of the Monterey Consensus and the Millennium Declaration that can be seen as overall drivers for development financing in the global and national contexts.

Financing of ICTD at the national level needs to be framed within the context of priorities for PRS and PRSP processes and with regard to the broader goal of achieving the goals outlined in the Millennium Declaration. National ownership and priorities highlighted through a process of multi-stakeholder involvement should determine the role that ICT can play in the overall process. Most developing countries are indeed supporting ICT as a tool that can not only enhance their role in the global economy but also help them achieve the MDGs. Appropriate ODA, IFI/MDB and private investment should be ready to help meet these goals.

### **C3. Concerning “improvements and innovations” to existing financing mechanisms:**

As the Task Force report has documented, nearly every major financial institution, organization, company, and Government agency that deals with the ICT development sector is almost constantly in some stage of self-evaluation, reorientation, and exploration of new and improved modes of operation. It is difficult to pinpoint specific changes that any individual or group of mechanisms should urgently undertake, which those institutions themselves are not already actively considering to one degree or another.

On the other hand, the Task Force discussions have provided a unique forum for many of these stakeholders to exchange and propose ideas, both individually and collectively, for new initiatives and approaches that might be worthy of further consideration by the larger body of international ICTD players. While none of these options should be taken as officially evaluated or “endorsed” by the full Task Force or the affected participants, there has been at least significant discussion and open-minded consideration of a healthy range of prospects for enhancing the global ICTD financing dynamic.

These include, *inter alia*:

1. Coordination: Greater cross-sectoral and cross-institutional coordination of financing programs and ICT development initiatives would improve effectiveness and make better use of resources. It was generally agreed that the onus for coordinating inputs rests primarily with national Governments (coordinating at the national, regional, and international levels), which should identify priorities and ensure multi-sectoral participation in ICT programs through strategic planning. Donors and other financial institutions should, for their part, be prepared to work within these national frameworks on a complementary basis, while making renewed efforts to coordinate planning, implementation, and evaluation on an international and regional basis as well.
2. Multi-Stakeholder Partnerships: The emerging trend of multi-stakeholder initiatives to support ICT development and financing needs should continue and expand, to enhance overall program coordination and ensure that diverse views and experiences are brought together to address sector challenges. Some specific options for new multi-stakeholder approaches on an international or regional level could include:
  - Establishment of a “virtual” financing facility to leverage multiple sources in support of identified investment objectives in key locations (notably broadband, rural and regional projects, and capacity building);
  - Creation of a mechanism for coordinating research and analysis into enabling policy environments, to identify best practices and priority needs for shared action by financial actors;

- Development of a “rapid response” policy and regulatory support mechanism to intervene in support of short-term ICT sector policy initiatives;
  - Coordinated programs by governments and major financial players to mitigate investment risks and transaction costs for operators entering less attractive rural and low income market segments; consideration of new paradigms for network and service development involving a separation of an ‘open-access’ backbone and diverse service provision
  - Coordinated programs by governments of small countries and major financial players to address otherwise prohibitive transaction costs in access to international donor support;
  - Collective initiatives to engage regional, inter-governmental organizations together with diverse financial institutions and investors to create incentives for building regional infrastructure capacity;
  - Creation of jointly financed international and regional programs for public sector capacity building and e-government applications development, offering low cost tools and training options to government ICT policy and implementation officials.
  - Public-public and public-private approaches to support the upfront investment, capacity development and mainstreaming costs to facilitate the effective integration of ICT in health, education and other development sectors to permit the more cost-effective and broader delivery of public services.
  - Continued exploration by donors and MDBs of new modalities – including the consideration of re-engaging in infrastructure investments - through which they can provide financial support to well designed public sector ICT projects and programmes, particularly when they have the potential to leverage additional private resources.
3. New emphasis on domestic finance: Governments, bilateral donors, multilateral banks, as well as private sector contributors, can all help accelerate the growth of domestic financial mechanisms by providing more direct and creative support to local microfinance instruments, ICT small business incubators, public credit instruments, franchises, reverse auction mechanisms, community networking initiatives, and other innovations. Such approaches require a combination of outside seed funding assistance, technical expertise and best practice advice, risk mitigation, and commitments to support local entrepreneurs and investors, particularly in the start-up stages of new projects. The finance and development communities must recognize that failures are inevitable in these newly emerging markets, but that the lessons of these experiments, together with selected, well-documented successes, can yield long-term benefits and self-reinforcing growth throughout the developing world.
  4. Private sector support for locally relevant applications and content: Commercial private sector companies could help jump-start wider demand for ICT services by supporting local producers, programmers, artists, and small businesses in the applications and content fields. Collective contributions to international and national competitions and awards, film festivals, foundations, and similar programs that encourage creative content development could go a long way toward expanding the diversity and appeal of ICT-delivered information sources.
  5. Strengthening capacities to enhance the potential of securing funds and utilising them effectively
  6. Encouragement of increased voluntary, consumer-based contributions: Many consumers in the wealthy countries of the world (including immigrant expatriates)

would be receptive to the introduction of new voluntary mechanisms for donating small contributions toward ICT-based development. New vehicles should be explored to facilitate such contributions on a simple, technology-driven basis, while ensuring that any funds collected are devoted directly to pertinent development needs, including support for creative applications and low-price access to services for the poor and access /service cooperatives owned by communities themselves.

In summing up, the Task Force found that there is both a strong development rationale as well as incentives for governments, private companies, civil society and international and other development organizations to work together on multiple levels to ensure the rapid and efficient mobilization of resources across the spectrum of existing and innovative financial mechanisms, to take maximum advantage of the potential of ICT to facilitate an inclusive society for all and the unique and golden opportunity to contribute to the achievement of critical objectives as outlined in the Millennium Declaration.

With a view to enhancing the achievement of the development agendas outlined in the Millennium Declaration, the digital solidarity agenda of WSIS, and related national development strategies, proposals have been made at the global, regional and national levels to increase the effectiveness of existing ICTD financing mechanisms and to raise additional resources through reaching out to new constituencies and/or more effectively leverage resources through putting in place a variety of cooperation and coordination mechanisms.

The Task Force's mandate was to look into existing mechanisms so as to facilitate a discussion at WSIS-Tunis on the question of financing including a consideration of new mechanisms such as the proposal to setup a voluntary Digital Solidarity Fund (DSF). Findings and a number of options based on an analysis of existing trends and proposals for improving the effectiveness of existing mechanisms have been outlined in the report.

A voluntary Digital Solidarity Fund (see <http://www.dsf-fsn.org>), announced at the time of WSIS, is described and presented in the report in the section on multi-stakeholder partnerships and emerging initiatives. Initial contributions to the fund were made by a number of local authorities such as cities, departments, provinces, regions, and provinces (Länder), in addition to contributions from some nation states. Endorsements have continued, including most recently from the Francophonie. The involvement of local authorities and actors in this effort was seen as a potentially innovative dimension of the DSF initiative, since it could encourage interactive collaboration between cities and municipal governments, including between local authorities of different developing countries, as well as provide a platform and opportunities for other types of North-South and South-South cooperation. However, since this mechanism is yet to be operational and its more concrete goals and objectives are still evolving, the Task Force felt that it was not in a position to assess its role among the various ICT financial mechanisms.



## 1.0 The Financing Issue in the WSIS-Geneva Context

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The Geneva phase of the World Summit on the Information Society articulated a *digital solidarity agenda* in its plan of action with a focus on "putting in place the conditions for mobilizing human, financial and technological resources for inclusion of all men and women in the emerging Information Society."<sup>2</sup>

The plan of action points out that: "close national, regional and international cooperation among all stakeholders in the implementation of this Agenda is vital. To overcome the digital divide, we need to use more efficiently existing approaches and mechanisms and fully explore new ones, in order to provide financing for the development of infrastructure, equipment, capacity building and content, which are essential for participation in the Information Society."

In terms of priorities and strategies, it recommends that: " a) National e-strategies should be made an integral part of national development plans, including Poverty Reduction Strategies" and "b) ICTs should be fully mainstreamed into strategies for Official Development Assistance (ODA) through more effective donor information-sharing and co-ordination, and through analysis and sharing of best practices and lessons learned from experience with ICT-for-development programmes."

To mobilize resources, it highlights the following:

"a) All countries and international organizations should act to create conditions conducive to increasing the availability and effective mobilization of resources for financing development as elaborated in the Monterrey Consensus.

b) Developed countries should make concrete efforts to fulfill their international commitments to financing development including the Monterrey Consensus, in which developed countries that have not done so are urged to make concrete efforts towards the target of 0.7 per cent of gross national product (GNP) as ODA to developing countries and 0.15 to 0.20 per cent of GNP of developed countries to least developed countries.

c) For those developing countries facing unsustainable debt burdens, we welcome initiatives that have been undertaken to reduce outstanding indebtedness and invite further national and international measures in that regard, including, as appropriate, debt cancellation and other arrangements. Particular attention should be given to enhancing the Heavily Indebted Poor Countries initiative. These initiatives would release more resources that may be used for financing ICT for development projects."

Recognizing the potential of ICT for development, it furthermore advocates:

"Developing countries to increase their efforts to attract major private national and foreign investments for ICTs through the creation of a transparent, stable and predictable enabling investment environment;

Developed countries and international financial organisations to be responsive to the strategies and priorities of ICTs for development, mainstream ICTs in their work programmes, and assist developing countries and countries with economies in transition to prepare and implement their national e-strategies. Based on the priorities of national development plans and implementation of the above commitments, developed countries should increase their efforts to provide more financial resources to developing countries in harnessing ICTs for development;

The private sector to contribute to the implementation of this Digital Solidarity Agenda."

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<sup>2</sup> [http://www.itu.int/dms\\_pub/itu-s/md/03/wsis/doc/S03-WSIS-DOC-0005!!PDF-E.pdf](http://www.itu.int/dms_pub/itu-s/md/03/wsis/doc/S03-WSIS-DOC-0005!!PDF-E.pdf), p12

In terms of development cooperation, it proposes that “e) In our efforts to bridge the digital divide, we should promote, within our development cooperation, technical and financial assistance directed towards national and regional capacity building, technology transfer on mutually agreed terms, cooperation in R&D programmes and exchange of know-how.”

The plan of action, also focuses on the need for countries that have not already done so, to establish *domestic financing mechanisms* to further access, particularly in underserved rural and urban areas:

“g) Countries should consider establishing national mechanisms to achieve universal access in both underserved rural and urban areas, in order to bridge the digital divide.”

The digital solidarity agenda provides some of the main organizing elements for the report.

## **2.0 Context and Framework for Financing ICT for Development**

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### **2.1 The Development Rationale for a focus on ICT**

Increasingly, access to *telecommunications and IT networks* are viewed as essential components of the set of economic network infrastructures (including energy and transportation services) critical for national development, the failure to modernize which are seen as undermining investment, growth and the delivery of public services. For remote communities and regions, access to communication services helps to bridge distances and remoteness, provides access to information and can empower rural populations, deliver services and stimulate opportunities to create livelihoods.

However, the *interactive potential* of ICT and the continually diminishing costs arising from its expanded use makes it different from these other more traditional infrastructures. In this context it is a vital constituent of the social framework of development.

The *uniqueness of ICT* is that it cuts across all economic and social sectors: information is an indispensable input and resource for every program, whether local or global in scope, and communication is vital to link governments, development agencies, field workers, local organizations, and communities with common goals and agendas. Given the increasingly prominent role of information-driven trade and business activity, economists and social scientists have also begun discussing the emerging of “*knowledge-based*” economies, in which ICT can be integrated with and enhance traditional and new forms of economic activity, to accelerate growth and social development.<sup>3</sup>

The characteristics of knowledge as a *public good*, and the role that ICT networks play in facilitating production and access to it, has strengthened support in various quarters for making access to ICT networks widely available. This is also because, as is the case with other *network* technologies, as more regions and actors are integrated into the network, benefits from their use for commercial and non-commercial uses grows, suggesting that everyone stands to benefit from investments in and expansion in access to ICT and ICT-enabled services.<sup>4</sup> The role of ICT networks as a public good is also emphasized with regard to the range of services it can help to deliver. Both indirectly through the public goods lens and directly, there has been growing interest and research into the means, both

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<sup>3</sup> See UN Economic and Social Council, High-level segment, “Development and international cooperation in the twenty-first century: the role of information technology in the context of a knowledge-based economy, “ Draft ministerial declaration, 11 July 2000.

<sup>4</sup> A public good is defined as one the consumption of which is “non-rival” – in the sense that use by any one person does not reduce the amount available to be used by somebody else. The Internet is viewed as being a public-good in part because it a carrier of knowledge which is a public good (here the Internet is a complementary/intermediate public good) and in part because it too has public-good characteristics. Not all goods that are good for the public are public goods (Barder, 2003).

direct and indirect, by which ICT can help attain key development objectives and contribute to the achievement of the MDGs.<sup>5</sup>

For these reasons, ICT-based initiatives have the potential to accelerate, as well as integrate, progress on multiple fronts simultaneously, especially if strategies can be coordinated to maximize their impact and cost-effectiveness. Taken together, *ICT networks, tools and ICT-enabled services* are beginning to transform the ways in which enterprises, governments, and other organizations deliver their goods and services, the ways in which society expresses itself, different constituencies are mobilized, and social, economic and political processes take place.

New models of capacity development and business models based on peer-to-peer learning and networking are emerging which allow for a shortening of the learning curve, enabling adaptation and innovation, and supporting brain-circulation between Diaspora and national communities.<sup>6</sup> For developing countries, access to e-mail, telecommunications and ICT services are not a luxury but a critical element of a *development toolkit* with which they can address traditional development challenges and benefit from the potential for increased integration and cooperation in various domains.

In recent years, transformations in the economic and social development domain have almost moved in parallel with the ICT revolutions and there has been a renewed focus on the multi-dimensional nature and interconnectedness of economic and social development. Spearheaded by the adoption by the General Assembly of the United Nations in September 2000 of the Millennium Declaration, the world's governments and international institutions have injected new urgency into the quest to relieve poverty and elevate the opportunities and living standards of billions of people. The Millennium Declaration established the central global objectives for development for this generation, the Millennium Development Goals (MDGs), which have become the focal point of subsequent policy and implementation initiatives by governments and international agencies around the world. The MDGs target specific, quantifiable changes in the human dynamic, such as reducing by one-half the proportion of the world's people who live in poverty or suffer from hunger, achieving 100% universal primary education and equal access to schools for all girls and boys, cutting maternal mortality by three quarters and child mortality by two-thirds, halting and reversing the spread of HIV/AIDS and malaria, all of these and more by the year 2015.

## **2.2 Leveraging ICT for Development**

In order to leverage ICT and foster broad-based access countries have sought to put in place a range of development policies and strategic frameworks. The initial focus of decision-makers was on policies to facilitate the development of telecommunications infrastructure and enhance access to ICT, responding to the opportunities to avail of both new technologies and new players.

More recently countries have complemented these policies with the adoption of comprehensive *e-strategies* which outline a framework and implementation approach to address the broader range of issues required to foster broad-based use of ICT for development, particularly capacity development, priority areas for content and applications, access and infrastructure development amongst others. Close to 90 developing countries

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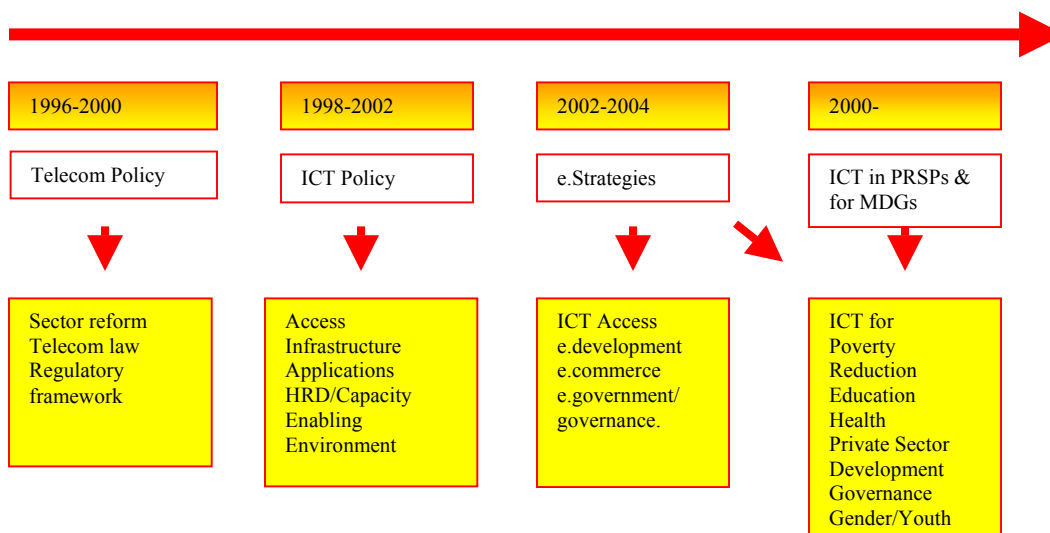
<sup>5</sup> For e.g., UNDP, Accenture & Markle Foundation (2001); World Bank (2003); ITU (2002, 2003 & 2003a) especially WDTR, Chapter 4; DFID (2002); Development Gateway website on the subject.

<sup>6</sup> See Anna Lee Saxanian and Ha-Zoon Song (2003) on the concept of brain circulation and the importance of networking Diaspora and national communities to foster development.

have embarked on developing national e-strategies, with over 35 of them being in Africa alone.<sup>7</sup>

In parallel, many national governments established formal strategies for poverty reduction and developed Poverty Reduction Strategy Papers (PRSP). The latter are a requirement to access concessional finance from the international financial institutions such as the World Bank and the IMF.<sup>8</sup> The priority areas outlined in these strategies provide a key signal for development partners who align their own aid and partnership strategies to the country's PRSP either in terms of direct budget support or in terms of contributing to the financing particular components.

It is only recently that national governments have begun to incorporate explicit reference to ICT development objectives as a key part of their poverty reduction strategies, stressing such factors as rural telecommunications expansion, the role of information technology in education, and to transform the national economic base.



Source: Adapted from Gaston Zongo (2003)

For example, Rwanda's PRSP states in part:

"251. The Government of Rwanda recognises the role that Information Communication Technology (ICT) can play in accelerating the socio-economic development of Rwanda towards an information and knowledge based economy. The emerging information revolution offers Rwanda a window of opportunity to leap-frog the stage of industrialisation and transform her subsistence economy into a service-sector driven, high value-added information and knowledge based economy that can compete on the global market.

252. The Government has therefore established the Rwanda Information Technology Agency (RITA) and developed a twenty- year strategy ICT-led socio-economic development framework and an integrated plan for 2001-5."<sup>9</sup>

<sup>7</sup> For Africa, see UNECA's benchmarking of status of NICI strategies and presentation by UNDP at the regional e-strategies meeting held in Mozambique in 2003

<sup>8</sup> These strategies describe each country's proposed macroeconomic, structural, and social policies and programs to promote sustainable growth and reduce poverty, as well as associated external financing needs. See, e.g., the World Bank, "Poverty Reduction Strategies"

<sup>9</sup> OECD Global Forum on Knowledge Economy, "ICT in PRSPs as of January 2004," CCNM/GF/DCD/KE(2003)4.

For the least developed countries, the challenge for policymakers is not only to integrate ICT and its various enabling roles into their development agendas, but also to refine and expand the position of ICT in those strategies and the national e-development or ICTD strategies, in tandem with the evolving industry itself.

Perhaps more than any other sector, ICT is a moving target with major implications for the development sectors, whose functioning it increasingly underpins. New innovations and shifting market forces regularly disrupt yesterday's conventional wisdom calling into question traditional conceptions not only about *what infrastructure needs to be financed and supported* (e.g. what does "backbone" mean in the era of wireless backhaul and satellite technologies?<sup>10</sup>) but also how public services will be delivered, and how production, consumption and social processes will be organized in the era of the global network economy and society and converging technologies. Are the various cutting edge ICT solutions becoming part of a set of feasible solutions that even developing economies can consider in addressing their development needs and challenges?<sup>11</sup>

### 2.3 Financing ICT for Development

The issue of financing is at the core of all development discussions, as adequate financial resources are obviously an indispensable ingredient for alleviating poverty and securing sustainable development. At the Monterrey International Conference on Financing for Development, in March 2002, global leaders adopted the Monterrey Consensus<sup>12</sup>, which committed all signatory nations to intensify their efforts mobilize international financial resources in support of the MDGs.

Many of the principles and objectives cited in the Monterrey Consensus are directly relevant to the pursuit of adequate and appropriate financial mechanisms to promote ICT development as well and are reflected in the structure of the Digital Solidarity Agenda in the WSIS Plan of Action.<sup>13</sup> These include the need for public sector reform, the critical role of the private sector, and the essential role of financial institutions and donors.

In the era of limited resources for development financing, the focus has also shifted to a search for new and innovative financing mechanisms to address a variety of development objectives including global hunger.<sup>14</sup> The Economics Research (WIDER) has issued a preliminary report on "Innovative sources of financing for development"<sup>15</sup>. This report considers a wide range of options for new and innovative financial mechanisms to augment existing funding sources in support of development objectives, including global "taxes" on energy and currency transactions, establishment of new Special Drawing Rights from the International Monetary Fund, encouragement of increased private donations and expatriate remittances, and even global lotteries. The underlying purpose of these exercises is ultimately to spur creative thinking about means to channel funding toward the basic goals

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<sup>10</sup> See for e.g. ITU (2004) Birth of Broadband

<sup>11</sup> Strategists in the public sector seeking to grasp the latest trends have far fewer resources available than industry planners, who themselves are often behind the curve. Can emerging Wireless Fidelity (WiFi) and WiMax access technologies enable low-cost broadband data services for the masses? Will VOIP (voice over IP) do away with a need to focus on both telecommunications and IT infrastructures? Will experimentation with intelligent agents or voice recognition yield new breakthroughs in interactive applications? Will Global Positioning Satellite (GPS) systems, Geographic Information Systems (GIS) and VSAT networks combine to help link even the most isolated and nomadic populations to the rest of the world? How will digital videography influence the evolution of indigenous cultures?

<sup>12</sup> United Nations, "Report of the International Conference on Financing for Development," Monterrey, Mexico, 18-22 March 2002 United Nations • New York, 2002. A/CONF.198/11.

<sup>13</sup> WSIS plan of Action, please also refer to chapter 1 of this report

<sup>14</sup> Most recently, see discussion of innovative financing to support "action against hunger and poverty"

<sup>15</sup> UN General Assembly, Fifty-ninth session, Follow-up to and implementation of the International Conference on Financing for Development, A/59/272.

of the Millennium Declaration, taking into account changing global trends, habits, and public-private dynamics. Some see this as the thinking behind the proposal of the Digital Solidarity Fund at WSIS-Geneva.

The issue of financing ICT for Development is both similar and different to financing other development objectives. On the one hand, IT infrastructure (principally telecommunications before the age of convergence) has been viewed as a critical component of economic infrastructures. Here, the issue of development financing it was not viewed as being radically different in principle to financing water or energy infrastructures and countries have chosen a variety of means to finance such infrastructure combining domestic and external financing, and public and private sector actions with successful instances for the different types of models.<sup>16</sup>

In recent times, there has been a much greater emphasis on a role for the private sector in infrastructure development. The ICT sector was perceived to be particularly attractive and profitable – at least in certain areas such as mobile telephony. In all of these instances investment is viewed as being responsive, in large part, to a similar set of variables that include a stable and predictable supportive enabling environment, and comparable/acceptable costs of doing business.<sup>17</sup> This is aside from specific assessments of market potential, profitability, predictable risks, macroeconomic conditions, institutional and capacity issues.<sup>18</sup>

But ICT for Development is not limited to communications or infrastructure development. It also encompasses content and applications, capacity development and the strategic deployment of ICT to enhance the achievement of development objectives, deliver public services and foster inclusion. Many of these areas are dependent upon the use of public resources.

The issue of Financial Mechanisms in relation to ICT and development, however, is arguably quite different from financing of development concerns relating to poverty, hunger, and other *primary* development goals. Information and communication are themselves fundamental resources, inputs to the development process rather than outputs, in this sense analogous to financing itself as much as to that which is financed.

The ICT sector worldwide, even in some of the least developed countries, has proven to be a highly “profitable” sector in many areas, to which financial resources are naturally drawn, given the opportunity for a favorable return on investment, particularly in the case of mobile telephony. The ROI on poverty reduction and disease eradication may be positive, too, in the long run, but there is no “market” for such investments. While the private sector can provide the great bulk of resources because most investments have a strong positive financial rate of return, nonetheless there remains a role for governments because some ICT projects have a high economic rate of return even while the financial rate is not high enough to attract private investment.

To this extent, the goals for expanding financial resources available for ICT development, therefore, do not necessarily amount to a trade-off with financing for more direct and urgent forms of support, such as for food, medicine, emergency relief, and so forth. In

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<sup>16</sup> See examples of promising practices in section 4 of this report.

<sup>17</sup> See for example, Commission on the Private Sector and Development (2004) “Unleashing Entrepreneurship: Making business work for the poor”; World Bank (2004) “Reforming Infrastructure: Privatization, Regulation, and Competition”; World Bank (2005) Doing Business in 2005: Removing Obstacles to Growth; ITU (2003) Investing in Telecommunications and ICTs in Developing Markets: Shifting the Paradigm.

<sup>18</sup> This has led some to ask the question of how the development needs of countries w/ small market size as well as perceptions of higher commercial risk might be better addressed, particularly in instances where even the suggested enabling policies have been put in place.

principle, the greater part of the funds that go into enhancing ICT resources should ultimately pay for themselves, through a combination of *business returns* and *economic gains* (increased efficiency in the use of existing resources and additional gains from new and innovative use of ICT) for the recipient societies.<sup>19</sup>

Nevertheless, the need for substantial financial resources in support of ICT for development is undeniable. ICT networks and facilities are by nature highly capital intensive, often requiring large upfront investments and long payback periods, and the economic benefits may often be diffused throughout society rather than directly returned to investors.

While countries have evolved a variety of dedicated (e.g. national universal access or telecommunication development funds) and non-dedicated mechanisms to finance access, financing of ICT deployment within the context of health and education remain to be addressed. While such integration is proceeding, it is in many instances, still at the pilot level with limited commitment of domestic public resources since ICT integration is viewed as competing for financial resources available to the development sector.

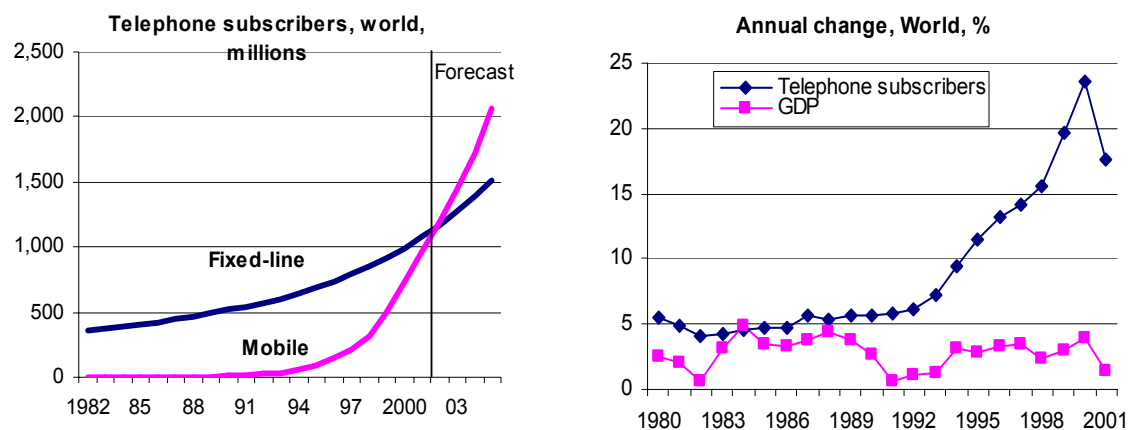
Even where value-added of ICT for development can be established in the sense of making it possible to provide services better or at a lower cost or in enabling organizational transformation and empowerment there are few resources or mechanisms available to facilitate capacity development, *scaling-up*, innovation or adaptation.

With the emergence of the new more cost-effective wireless technologies and other technology options the feasibility of facilitating access and providing services using ICT has increased as have the models and approaches with which to achieve these objectives.

## 2.4 Recognizing Achievements & Exploring Financing Challenges and Gaps

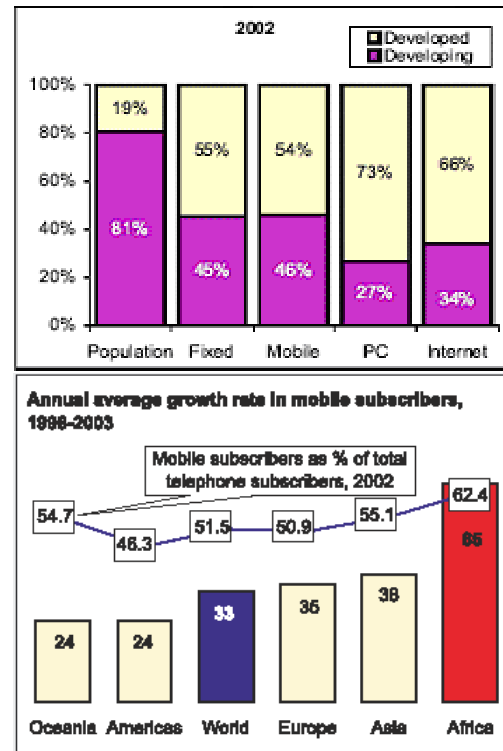
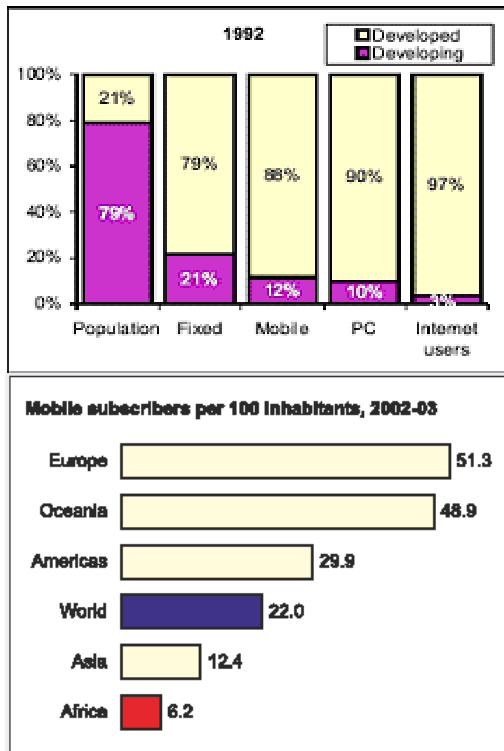
### ICT Infrastructure and Access:

Access to ICT, particularly mobile telephony has grown dramatically including in some of the poorest countries of the world, particularly through private investment in infrastructure development. While access still remains uneven and unaffordable for many, coverage has increased dramatically:



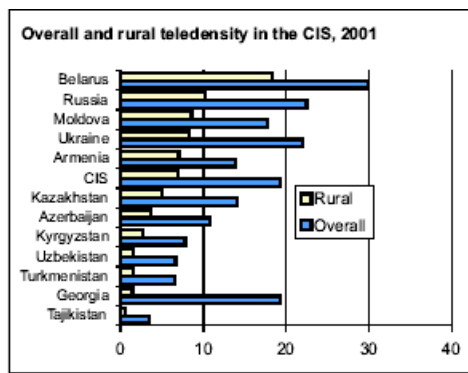
<sup>19</sup> While effectively used, ICT can create efficiencies and contribute to variety of kinds of value-added, ICT has often being integrated in a manner that works against leveraging such benefits. See most recently, Robert Schwarc (2004) has emphasized the points earlier made by Richard Heeks (2003) with regard to e-governance projects. Indicators to track the development impact of ICT are only recently being developed.





**Source:** ITU World Telecommunications Indicators Database, IMF.

However, with market driven provision of ICT, there can be significant “gaps”, particularly in serving low income and remote populations (see graph on the following page) and in facilitating national and regional backbone development and inter-connectivity.



**Box** (Source: ITU WTDR 2003) Trends in financing though the different mechanisms are described in [Section 3](#). Challenges and promising practices are described in [Section 4](#).

#### ICT for Development

While the integration of ICT in development sectors has been proceeding, the urgent need to create locally relevant and developmentally targeted information content and applications, and to strengthen human resource capacity at all levels of society to allow people

and institutions to embrace the potential of ICT will not be readily provided on a broad scale by the private sector alone and public budgets have proved to be far from adequate to wide-scale integration and development.

There are thus strong incentives for governments, civil society, international development institutions, and private companies to work together on multiple levels to ensure the rapid and efficient mobilization of resources across the spectrum of existing and innovative financial mechanisms, to take maximum advantage of this unique and golden opportunity to transform the paradigm of human development, through human technological ingenuity.

### 3.0 Financial Mechanisms: Approaches and Experience

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This section presents an overview of the various types of mechanisms that exist for financing ICT for development, including summary data on the levels of financing, types of programs, and general experiences of each category. For ease of understanding, the following definitions are generally employed in the analysis:

#### **Box 3.1**

##### **Definitions - ICT and related terms**

The confusion that surrounds the ICT concept is reflected in the different ways the term is used and defined. The distinction between ICT as a sector and ICT as a theme is particularly important in the context of this paper.

*Information and Communication Technologies (ICT)* consists of the hardware, software, networks and media for the collection, storage, processing, transmission and presentation of information (voice, data, text, images), as well as related services. ICT can be split into ICI and IT.

*Information and Communication Infrastructure (ICI)* refers to physical telecommunications systems and networks (cellular, broadcast, cable, satellite, postal) and the services that utilize them (Internet, voice, mail, radio and television).

*Information Technology (IT)* refers to the hardware and software of information collection, storage, processing and presentation.

*ICT Applications* are hardware and software solutions that utilize ICT to meet business, public administration, social and other goals; these are also sometimes referred to as informatics. This term deals with ICT as a theme, a tool, a way of doing things (e.g. ICT in Education, e-government).

A word of caution needs to be put here before looking into various types of financing mechanisms. In a rapidly changing socio-economic environment and further with technological innovations, no one financial mechanism nor instrument can support one specific project nor program.<sup>20</sup> In order to make successful implementation, available financial instruments as well as other expertise and capacities are brought together according to the specific needs of various phases of the project or program. This can be exemplified by one internationally well-known "Grameen Village Phone Program" in Bangladesh. (For more information, see Annex 7.) Emerging issue of multi-stakeholder partnerships and multi-sector initiatives, not simple "co-financing," is reviewed in depth and from a different perspective in section 3.1.4 below.

### 3.1 International Resources and Mechanisms

These mechanisms involve cross-border investments and financial support, at the global or regional level, with emphasis on the participation and contribution of companies, governments, and international agencies primarily from the industrialized world, and their investment in and support of ICT financial needs in less developed countries.

#### 3.1.1 Private Sector

Without question, the engine of ICT development and finance over the past two decades has been private sector investment, especially foreign direct investment (FDI) by an increasingly diverse and competitive array of multinational and regional ICT sector corporations.

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<sup>20</sup> Example of complexity of financing ICTD could be viewed at OECD-DAC document: "Grameen Phone Revisited: Investors Reaching Out to the Poor" [DCD/DAC/POVNET(2004)8/REV1]:

<http://www.oecd.org/dataoecd/36/6/33962074.pdf>

**Box 3.1.1****Definition – Foreign Direct Investment (FDI)**

Foreign investment takes the form of direct investment, portfolio investment, reserve assets or other investments. A foreign investment is classified as a direct investment if the foreign investor holds at least 10% of the ordinary shares or voting rights in an enterprise and exerts some influence over its management. Any investment amounting to less than 10% of ordinary shares is classified as portfolio investment.

All OECD countries except Turkey have adopted the threshold of 10% of assets or voting rights held in a company as the rule for distinguishing between direct and portfolio investment. However, FDI statistics in some countries (e.g. Belgium, Iceland, Japan, Korea, Mexico, Norway, Poland, Portugal, Switzerland) include transactions between a resident enterprise and its direct investor when the investor has an effective voice in management, even though the investor does not own 10% or more of the enterprise's assets.

By definition, direct investment flows do not include investment via the host country's capital market or via other financial sources that do not pass through the investor country, although in some cases this may represent over half of the total investment. For this reason, data on the activity of foreign affiliates provide more complete information on the importance of foreign investment in each country.

(Source: OECD).

**Telecommunications Sector**

Following the early waves of privatization of national PTTs and opening of markets in the industrial countries – led by the breakup of AT&T in the United States and the public offerings of shares in British Telecom in the United Kingdom and NTT in Japan in the mid-1980s – the newly established corporate telecom giants eagerly rushed to expand into new markets. With the spectacular growth of international telephone traffic and revenues that took hold in the early 1990s, compounded by the equally explosive Internet and cellular revolutions, the leading telecom industry conglomerates (the Baby Bells, NTT, the major European incumbents, etc.) found they had money to burn, and launched a race to establish worldwide service and investment strategies. This eagerness to invest was often more than welcome across a wide spectrum of developing countries which were struggling under heavy public debt, currency and inflation crises, and under-funded public telephone operation, for which infusions of millions in foreign hard currency represented life-saving medicine.

Meanwhile, all of these conditions coincided with the geopolitical transformations of the 1990s, which saw the broad ascendancy of free market principles in international trade and national economic policies as never before. Thus, beginning in Chile (1988), Argentina (1990) and Mexico (1990) many national governments around the world, encouraged and assisted by multilateral development banks, finance institutions, and others, initiated a trend of partial or full privatization of state-owned telephone operators (as well as other public enterprises), whose echoes continue to the present day. The resulting influx of international private investment to the telecommunications sector of numerous developing countries during the 1990s was without precedent. Some highlights included<sup>21</sup>:

- In 1988, Chile sold 49% of shares in the local operator, CTC, to foreign investors, for US\$270-million, and 45% of ENTEL, the long distance operator, to a combination of Telefonica de España, Chase Manhattan Bank, and employees and pension funds for a further 36% of ENTEL was sold the following year.
- In 1990, the Government of Argentina sold 60% of its interest in the two major regional telephone operators, to two different international consortia, one led by

<sup>21</sup> Data from ITU Privatization Database.

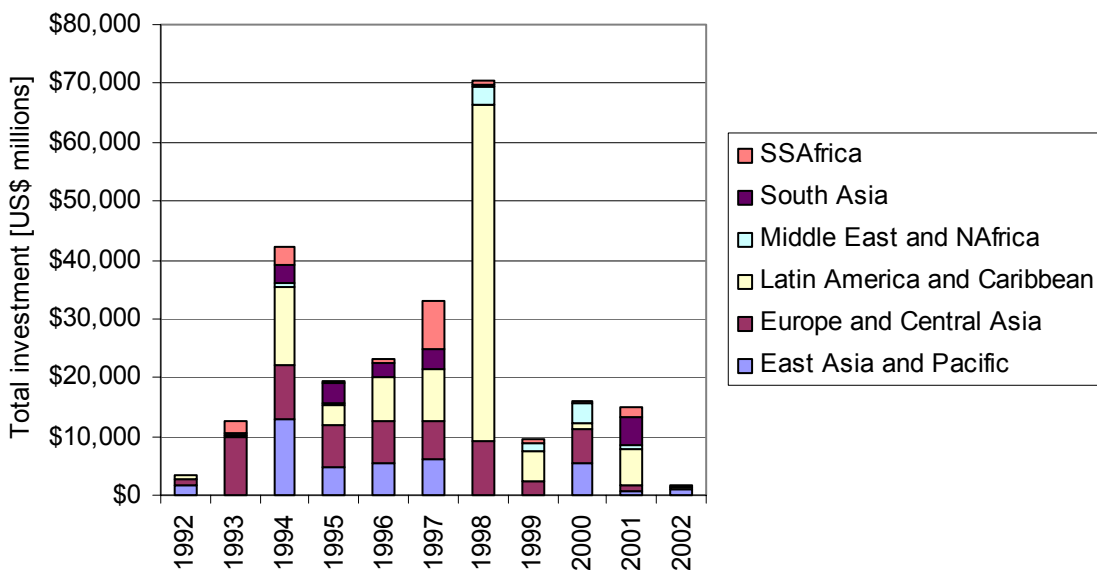
STET and France Telecom, the other led by Telefonica de Espana, for a combined total of US\$1.17-billion.

- In 1990, some 25% of Telefonos de Mexico (Telmex) was sold to a consortium of local investors plus France Telecom and Southwestern Bell (SBC), along with employee equity, for nearly US\$2.1-billion. When another 15.7% of shares were sold in -May 1991, the market price again exceeded \$2.1-billion, for a substantially smaller amount of equity; meanwhile, SBC was able to exercise an option to buy an additional 5.1% of shares for only \$467-million, or less than 2/3 of the market price. In all, the first two privatization stages brought some US\$4.6-billion in equity investment (with an estimated market value, by 1991, of over US\$6-billion), for less than 50% ownership Telmex.

The PTT privatizations were only the first wave in the flood of FDI into developing country ICT sectors. The second came along with the revolution in mobile telephone technology, primarily the introduction of digital GSM cellular services in the mid-1990s. The cost-effective, modular nature of cellular networks, combined with the market innovation of affordable pre-paid service options, created an unanticipated boom in demand in both the industrialized and the developing world, and fueled a renewed rush to invest, this time in entirely new network infrastructures. As with PTT privatizations, governments saw the mushrooming market for mobile licenses as a "win-win" scenario: an opportunity to install new telecommunications services that their citizens desired, while extracting millions in additional hard currency funds – in the form of license fees auctioned to the highest bidder – to deposit in the national treasury.

In combination, the trends of PTT privatization, cellular network licensing, and other private ICT investment opportunities resulting from the opening of markets have drawn over US\$250-billion in private funds into the infrastructure of the world's developing economies in just over a decade.

**Private Investment in Telecommunications Projects**



[Source: World Bank PPI Database]

There are some important caveats to these trends, however. The patterns of the past do not necessarily tell a complete story, especially with regard to what can be expected in the

future. First, as mentioned, a significant proportion of the funds that have been “invested” in existing or new telecommunications networks through privatization and licensing have actually gone to purchase existing government-owned assets or for mobile license fees, rather than to construct new facilities. These payments represent one-time entry fees for those companies seeking to participate in the market, but do not constitute actual financing of new investments in infrastructure and equipment, or other costs of network development. Exact breakdowns of the amounts are not available, but the actual magnitude of true infrastructure financing by foreign investors – which would more closely indicate the degree of ongoing commitment to capital investment in the sector – has been significantly less than the overall numbers would imply.<sup>22</sup>

More important, the patterns of FDI in ICT/telecom infrastructure in recent years show a marked decline in such investments, following the euphoric period of the 1990s boom years. From a peak of some US\$70-billion in 1998, telecom infrastructure investments in developing countries declined to less than US\$15-billion in 2001, and barely US\$5-billion in 2002. This has also been the trend for all forms of FDI, which mirrored the global economic downturn beginning in 2000-2001.<sup>23</sup> UNCTAD has recently predicted a turnaround in private foreign inflows to the developing world, although these are unlikely to return to the heights of the late 1990s any time soon.

#### *Production of Hardware, Peripherals and other ICT goods*

There are other components of ICT for development besides telecommunications infrastructure that can attract significant foreign direct investment, although precise figures are difficult to quantify. Many of the manufacturers of computer hardware and peripherals, and particularly microchips, have begun locating plants in developing countries, in particular to Asia and within that to China.<sup>24</sup> Intel, for example, has established a major chip production plant in Costa Rica. The objective of these operations is not necessarily to provide domestic equipment supply to the host country, but to take advantage of favorable labor and other costs to produce mass supplies for export around the world. Nevertheless, the introduction of such local manufacturing plants has several intrinsic benefits: training of the workforce in high-tech processes, establishment of attractive “anchor” facilities and services that other foreign technology companies can build off, and, not insignificant, availability of wholesale-level prices for the locally produced components within the domestic ICT sector.

#### *Software & IT Services*

There has also been a growing trend among firms to relocate product development to India, China, as well as countries across the other regions particularly among computer software, IT services, call center operators amongst others who are taking advantage of cost-effective educated workers, supportive business conditions etc. This new business service models utilize the characteristics of ICT at their fullest by reducing the effect of distance which was a traditional bottleneck for many industries. ICT-enabled services are expanding rapidly with rapid influx of FDI but also expanding with partnerships with domestic resources.

In addition to such outsourcing activities by major ICT and related services corporations, other transnational companies that establish offices in developing countries tend to infuse local suppliers and resellers with investment capital for their own, internal communications and information technology needs. There are numerous examples of small, specialized IT equipment and services firms that have been built around the needs of international (and

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<sup>22</sup> UNCTAD. 2004. “World Investment Report 2004: The Shift Toward Services”, p.117

<sup>23</sup> UNCTAD, “World Investment Report, 2004: The Shift Towards Services”.

<sup>24</sup> Naughton, Barry (2002)

domestic) companies for locally available technical support. Many independent Internet Service Providers, for example PlaNet Online in Laos<sup>25</sup> and CENATRIN in Burkina Faso<sup>26</sup>, grew out of specialized private and public local computer distribution and installation operations. Foreign companies also contribute financially to the viability of mainstream communications media (broadcasting, press), chiefly through commercial advertising, which constitutes one of the highest categories of international spending by transnational corporations. (One study, for example, purported to document that expenditures in Kenya for soap advertising were higher than government expenditures for rural health care.<sup>27</sup>) Domestic branches of international businesses are also obviously important customers of the local telephone companies and Internet Service Providers, whose spending on these services can strongly influence technology deployment, training, and industry development. FDI also strongly contributes to technology transfer and capacity building, particularly where national economic strategies encourage such investments.<sup>28</sup>

**The path ahead:** There are many fundamental questions about the role and potential for new private, foreign investment in both telecommunications and other ICT markets in the developing world over the next five to ten years. Are the recent sharp downward trends long-term in nature, or will there be renewed growth spurts in the sector? How will major international companies, including new players from emerging markets, address the risks and potential rewards of delivering services to the vast untapped potential demand in the developing world? Will new technological solutions yield the next wave of upwardly spiraling investments? Will there be new pockets of market opportunity, akin to the "Asian Tigers", in different regions of the world? How strongly will the recent trends of outsourcing of IT services and manufacturing continue? Most of these questions focus upon optimistic growth scenarios, but there are potential minefields for the global ICT industry as well: Will there be any new shocks to the sector that will cause further setbacks such as witnessed in 2000-2001? How will policies and practices regarding Intellectual Property rights, data security, and Antitrust regulation influence corporate willingness to expand investment in new markets? Will global industry consolidation lead to cartel-like pricing and a decline in competitive options?

The goal for development policy, in any event, should be clear. The private sector will actively seek out opportunities where demand is growing, markets are underserved, and the investment climate is attractive. The lesson of the past decade is that strategic investment ultimately rewards itself, as markets which are exposed to new technologies and communication capabilities become increasingly hungry for more, rewarding those who foresee the openings earliest and pursue them most creatively. Any initiatives, therefore, which enhance access, awareness, capacity, and economic opportunity for developing populations will also increase the size and appeal of the commercial ICT markets as well. Forward-thinking private investors thus share essentially the same development goals as public officials and the international community: the win-win scenario in which profit and development are mutually reinforcing.

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<sup>25</sup> <http://www.planetonline.laopdr.com/main.htm>

<sup>26</sup> <http://www.cenatrin.bf/>

<sup>27</sup> Mueller, Barbara, *International advertising*. Belmont, CA: Wadsworth Publishing Company, 1996, p.256.

<sup>28</sup> See UNCTAD, "Investment and Technology Policies for Competitiveness," 2003.

### 3.1.2 International Finance Institutions

All Multilateral Development Banks (MDBs) are involved in financing ICT in the developing world or in emerging and transition economies<sup>29</sup>. This section looks at:

- the World Bank Group (WBG)
- the European Bank for Reconstruction and Development (EBRD)
- the Asian Development Bank (ADB)
- the African Development Bank (AFDB)
- the Inter-American Development Bank (IADB) and
- the European Investment Bank (EIB)

Table 3.1.2.1 provides summary statistics of ICT commitments per financial year. MDBs offer a wide range of financial instruments to finance ICT, as further described in the [Annex.3](#).<sup>30</sup> Several MDBs encounter difficulties in tracking commitments and expenditures in the ICT sector as a whole. Indeed, investments in the sector may include infrastructure projects, support to the IT industry, and also ICT applications. Where ICT is only a component of the total project (as opposed to a standalone project) there may be issues with tracking and monitoring of commitments. Project coding may not always reflect the ICT content of a particular project - examples are e-education projects that are coded simply as 'education', or regulatory reform coded as 'central government'. This leads to incomplete or inconsistent reporting. For MDBs where there are fewer stand-alone ICT projects, but an increasing number of projects including ICT components – for example, the WB - this raises issues as to the adequacy of the existing tracking frameworks<sup>31</sup>. MDBs recognize this difficulty and are exploring ways of addressing it.

The instruments available to finance the sector are by and large available across sectors,

#### **Box 3.1.2.1 ICT specific instruments managed by MDBs**

##### **Existing:**

- **Japan Fund for ICT:** supports ICT-related activities that promote the poverty reduction strategy and other related development aims of the ADB, encourage private sector participation in ICT development, and improve regional and international cooperation through ICT applications
- **InfoDev:** consortium of public international development organizations and other partners, facilitated by a secretariat at the World Bank, whose mission is to help developing countries and their international partners use information and communication broadly and effectively as tools of poverty reduction and sustainable economic growth

##### **New:**

- **E-Asia Fund:** Announced by the government of Korea and to be administered by ADB
- **ICT Innovation Program for E-Business and SME Development (ICT4BUS):** IADB Multilateral Investment Fund (MIF), working with Information Technology for Development Division, provides grants to non-profits (i.e., chambers of commerce, industry federations, et al) that assist small and medium-sized enterprises to use ICT to improve productivity and competitiveness.
- **IDB ICT for Development Trust Fund:** Multi-donor instrument to assist countries channel resources to specific ICT for development activities.

and are not specific to ICT; exceptions include InfoDev, the Japan Fund for ICT (JFICT) administered by the ADB and some newly announced mechanisms (see Box). Although

<sup>29</sup> Based on contributions by WBG and other Multilateral Development Banks (ADB, AFDB, EBRD, EIB and IADB).

<sup>30</sup> Additional information on the specific instruments available in the different development banks, as well as on their regional focus and ICT strategies is available in background documents provided to the TF by some MDBs..

<sup>31</sup> As a consequence, although the perception at the World Bank is that projects increasingly include ICT components, the reporting system cannot confirm this trend.



some of the bilateral Trust Funds at AfDB are earmarked for specific sectors – including ICT – so far none has been used for that purpose.<sup>32</sup>

### **Leading Through Private Sector Investment Support**

Large amounts of investment will continue to be needed to accelerate and sustain information infrastructure development. The private sector has shown its ability and effectiveness in mobilizing resources and expertise in this area.

All MDBs acknowledge the growing importance of the private sector in undertaking and sustaining investments in ICT. There is, in most of them, a strong focus towards Private Sector Development (PSD). Support for private investment represents 70% of the World Bank's portfolio in the ICT sector (through the IFC and MIGA) and also both EBRD and EIB provide support mainly to the private sector (see Table 3.1.2.1). Although these institutions have dedicated considerable amounts of resources to the ICT sector, these remain a comparatively small percentage of their total portfolio (see Table 3.1.2.1). These investments also represent a fairly small percentage of total financing in the sector. Only sixteen percent of the projects listed in the Private Participation in Infrastructure (PPI) Database at the World Bank over the 1990-2002 period involved an international financial institution.

MDB support to the private sector must be seen as a catalytic investment. For many of the Banks (e.g. AfDB, EIB, EBRD, IADB IFC) their investments must be only a part of the total investment in the project. This ensures investments are a complement, but not a substitute, of existing or alternative funding and avoids crowding out private investment. It also ensures that there is a significant catalytic impact of MDB support, with each dollar of IFC investment in the sector attracting approximately \$9 of outside funding, for example. In addition to directly supporting the private sector, MDBs also play a key role in bringing in additional resources from the private sector, through resource mobilization: EBRD, AfDB, IADB and IFC provide these type of services. IFC's syndications amount to 15% of the WBG commitments in the sector. Furthermore, MDB investments appear to have played an important counter-cyclical role, providing support in the post-2000 period even as flows from the private sector diminished.

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<sup>32</sup> For AfDB: a number of bilateral Trust funds are available earmarked for specific sectors or a number of sub-sectors. ICT funding (such as policy studies, ICT components of projects, etc.) are included in MOU between the donor country and AfDB. These include the Indian Trust Fund, Dutch Trust Fund and the Canadian Trust Fund. So far none has been used for that purpose.

**Table 3.1.2.1****Summary statistics of ICT commitments per financial year & additional information**

MDB <sup>33</sup>	ICT commitments per Financial Year						Additional information				
	2000	2001	2002	2003	2004	Total	What is included	% ICI vs IT vs ICT apps	% Public vs. Private focus	% of MDB total portfolio for last 5 years	No of countries with ICT activities over last 5 years
WBG (\$ m)	\$ 479	\$ 981	\$ 789	\$ 417	\$ 505	\$3,171	Numbers are mostly for ICI sector <sup>34</sup> . Includes syndications, but not TFs	-	30% public, 70% private	2.3% <sup>36</sup>	80
AfDB (\$ m)	\$387	\$78	\$340	\$350	na	\$1,155	na	na	na	na	na
ADB(\$ m)	\$45	\$30	\$16	\$24	\$56	\$202	Projects where ICT forms a major component	-	90% public, 10% private	0.7%	23
EBRD (€ m)	€ 88	€ 211	€ 206	€ 151	na	€ 656	Includes only loans and standalone ICT projects		mainly private	~8%	14
<b>EIB (€ m)</b>											
Individual Loans	€369	€93	€50	€50	n.a.	€562	Individual Loans mostly in ICI	94	16% public 84% private	5.8%	9
Global Loans	€7.1	€0.5	€14.4	€13.1	n.a.	€35.1	Global Loans mostly to SMEs in IT services	6	100% private		24
						€597.1					
IADB	na	na	na	na	na	na	na	na	na	na	na

**Major Barriers for the sector and private investment**

Regarding MDB support of private sector initiatives in ICI, few significant supply-side barriers to increased support were identified. Nonetheless, there are often bottlenecks/barriers/difficulties that preclude sector growth and constitute barriers to investment. Some of the general barriers encountered in the telecommunications sector are related to:

- *Overall business environment and legal barriers to financial products.* The overall business environment, high custom duties, taxation, rules and restrictions on FDI and other legal barriers to financial products constitute important barriers. For example, regulatory restrictions related to financial products may prevent the creation of more sophisticated cross-border transactions that could allow borrowers access to deeper and more liquid foreign capital markets, or market interventions such as interest rate caps may prevent MDBs from appropriately pricing transaction risk.
- *Lack of financial strength and/or technical capabilities of the Project Sponsors.* Otherwise financially viable projects can lack Sponsors who possess the necessary

<sup>33</sup> The WBG financial year runs from July 1 to June 30, whereas for AfDB, ADB, EBRD and IADB the financial year runs from 1<sup>st</sup> Jan to 31<sup>st</sup> Dec.

<sup>34</sup> In view of the difficulty of documenting WBG financial support for ICT applications, the main focus of this report and of the data collected is on Information and Communications Infrastructure (ICI) and related activities (e.g. capacity building, etc).

<sup>35</sup> Not accounting for IFC syndications

<sup>36</sup> For this calculation have not used AAA or IFC B-loans, since these are not accounted for when calculating the Bank's total portfolio.

financial capacity to shoulder cost overruns or early market setbacks. Alternatively, it may be that the Sponsors lack sufficient experience in the sector.

- *Need to strengthen reputation of Project Sponsors.* MDBs tend to have high standards of business ethics and expect the same of their partners. In telecommunications, where conflict of interest issues can arise around politically well-connected Sponsors, MDBs (e.g. IFC, EIB and EBRD) tend to be particularly conservative.
- *Development of capital markets and other external factors,* a situation complicated by the decreasing appetite of the private sector in telecommunications on a global scale.

However, MDBs consider that although the situation is improving in a number of countries, a major barrier for sector growth and for further investment in support of private sector in many countries is the lack of an adequate ICT policy and regulatory environment, including: (1) lack of coherent, accountable, transparent and predictable regulation (2) lack of an independent regulator and no plans to create one; (3) significant barriers to entry; (4) weak government commitment to reform and liberalization of the telecommunications sector; and (5) suboptimal regulation and incentives schemes.

### **Supporting Public Sector Policy and Investment**

Given the importance of sector policy and regulation in attracting private sector investment in the ICT sector, it is unsurprising that a primary role for donor support to governments is to provide assistance in the development of a pro-competitive policy and regulatory environment for the sector through the removal of policy and regulatory bottlenecks which constrain sector development, and could extend the boundaries of service provision. The World Bank, for example, has been actively involved in supporting over 80 countries in the basic ICI reform agenda opening up the sector to private, competitive, well regulated provision.

With regard to donor funding of ICI investments, MDBs, in particular the WB, believe that investment financing should continue to come predominantly from the private sector, and consequently generally advise against the use of scarce public funds. . Nonetheless, specific investments in the sector may be supported where and when these will be a catalyst for further private investment and growth in the sector, in emergency situations, when the market alone cannot meet access objectives (e.g. rural access), or when access to ICT infrastructure is considered a public good<sup>37</sup>.

MDBs also play a considerable role in financing ICT applications for governance and government services (for example, the IADB ICT for Development Trust Fund). It is usually the case, however, that this support is provided under sector-specific projects (such as ICTs in schools under an education project), which is one reason for the difficulty of quantifying this involvement. For the World Bank, support for ICT applications in sectoral projects has been traditionally estimated at upwards of \$1 billion a year.

[Table 3.1.2.2](#) contains information about the process that countries/borrowers have to go through to gain access to funds, along with the potential constraints faced. With respect to public sector funding, for at least the WBG, IADB and the ADB, Ministries of Finance or Development have to agree with the concerned Bank on priority sectors for public lending through a Country Assistance Strategy/Program. This means that the ICT sector needs to be formally recognized as an integral part of the overall assistance strategy to the country in order to gain access to funds. In this case, ICT competes directly with other sectors (e.g. education, health, etc) to have access to funds, and the relative importance of each of these sectors will determine the share of funds dedicated to ICT. The EBRD does not formally require such a process, but still engages in policy dialogue with its clients. Also the AfDB is considering as a possible future action to ensure, in this context, that ICT is integrated in the Country Strategy Papers.

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<sup>37</sup> The ADB is in agreement with the above, but does sometimes assist LDCs. The last major ADB ICI public loan was in 1996.

**Table 3.1.2.2 Process to access resources (and constraints faced)**

Bank	Public	Private
WBG	Need to go through Minister of Finance. ICT sector needs to be formally recognized as an integral part of the overall Country Assistance Strategy (CAS) in order to gain access to funds. ICI/ICT needs to be recognized as priority sector, and competes for funds with other sectors. Competition for Concessional loans/grants is higher, since there is limited supply. Limited by country creditworthiness	Needs to be sound, viable, business criteria, etc. Eventually limits on country or sector exposure Limited by company creditworthiness For equity IFC generally subscribes between 5% and 25% of project equity, and is never the largest stakeholder, in order to ensure participation of other private investors
ADB	For OCR/ADF involvement, ICT needs to be a priority in Country Assistance Program (CSP). ICI/ICT needs to be recognized as priority sector, and competes for funds with other sectors. Access to Trust Funds governed by criteria established by the specific donors	Need to be a sound, viable business. Participation limited to 25% or \$75million
AfDB	Any ICIs are normally stand-alone projects and should be a priority for the country or it should be a Bank priority as a regional project. ICT, as components of projects, are financed within the project and does not attract particular attention so long as the Bank and the borrower have agreed to the component.	The total amount of Bank assistance to any enterprise, does not normally exceed 1/3 of the total cost of the project, and the Bank's equity investment will not normally exceed 25 percent of the share capital of any enterprise. Bank should normally not be the single largest financier in a project.  Although the Bank may open exceptions, the total project cost should at least amount to US\$ 9 million for the project to be considered by the Bank to prevent Bank from competing on smaller projects with local banks, which are in a better position to respond to small business.
EBRD	Do not require Ministry agreement, but still undertakes policy dialogue on the ICT sector	For equity investments EBRD often makes the investment alongside, and in close collaboration with, an equity fund. Ensure additionality to private sector investments - that is testing that investment are not crowding out the private sector
EIB	<ul style="list-style-type: none"> <li>- Only accessible to commercially run public sector</li> <li>- EIB has not defined any particular policy for the ICT sector. Projects shall be sound and viable, with transparent procurement procedures and not negatively affecting the environment.</li> </ul>	<ul style="list-style-type: none"> <li>- EIB financing outside the EU are geared to priorities defined jointly by the EU and beneficiary countries</li> <li>- EIB financing must be only part of the total project cost, in order to be a complement, but not a substitute, existing or alternative funding</li> <li>- EIB has not defined any particular policy for the ICT sector. Projects shall be sound and viable, with transparent procurement procedures and not negatively affecting the environment.</li> </ul>
IADB	Loans <ul style="list-style-type: none"> <li>- governments of can access loan resources by official request to include a particular project in "country programming process". Operations must be consistent with "country strategy" as established in the "country paper".</li> </ul> Technical Cooperation <ul style="list-style-type: none"> <li>- Governments and civil society organizations can access non-reimbursable financial resources to undertake priority pilot projects, base studies and other priority areas, consistent with the overall development goals of Bank's member countries</li> </ul>	Loans: Private sector enterprises from borrowing member countries may access debt-financing from the Bank's Private Sector Department or the Inter-American Investment Corporation (IIC)

### Issues with current public financial instruments and adequacy

In the information collected, MDBs have not identified any adequacy issues as such for the instruments available to finance the ICI sector. Some new financial mechanisms are being put in place (see Box 3.1.2.1) and some of the planned increase in ICT applications support, for example, (see e.g. ADB) will be completed within the framework of the existing financial mechanisms. There may be, however, some barriers or bottlenecks.

Several MDBs - the WB, EIB and ADB – have indicated that they believe that there is no financing constraint for non-concessional loans (i.e. loans that follow market rates), and financial resources generally seem to be more than adequate to meet the demand for ICT related projects (i.e., these banks are able to mobilize resources if needed). Borrowing

capacity is limited by country's and/or companies' creditworthiness, and eventually country and sector exposure limits.

At the same time, the current financial resources for ICT grants may be insufficient, and not all the demands of grant financing for ICT related projects are met. This is as a result of both the limited funding levels, and the competing needs for grant sources from other sector and thematic areas. Demand for grants – for obvious reasons - tends to be unlimited. Concessional loans (such as IDA credits, and Africa Development Fund or Asian Development Fund loans), are part grant and part loan<sup>38</sup> or have grant characteristics, because they are provided below market rates. Similar rationing schemes as for grants are thus needed.

For at least the WB and ADB, in the case of public funding the main responsibility for setting priorities among sectors or themes (including ICT) for grants and concessional loans rests with the beneficiaries, i.e. mainly the governments of developing and transition countries. Where there is a limited availability of funds for these types of instruments, if countries raised the priority of ICT in their country assistance strategies, increased financing could be available for the sector.

### ***Need for incentives to implement sector reforms***

One area where a demand-side bottleneck may limit the flow of donor resources to ICI in particular is that, although sector reform represents a significant bottleneck, some countries are reluctant to borrow money for Technical Assistance. One could envision a Sector Reform Technical Assistance Facility to specifically provide quick action for regulatory and policy support to assist countries with reform and capacity building in this area<sup>39</sup>.

There may also be the need for stronger incentives for policy makers to implement the basic reform of their ICI sectors in a transparent and open manner. In addition, even after implementing the basic ICT reform agenda, some countries may still have trouble attracting private investment.

Several options are available to address this issue, and would need to be further explored:

- an advisory facility that would help countries implement the needed reforms.
- a facility that would finance ICT applications/IT industry/rural access in those countries that have implemented the basic reform agenda but that are still having trouble attracting private investment to the sector.
- making increased use of existing instruments, including investment, capacity building, Technical Assistance loans
- using adjustment type lending schemes, with 'conditionality clauses' to create incentives to reform, by making availability of funds conditional to making necessary reforms

### ***Prohibitive transaction costs for small countries***

Finally, major issues arise when dealing with small and relatively low-income countries in particular countries in sub-Saharan Africa, as well as in the Caribbean and Pacific islands, Central America or Caucasus and Central Asian countries. The transaction costs for international donor support is high both for the donor and the recipient, making it difficult to provide in-time support. Exploring schemes to pool resources and lower transaction costs

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<sup>38</sup> For IDA a concessional loan typically carries no interest and offers a much longer grace period and maturity than other forms of financing could provide. IDA's standard concessional loan (called a 'credit') does not require principal repayments until 10 years after it is signed, with a final maturity of 40 years. Therefore, a country effectively repays only about 40% of a regular IDA credit, after applying a discount rate to convert credit repayments over 40 years into today's prices.

<sup>39</sup> EBRD administers donor funding for a Technical Cooperation program that provides technical assistance to countries committed to undertake a major reform of their telecommunications policy.

would be beneficial in improving the access of these countries to financing resources for ICT.

The MDBs acknowledge the need for coordination among themselves, for example in what concerns ICT financing and related issues. Increased dialogue has already been initiated. Following a meeting of MDB representatives at the World Summit on the Information Society (WSIS) in Geneva, an MDB exchange platform has also been established through the Development Gateway to facilitate MDBs' dialogue.<sup>40</sup>

### **3.1.3 Development Assistance and Cooperation<sup>41</sup>**

The international financial mechanisms that fall under the category of Development Assistance and Cooperation include a broad scope of government and international agencies and institutions, which engage in a variety bilateral (government-to-government including the European Commission) and multilateral (e.g., United Nations Agencies) aid programs for developing countries.<sup>42</sup>

The most prominent among these are the official development assistance (ODA) programs (see [Annex 1](#) for its definition) of the industrialized nations that make up the Organisation for Economic Co-operation and Development (OECD). Total donor funding for development, and ICT for development in particular, from these countries and programs constitutes the overwhelming volume of international aid financing of this kind. Some of the larger (e.g., China, India) and more affluent (e.g. Saudi Arabia) developing countries themselves have also begun to contribute financially and in other ways to the needs of other developing countries. However the overall magnitude of these "South-South" co-operation programs remains comparatively small to date.<sup>43 44</sup>

The 1990s generally witnessed a trend decline in aid contributions to developing countries from international donors in the developed world as measured by net ODA from countries that are members of the Development Assistance Committee (DAC)<sup>45</sup> of the OECD. Between 1992 and 1997, total net aid flows from DAC member countries to developing countries and multilateral institutions fell by over 20 percent from US\$60.9-billion (1992) to US\$48.3-billion (1997). Aid flows recovered slightly in 1998 and 1999, but the increase reflected only temporary factors and did not signal a reversal of the trend decline in aid flows during the 1990s. This reversal has only come since 2001 – see below. Nevertheless, taking a longer perspective shows that ODA flows from DAC countries to developing countries have been rather stable compared to other official flows and in particular private flows (Chart 1 and see [Annex 1](#) for definitions of ODA, OOF and Private Flows).<sup>46</sup>

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<sup>40</sup> At this meeting, it was proposed that MDB's share information on ICT-related activities and policies more closely and that the Development Gateway serve as a platform on which to do this. MDB Exchange is an on-line portal dedicated to staff of multilateral development banks (MDBs) on which MDB staff can share documents and ideas that relate to information and communication technologies (ICTs) and development.

<sup>41</sup> Based on contributions from OECD/DAC and its members, including the OECD-DAC Donor ICT Strategies Matrix (see Box).

<sup>42</sup> European Commission is a member of the DAC but its development assistance is categorized as multilateral.

<sup>43</sup> For recent India-Africa cooperation, see <http://www.aegis.com/news/ap/2004/AP040920.html>

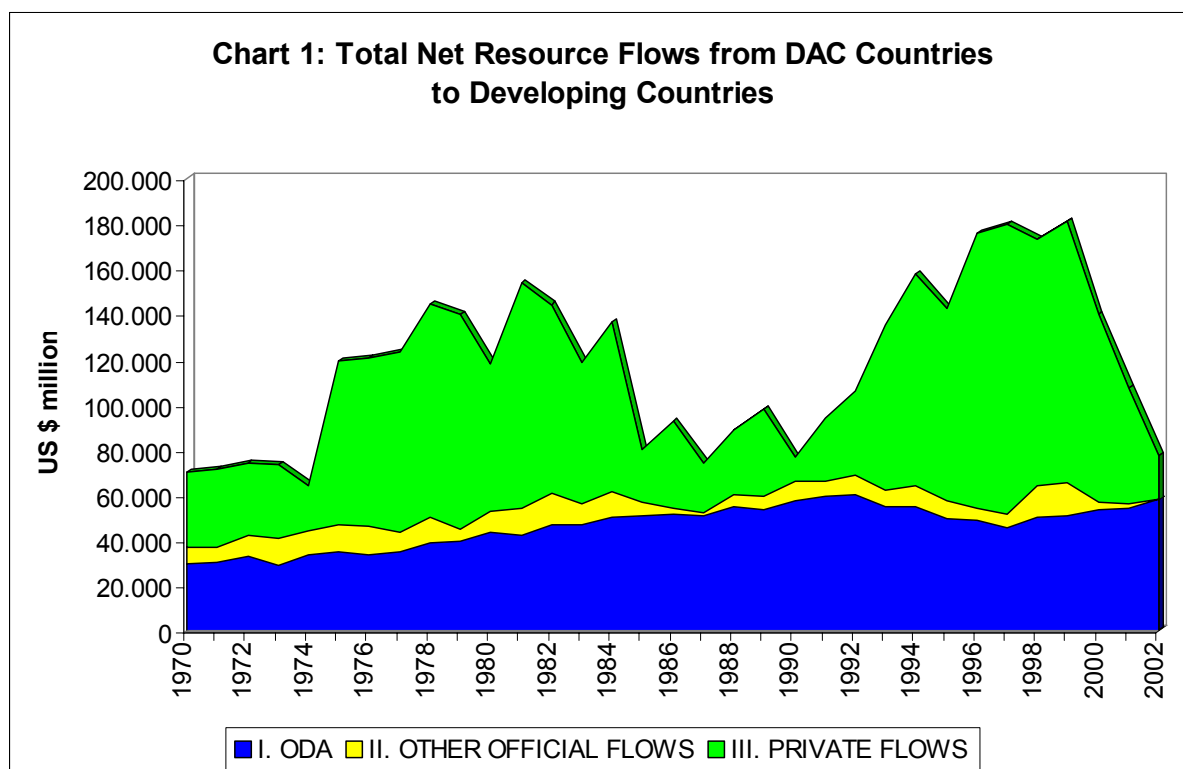
<sup>44</sup> ODA from Non-DAC Donors: Non-DAC donors provide roughly 5% of all known ODA flows. In 2002, DAC donors provided USD 58,274 million and Non-DAC donors USD 3,201 million. Non-DAC donors are categorised as OECD Non-DAC (Czech Republic, Iceland, Korea, Poland, Slovak Republic and Turkey), Arab countries (Kuwait, Saudi Arabia and United Arab Emirates) and other donors (Israel and others). China and India also provide aid, but the numbers are not yet reported internationally.

<sup>45</sup> The members of the DAC are: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Italy, Ireland, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, the United States and the Commission of the European Communities.

<sup>46</sup> Source: OECD-DAC database ([www.oecd.org/dac/stats](http://www.oecd.org/dac/stats)).

Several factors accounted for the shrinking of aid budgets. First, there has been a general tightening of government budgets in donor countries since the early 1990s. Second, past recessions in many of these countries have shifted the attention of public opinion inwards to such issues as domestic unemployment and social safety nets. Third, public opinion in some countries has also been increasingly skeptical about the effectiveness of aid. Fourth, aid has been re-directed to other sectors or in some cases has been shifted away from earmarked to direct budgetary support payments to countries, leaving it to them to decide how resources should be allocated.

However, in the context of the 2002 Monterrey Conference on Financing for Development, most DAC members committed themselves to significant increases in their ODA volume. As a result, the real increase in ODA of 12% recorded over the last two years has reversed the declines in aid of the previous decade and on current commitments, ODA is due to rise by a further 27% by 2006. For more detailed information, see [Annex 2](#) on the Monterrey Consensus and efforts of DAC members.



Source OECD/DAC

**Donor ICT Assistance:**

OECD-DAC’s previous efforts of information collection exercises had already shown that it is difficult, if not impossible, to come up with an overall figure of the investment DAC members have made in the field of ICT for development. The recent attempt for the TFFM discussion has not proved different from the previous ones. Its summary outcome on DAC members’ ICTD programmes and expenditures is included for reference in Annex 4 along with more detailed summary of selected donor programmes and initiatives in Annex.5.

Because the financial data are not comprehensive or compatible, the aggregate figure cannot be calculated. However, some reported figures (including some non-ODA) should be highlighted:

- Canada estimates a minimum expenditure of US\$ 33 million per annum.
- European Commission has € 250 million commitment of multi-year ICT-specific programmes in addition to € 110 million from the European Development Fund and € 750 million from the European Investment Bank (1999-2003).
- France committed about € 40 million (2002-2005) to global programmes over and above its country programmes and other facilities.
- Germany supports at present ICT applications with an amount of approximately € 180 million.
- Japan launched its Comprehensive Cooperation Package for bridging the digital divide which consists of non-ODA and ODA funding with a total of US\$ 15 billion over 5 years (2000-2005).
- Sweden spent approximately US\$ 18 million in 2003.
- The United Kingdom currently has multi-year ICT-specific programmes and projects, amounting to approximately a total of US\$ 83 million.
- The United States estimates its spending of ICT for development at more than US\$ 200 million in 2003, and through leveraged or matching outside resources a further US\$ 240 million was mobilised.

In the following, we provide ODA trends in two dimensions, ICT infrastructure investment, for which sound ODA statistics are available and other donor ICT assistance, where the information comes from the research mentioned above.

### **ICT infrastructure investment:<sup>47</sup>**

#### **Box 3.1.3.1: ICT Infrastructure**

In this section, ICT infrastructure means "communications infrastructure" as classified in the OECD/DAC document "Reporting Directives for the Creditor Reporting System".<sup>48</sup>

It is composed of three categories of activities:

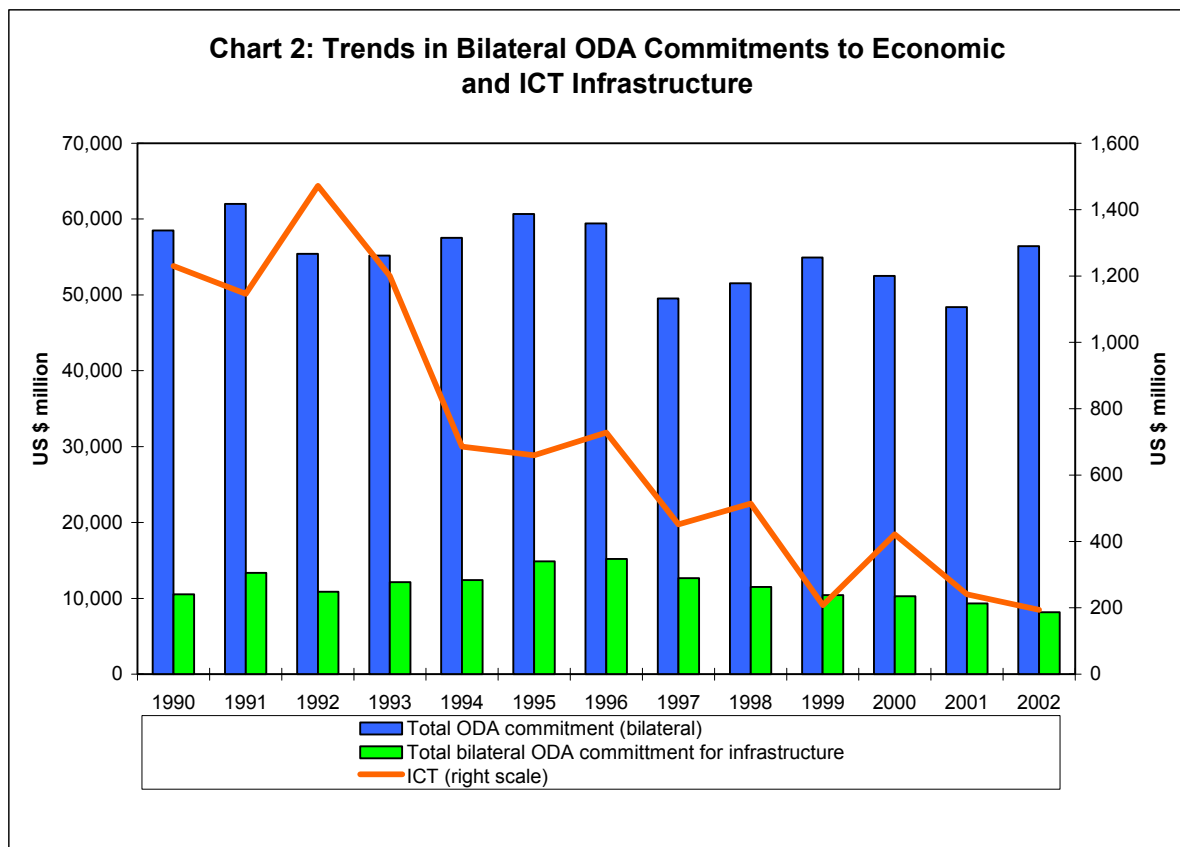
- **Communication policy and administration management** – Communications sector policy, planning and programmes; institution capacity building and advice, including postal services development; unspecified communications activities.
- **Telecommunications** – Telephone networks; telecommunication satellites; earth stations.
- **Radio/television/print media** – Radio and TV links; equipment; newspapers; printing and publishing.

The decline in aid flows is pronounced with respect to infrastructure investments, including ICT infrastructure. Bilateral ODA commitments for economic infrastructure generally (energy, transport, ICTs, irrigation, water supply and sanitation as well as infrastructure components of rural and urban development) have followed an overall downward trend since 1996, declining from US\$15.175-billion to US\$8.174-billion in 2002. At the same time, the relative share of infrastructure allocations in total ODA commitments fell since 1997 from 26% to 14% in 2002 (see Chart 2).

<sup>47</sup> Based on the research conducted by Ms. Susanne Hesselbarth for the Task Team on Infrastructure for Poverty Reduction of the DAC Network on Poverty Reduction. (See details at: [www.oecd.org/dac/poverty](http://www.oecd.org/dac/poverty))

<sup>48</sup> [www.oecd.org/dac/stats/crs/directives](http://www.oecd.org/dac/stats/crs/directives)



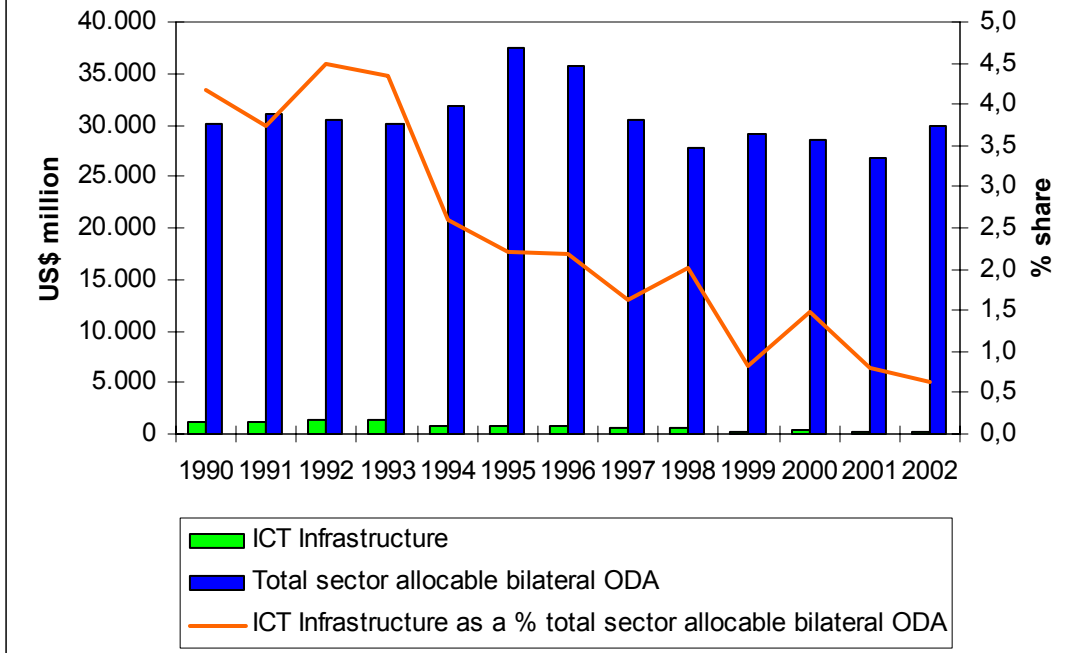


This declining trend is the consequence of a reorientation of infrastructure assistance by bilateral and multilateral donors toward strengthening the role of private investment in infrastructure development and focusing ODA both on leveraging private investments and supporting schemes with more direct poverty alleviating impacts. At the same time, the need to deal with the Asian, Latin America and Russian financial crises in the mid- to late 1990s, and a stronger focus on social sector investments to reduce poverty, accelerated the move of donor assistance away from economic infrastructure.

The ODA commitments for ICT infrastructure show an even more dramatic decline over the period 1990 to 2002. From a level of US\$1.2-billion in 1990, bilateral commitments increased slightly to around US\$1.5-billion in 1992, but since then declined steadily to a level of US\$194-million in 2002. [Chart 3](#) illustrates the magnitude of DAC bilateral donor commitments to the ICT infrastructure in total values and as a share of DAC countries' total bilateral sector allocable ODA. Over the period 1990 to 2002, the share of aid for the ICT infrastructure dropped from a high of 4.5% of total bilateral sector allocable ODA to a low of only 0.6% in 2002.

The rationale for the decline in commitments for infrastructure generally is also behind the dramatic decline in commitments for ICT. Given the dramatic shift of telecommunications infrastructure investment in particular from public ownership to the private, market-driven model, both multilateral and bilateral donors as well as the governments in the partner countries substantially reduced their role in funding capital investments in the sector.

**Chart 3. Total DAC Donor Bilateral ODA Commitments to ICT Infrastructure**

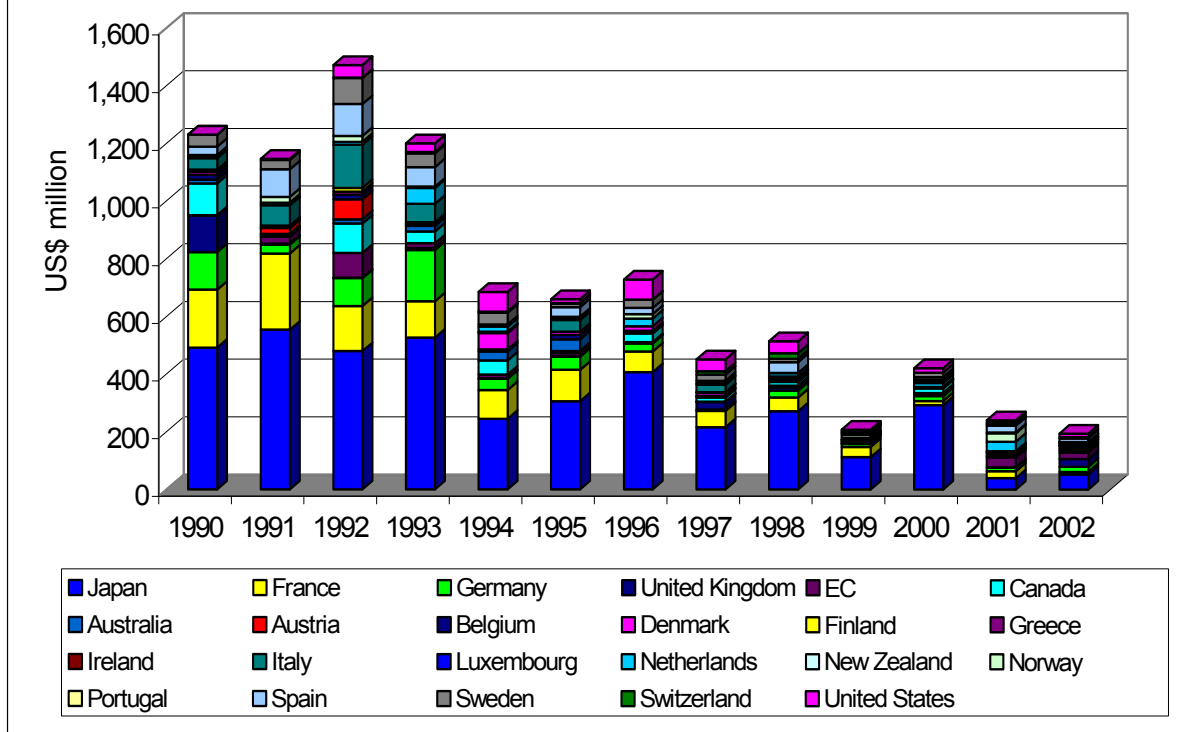


Source: OECD/DAC

This declining trend in bilateral ODA commitments for ICT infrastructure has not been uniform across all bilateral donors. Chart 4 presents the commitments to ICT infrastructure by individual donor and shows the drastic decrease between 1990 and 2002. The strong decline in commitments for ICT infrastructure from an annual average of around US \$1,200-million during the 1990-93 period to an average of US \$500-million for 1994-98 and to US\$266-million for 1999-2002 can mainly be related back to the strong reduction of a focus on infrastructure by some of the countries.

Japan, by far the largest donor over the years with a share between 30% and 68% of total allocations between 1990 and 2000, sets the downward trend. Overall commitments from Japan have declined from a high of US\$550-million in 1991 to a low of US\$40-million in 2001. In 2002, commitments to ICT infrastructure from Japan showed a slight increase to US\$52-million, but were still far below their levels in the early 1990s. While in value terms the global downward trend is mainly linked to Japan, the chart shows that there were similar substantial decreases for the majority of donors. Commitments from France dropped from a high of US\$264 million in 1991 to a low of US\$9-million in 2002, and their relative share of total bilateral donor commitments declined from 23% to 5% over the same period. A similar trend can be observed for Germany with a decline from US\$178-million in 1993 to US\$19-million in 2002.

**Chart 4: Bilateral Donors' Commitments for ICT Infrastructure**



Source OECD/DAC

In terms of specific mechanisms, bilateral ODA commitments for ICT infrastructure in general have shifted in recent years. The relative importance of loan instruments has fallen considerably from an average of around 60% during the 1990s to a low of 38% in 2001 and 23% in 2002. Over the same period, grant funding for ICT has gained in relevance, nearly doubling its share of total commitments from 20% in the early 1990s to 40% in the early 2000s. Also, funding for technical cooperation has increased steadily over the period. Equity investments have only played a minor role for ICTD funding, with small allocations in 1997 and 2002.

**Box 3.1.3.2**

**ODA Financing Instruments**

**Grants:** Transfers made in cash, goods or services for which no repayment is required.

**Loans:** Transfers for which repayment is required. Only loans with maturities of over one year are included in DAC statistics. The data record actual flows throughout the lifetime of the loans, not the grant equivalent of the loans. Data on net loan flows include deductions for repayments of principal (but not payment of interest) on earlier loans. This means that when a loan has been fully repaid, its effect on total net flows over the life of the loan is zero.

**Technical Co-operation:** Includes both a) grants to nationals of aid recipient countries receiving education or training at home or abroad, and b) payments to consultants, advisers and similar personnel as well as teachers and administrators serving in recipient countries (including the cost of associated equipment). Assistance of this kind provided specifically to facilitate the implementation of a capital project is included indistinguishably among bilateral project and programme expenditures, and is omitted from technical co-operation in statistics of aggregate flows.

**Equity investment:** Direct financing enterprises in the aid recipient country which does not (as opposed to direct investment) imply a lasting interest in the enterprise.

Source: OECD

**Other Donor ICT Assistance:** Donor assistance to ICT infrastructure, however, is by no means the entire picture of ODA's roll in ICT for development<sup>49</sup>. Most donors within OECD are engaged in bilateral ICT-specific programs and contribute to international multi-donor initiatives for ICT, but many also have integrated ICT components in their development programs. The individual scope of contributions as well as the degree of involvement in ICT assistance vary considerably across bilateral donors. Whereas some donors are still in the early stages of elaborating ICT strategies, others, for example, the Japan Bank for International Cooperation (JBIC) and Germany's Kreditanstalt für Wiederaufbau (KfW), have a clear focus on infrastructure development, particularly telecommunications projects. There are three main categories of donor assistance for ICT for development:

- **Bilateral ICT-specific programs:** These initiatives have mainly been designed to improve the flow of information and knowledge, increasing access to a range of information and communication technologies (from traditional to the most advanced) and enhancing the variety and quality of content. ICT infrastructure is the typical example. They include e-governance in Senegal (France), e-government for development initiatives (Italy), the Imfundo Partnership for IT & Education (United Kingdom, see Box 3.1.3.3 below), and many others.
- **Contribution to international multi-donor initiatives:** Multi-donor approaches have been created in order to pull together strengths and competencies while limiting duplication of effort as well as funding. Among the most prominent initiatives are the World Bank's Information for Development Program (InfoDev) and Global Development Learning Network (GDLN), Development Gateway Foundation, Global Knowledge Partnership (GKP), Bellanet, and many others.
- **Mainstreaming ICT into development programs:** Recognizing the cross-sectoral function of ICT and their role as a tool to reach development goals more effectively and efficiently, donors have increasingly engaged in mainstreaming ICT components into their development assistance. Examples are the health and family planning sector program in Vietnam supported by German financial cooperation which comprises, among other things, the establishment of a computer-based logistical management system to improve stock-keeping, order processing, and the distribution and monitoring of drug flows. Another example is the Basic Education Programme for the Pacific region supported by the European Development Funds, which contains a large e-learning component.

#### **Box 3.1.3.3 The Imfundo Project**

*"Education holds the key to tackling poverty and extending opportunity in the developing world. The new technologies have great potential to aid the effort to spread education"*- Tony Blair, Prime Minister, United Kingdom

The Imfundo\* Project aims to find ways to use ICTs to improve education in developing countries, particularly in Africa. The programme is a partnership between the United Kingdom's aid agency, the Department for International Development (DFID) and a number of private sector companies, with the support of the Prime Minister. The project - part of a £800 million education programme - concentrates on supporting teachers through the use of Open and Distance Learning (ODL) in teacher training and in-service professional development, and through educational management information systems e.g. software for timetabling and budgeting. Contacts with international companies indicate that there is widespread willingness to contribute to education initiatives, with a mix of motives ranging from altruism through to long-term market expansion. The Imfundo Project plays an important role in translating this goodwill into projects by matching capabilities with strategic national education development plans, enabling companies to do what they do without having to deal with bureaucracy. The mechanism for involvement is a Resource Bank, into which companies pledge goods and services. Imfundo deals with project design and monitoring and evaluation, leaving implementation to DFID country programmes or other donors. Experience from Imfundo and other projects are made accessible through a KnowledgeBank, which will provide a useful source of information on the use of ICTs in education. The initiative, which started in March 2000, was launched formally in 2001 with pilot projects in Gambia and Rwanda.

*Source:* OECD's 2001 Development Co-operation Report (ISBN 92-64-19187-9)

\* Imfundo: (im~fun~doe): The acquisition of knowledge; the process of becoming educated (from the Ndebele language, spoken in parts of Zimbabwe and South Africa). See also [www.imfundo.org](http://www.imfundo.org).

<sup>49</sup> For example, although there is an issue of statistical comparability, Japan, the largest donor in this field, reported to have disbursed US\$ 2,235 million (ODA alone 295 million) in its fiscal year 2002 for ICTD projects and programs. On the other hand, CRS database shows Japan's commitment for ICT infrastructure in 2002 – US\$ 52 million.

The shift away from direct financing of infrastructure has seen a greater emphasis on the mainstream role of ICTs in development programs. Data on the magnitude of these ICT components are not readily extracted from available sources, because these elements are integrated into sector programs in a variety of ways.

Although the available data do not provide sufficient information to measure the volume of funding flowing into mainstreamed ICT components, the renewed commitment of bilateral donors for ICTD as documented by the OECD-DAC Donor ICT Strategies Matrix (see Box 3.1.3.4) suggests that the decline in bilateral ODA financing has at least been in part offset by the increase in ICT related flows included in other development programs.

**Box 3.1.3.4**  
**OECD-DAC Donor ICT Strategies Matrix**

To encourage information sharing and co-ordination, the OECD/DAC produced a collection/directory of information on ICTs for development strategies and programmes of 23 bilateral and 25 multilateral donors. See: [www.oecd.dac/ict](http://www.oecd.dac/ict)

The rising prominence of ICT in development circles generally has been accompanied by a significant number of important ICT-specific programs and initiatives among key donors. A sampling of these programs is included in [Annex 4](#) and [5](#).

Because the private sector is critical and/or instrumental in expanding ICT for development access and applications, and that a wave of privatisation has been seen in developing countries since the 90s as a reality, DAC members extend their ICT for development support directly or indirectly through their financing instruments (not always ODA) for private sector development (PSD), in addition and complement to the support to the building of enabling environment, eg. regulatory framework and capacity building. One example needs to be highlighted, though it is classified as other official flow (OOF) – (see Box 3.1.3.5.)

**Box 3.1.3.5**  
**Untied Loans to Malaysia: Promoting ICT Sector through creating ICT Funds**

As part of the Comprehensive Cooperation Package by the Japanese government launched at G8 Kyushu-Okinawa Summit in 2000, Japan Bank for International Cooperation (JBIC) extended in February 2002 an untied loan amounting to US\$420 million, yen equivalent, to the Government of Malaysia. The loan is co-financed with seven private sector financial institutions. JBIC will also provide a guarantee for the private-financed portion.

The proceeds of the loan will be used, via government-owned Malaysia Venture Capital Management Bhd (MAVCAP), to provide financing for computer software and other ICT related companies in Malaysia as they undertake projects to develop and introduce ICT-related systems.

The Government of Malaysia launched "Vision 2020," an initiative with the purpose to join advanced countries by 2020, through "*development of the nation*" and "*strengthening the human resource base to ensure the availability of manpower with higher levels of knowledge, technical and thinking skills.*" The government also unveiled its K Economy (Knowledge-Economy) Plan to foster high value-added industries including the ICT sector. This loan will help promote the ICT sector where the government has placed priority in its economic development.

In January 2004, JBIC further extended another untied loan amounting 59 billion yen (approximately USD 536 million) to the Bank Pembangunan dan Infrastruktur Malaysia Bhd (BPIMB) with a similar format. The loan will provide, via BPIMB, medium- and long-term funds to finance the country's infrastructure development in the physical distribution services and ICT sectors.

Source: JBIC ([www.jbic.go.jp](http://www.jbic.go.jp))

Donors' activities through partnerships and instruments for private sector development, among others, are reviewed and discussed in other sections.

## **United Nations Organizations - Programs and Initiatives:**

UN agencies have varieties of ICT for Development initiatives which span the spectrum from small downstream grass-roots projects to use of ICT in large scale regional and global programmes. Versatility of ICT makes use of ICT throughout the UN system to enhance their development activities, however, the sheer number of programmes and the mainstreaming nature of ICT into core development activities make capturing of ICTD financing status extremely difficult. In addition, as all UN activities are supported by donors and other partnerships, calculating the economic input value of UN programs and initiatives may result in double counting with other key ODA figures.

Nonetheless, UN Regional Commissions, UN ICT Task Force, UNDP, ITU, UNESCO, UNV, UNCTAD, and various other UN agencies have been avid supporters of various ICT for Development activities and initiatives at both policy and programme development levels. UNDP, for example, has supported more than US\$10-million of its extra budgetary contributions for ICTD activities through dedicated global thematic trust funds in the past 5 years. This support is in addition to the considerable support provided to its programme countries from its core resources and cost sharing resources both in country and in regional/sub-regional levels.<sup>50</sup> ITU is supporting activities which cover all aspects of telecommunication with considerable resources allocated for advancing ICT for Development initiatives. UNESCO has more than 10-years of experience in promoting ICT initiatives which include the free flow of ideas and universal access to information, expression of pluralism and cultural diversity, and access for all to ICTs as well as research on related issues.<sup>51</sup> Specific UN initiatives, such as the UN ICT Task Force, have also been instrumental in funding activities which expand the envelope of use of ICT as tools for Development and tools to attain the MDGs. See- Annex.6 table for reference to activities/initiatives of select UN organizations which are active in the area of ICTD.

**The path ahead:** Many donor countries and agencies are actively examining the role of ICTD in their overall development strategies and portfolios, seeking, along with the rest of the international development community.

The dramatic shift away from financing of ICT infrastructure projects with aid funds has been an inevitable, and largely irreversible, consequence of the market restructuring and privatization trends worldwide. When Governments no longer own the infrastructure, direct government-to-government aid cannot easily be channelled into such private networks and services. And where competitive provision is the dominant trend, there are major impediments to assistance that could favor, for example, partially state-owned operators over fully private competitors.

At the same time, however, the myriad efforts by different donor agencies to pursue financing of innovative, cross-sectoral ICT programs and strategies underscores their recognition of the crucial role of basic and advanced communication and information capabilities as a tool for development. This recognition includes awareness of the gaps that continue to exist in access and connectivity to private infrastructure, and the fact that market forces cannot, by themselves fill all these gaps.

The challenge for donors is not only to determine the priorities for allocating limited resources among a wide range of ICT related needs and options, but to identify the most effective mechanisms for implementing ICT features as components of their aid portfolios. In some prominent cases, substantial funds have been earmarked for ICT assistance, but

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<sup>50</sup> UNDP, for example, currently conduct 208 access to information and e-governance related projects/initiatives in 110 country programmes. The size of the projects/prgrammes varies widely from below \$50,000 to over \$100,000,000

<sup>51</sup> OECD Donor ICT Strategies Matrix, OECD-DAC, December 2003.

the institutional mechanisms may not be adequately established to receive and deploy these funds in an effective, strategic manner.

A number of pertinent issues were raised during the OECD-DAC/SDC Meeting on 1 September 2004 in Geneva with regard to ICT financing.<sup>52</sup> These included the prospect of re-engaging in financing ICT infrastructure where market failures may exist, potentially by mitigating private sector risk, and through other partnership initiatives. Decentralized initiatives also are gaining new scrutiny, both for pure donor financing as well as to create further private sector incentives.

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### **3.1.4 Multi-Stakeholder Partnerships and Multi-Sector Initiatives**

There is an emerging consensus with respect to the ICT sector in the developing world, based on the dominant trends of recent years, which recognizes an essential interplay of complementary forces: the prominence of the private sector, the enabling role of the public sector and government policy, and the need for outside donors and finance institutions to help fill gaps and coordinate development strategies. Building on this holistic perspective, a number of actors have launched new initiatives to promote vital public-private partnerships across the global ICT industry. Most of these programs are too new to evaluate their impact, or the extent to which they can supplement and/or replace some of the more traditional ICT financial mechanisms. They have in common a recognition of the vital importance of and opportunities for ICT in the pursuit of the Millennium Development Goals, and focus their efforts on bringing together both traditional and new stakeholders in the public and private sectors to enhance the viability and effectiveness of investment opportunities.

Several of the more prominent of these emerging multi-stakeholder programmes are described below (not an exhaustive list).

#### **Private Infrastructure Development Group (PIDG)**

In 2002, DFID, SECO (Switzerland), SIDA (Sweden) and DGIS (The Netherlands) formed the Private Infrastructure Development Group (PIDG) with the aim of mobilizing investment in infrastructure for growth and the elimination of poverty. The World Bank has also subsequently joined the PIDG. The first project to be funded through the PIDG Trust was the EAIF, and GuarantCo, DevCo Advisory and InfraCo have since been launched, with other facilities planned.

The US\$305-million Emerging Africa Infrastructure Fund (EAIF) was launched as the first PIDG initiative in 2002. EAIF provides long-term debt finance to development focused, private sector funded infrastructure projects in sub-Saharan Africa by supporting commercially viable and developmentally sound ventures in the electricity, telecommunications, transportation and water sectors. DFID, SIDA, The Netherlands and

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<sup>52</sup> OECD-DAC/SDC Bilateral Donor Agencies Meeting. "Knowledge and People-Centred Communication: Potentials and Pitfalls for Poverty Reduction and Advancements of MDGs" (the Summary Record can be found at: <http://www.oecd.org/dataoecd/54/46/33805800.pdf>)

<sup>53</sup> OECD-DAC/SDC Bilateral Donor Agencies Meeting. "Knowledge and People-Centred Communication: Potentials and Pitfalls for Poverty Reduction and Advancements of MDGs" (the Summary Record can be found at: <http://www.oecd.org/dataoecd/54/46/33805800.pdf>)

SECO have jointly committed US\$100-million, through the PIDG Trust, to the Fund as equity. The balance of the Fund's capital comprises US\$85-million of subordinated debt from development finance institutions (FMO of the Netherlands, Development Bank of Southern Africa and DEG of Germany) and US\$120-million of senior debt from commercial banks (Barclays Bank plc and the Standard Bank Group). EAIF has funded Celtel International, one of Africa's principal regional mobile phone operators.

In 2003, the PIDG augmented an existing project development facility operated by the IFC to give greater emphasis to the development of projects for private sector investment in the poorer developing countries. The resulting facility has been given the name of DevCo. DFID committed £6.8 million over four years to launch the facility, the IFC is providing a contribution of US\$0.25-million per year, and DGIS has recently allocated US\$1.0-million for 2004/05. DevCo Advisory will support the development of transactions in the poorer developing countries that bring the private sector into the provision of all type that underpin poverty reduction. This will include energy, flood protection and drainage, irrigation, information and communications technologies, transport, water and sanitation and the infrastructure required for urban regeneration, including shelter.

In order to help create new incentives for entrepreneurialism in developing markets, particularly in infrastructure, in late 2004 the PIDG launched its own Infrastructure Development Company with a mandate to initially pilot project development in two countries in Africa and two countries in Asia. In order to help establish this company, DFID has allocated US\$10-million through PIDG as an equity contribution. InfraCo was only established as an entity in August 2004, and is yet to become involved in any projects. In 2004 the PIDG also launched GuarantCo, which is designed to mitigate risks for local currency financing of infrastructure. DFID and SIDA have each given an in principle commitment of US\$25-million to GuarantCo, and other members of the PIDG are expected to provide co-funding.

### **Building Communications Opportunities (BCO)**

The Building Communications Opportunities (BCO) Alliance (2004-2007) is the follow up to the Building Digital Opportunities (BDO) program. Five bilateral agency partners and five NGOs support the BCO. They include: the Canadian International Development Agency (CIDA), the UK Department for International Development (DFID), the Dutch Directorate-General for International Cooperation (DGIS), the Danish Ministry of Foreign Affairs (DMFA) and the Swiss Agency for Development and Cooperation (SDC). NGO partners are: the Association for Progressive Communication (APC), Bellanet, IICD, OneWorld International (OWI) and Panos.

The BCO Alliance, like the BDO Program, is not a legal entity, rather, it is a framework by which donors and NGOs can coordinate their work more effectively and realize useful partnerships. Frequent consultation and learning will strengthen coordination and limit duplication of content and activities as well as funding. In the previous BDO Program, the transparency of funding relationships between the donors and the NGO partners was not optimal. As part of the BCO Alliance, more concerted effort will be made among the donors to coordinate funding flows among the NGO partners. Joint financing of some organizations and activities will likely be the result. Legal relationships between NGOs and donors remain at the bilateral level, however, and there will be no direct "pooling" of donor funds behind the BCO Alliance.

### **Public Private Infrastructure Advisory Facility (PPIAF)**

The PPIAF is a multi-donor grant facility that works with developing country governments at central and municipal levels to improve the enabling environment for private sector involvement in infrastructure services. PPIAF currently has 14 contributing donors and undertakes a broad range of activities, including the development of legislation and



regulatory systems, sector reform strategies, the training of regulators and assistance with facilitating transactions. The telecommunications sector accounts for about 11% of PPIAF's expenditure.

### **InfoDev**

*infoDev* is a consortium of public international development organizations and other partners, facilitated by a secretariat at the World Bank, which is a founder of and major donor to *infoDev*. The mission of the Information for Development Program (*infoDev*) is to help developing countries and their international partners use information and communication broadly and effectively as tools of poverty reduction and sustainable economic growth.

*infoDev* pursues its mission through an integrated set of activities that includes: (i) Support for innovation in the application and extending access to ICT; (ii) Research, analysis, evaluation and monitoring of global experience in applying ICT to development challenges; (iii) Support for research, innovation, capacity building and global/regional dialogue and knowledge-sharing to create policy and regulatory frameworks, public expenditure priorities, and enabling environments for increased access to information and communications opportunities; and (iv) Support for innovative approaches to expanding the role of the private sector in scaling up successful ICT applications.

Since its founding in 1995, *infoDev* has supported over 400 innovative pilot projects, wide-ranging policy dialogue, and the preparation and dissemination of valuable information, knowledge and best practice guidance on the role of ICT in development and poverty reduction.

### **Global Knowledge Partnership**

The Global Knowledge Partnership (GKP) is a worldwide network committed to harnessing the potential of ICTs for sustainable and equitable development. GKP's vision is a world of equal opportunities where all people can access and use knowledge and information to improve their lives. The network enables the sharing of information, experiences and resources to help reduce poverty and empower people.

Within the GKP framework, governments, civil society groups, donor agencies, private sector companies and inter-governmental organisations come together as equals to apply ICTs for development (ICT4D). Such alliances are known as 'multi-stakeholder partnerships' (MSP), a relatively new approach to forging collaborations among different sectors sharing a common vision and goal. GKP has been focusing on applying this approach for thinking through innovative approaches to financing ICTD.

Founded in 1997, GKP now comprises 91 members from 40 countries covering all continents. It is governed by an elected Executive Committee and serviced by a Secretariat based in Kuala Lumpur, Malaysia. (<http://www.globalknowledge.org/> )

### **Digital Solidarity Fund** (DSF-FSN)

President Wade of Senegal's proposals during the first Phase of the WSIS, for the establishment of a "Digital Solidarity Fund", received support from a number of municipalities and regional Governments at the [World Summit of Cities and Local Authorities on the Information Society](#) (4-5 December 2003). As a result, a committee formed by the President of Senegal, Mr. Christian Ferrazino, Mayor of Geneva, Mr. Gérard Collomb, Mayor of Lyon, and Ms. Mercedes Bresso, President of the Province of Torino, decided to proceed and establish a Fonds de Solidarité Numérique (DSF). The DSF was been setup as a legally established foundation under Swiss Federal Authority and abides by rules specified by the Swiss Confederation. The foundation Headquarters is in Geneva through the support of the City of Geneva.

It draws upon support from local authorities (cities, departments, provinces, regions, etc.), in addition to some national Governments and private companies. It draw particular strength from local governments and authorities who were viewed as being particularly sensitive to the needs and aspirations of local populations and were thus in a good position to set priorities, make decisions and find solutions appropriate to the different contexts and life conditions of communities. The founding members of the DSF (contribution of Euro 300,000 or more) include: the Republic of Senegal, the Dominican Republic, the Republic of Equatorial Guinea, the Intergovernmental Agency of the Francophonie (AIF), the City of Dakar, the City of Geneva, the City of Delémont (Switzerland), the City of Lyon, the City of Paris, the City of Santo Domingo, the City of Curitiba, the Province of Turin, the Province of Rome, the Region of Aquitaine (France), the Region of Rhône-Alpes (France), the Urban Community of Lille (France), and the Autonomous Community of Basque Land (Euskadi).

It is expected to be funded through financial contributions made by citizens, local (cities and regions) and national public institutions, as well as by donations from private businesses and civil society. The latter categories may include: computer and network equipment manufacturers; software developers; telecommunications operators; distributors of products related to information and communication technologies; and civil society associations. A Digital Solidarity Charter outlines the framework and conditions for participating in this international solidarity effort including the fund raising modalities, the financing criteria with regard to all activities of the Fund, as well as the conditions for a transparent management of its resources. One of the financing mechanisms proposed is that a contribution of 1% on contracts obtained by private ICTs services providers (hardware and software) is made to the Digital Solidarity Fund. Such voluntary contributions would give private businesses the right to use a "Digital Solidarity Fund" label on their equipments and materials. The city of Geneva is expected to put this principle into operation on January 1<sup>st</sup>, 2005.

The intervention criteria of the Digital Solidarity Fund are defined in the Statutes and internal rules and regulations of the DSF Foundation. The DSF is expected to support the promotion of existing projects and programmes to build capacities in the field of ICTs, as well as provide direct grants to projects selected by the Foundation.<sup>54</sup> In undertaking these activities, the Fund aims to combat the digital divide through promoting South-South cooperation between the emerging South and the least developed countries, an approach that is often better adapted to the realities of the field. The projects to be supported by the Fund will also include community developmental actions that respect cultural diversity and local contents and targeting of women organisations and use of micro-credit strategies. Such projects will address insolvent demand, with a view to creating new businesses and, in the long term, new markets.

While legally established, the DSF has yet to enter its operational stage. The DSF, when fully operational, would allocate raised resources as follows:

60% of its resources will fund projects from developing Countries

30% of its resources will fund projects in countries in transition.

10% of its resources will fund projects from developed countries

### **Private Sector Led Initiatives and Foundations**

Numerous private sector companies, including most of the major transnational ICT corporate giants, have established or supported Foundations and non-profit initiatives, typically on a multi-stakeholder, cooperative basis, to promote ICT access, computer training and certification, rural telecenters, and a variety of other goals in the developing world. Some of these activities include:

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<sup>54</sup> Digital Solidarity Fund intervention policy, Digital Solidarity Fund Foundation, <http://www.dsf-fsn.org/en/09-en.htm>

- Microsoft Unlimited Potential access and telecenter initiative, implemented in collaboration with IDRC of Canada (<http://www.microsoft.com/unlimitedpotential>)
- Cisco Networking Academy Program, concentrating on training and certification in ICT in developing countries ([http://www.cisco.com/en/US/learning/netacad/digital\\_divide/index.html](http://www.cisco.com/en/US/learning/netacad/digital_divide/index.html))
- Intel Learn Program and Intel Education, emphasizing basic teacher training (<http://www97.intel.com/education/>)

Among the most active Foundations in the ICT area are:

- The Open Society Institute
- The Ford Foundation
- The Rockefeller Foundation
- The Carnegie Corporation
- The Kellogg Foundation
- The MacArthur Foundation

**Box 3.1.4.1**

***The TechFunders Collaborative***

The TechFunders Collaborative is a new and evolving initiative of diverse foundations. Its mission is to collaborate as grantmakers across sectors to advance knowledge, advocate best practices and fund projects that use information and communication technology (ICT) to strengthen nonprofits and improve the lives of communities and people worldwide. The Collaborative is open to any grantmaker with an interest in technology-related grantmaking. Starting with an inaugural convening in March 2002, funders and strategists have met regularly and have identified common themes that drive their concerns about technology-related grantmaking.

Source: <http://www.techfunders.org>

## **3.2 Domestic Resources and Mechanisms**

In the most ideal scenario, patterns of finance for ICT development would shift from international mechanisms to domestic mechanisms. This would mean that developing countries, benefiting from the economic stimulus of the technology, were increasingly able to generate funds to support further development within their own economies, including both private and public sector sources, and would be less dependent upon foreign investment and international aid.

This section examines the availability and functions of existing and emerging domestic financial mechanisms for ICT development. In most areas, "hard" data on overall expenditures and resource allocations are difficult to come by, as there are few centrally collected and studied sources on internal ICT-specific investments or financing trends in developing countries. However, there are myriad case study examples available to demonstrate the range of initiatives and options underway across the developing world to encourage and reinforce ICT financing from domestic sources, and certain practices are emerging as the most promising and potentially effective mechanisms to channel these resources toward priority development objectives.

### **3.2.1 Private Sector**

Purely domestic private sector investment in ICT has been much slower to develop in comparison with international investments, for a number of reasons. In many developing countries the range of private financial mechanisms is relatively limited. Banks and other financial institutions are themselves typically undergoing reforms and/or privatization, and equity and bond markets in many countries are often small and struggling. For major capital investments in particular, including those requiring foreign "hard" currency, ICT companies must compete for limited financing instruments and funds with many other infrastructure and capital intensive projects.

In some cases, privatizations and joint ventures have involved local partners with deep pockets, and even public share issues, creating the foundation for further local private sector involvement in the financing and expansion of the domestic ICT market. This was the case, for example, in Mexico, where domestic investors made majority investments in Telmex's privatization process, and in South Africa, where public investors have also been key in the expansion of MTN mobile operations. More directly, as operations expand and become profitable, the revenues generated by private ICT companies are becoming an important internal source of self-financing for expansion. (See Boxes below) Where initial investments and ownership came from foreign sources, such reinvestment is often still technically classified as FDI, but for economic purposes the funds represent internal, domestic resources. Such domestic private sector financial resources are especially rare in the lowest income countries, where major investment needs remain primarily dependent on foreign investment, donors, and public resources.

**Box 3.2.1.1**

***Strong domestic financing resources go a long way for Telmex***

The Mexican based Grupo Carso, a large business conglomerate involved in such areas as telecommunications, banking and insurance, was a key investor in the privatization of Telmex in 1990 (with a majority stake at the time). In fact, after privatization, Telmex became the single largest company in the Mexican stock exchange, which meant that Telmex's share volatility was a major determinant of the Mexican stock market performance. Its subsidiary Carso Global Telecom, currently owns about 38% of Telmex's shares. Other shares are owned by SouthWestern Bell (7.4%), Mexican investors (1.4%) and public investors (54%). Since late 2003, Telmex has implemented a new international expansion strategy, focusing on Latin American countries, including Argentina, Brazil, Chile, Colombia and Peru. Investments in these countries have targeted all telecommunications services to high end customers, particularly the business sector.

Source: Telmex Annual Report, 2003.

**Box 3.2.1.2**

***MTN: Bringing innovation to South African mobile markets***

After 10 years in the mobile business market, MTN has grown dramatically in South Africa, with about \$6.5 million subscribers and with a coverage area providing access to 93% of the country's population. MTN business strategy focus on pre-paid cards and to a certain extent on lower-income markets. With about 80% public ownership and 20% employee owned, MTN has engaged in a strategy that places the company as major player in the regional mobile market place. With recent expansion into Nigeria, Rwanda, Swaziland, Cameroon and Uganda, the MTN brand is becoming a key regional player in the sector.

Source: <http://www.mtn.co.za>

Nonetheless, entrepreneurs, including many smaller in scale, are seeking, and in many cases finding, creative financing support to grow ICT-based domestic businesses. With growing demand for Internet related services and access to ICT in general, countless domestic firms have established niche markets and profitable ICT related business, such as software development and support, e-mail and/or Internet service provision, franchising of Internet and ICT services kiosks, including some ICT training programs, among others.

Most important, many non-ICT private firms in developing countries have developed business projects and programs that are contributing to ICT infrastructure and access to the benefit their community's economy as well as long term development. The award winning e-Choupal initiative from ITC Corporation in India, is providing information and knowledge to small rural farmers through a network of information technology centers, which lead to lower intermediary costs and overall greater earnings for both rural farmers and ITC (see [Box](#) below).

With the unprecedented expansion of wireless communications throughout the world, mobile operators have grown rapidly and have in fact ventured into new and ostensibly less desirable markets. Either because of mandated universal access obligations or simply through the ongoing quest for larger and specialized markets, mobile operators have

developed innovative solutions to provide access and contribute to development in their countries.

In South Africa, Vodacom has found new ways to meet its Community Service and Universal Service Obligations, as mandated by its license. The company has been a pioneer in the South African market by promoting and expanding a network of locally owned and operated phone shops, particularly in previously disadvantaged communities (see [Box](#) below). In the Philippines, Smart Communications developed new and innovative solutions to target low-income users, particularly through low priced pre-paid cards and text messaging.<sup>55</sup>

**Box 3.2.1.3 Big business with small rural farmers – the case of ITC e-Choupal in India**

ITC's International Business Division, one of India's largest exporters of agricultural commodities, has developed the e-Choupal (choupal is a meeting place) as a more efficient supply chain aimed at delivering value to its customers around the world on a sustainable basis. The e-Choupal model has been specifically designed to tackle the challenges posed by the unique features of Indian agriculture, characterized by fragmented farms, weak infrastructure and the involvement of numerous intermediaries, among others. The e-choupal, which works as an internet kiosk, provides the agricultural community access to key information in their local language on the weather and market prices, it disseminates knowledge on scientific farm practices and risk management, facilitates the sale of farm inputs (now with embedded knowledge) and purchase farm produce from the farmers' doorsteps (decision making is now information-based). As a direct marketing channel, virtually linked to the 'mandi' system for price discovery, 'e-Choupal' eliminates wasteful intermediation and multiple handling. Thereby it significantly reduces transaction costs. Launched in June 2000, 'e-Choupal', has already become the largest initiative among all Internet-based interventions in rural India. 'e-Choupal' services today reach out to more than 2.8 million farmers growing a range of crops - soyabean, coffee, wheat, rice, pulses, shrimp - in over 28,000 villages through 4700 kiosks across six states (Madhya Pradesh, Karnataka, Andhra Pradesh, Uttar Pradesh, Maharashtra and Rajasthan).

Source: Excerpted from <http://itcportal.com/>

Smaller and micro scale ICT businesses, such as telecenters, cybercafés, Internet access points, or information kiosks, have spread rapidly in many countries throughout the developing world. These small businesses have developed in response to an increasing demand for ICT services, and particularly in the often less regulated Internet market segment. They have primarily been supported by private means, including some commercial loans, but in many instances informal borrowing mechanisms comprise the major source of finance (as many commercial banks are not willing to lend to small business owners). In Peru, where one can find *cabinas publicas* in almost every block in the capital city, they have developed not only to provide access to computers and the Internet (at reasonable prices), but in many cases function as multipurpose ICT service providers, also offering ICT training courses and providing services and assistance to the student population. In a few cases, *cabinas publicas* have designed services targeting certain groups of the population, including elders, women, or individuals with low-literacy levels.

<sup>55</sup> Sharon Smith, Smart Communications: Expanding networks, expanding profits – Providing telecommunications services to low-income markets in the Philippines, What Works Case Study, World Resource Institute, Digital Dividend, September 2004.

#### **Box 3.2.1.4 Vodacom's Community Cell Phone, South Africa**

Vodacom Community Services, a program of Vodacom, South Africa's largest cellular phone company, is a successful example of how business and government can work together to achieve significant social and economic goals. Community Services began under a 1994 government mandate to provide telecommunications services in under-served, disadvantaged communities. Vodacom's development of an innovative way to meet this mandate, via entrepreneur-owned and operated phone shops, has both provided affordable communication services to millions of South Africans and empowered thousands of previously disadvantaged individuals with income-generating opportunities and lasting business skills. The Community Services program now provides over 23,000 cellular lines at over 4,400 locations throughout South Africa.

Vodacom Community Services provides telecommunications services in townships and other disadvantaged communities at government-mandated prices that are less than one-third the commercial rates for pre-paid cellular calls. The program, although initially subsidized by Vodacom, now covers its costs with revenue from sales. The Community Services model emphasizes the establishment of phone shop franchises, owned and operated by local entrepreneurs from within disadvantaged communities. At a cost of about R 26,000 (US\$3,450), prospective owners can start a franchise to operate five cellular lines in a pre-approved location. These franchises, commonly called "phone shops" and often operating from converted shipping containers, offer phone service to the neighboring community. Vodacom also invests about R 30,000 (US\$3,950) per franchise for the modified shipping container to house the phone shop. The result is affordable access for communities and a tangible step toward Vodacom's ultimate goal of providing all South Africans with access to mobile communications. Entrepreneurs pre-pay Vodacom for calls on their phones at rates that retain one-third of calling revenue for themselves.

The volume of calls at most phone shops is such that entrepreneurs can cover their costs and make a profit, despite the low price. A well-located phone shop with five lines, for example, typically experiences more than 100 hours of calling per month per phone line, generating total monthly revenues of R 27,000 (US\$3,550), with R 9,000 (US\$1,190) of that as revenue to the entrepreneur. Brand recognition is an important component of the business model. Vodacom supplies franchisees with converted shipping containers that provide secure and affordable facilities and goes to great lengths to ensure that the phone shops are easily identified. Most South Africans easily recognize the "Vodacom green" shipping containers that dot the landscape of many communities.

Source: Excerpted from Jennifer Reck and Brad Wood, Digital Dividend Business Case Study, World Resource Institute, August 2003 (with minor editing).

**The path ahead:** On the whole, domestic private sector initiatives constitute an area where the potential for growth is very large, particularly in low-income urban areas, and potentially in rural areas as well. Domestic firms have greater knowledge on domestic markets and are better equipped to develop innovative solutions to address the telecommunications needs and demands of their market place.

Many factors both within and beyond the ICT sector itself must be resolved to unleash the long-term potential of the market, particularly for medium, small and micro ICT related businesses (i.e., those who are normally not backed by some foreign capital investment). The opportunities are immense and such actions as the development of small business assistance programs in partnership with business associations, the banking industry, and the public sector are crucial.<sup>56</sup>

### **3.2.2 Public Resources and Development Initiatives**

Public financing of ICT in developing countries has transformed substantially following the trends to liberalize the telecommunication market and the waves of partial or full privatization of the majority of state-owned telecommunications operators. Even before

<sup>56</sup> The US's Small Business Administration is often cited as a model in this regard. Also critical is support for business planning particularly in the context of rural areas and service delivery: Also see Don Humpal Robert Dressen (2002) study prepared for USAID.

that trend, however, PTTs were more often viewed as a source of net treasury contributions rather than an object of tax-subsidized public support, in the manner of basic public services such as education and health. Given limited resources and multiple competing demands, the role of government, and of public resources, in supporting ICT for development objectives is now shifting toward areas where the public mandate remains strongest. These include:

- Establishing policy, strategy, and regulatory frameworks;
- Integrating ICT components within mainstream development programs and initiatives;
- Implementing ICT within government operations in general;
- Supporting public education, training, and capacity building programs with an emphasis on ICT.

In all of these areas, public financial resources are required – often augmented by donor and other outside assistance – to pay salaries and technical experts, to procure equipment and services, to fund basic public service operations incorporating ICT components. Different governments have placed varying degrees of emphasis on each set of responsibilities, and while there are many examples of innovative and progressive approaches, the reality is that few if any developing country administrations have been able to allocate sufficient resources to all of these inter-related objectives at the same time.

In addition to these functions, many governments do retain a more central role in implementation of telecom and ICT projects, and there are cases where this model continues to function at least as successfully as other approaches (e.g., Uruguay, Costa Rica).

**Policy and strategy development:** In the policy and regulatory arena, many countries have recently developed comprehensive national ICT strategic plans, which attempt to integrate and link sector reforms with national development goals, particularly in the context of poverty reduction. National ICT development plans also establish a framework to guide policy and regulatory decisions, and can open opportunities for increasingly innovative mechanisms to support ICT for development. Most importantly, such national plans establish the government's commitment to ICT as a tool for development throughout the country. This is a critical step in many countries as it provides the basis for a number of related new programs and further assurance, for example, to the banking industry, that ICT businesses and initiatives are long-term public commitments.

E-strategy programs help to focus public resources on the strategic integration of ICT in development programs. A key concern is coordination across diverse projects, Ministries, and regional and local initiatives. With that view in mind, several governments have established centralized ICT coordination roles within a particular Ministry or specialized high-level office to oversee implementation of the strategy. For example, in Sri Lanka, the government, with support from the World Bank launched e-Lanka, an initiative to fully integrate and leverage ICT in the development process.<sup>57</sup> E-Lanka focuses on such areas as human resource development, private sector investment and development, the concept of an e-society, among others. In developing this program, the government has focused on poverty reduction, growth and peace, and has linked its planned activities and programs to the MDGs.<sup>58</sup>

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<sup>57</sup> <http://www.esrilanka.lk/>

<sup>58</sup> <http://www.esrilanka.lk/insidepages/programmes/e-Society.asp>



#### **Box 3.2.2.1**

##### **National ICT strategic plans set long term development goals**

The national ICT strategic plans and policies developed by number of developing countries, focus on a more holistic vision of ICT in the development process. Indeed, some countries have been able to articulate their national ICT strategy within the context of their development plans and with special emphasis on poverty reduction objectives. As such, these ICT strategic plans go beyond such issues as telecommunication and broadcasting policy, regulation and infrastructure, and establish objectives and steps to build a knowledge society where, for example:

- Universal and affordable access to ICT, including traditional and new technologies (e.g., radio, Internet, wireless options);
- Gender equality in ICT and actions to be taken to ensure equal access to all aspects of ICT development, including training, business assistance, among others;
- Development of human resource capacity;
- Integration of ICT in education, health, and other public services in a coordinated manner;
- E-commerce policies and legislation;
- Tax and import/export policies.

Many countries including Mozambique, Ghana, Samoa, Korea, Dominican Republic, and Estonia, have spent great effort in the process and are already implementing programs that address and meet their strategic objectives. In addition to government resources, the World Bank, the UNECA and the UNDP, among others, have supported the development of these strategies.<sup>59</sup>

Also important are activities on the part of donors and development partners to support the priorities outlined in the relevant national development strategies (in this instance principally the national e-development and poverty reduction strategies), particularly where they are developed in a participatory manner and incorporate bottom-up inputs and implementation. In many countries, the problem is not too few but too many un-coordinated externally supported initiatives.

**E-Government & E-Governance:** The first responsibility of public finance is, naturally, to pay for government services, operations, and personnel and facilitate the delivery of services and engagement with citizens. Recent movements in many countries, and in the development community, to pursue “e-government” programs are based on a variety of objectives, but one of the most basic is to help government administrations function more cost-effectively. Introduction of electronic information systems can greatly streamline countless government processes in developing countries where paper files are still the norm. Computer financial and accounting systems can reduce inefficiency and inhibit corruption. Both telephone and e-mail communication systems can improve coordination and accelerate response times for all types of government activities. For these reasons alone, public officials are eagerly developing plans for incorporating advanced ICT into all levels of government operations.

In addition, there are a range of other potential public benefits to e-government initiatives. These include especially improvement in the delivery of public services, information sharing, and in many cases democratic participation in governance processes. Many countries have developed extensive web portals and have increased the amount of information available to the public from different Ministries, departments, municipalities, among others. The next crucial step is the delivery of services and information through the Internet, as well as more traditional media such as broadcast outlets, which requires not only access and capacity from the population in general, but also capacity at the government level itself to implement such programs. As pointed out in a recent paper by the Minister of Higher Education, Science and Technology from Mozambique, e-governance can only be meaningful if the citizens are the focus of government.<sup>60</sup>

<sup>59</sup> <http://www.uneca.org/aisi/nici/> and <http://sdnhq.undp.org/it4dev/>

<sup>60</sup> Lidia Brito, Roland de Brouwer, and Ana Ruth Menezes, *Using ICT to improve government efficiency and transparency: The Mozambican case*, 2004.



Equally important, governments in their role as major customers and users of ICT products and services inevitably serve as a key driver for the development of the ICT sector generally. In this capacity, public administrations have the ability to influence market development through their procurement and planning functions, which should ideally be integrated with broader ICT strategies. Decisions to spend public funds, for example, to install computer systems and networks, to link government offices, and to develop custom software applications, will directly influence the opportunities and competitiveness of key domestic suppliers of these inputs. In some countries, government-owned or affiliated suppliers are given exclusive rights to such procurements, and in other cases long-term contracts amount to preferential treatment for favored companies, with the effect of shutting out potential new entrants.

Some governments, however, have taken more transparent approaches to public ICT procurement, with a view to actively encouraging innovative supply, small business development, and empowerment of minority and women's businesses while facilitating cost-effective deployment of public resources. This trend is becoming more common in the area of software platforms; governments in India<sup>61</sup> and Brazil<sup>62</sup>, for example, have taken steps to introduce Free and Open Source Software (FOSS) solutions into public administration data processing functions.

In the case of Estonia, the government's role was central to ensure that its vision of an Estonian information society would become a reality. Public resources and services were the main drivers in the development of an Estonian knowledge based economy and society.<sup>63</sup> Such policy decisions as to eliminate corporate taxes for ICT firms were also important to mobilize private sector investment in ICT infrastructure, services and applications.

**Public education, training, capacity building:** Public education remains one of the central responsibilities of virtually every government, as human resources are a country's most important asset, particularly in an information-driven economy. The degree of public commitment and funding to various levels of education and training, both for general development goals and for ICT sector objectives specifically, varies considerably across different countries, but in all cases amounts to a substantial allocation of public funds. The core Millennium Development Goals include universal access to basic primary education, and equitable access to public education for girls, goals which will demand major additional public and outside resources to achieve. In this context, many least developed countries have placed minimal emphasis on incorporating ICT in their education plans and budgets. Others, however, have initiated a variety of innovative public ICT-based education and training programs, with the goal of leveraging ICT resources to pursue economic and social development together with basic educational as well as advanced training objectives. For example:

- In Namibia, SchoolNet has been successful in providing access to ICT in numerous schools throughout the country, and has trained students, teachers and administrators alike. In partnership with several Ministries and many others, SchoolNet has developed an array of ICT-based projects that address key development concerns, such as HIV-AIDS. The organization has recently embarked on an ambitious project to establish a wireless network that will connect close to 900 schools by 2005.<sup>64</sup>

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<sup>61</sup> <http://www.iosn.net/country/india/news/nic-website>

<sup>62</sup> <http://www.wired.com/news/infostructure/0,1377,61257,00.html> ; see also Sergio Amadeu da Silveira e Joao Cassino, Eds, software livre e inclusao digital (free software and digital inclusion), Conrad Livros, 2003.

<sup>63</sup> Information Technology in Public Administration in Estonia, 2003.

<sup>64</sup> <http://www.schoolnet.na/>

- The Korean government and its ministries identified women and girls as a critical group and developed several ICT training programs to address their capacity needs. These programs, which covered computer and Internet use as well as IT skills, were targeted to housewives, unemployed women, elementary school students, among others.<sup>65</sup>
- The recently established Ghana-India Kofi Annan Center of Excellence in ICT is innovative initiative to address capacity building gaps at many levels. The Center is designing programs to build the ICT capacity of government workers, students, and the population in general, by offering training programs that address each groups specific needs and knowledge level (see Box).

**Box 3.2.2.2**

***The Ghana-India Kofi Annan Center of Excellence in ICT***

The Government of Ghana, in cooperation with the government of India, have established the Ghana-India Kofi Annan Centre for Excellence in Information and Communications Technology, located in Accra. The center is one of the initiatives by the government of Ghana to address the "digital divide" and therefore facilitate the transfer and sharing of knowledge among its citizens and those of the African sub-region. The Center's mission is:

"To employ a world class Information and Communication Technology (ICT) facility:

- For market oriented training of ICT professionals.
- To develop and apply research and innovative technologies for socio-economic development for West Africa
- To catalyse the growth of the ICT sector in ECOWAS in collaboration with our partners"

Source: <http://www.aiti-kace.com.gh/index.php>

**The path ahead:** All governments in the developing world confront financial challenges, and the problems can magnify without warning due to currency fluctuations, inflation, economic and environmental crises, and any number of other factors that are far more prevalent in unstable, emerging economies. In this environment, it is exceedingly difficult for most governments to commit substantial new resources to forward-looking initiatives, strategic policy expertise, or capital intensive technology deployment programs, even where the benefits would be undeniable. On the other hand, successful promotion of private sector growth and economic expansion generally will have the added benefit of increasing public revenues, and hence allowing more investment in such strategies. In particular, resources that are effectively dedicated to ICT driven e-governance initiatives carry the promise of paying for themselves through efficiency gains and improved public services, as well as better integration of policies across the spectrum of ICT development programs.

Central to any of these objectives is the need for widespread and sustained human resource capacity strengthening within the public sector in the variety of areas encompassing both ICT-deployment as well as policy development capacities. This means not only effective training and recruitment of key personnel and related support services, but the need for governments to be able to "compete" with the growing private ICT market for the same limited pool of technically proficient workers. Government salaries, benefits, and career growth opportunities must be competitive, on-the-job training must be a prominent feature, and avenues for outsourcing and partnering with private sector firms must always be explored.

All of these approaches imply the need for increased public expenditure in support of government policy, implementation, and public services in the ICT realm. Where public funds cannot cover these needs, outside donors and other financial support should be

<sup>65</sup> UN DAW Expert Group Meeting Report, Information and Communications Technologies and their impact on and use as instrument for the advancement and empowerment of women, Seoul, Korea, 11-14 November, 2002.

prepared to fill the gaps to the greatest extent possible since the success of a number of different initiatives depends upon it.

### **3.2.3 Universal Access Funding**

Developing nations have begun to employ several “universal access” mechanisms to expand access to telecommunications for high cost (rural) and low income users. One such mechanism is the Universal Access Fund (UAF)<sup>66</sup> which is being promoted as a central means for mobilizing domestic private and public financial resources and leveraging outside support as well. Properly designed and implemented, and with sufficient internal resources and expert capacity, the UAF model has the potential to serve as a central “clearing house” within each given country for a variety of funding sources and development projects, to reduce inefficiencies and improve coordination across the spectrum of ICT development and financing initiatives.

UAFs are seen as a competitively neutral solution for open market environments, where all operators in the market are obligated to share the responsibility (and the benefits) of providing universal access. About 60 countries worldwide have established or are in the process of establishing a UAF.<sup>67</sup> In general, the principal motivation for establishing a UAF is the notion that initial start-up investment and costs are the main barrier to serving rural, remote and perceived unprofitable areas. The adoption of a UA program in theory reflects a belief that expanding access is a public commitment, as well as a wider understanding that the benefits of ICT development are universal, with externalities that accrue not only to new subscribers but to all citizens and businesses in the economy, particularly ICT businesses themselves.

UAFs are typically administered by the national regulatory agency or an independent body (e.g., the Universal Service Agency in South Africa) and under the policy guidance of the policy maker, usually the Ministry of Communications. UAFs are normally financed by sector revenues (e.g., Dominican Republic, Peru, South Africa, Uganda), government budgetary allocations (e.g., Chile, Colombia, Nepal), and in some recent cases include contributions from donors and international financial institutions (e.g., Nicaragua, Nigeria, Mozambique, Uganda, Sri Lanka). In Guatemala, the fund was partially financed by licensing or spectrum fees. Countries select financing modalities based on the private and public sector environments in their country, but also based on their own ability to contribute to the Fund. The recent trend of donor contributions to UAFs provides an opportunity but can not be perceived as the major source of financing.

Experience with UAFs to date is mixed, with well publicized success stories in some countries (e.g., Chile, Colombia, Peru), and slow starts and bureaucratic difficulties in others (e.g., Bolivia, Brazil, Nepal). The most successful experiences began during the 1990’s in Latin American countries, such as Chile, Peru and Colombia, where the UAFs have supported extensive deployment of public phones in rural and remote areas, and have effectively strengthened the presence of rural operators. These funds originally focused on the provision of public telephony services but have more recently expanded to cover Internet access and advanced ICT projects, including multi-purpose telecenters.

The UAF mechanisms in Latin America have implemented so-called “smart subsidy” mechanisms or minimum subsidy auctions, where bidding firms competed for subsidies from the Fund based on the lowest subsidy requested and/or greater investment commitment to provide service in a designated area or region. Bidding firms are encouraged to plan their

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<sup>66</sup> For purposes of this report Universal Access Funds (UAF) also include Funds such as Telecommunications Development Funds, Rural Development Funds, and any other naming referring to Funds established to support and finance access in underserved areas.

<sup>67</sup> ITU, Trends in Telecommunications Reform, 2003.

investment activities based on best technology available and most cost-effective practices. While there are some risks with this approach, such as under-bidding by smaller firms that may jeopardize their financial sustainability,<sup>68</sup> this mechanism has actually been quite successful in the expansion of access (see Table 1). It is also interesting to note that in the case of Chile and Peru, US\$1 of public investment leveraged about US\$6 and US\$2 of private investment respectively.<sup>69</sup>

In South Africa, where the Universal Service Agency administers a UAF that focuses on the deployment of telecenters throughout the country, the experience has been more mixed. Numerous telecenters have been established using Fund resources, but longer-term sustainability continues to be a challenge to a great majority of the projects. Although funds were available for business and management training, it appears that the Agency did not have adequate internal resources, human and financial, to be able to properly implement its mandate. The Agency has also gone through several restructuring phases and has recently tried to develop a clearer mission. Proposals to increase the size of the Fund are currently under review. One of the many interesting and positive aspects of the South African telecenter program was its policy to ensure that at least 50% of telecenter managers and owners were women or women's organizations.

There are a variety of new approaches and ideas being pursued in many of the newer UAFs that have been established in recent years. Experience in Uganda, where about 80% of the population lives in rural areas, reflects such developments and shows promising results that others may replicate. ([See Box.](#)) In Nepal, also with about 85% of the population living in rural areas, the UAF is supporting a rural operator deploying public telephones through the country. In the Dominican Republic, the Telecommunications Development Fund also supports e-learning and telemedicine projects. The Dominican Republic case is important because it illustrates how the UAF is closely linked with the country's development objectives and ICT strategies. (See Boxes [3.2.3.1](#) & [3.2.3.2](#).)

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<sup>68</sup> See Andrew Dymond and Sonja Oestmann, "Rural Telecommunication Development in a Liberalized Environment: An update on universal access funds", in *ICT & Development*, World Bank, GICT, December 2003.

<sup>69</sup> ITU, 2003.

**Table 3.2.3.1 Universal Access Fund Financing in Latin America**

Country	Name	Source of Finance	Period	Localities served	Population served (approx., thousand)	Maximum subsidy available (US\$m)	Subsidy granted (US\$m)	Subsidy per locality (US\$)
Chile	Fondo de Desarrollo de las Telecomunicaciones (FDT)	Government budget	1995-97	4,504	1,650	24.2	10.2	2,256
			1998-99	1,412	500	14.4	9.8	6,919
			2000	143	50	1.9	1.8	12,727
Peru	Fondo de Inversión en Telecomunicaciones (FITEL)	1% Operator levy	1998	213	75	4.0	1.7	7,981
			1999	1,937	700	50.0	11.0	5,700
			2000 (1)	2,290	825	59.5	27.8	12,100
Colombia	Fondo de Comunicaciones (Compartel)	Operator levy & Government contribution	1999	6,865	3,700	70.6	31.8	4,600
Guatemala	Fondo para el Desarrollo de la Telefonía (FONDETEL)	Spectrum auctions	1998	202	200	N/A	1.5	7,587
			1999 (2)	1,051	1,100	N/A	4.5	4,282
Dominican Rep.	Fondo de Desarrollo de las Telecomunicaciones (FDT)	2% Operator levy	2001	500	770	4.0	3.4	6,800

Notes: (1) Implementation delay due to subsidy winner disqualified & subsidies awarded to second bidders.  
(2) Actual fund disbursements, but network not implemented due to operator failure

Source: Andrew Dymond and Sonja Oestmann, Rural Telecommunication Development in a Liberalized Environment: An update on universal access funds, in *ICT & Development*, World Bank, GICT, December 2003.

**Box 3.2.3.1**

**Uganda: Towards Universal Access to ICT**

After the introduction of sector reforms in 1996, the Uganda Communications Commission (UCC) created the Rural Communications Development Fund (RCDF) in 2001, funded by 1% of all operators revenues. To publicize the Fund, raise interest and fine tune its knowledge on the process and methodology, the UCC successfully implemented the first RCDF pilot projects using a minimum subsidy auction:

1. To install and operate 70 public telephones in 70 unserved rural locations (MTN was selected),
2. To establish 26 Internet points of presence (POPs) in district capitals (UTL was selected),
3. To establish 5 Internet cafés, 2 ICT training centers (several firms selected), and
4. To develop 26 district information portals (Uganda Home pages was selected to develop local content and the activity is fully funded).

The experience of the RCDF in Uganda is promising and illustrates how the Funds can be used for different types of investments (including infrastructure, service provision, content development) but most importantly for different amount of investment (i.e., from larger amounts to micro subsidies). The UCC received donor support for the auction and implementation process, and the World Bank contributed with about 80% of the subsidy requirement for the projects. The UCC is expected to initiate a second auction in 2004 for the provision of 800 public telephones in underserved areas. However, as the country's wireless coverage increases, the Fund will focus on supporting the smaller number of locations without wireless access.

**Box 3.2.3.2*****Dominican Republic: focusing on ICT for development***

The UAF in the Dominican Republic, or Telecommunications Development Fund as it is known in the country (TDF), is anchored in a strong socio-economic policy document, where ICT are clearly defined as enablers of development. It sets a strong foundation for project implementation and it provides guidance on how to prioritize among different projects within the context of ICT for development. Specifically, the policy document states that the Funds practical objectives are to:

- Provide universal access to basic telephone communication throughout the country, where access should be viewed as both a right for all citizens, and an essential foundation for national development.
- Provide access to advanced communications capabilities, particularly Internet and e-mail, as extensively as possible.
- Provide support for economic development throughout strategic deployment of high quality, advanced telecommunications.
- Provide direct support to public and community service institutions, including education and health care facilities, government offices, among others.

Indotel, the regulator and agency responsible for the administration and implementation of the Fund, has embraced these objectives, and in addition to infrastructure financing (public telephones) has implemented a number of projects, particularly in the areas of telemedicine, tele-education, telecenters, rural telephony and most recently on e-governance.

<http://www.indotel.org.do/>

**The path ahead:** There are two critical, and potentially complementary, needs that can in principle be addressed through Universal Access programs, including the mechanism of Universal Access Funds or their equivalent, within each developing country. These are (1) the urgent need to promote further extension of ICT access networks and facilities into less viable market areas, through shared industry and public investments, and (2) the imperative to establish effective and coordinated implementation mechanisms for diverse ICT development strategies, and for channeling of financial resources to priority goals. The first activity, extending universal access, has been the main focus of UAFs to date, while the tasks of implementing other ICT strategy projects and financing has often been diffused among multiple Ministries and government offices, NGOs, outside donors and funding agencies, with inadequate coordination and planning.

As the role of ICT in development strategies becomes more prominent, and as new and existing financial mechanisms enhance their focus on the range of funding options and needs, this coordination function will become increasingly critical. There must be a common, centralized institutional framework to:

- conduct expert studies of public needs, market forces and trends, the evolving interplay of technology with socio-economic conditions, and other issues on an ongoing basis, collecting key data and distributing findings across all sectors;<sup>70</sup>
- recognize complementarity and synergies among financing and deployment options, and coordinate implementation strategies among stakeholders with separate agendas;
- evaluate the effectiveness of projects and policies in relation to resources, and study alternative practices and ideas;
- foster public political awareness, participation, and consensus building relative to ICT development goals, financing initiatives, and strategic implementation.

<sup>70</sup> "Telecommunications investors, financial institutions that provide telecom loans, and urban telecom operators are generally reluctant to involve themselves in rural operations because they see telecom ventures in rural areas, especially those in developing countries and emerging markets, as high-risk, low-return propositions. ...The provision of [support for] Rapid Market Appraisals may help to entice prospective operators into the market, while helping in the planning for optimised financial performance and long-term commercial viability. For example, in the case of Grameen Telecom, it was the feasibility studies initiated by Gonophone Bangladesh Ltd. and Grameen Bank that attracted external investment from a qualified foreign operator." Caspary, Georg and David O'Connor (2003).

In reality, most UAF administrations are not yet equipped to take on this range of responsibilities for both access funding as well as broader ICT strategy financing and implementation. And it may be that the existing UAF institutional frameworks are not always the most appropriate vehicles to achieve such high-level coordination and planning. On the other hand, the basic structure of the UAF model represents a potential starting point for this broader implementation role: studying priority needs, managing contracts and bidding processes, evaluating program effectiveness, as well as channeling diverse funding resources in productive directions.

What these organizations most require is the capacity, principally in the form of human resources, to expand and enhance their role within the sector. This includes expertise in ICT economics and technologies, as well as development topics in general, along with public management, accounting, and similar skills. In addition, the enabling laws and regulations governing UAF functions must clearly delineate their obligations to pursue open, transparent, competitively neutral, and accountable procedures, including active public and industry participation in strategic planning and decision making, to ensure the legitimacy of their activities and their ongoing political viability.

### **3.2.4 Public-Private & Multi-Stakeholder Partnerships & Emerging Initiatives**

There are an increasing number of new and innovative partnerships and initiatives focusing on ICT for development that have been established in many developing countries. These initiatives reflect not only greater awareness on the critical role of ICT for development, but also a trend towards greater mobilization of domestic resources to establish and support a wide variety of ICT related activities. Even when some of these partnerships and initiatives receive some foreign support from organizations that believe in their potential (particularly from donor agencies or foundations), they were developed and established by local and national organizations active in the ICT area. Many of these initiatives have been the result of governments engaging with private sector to mobilize resources, however, a great number of promising initiatives have been initiated and developed by local and national NGOs and grassroots organizations. Existing initiatives and partnerships are varied, and reflect different approaches, size, targeted groups, and specific subject area (i.e., access to ICT, capacity building, knowledge sharing, strategic use of ICT for advocacy, organizational improvements, among others).

For many the importance of a partnership framework lies in the fact that it “enables stakeholders to come together and seek solutions to development problems collectively through the sharing of knowledge, expertise, experiences and resources, as well as through the collaborative development of action-oriented partnerships that improve lives and empower people.”<sup>71</sup>

Partnerships between the government and the private sector have been central to promote and assist the implementation of certain business related development initiatives, such as the establishment of business incubators and the development of business technology parks. In collaboration with the private sector, governments around the world have focused on strategies to develop the domestic ICT industry and in some cases, lead to the establishment of strong and striving ICT sectors,<sup>72</sup> such as in:

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<sup>71</sup> See Issues Paper by Global Knowledge Partnership  
[http://www.globalknowledge.org/gkps\\_portal/index.cfm?menuid=178&parentid=179](http://www.globalknowledge.org/gkps_portal/index.cfm?menuid=178&parentid=179)

<sup>72</sup> However, it should be noted that such initiatives have not always borne fruit with large sums being expended on parks which remain relatively un-occupied or do not deliver returns as anticipated.

- Dubai, where the Dubai Internet City attracts various technology firms and provides special incentives for foreign business (tax-exemptions, full profit repatriation benefits, among others).<sup>73</sup>
- India, where in 1990 the Ministry of Information Technology established a software technology park (STP) scheme to promote software and IT related exports from India. By offering fiscal incentives, state-of-the-art infrastructure and an investor friendly environment, the Indian government has positioned the country at the forefront of the sector and increased software exports dramatically.<sup>74</sup>

In addition, several governments have supported and formed partnerships which focus on projects to introduce and facilitate the strategic use of ICT in sectors of the economy and society. Some examples include:

- The National Institute of Agricultural Research of Benin (INRAB), through its Public Relations and Outreach Service (SRVP), used a GenARDIS grant to launch a project to strengthen the capacities of women civil servants working at six Regional Centres for Action in Rural Development (CARDERS). The project involved the organization of training programmes for these women in the use of computers and the Internet, to enable them to collect information that will be useful in their work with rural women.<sup>75</sup>
- The multi-sector partnership among Ecuadorian government, private sector and civil society organizations aiming at strengthening the national ICTD sector, by maintaining a national portal of information and developing ICT projects in agriculture, education, environment and e-governance, among others.<sup>76</sup>
- The partnership between the Bolivian Ministry of Agriculture and rural farmer organizations and NGOs, to improve access to information on prices, market trends, production and marketing techniques.<sup>77</sup>
- The recent partnership Department of Education in the Philippines and Microsoft to set up a Microsoft IT Academy Center, to train public school teachers on basic ICT literacy, and to provide Microsoft software to computers donated to schools at no charge.<sup>78</sup>

In many countries, domestic small and medium sized enterprises are increasingly taking active roles in innovative Public Private Partnerships (PPP) to finance ICTD initiatives. Although not all schemes are applicable or sustainable, it is important to note that win-win situations for all stakeholders are possible. The private sector fulfills its profit motive while providing affordable and sustainable ICT based support to communities and saving public resources. One such innovative case is in Ukraine involved a local PPP to provide ICT access to schools and local communities:

Other types of innovative partnerships have been established and developed by the private sector and the NGO community. In an attempt to be socially responsible and contribute to the development of their region and country, many successful ICT firms throughout the world have established foundations, to which they channel resources to support the work by partner organizations. Resources have been used on a variety of access related projects,

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<sup>73</sup> [http://www.dubaiinternetcity.com/html/about\\_dic.htm](http://www.dubaiinternetcity.com/html/about_dic.htm)

<sup>74</sup> <http://www.soft.net/>

<sup>75</sup> <http://ictupdate.cta.int/index.php/article/articleview/375/1/69/>

<sup>76</sup> <http://www.infodesarrollo.ec>

<sup>77</sup> <http://www.agrobolivia.gov.bo>

<sup>78</sup> [http://www.deped.gov.ph/e\\_posts.asp?id=197](http://www.deped.gov.ph/e_posts.asp?id=197)



but most importantly to support the development and maintenance of essential capacity building programs, such as in the case of Datamation from India (see [Box](#)).

**Box 3.2.4.1**

***Ukraine's Innovation Springboard: Gaining Access to ICT through Partnership***

Ukraine, like many transition countries with sizable territory, continues to face great challenges in providing affordable access to ICT for all schools. Innovation Springboard program is a completely domestic initiative which tries to bridge the gap by employing extensive public-private partnership between small entrepreneurs (with support from an umbrella organization called Ukrainian Computer Club), schools, and the Government. The scheme employs an innovative modality that benefits all stakeholders. It starts when a prospective local entrepreneur approaches a school with the possibility of a partnership by creating an Internet café/training facility at his/her own expense. After conducting feasibility and business plan, the local entrepreneur with business and legal support from the umbrella organization, establishes an ICT lab at school premise furnished by the partnering school. During the school hours, the Internet café is turned into ICT lab for the school and after school and at night, the ICT lab turns into internet café and ICT training facility for the community for profit operation to sustain the scheme. The Government provides legal protection for the operation while saving valuable resources for other purposes.

Some school teachers who aspire to become entrepreneurs and improve their livelihood have applied for the scheme and successfully transformed themselves into small entrepreneurs. In other cases, existing local entrepreneurs embark on the scheme to not only enhance their livelihood, but also give back to communities by providing access to ICT for their children and communities. To date, more than 100 schools have adapted the scheme while the Government manage to save considerable amount of resources. The saved resources are channelled to fund similar ICT services in more rural schools which do not have business sustainability prospects and other priorities in educations to create foundation for future Ukraine development.

Source: Innovation Springboard Programme <http://www.ictu.ukrtel.net/>

**Box 3.2.4.2**

***Datamation: Making steps towards gender equality in ICT***

Datamation's train-and-hire program is based on an extensive public-private partnership between the company and more than a dozen private nonprofit NGOs, including the Datamation Foundation, Nari Raksha Samiti (NRS), Prayas, Action India, Nanhi Kali, Katha, Arise & Shine Church International, Deepalaya, Udayan, Help Care Society, Azim Premji Foundation, the American India Foundation, and several other smaller NGOs. Partner NGOs are selected according to a number of criteria, including the strength of their institutional capacity, seriousness of their mission to create sustainable job opportunities, efficacy and impact of their efforts in serving their target communities, and their ability to implement low-cost IT training courses. Partner NGOs offer free or low-cost six- to eight-month IT training courses to marginalized groups of women. Efforts are made to provide training in local languages, as English is not widely spoken among students from disadvantaged backgrounds. Knowledge of English is not a prerequisite to hiring. Since the overall goal of the program is women's empowerment and personal development, the Datamation Foundation also provides life skills training in topics such as healthcare, communication skills, professionalism and work ethic, and knowledge of worker's and women's rights. Of Datamation's nearly 2000 employees, 35% are women, of which 85% are from disadvantaged backgrounds. In India, women working in the IT sector earn approximately 88% more than those in non-IT jobs, and Datamation's salaries reflect this trend. Datamation expects to add over 3000 additional jobs, with a significant percentage of those available to successful graduates of the training courses.

Source: WRI, Digital Dividend, "Quick Look" at Datamation's Train-and-Hire Program, 2003.  
[http://www.digitaldividend.org/pubs/pubs\\_03\\_datamation.htm](http://www.digitaldividend.org/pubs/pubs_03_datamation.htm)

NGOs and grassroots organizations have implemented a variety of ICT projects in partnership with and supported by governments and private sector. One prominent example is the work by the Self Employed Women's Association (SEWA) in India, which has provided access to ICT to its members as well as an array of ICT related tools, services and capacity building programs.

#### **Box 3.2.4.3 SEWA: ICT for women empowerment**

SEWA, India, is a member-based organization of poor informal sector women workers. Two-thirds of their members live in rural areas and are home-based workers, vendors, manual laborers, service providers, and producers. SEWA's ICT unit has been exploring the use of ICT as a tool to increase the efficiency of rural micro-level enterprise activities to secure poor women's livelihood. SEWA has successfully taken an integrated and holistic approach to the use of ICT for rural development, such as providing its members with access to information; training them with communication tools and customized software; technical training on repairing their tools; generating job opportunities; and also by providing child care and health care. Some of their current activities on ICTs include:

- Imparting basic computer training for semiliterate women before they are introduced to communication tools such as Internet and customized software for their micro-enterprises,
- Providing technical training such as maintenance and repairs of their tools,
- Providing loans for mobile phones for informal sector workers, i.e. vegetable vendors,
- Providing health advice and nutritional information by linking with hospitals via video conferencing for villagers who are labourers and service providers who do hard physical work to earn a living and survive, i.e. construction workers and salt workers, and
- Exploring various partnerships with different medical institutes and organizations for providing better access to health care services for its members, i.e. telemedicine.

Source: Dhara Patel, Coordinator, ICT, Self Employed Women's Association (SEWA), India, presentation at the World Bank, July 2003. <http://topics.developmentgateway.org/ict/rc/ItemDetail.do~356172>

## **4.0 ICT for Development and Financing: Challenges & Promising Practices**

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This section presents a breakdown of the key areas where ICT can contribute to development objectives, and a survey of examples of how various financial mechanisms are contributing to investment in each area. The discussion is bolstered by a selection of summary case study examples which illustrate how ICT can promote development objectives, and how creative financing approaches can support those projects.

### **4.1 Defining Policy Frameworks and Implementation Strategies**

There is an overriding need to establish an enabling, affirmative policy environment to encourage investment and maximize the efficient deployment of resources in every development context. With regard to ICT, this imperative stands out as a first-order priority, as removing barriers to market entry and resource mobilization can, by themselves, unleash major flows of untapped financing for all kinds of projects and initiatives. Because of the multiplier and externality effects of ICT networks and services throughout any economy, growth and development will inevitably accelerate as more avenues for innovation, entrepreneurship, and strategic collaboration are opened up. Indeed, the Internet itself is largely the product of grass-roots, decentralized research, experimentation, and entrepreneurial ventures, which took advantage of public and private technology investments combined with a clean-slate, unregulated market environment to collectively invent a new paradigm of global communication. Such innovation continues throughout the international ICT field to this day, with new ideas, strategies, and business models constantly being introduced, tested, sometimes rejected and sometimes widely adopted. In the realm of information and communication, the human imagination, unencumbered, is the most valuable resource of all.

We sometimes see the phrase "harness the potential of ICT" as a goal for employing technology in support of development. However, a more apt term would be to say that we wish to "unharness" that potential, allowing the creative imagination of end users, entrepreneurs, community activists, and public and private institutions to explore freely the unlimited range of opportunities that these technologies present. Centrally planned, top-

down deployment of ICT networks, services, and applications can only go so far in anticipating the most effective uses of communication and information for diverse populations and interests. Experience has shown decisively that there can be no “one size fits all” solution to technology and development strategies, and that users themselves are often the most reliable sources of innovation. A case in point is text-messaging (or “short-message service, SMS”) via cell phones, a feature which started as an afterthought for mobile service providers, and exploded into an unexpected cultural phenomenon – and profit center – in countries like the Philippines, and eventually worldwide. (See Box)

**Box 4.1.1 The Philippines: SMS and People Power**

The Philippines was one of the first countries to see the development of a strong “niche” market for SMS “texting” over cell phones as a new, affordable means of communication. Smart Communications initially promoted the service as part of its strategy to appeal to lower income residents, as text messages cost a fraction of the price of voice calls on the cellular network. The company has been successful in part because it created a network of Smart retailers among those servicing the low-income market. With about 500,000 retailers (including sari-sari stores, housewives, students and others), 61% of the company’s sales come from this market. In addition to the explosive market success of the texting service, it had an unanticipated and decisive influence on politics and democracy in the Philippines. During the “People Power” uprising which led to the resignation of President Josef Estrada, hundreds of thousands of activist Filipinos relied upon mass-distribution text messages to organize rallies, share information, communicate with the media, and coordinate the grass-roots political movement that ultimately drove President Estrada from power on corruption charges.

Source: Sharon Smith, *Smart Communications: Expanding networks, expanding profits – Providing telecommunications services to low-income markets in the Philippines*, What WorksCase Study, World Resource Institute, Digital Dividend, September 2004.

These types of grass-roots trends reinforce the essential principle that economic, social, and political development can be “network-driven”, by placing the means to communicate and share information in the hands of individuals, communities, and organizations, with a minimum of restrictions. When people can exchange ideas and experiences directly among themselves, these patterns of non-hierarchical knowledge diffusion are the most likely to yield internalized, long-term shifts in awareness and understanding. New farming techniques, study of weather and seasonal patterns, trading traditions and business skills, awareness of health risks and care practices, education at all levels: these are the kinds of indigenous knowledge that peoples have shared and passed on for countless generations in all societies. The ICT revolution does not change this fundamental dynamic of human communication, it enhances it, energizing the most basic compulsions to seek and divulge wisdom with the miracles of digital microelectronic technology.

The same incentives for innovation occur, naturally, at the level of enterprises in the marketplace as well. The outdated notions that only large, monopoly utility companies are capable of constructing cost-effective communications networks, that such networks must be national and fully integrated in scope, and that research and development and technological progress depend upon costly centralized (and secretive) industry laboratories, have been turned upside down by the continual waves of successful invention and entrepreneurship at the edges of the global and national ICT sectors. Mobile telephone services have erased the vision of fixed-line dominance in basic telephony. Satellite television services are overrunning national broadcasting systems’ restrictions and limitations. Modest sized and independent Internet Service Providers have proliferated wherever ISP licensing barriers are absent. Autonomous Internet cafés and public telecenters are appearing on every street corner in cities throughout the developing world. VSAT systems are dotting the rural landscape where traditional telephone operators have feared to tread. Wireless Fidelity (WiFi) systems are suddenly appearing in public places and private offices at an immeasurable pace. Open Source software and peer-to-peer file sharing protocols are challenging the fundamental structure of the global software markets. Voice-over-IP telephone services are shattering the prices and comfortable business models of the entrenched international telecom giants and dominant national operators.

All of these developments and more demonstrate the unyielding push of market forces to deliver information and communication to an increasingly demanding public. They have in common the bold initiative to bypass and overcome technical and economic barriers – and often legal boundaries as well – to expand the reach of the ICT market. There is every reason to believe that these trends will continue, and even expand, in the coming years, as more economies open up more broadly, as new technological advances continue to find innovative ways to deliver access and information at ever lower costs, and as more and more enterprising and creative men and women – and especially young people – learn to employ these expanding means of communication to improve their lives and build their communities.

**Challenges:** For policymakers and development specialists, the above considerations pose a fundamental paradox: how can centrally planned policies effectively promote decentralized initiatives? If innovation and progress are best left to the collective wisdom of the masses and the market, what is the role of Government and its allies?

In fact, there are critical contributions needed from public policies to enable the unharnessing of ICT's potential, especially where – as is often the case – numerous harnesses remain in place. The trends of "liberalizing" formerly monopoly or restricted markets for ICT services has been underway to one degree or another for two decades, although it is a more recent phenomenon for many countries. The steps that governments and regulators need to take to transform the market environment into a model that allows open entry, experimentation, and entrepreneurship to thrive are far more complex than simply passing edicts that mandate unfettered competition. A wide range of inter-related and mutually dependent policy imperatives must be considered, ideally in the context of a coherent framework and strategic plan for market-based or hybrid ICT expansion. In particular, effective market opening policies depend upon four central elements:

- Licensing regime: Opportunities for new companies and investors to establish ICT businesses with a minimum of restrictions and artificial entry barriers. Judicious allocation of radio frequencies to multiple operators and services must also be a priority.
- Regulation of competition: Effective enforcement of fair and equitable competitive market principles, restraining the power of dominant suppliers and leveling the playing field for new entrants.
- Interconnection: Formal, transparent rules for interconnecting all types of traditional and new communications networks. (See box.)
- Costs of doing Business: The basic elements of an environment conducive to private sector investment and enterprise are in many ways essentially the same for all sectors of the economy, including ICT. The package includes business regulation and contract enforcement, administrative regulations and taxes, amongst other things.<sup>79</sup>

In addition, careful consideration of the long-term growth and development potential of 'public good' components in the overall infrastructure in particular in relation to the provision of 'open-access' backbone linked to public infrastructure development may also be useful for stimulating private sector and community investment.

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<sup>79</sup> See Commission on the Private Sector and Development (2004) "Unleashing Entrepreneurship: Making business work for the poor"; World Bank (2005) Doing Business in 2005: Removing Obstacles to Growth & World Development Report 2005

#### **Box 4.1.2 The Interconnection Imperative**

Perhaps the single most vital pillar of reform policies aimed at encouraging competitive, innovative investment in ICT networks and services is the establishment of equitable, transparent, and effective Interconnection principles and regulation, to ensure that new entrants will be able to connect their customers with those of existing, dominant networks. More precisely, the absence of an effective interconnection regime can serve as a severe deterrent to new investment, especially for experimental and risky ventures looking to introduce new technological and business models. For example:

- A private start-up company, Adesemi, attempted to launch a competitive public pay-phone business in Tanzania in the late 1990s, using wireless local loop technology, and offering service quality and pricing that was superior to, and more widely available than the incumbent, TTCL's public phones. A dispute over interconnection prices arose, however, and the Tanzania Communications Commission determined that it did not have the legal authority to intervene. Adesemi soon pulled out of the market.
- In Madagascar, an international VSAT venture, GulfSat, won licenses from the Government to offer telecommunications services in 11 remote districts. However, the regulator, OMERT, has been restricted from intervening in an ongoing interconnection dispute between GulfSat and the national telecom operator, TELMA. As a consequence, GulfSat's services to date only allow users within their designated territories to speak with one another, without any connection to the rest of the country.

In addition to these priorities for network development, comprehensive ICT development strategies must incorporate cross-cutting elements to emphasize the role of ICT in education, health care, poverty reduction, and governance. Coordination and integration of all these elements is a first-order priority for effective implementation.

For the international development community, particularly in the context of financing priorities, the key challenges involve supporting and encouraging the effective design and implementation of e-strategies and related market liberalization policies and regulatory practices. There is an overwhelming need for technical assistance with planning, capacity building, comparative research and analysis, as well as financial support for public investments in government ICT networks and facilities. In particular, the strategy planning process depends upon coordinated participation by diverse stakeholders in both the public and private sectors, and there are often conflicting agendas and goals for use of limited resources. One of the key roles that development assistance can play in this regard is to mobilize national forums and consultative processes at the highest levels of government, and also to follow up policy development exercises with affirmative, coordinated implementation projects across the spectrum of ICT sector initiatives.

**Promising Practices:** Many countries have recently undertaken ICT policy reform, sector restructuring, and strategic planning initiatives, designed to open markets and invite competitive investment, while reconfiguring the operation and role of former state monopoly telephone utilities, and establishing independent regulatory bodies. Undertaking all of these efforts simultaneously can nearly overwhelm the Ministries of Communication that pursue them, especially where financial and human resources are quite limited. Nevertheless, considerable progress has been achieved in dozens of countries in a relatively short period of time. Some examples:

- Sri Lanka was among the first wave of countries to introduce direct competition in basic telephone services, in the mid-1990s. In 2002, the newly formed Ministry of Mass Communication, together with the Telecommunications Regulatory Commission of Sri Lanka proposed a new National Communications Policy<sup>80</sup>, which emphasized promotion of "an open, market-oriented environment, which allows private sector companies maximum flexibility to develop the sector in response to consumer demand and public needs in which traditional limitations or barriers to market entry will be reduced or eliminated in favor of a liberalized environment which allows the

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<sup>80</sup> <http://www.trc.gov.lk/pdf/ncpn.pdf>

forces of the market and technology to determine the most effective means to provide services to end users.”

- Mauritania began to introduce widespread reforms in its telecommunications sector in 1998, with technical assistance from the World Bank. A new policy and regulatory framework were adopted and an independent regulator established, along with privatization of the incumbent and opening of the market. Over the next five years, national teledensity rose dramatically, from 0.6% to 11.07%, and private capital investment in fixed and mobile operators exceeded US\$80-million, not including mobile license fees. The World Bank reports resulting substantial growth in sector employment, fiscal revenues, and industry competitiveness.<sup>81</sup>

A number of academic and research organizations have devised metrics for measuring and comparing the “e-readiness” of different societies. In general, they attempt to assess dozens of statistical indicators along a variety of comparative scales, such as access to telephones and computers, literacy levels, pricing benchmarks, and so forth, to help identify successes and areas needing most attention. A representative set of e-readiness benchmarks is that produced by the Harvard Center for International Development.<sup>82</sup> High on the list among developing and middle income countries are Estonia, Slovenia, Argentina, Chile, South Africa, Thailand, Malaysia. Criteria include the degree of market access, levels of telephone, computer, and Internet penetration, legislative and regulatory reforms, and also E-Government initiatives such as availability of public information on-line and the extent of government networks.

**Box 4.1.3 E-Maroc**

The Government of the Kingdom of Morocco has established a national “E-Maroc” plan, which is being implemented by the Department of Post, Telecommunications, and Information Technology, with an emphasis on the role of ICTs in public administration. The three main stages of the plan involve (1) studies of the current usage of ICT throughout the administration; (2) pilot projects within selected Ministries to expand the role of information technology and integrate existing practices across multiple offices; and (3) generalized implementation of the administrative network, along with capacity building, throughout the Government. Other features include the establishment of national and regional Web portals for the provision of Government information. At the same time, Maroc Telecom, with the support of the Ministry of Industry, Commerce, and Telecommunications, has launched a program to offer households personal computers and two years of Internet service at affordable prices, to promote use of the Internet across the society while also increasing utilization of the telephone network. Other measures include establishment of a Casablanca Technopark, passage of Electronic Commerce legislation, and a regional “EUMEDIS” initiative, to link ICT development activities in education, health, and commerce across the Euro-Mediterranean region.

[<http://www.septi.gov.ma/>]

As for the core question at hand – financing of ICT for development – this issue cuts across multiple dimensions. The underlying objective of market liberalization and enabling policies is to create the most favorable environment possible to encourage private, entrepreneurial investment, while allowing public and donor funds to target the greatest unserved needs in the most effective manner possible. International development agencies, finance institutions, and private companies alike share a strong incentive to help advance the policy agendas of developing country governments, both at the macro level of e-strategy design and planning, and at the micro level of policy implementation, regulatory practices, and capacity building.

Many of the major development institutions have in fact been concentrating heavily on these objectives in recent years. The World Bank, for example, has made policy and regulatory reforms the centerpiece of its ICT development financing strategies and will only consider financing investments (such as for extension of access to rural areas) to countries

<sup>81</sup> WBG GICT Department, Africa ICT Roadmap and Strategy.

<sup>82</sup> Harvard Center for International Development, “Readiness for the networked world”, 2002

that have adopted and implemented pro-competitive policies and regulations. The Bank's multidonor infoDev program, for example, recently sponsored development of a Telecommunications Regulator's Handbook, which has been translated in many languages and widely disseminated among newly established regulatory agencies to augment in the context of technical assistance and training initiatives.

The International Telecommunication Union has taken a lead in creating practical economic tools for regulators, with emphasis on cost analysis and interconnection regulation. The ITU's "COSITU" model provides methodologies and algorithms for calculating telecommunications operator costs in the context of interconnection or tariff regulation proceedings. The ITU-D Regulatory Reform Unit also provides a free on-line Interconnection Regulation Self-Learning program. ITU also sponsors numerous regional workshops, and hosts an annual Global Symposium for Regulators and has produced regular study reports on effective regulatory methods and tools, among many other activities.

Numerous other international organizations and bilateral development offices have contributed to policy planning, regulatory development, e-strategies, and related public initiatives to promote development through innovative use of ICTs. Nearly every major development bank and donor program includes among their projects a strong emphasis on policy and regulatory reforms. Although in some cases this results in multiple, even potentially conflicting sources of advice and assistance on some of the same issues, the net result is that there is a solid base of expertise and best practice experience available to assist virtually any government seeking to design effective ICT enabling strategies.

**The path ahead:** It is clear that a well designed, coordinated, and effective public policy regime is a necessary, if not sufficient, precondition to promoting broad-based ICT sector growth and attracting ICT financing that can be efficiently deployed in the service of development goals. This is not to say that every regime must be identical; on the contrary, different models of policy, regulation, public planning, and strategic intervention have yielded favorable gains in different settings. But there are underlying themes to nearly all tentatively successful strategies to date, and they begin with expanding the scope of the market to encourage innovation and entrepreneurship wherever possible.

The role of government policymakers and regulators in creating these enabling environments is paramount. Their priorities must include removing barriers to market entry, establishment of fair and transparent competition policies and effective regulatory regimes, and coordination of legislative and fiscal policies, along with e-government networking and procurement plans, all within the context of national development and poverty reduction strategies. As for outside financing institutions, their responsibilities in the realm of policy and strategy regimes is twofold. Foremost, they should continue to assist governments in the evaluation, definition, and implementation of appropriate reforms and initiatives, through technical assistance, capacity building support, comparative studies, conferences and workshops, and the like. This work is ongoing in scores of countries already, but there is always room for improvement, especially in the coordination of parallel programs and multiple overlapping efforts that frequently arise within the same country or region. Second, it is incumbent upon the financing community to ensure that sincere and ambitious ICT policy reforms are "rewarded" with tangible results, i.e., financial flows in support of prospective investors in the sector.

Finally, for all stakeholders, it is also critically important to recognize that changing the culture and practices of government take time, and introducing new concepts such as open competition, and new institutions such as independent regulatory agencies, requires pragmatic transition strategies, and will likely involve missteps along the way. In these circumstances, there should be a presumption of flexibility and patience, as opposed to instant litigation, political backlash, or withdrawal of funding assistance as soon as problems arise.

## 4.2 Building Backbone Infrastructures

Information and communication technologies and services depend fundamentally upon highly capital intensive construction of core national infrastructure networks, on a scale comparable to electric power, waterworks, and transportation. Every network, and especially telecommunications, is built around a central core backbone and distribution infrastructure, which links to end users via various forms of access connections. The economics of such networks – regardless of the technologies utilized – dictate that the bulk capacity backbone facilities are substantially more complex and costly to install at the outset, but exhibit very high economies of scale, and hence rapidly decreasing per-unit costs as the network expands. Conversely it becomes increasingly more costly to expand the reach of access connections to a backbone network, as those access links extend farther away from population and traffic concentration centers.

The backbone telecommunications networks of most developing countries consist of a mix of technologies, depending upon factors of size, terrain, demographics, and market economics. Network switching centers now almost universally consist of relatively advanced digital switches, which have steadily replaced outdated analog switching equipment in networks throughout the world over the past decade or so. Fixed network inter-office and inter-city transport links are accomplished by a combination of microwave relays, satellite and VSAT stations, and fiber optic cables. Most of these facilities are manufactured by a handful of major global technology equipment suppliers (Nortel, Alcatel, Siemens, Ericsson, Lucent, et al) and their affiliates, and must typically be imported and purchased with foreign “hard” currency, and installed by both foreign and local technicians trained by the manufacturer.

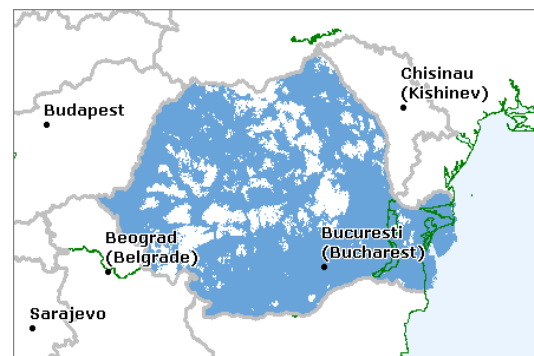
As for cellular telephone networks, the concept of “backbone” is somewhat different, as most transmissions involve wireless signals hopping from transceiver to transceiver across the grid of towers and cell sites, which are typically linked to switching centers and interconnection points of presence by either terrestrial cable or microwave. Virtually all of this infrastructure is equivalent to a wireline backbone network, and an essential prerequisite to offering cellular telephone service. Given the incentive to ensure seamless signal coverage for local subscribers and roaming users, combined with the fact that most countries have multiple cellular operators, the scope of wireless network backbone coverage in many smaller to medium sized countries has become nearly ubiquitous, even across rural regions in many parts of the world. [See Maps.]

### GSM Network coverage

AIS GSM, Thailand



Orange, Romania



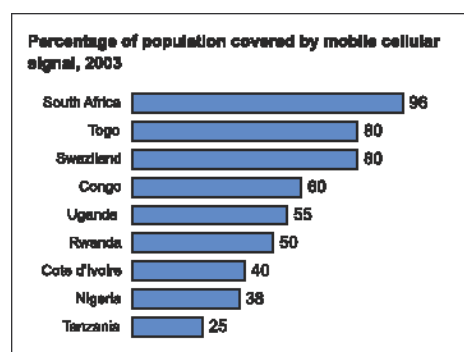
Map images: © 2004 GSM Association  
Derived from map data: © 2003 Bartholomew Ltd. All rights reserved  
Mapping application: © 2004 Europa Technologies Ltd. All rights reserved



With Internet connectivity, there are multiple layers of “backbone” infrastructure, although most of the facilities involved typically do not stand alone and apart from other telecommunications networks, but rather build upon them. The critical backbone connection, however, is to the global Internet, which must be established via a high-speed international link, whether satellite or cable. For small ISPs, the costs of such a backbone connection can be prohibitively high; it is also inefficient for multiple ISPs to establish separate backbone connections, even in a competitive market. The most appealing model, which many countries (and regions) have begun to adopt, is the establishment of national/regional Internet Exchange Points (IXPs), which connect all domestic ISPs, allowing internal traffic to be exchanged without leaving the country (in some countries, access to local Web pages and domestic e-mail still transits through international Internet connections, sometimes thousands of kilometers away), while aggregating international data traffic in a cost-effective manner. In the best cases, all ISPs contribute equitably to the operation and maintenance of such IXPs, but there are many countries where these arrangements have yet to be adequately established.

There are also other key backbone communications networks that contribute to dissemination of and access important information resources. Chief among these are radio and television broadcasting stations, which in many countries remain primarily under the control of state-owned and operated media authorities. The incidence of subscription-based satellite television, independent TV broadcasters (both national and regional), and smaller, community-based radio stations, is beginning to open up these essential channels of audio-visual communication. The opportunities for cooperative, “convergence” development initiatives between broadcast systems and telecommunications networks are increasingly attractive as a means to promote multimedia-based communications resources.

**Challenges:** Any program or strategy to build, extend, or upgrade major backbone communications networks requires the commitment of substantial amounts of investment capital, well before revenue-generating services can be delivered via such facilities. Under the once-dominant state-owned monopoly PTT model, governments were often the exclusive source of such investment funds, meaning that even potentially profitable construction projects required allocation of scarce public revenues (or borrowed funds), to get them off the ground. With the shift toward private sector driven, competitive markets, profitable ICT infrastructure investments can more easily attract financing from a variety of sources, including foreign direct investment, equity shares, loans, bonds, and the like. The steady growth in ICT networks and services in most of the developing world in the past decade has reflected these profit motives, and a recognition by the capital markets that this industry, even in many of the poorest countries, offers sound investment choices.

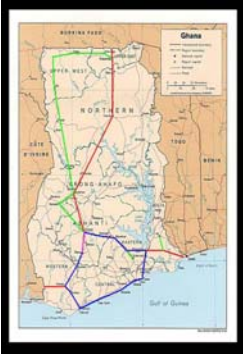


There are important challenges, however, to ensure the continued development of basic backbone infrastructures beyond the progress made to date. In many countries, especially those with lowest incomes and/or large, sparsely populated regions, backbone networks remain incomplete, with large portions of territory yet unconnected to the digital world. (See box on percentage of population covered by mobile cellular signal. Source ITU World Telecommunications Indicators Database)

Most of the major market investments in these networks were made during the booming growth period of the 1990s, and it may be far more difficult to entice investors in a period of much slower growth to push connectivity beyond the most profitable market segments, into the hinterlands.

Governments, operators, and financing institutions must collaborate to enhance the economic potential and minimize the logistical barriers to extending these networks. (See [Box: Ghana](#))

**Box 4.2.1**  
**Republic of Ghana: Voltacom fiber backbone project**



The Republic of Ghana covers over 230,000 square kilometers of territory, of which less than 20% is currently connected via existing backbone telecommunications networks. Licensing of new fixed and mobile operators has increased service in the mainly Southern urban regions, but the largest sections in the central and Northern parts of the country lack access to most communications, and international links to Ghana's neighbors are inadequate. However, a key opportunity exists to expand backbone coverage by extending a little-used fiber optic cable currently owned by the Volta River Power Authority. A wealth of policy and planning questions must be addressed to take advantage of this unique resource: Should the network be sold, and how and to whom? Should it be jointly owned by a consortium of operators? What interconnection and access pricing rules should apply? What should be the priority obligations for further buildout? Which agencies should be responsible for overseeing the transactions and implementation? The Government of Ghana has initiated extensive study of the options, together with a comprehensive reform of its national telecommunications and ICT policies, with the assistance of the World Bank and other

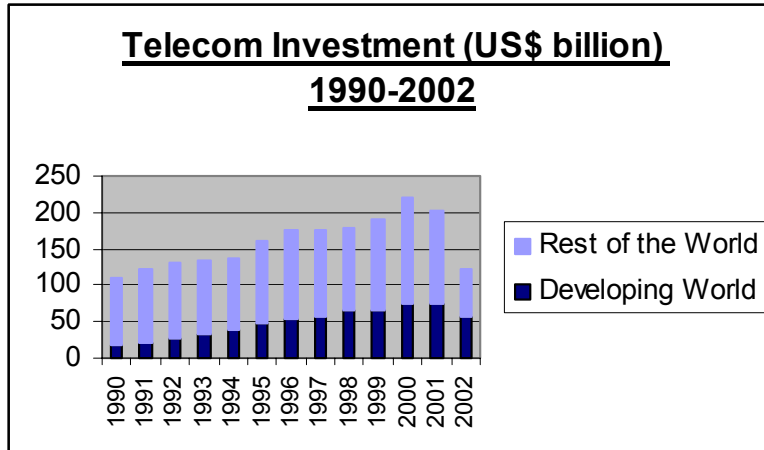
outside finance institutions.

**Blue** – Existing. **Purple** – Gap to be closed. **Red** – Cross-border Extensions  
**Green** – Possible Extensions to improve coverage and network resilience.

At the same time, the goal for ICT infrastructure deployment is to move beyond basic voice-grade telephone transmissions, to deliver high quality, high-speed data connectivity, even broadband access, as widely as possible. It will not be sufficient merely to connect most remote regions with 20<sup>th</sup> Century technology if the developed world and urban centers are racing ever further ahead with new, high-bandwidth capabilities. Yet the business models for rural (and even urban) broadband deployment in most developing countries are far from favorable in the current industry climate.

Finally, in many parts of the world there remains a need for greater regional coordination of international connectivity, to increase efficiency and improve economic cohesiveness, both for the ICT sector and for regional trade in general. There are a number of sub-regions – Southern, Eastern, and West Africa, the Caribbean, the Pacific Islands, among others – where high capacity regional backbone networks would make a strong business case, given actual and potential voice and data traffic, and the excessive costs of current connectivity (and lack thereof). The key challenges involve coordination of government, private sector, and international finance stakeholders to pursue shared solutions that are in the mutual self-interest of all countries involved.

**Promising Practices:** The most promising trends in ICT development over the past decade are illustrated by the huge private sector investments, and resulting profitable revenue streams, primarily in backbone voice, data, and wireless communications networks.



Despite the downturn in FDI in the past few years, there are good reasons to believe that the market opportunity for further buildouts of such backbone networks remains strong. As new subscribers are added to existing operations, new licenses continue to be issued, and access initiatives extend connectivity and penetration further, the greatest beneficiaries of this growth will be the networks that aggregate and transit traffic across national territories and international gateways.

In fact, the decline in foreign investment by traditional industrialized country interests may be opening opportunities for new players to fill some of the remaining gaps in national networks. The People's Republic of China, for one, has taken a proactive approach to promoting the role of its major telecommunications and networking export companies as suppliers of infrastructure in other parts of the developing world. China's Export-Import Bank recently extended US\$1.1-billion of export credits to Huawei Technologies Co. Ltd and ZTE Corp., two fast-growing Chinese firms that have won contracts to provide fiber optic and cellular network equipment, facilities, and construction in numerous markets, including Indonesia, Malaysia, Nigeria, Brazil, Ethiopia, Vietnam, and Pakistan. For the Chinese government, guaranteeing financing of exports both helps establish these Chinese companies as global competitors, and brings further business and investment to China's own booming ICT sector.<sup>83</sup>

There are very promising prospects for the application of new wireless broadband technologies to the goal of extending affordable high speed services to countless new locales and customers.<sup>84</sup> From the rainforests in Brazil to Mt. Everest in Nepal, to urban areas throughout the developing world, new Wireless Fidelity (WiFi) systems are being installed to permit broadband wireless Internet access at a fraction of the cost of wireline connections. And the emerging WiMax standards offer the promise of much wider reach and greater cost savings in the implementation of broadband networks for developing communities.

Regional backbone initiatives have moved forward, albeit slowly, with the support of international finance institutions, governments, and the private sector including non-ICT companies. In Africa, regional initiatives already operational include the sub-regional optical fibre cable laid along the power network of the Manantali dam linking Mali, Mauritania and Senegal, a co-investment of the three national incumbent operators (Sotelma, Mauritel, Sonatel) highlighting the importance of involving actors such as pipeline and railways

<sup>83</sup> *The Industry Standard*, "China to finance \$1.1B in telecom equipment exports", Friday, February 20 2004, by Sumner Lemon, IDG News Service <http://www.theindustrystandard.com/article.php?story=20040220170840109>

<sup>84</sup> The Wireless Internet Institute, "The Wireless Internet Opportunity for Developing Countries," [www.w2i.org](http://www.w2i.org).

companies and power grids in initiatives for backbone development especially in eastern and southern Africa.

Some major projects, such as the proposed Africa One fiber optic cable to surround the African continent, have fallen victim to the plunge in the telecommunications market after 2000, and have had to be renegotiated or put on hold. The World Bank and others, however, are actively pursuing smaller regional backbone projects, helping to create consortia of private and public operators in East and West Africa, and elsewhere, to meet the growing need for regional voice and data connectivity.

**The path ahead:** As the markets for major ICT networks and backbone facilities in most countries continue to move decisively in the direction of competitive, open market models, private sector finance, from both foreign and domestic sources, will remain the predominant source of capital for these operations.

Elimination of entry barriers and promotion of effective regulation and fair competition enforcement can help ensure that profitable business cases can be made for further investments in network expansion and new technologies, to follow the paths blazed by the enormous success stories of the past decade. Financing institutions can help mitigate investment risk, secure financing for commercially unattractive routes, bring partners together in joint ventures, and help stimulate markets for backbone capacity by focusing on expanding access and other key elements of the ICT value chain, as discussed in the following sections.<sup>85</sup>

Whilst a full diversity of locally relevant solutions must drive networks development and services at the local level, a new "hybrid" approach might also be considered. This is where the national or regional backbone network is provided on an *open-access* basis, off which a myriad of local networking energies can be unleashed through competition, local cooperatives and other forms. As noted in a recent ITU report notes, this is especially relevant in rural areas:

"In certain areas, notably rural and outlying ones, there is often insufficient private sector investment interest despite the offer of government incentives. Where such a strategy fails, full public funding for the deployment, ownership and operation of a broadband network is often the only recourse—especially where governments, notably at the local and municipal level, have regarded broadband infrastructure as an essential public utility and its rollout as a public sector responsibility."<sup>86</sup>

Furthermore, in developing countries it may also be possible, using this approach, "to fund a large portion of telephone network expansion costs in connection with other public infrastructure initiatives in rural areas (e.g., including coordination of such network expansion with rural transportation or electricity projects)."<sup>87</sup> India has led the way here using its existing rail network. "India is proving resourceful in making use of the existing signaling cables in its vast rail network to extend broadband access to rural areas, and although the sophistication of India's rail network is exceptional amongst developing countries, some other countries might usefully follow India's lead."<sup>88</sup>

In the cases where such backbones traverse multiple countries, each with relatively low telephone density and low per capita incomes (e.g. some Africa's un-served sub-regions),

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<sup>85</sup> Further, countries embarking on Governments are embarking on initiatives to facilitate wide-spread delivery of public services (e-government, e-education and telemedicine) as part of their PRSP and MDGs implementation processes could benefit from establishing synergies as regards infrastructure development.

<sup>86</sup> ITU 2003: *Birth of broadband: ITU Internet Reports*. Page 45

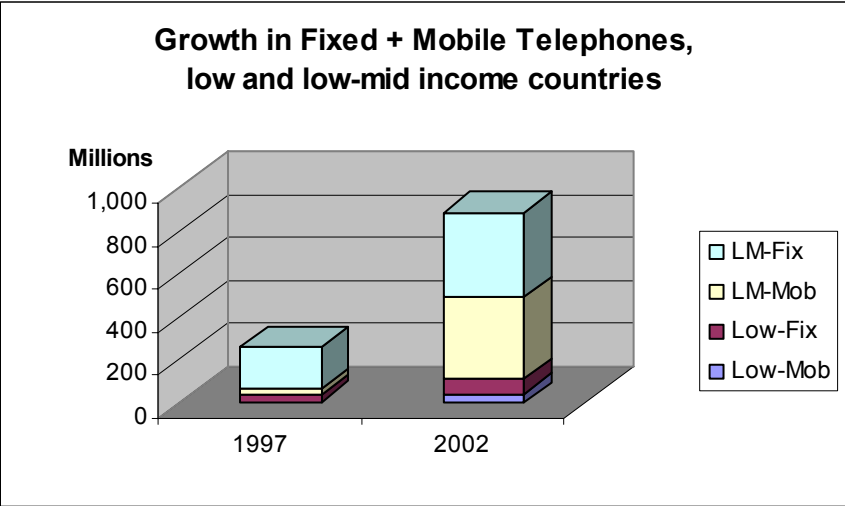
<sup>87</sup> ITU 2003 *Trends in Reform Telecommunication 2003: Promoting Universal Access To ICTs Practical Tools For Regulators*, p104

<sup>88</sup> ITU 2003: *Birth of broadband: ITU Internet Reports* p98

financing constraints can become binding with neither the private nor the public sectors being in a position to act. Regional agencies can help facilitate cooperation and coordination and international financial institutions and donors can play a vital role in seeding and facilitating the financing for such regional infrastructure projects.<sup>89</sup>

**4.3 Ensuring Effective Access**

The fundamental challenge of ICT development is to devise means to ensure that virtually all citizens have access to these technologies, and can take advantage of that access to empower and enrich their lives. This basic question of access is ultimately at the core of the issues surrounding ICT finance as well. As discussed above, backbone network infrastructures are being rather successfully deployed across the majority of territories, even in developing countries, by a combination of international private sector (profit-motivated) investment and targeted strategic development assistance. These same trends have succeeded in producing steadily increasing “penetration” indicators for national telecommunications operators for a long period of time, and in expanding the geographic scope of territory within nominal reach of major backbone network facilities.



Source: ITU World Telecommunication Development Report, 2003

From 1997 to 2002, the total numbers of fixed telephone access lines in the lower and lower-middle income countries more than doubled to over 460-million. However, these investments generally did not fundamentally alter the basic economic challenge of providing network access to non-core locations, particularly rural areas, where large proportions of the population in developing countries live, and where the need for development resources is the greatest. In the lowest income countries in particular, telephone penetration outside of the largest cities typically remains around 1-2% or below, while it may reach 5-10% in urban areas.

The explosive growth of mobile telephone services in the developing world has also had a dramatic impact upon levels of both investment and telephone service access. There are now over 500-million mobile telephone subscribers in the 100 or so low and lower-middle income countries, compared with barely 30-million in 1997. In many of these countries, the total numbers of mobile phone users already exceed the total number of fixed telephone

<sup>89</sup> There may be many routes that do not attract commercial interest because the markets are too small and/or the political risks are too high. On these routes where commercial operators do not come forward, governments may work with both soft loan institutions and donors to secure soft loan funding and donor support on a given route. See Balancing Act in “DFID: African ICT infrastructure investment options” & Caspary, Georg and David O’Connor (2003).

lines, after only a few years in service. This is especially true in lower income countries, where slow moving fixed-line penetration was quickly surpassed by the dynamic new mobile market. By 2003, African countries averaged some 6.0 mobile lines per 100 inhabitants, as compared with only 2.9 fixed lines. Moreover, the mobility and wireless signal coverage of cellular technology allows users to access the service in many more remote locations than are reached by the wireline networks.

Nevertheless, these favorable developments have not necessarily overcome the basic problems of rural telephone access. Signal coverage in rural areas is not sufficient to ensure that citizens with minimal incomes can afford to purchase mobile phones and pay for usage. More important, "access" to mobile telephone service in remote regions depends upon a variety of supporting conditions beyond the wireless backbone transmission network: electrical power for one, as well as commercial and technical support services, and appropriate financial systems, among other factors. In the absence of these components, access to mobile telephony remains largely dominated by the same base of urban, higher income user groups as traditional telephone service.

Meanwhile, as computers and the Internet have revolutionized worldwide communication, information, and commerce, increasing attention has been focused on the newest dimensions of the digital divide: the gap between those who are on-line and those who have virtually no foothold in cyberspace. This gap is far wider even than the telephone access gap: there were approximately 5-million Internet subscribers in the least developed countries as of 2002, compared with over 215-million in the most advanced economies. There are widespread concerns that the Internet may actually be deepening the disparities between information "haves" and "have-nots". Providing Internet access in remote areas is significantly more challenging than establishing telephone service, not only due to the technical demands of data transmission networks, but because of the need for computers, software, Internet Service Provider services, and a host of support and training resources. New wireless data technologies may begin to cut into these disadvantages, but there remain serious impediments to achieving widespread rural access to Internet and other data and information services in developing countries.

**Challenges:** Tremendous progress has clearly been made in a short time in expanding access to ICTs, especially telephony. Still, it is evident that the market-based incentives which have driven growth in private sector financed ICT services for predominantly urban and higher income populations will confront more substantial obstacles to drive a similar burst of expansion beyond these regions and customer groups. From a business planning perspective, this is not surprising: demand for services in such areas is unproven, ability to pay is often minimal, network deployment costs are substantially higher in less dense locations. For many international investors, still recovering from drastic losses in speculative technology and license investments in their own countries, the prospect of pursuing questionable new ventures in low income countries is much less appealing than it seemed five years ago. And while potential domestic investors might see a more attractive opportunity to enter on the ground floor of untapped markets, they typically have even less access critical start-up capital and are consequently even more risk averse than international investors.

However, the market picture is not necessarily all that unfavorable. There are a variety of additional sources of potential revenue that could well raise the appeal of even very remote and low-income locales in the eyes of ICT service providers. As new access technologies begin to prove themselves, and steady growth in mobile and Internet markets in the developing world demonstrates the viability of these businesses, the prospects for enticing adventurous entrepreneurs and investors to launch new, speculative network operations in these countries, even in the most rural and economically deprived regions, is likely to

brighten. From this perspective, the 50% or so of the world's population that does not yet have access to most basic or advanced ICT can be seen less as a "problem" than as a vast, untapped opportunity for continued market-based expansion.

**Promising Practices:** In response to these challenges, there has been a flood of access related programs and pilot projects throughout the developing world in recent years. Governments, donor agencies, NGOs, and others have experimented with village payphones, rural cellular service, public phone shops, and multipurpose telecenters or community multimedia centers, as vehicles to deliver communications capabilities to unserved populations. The financial mechanisms that have supported these projects are also diverse. They include:

- **Foreign Direct Investment:** As part of the package of market entry opportunities often granted to new foreign investors, whether mobile operators or fixed network strategic partners, license terms often include obligations for building out services in less attractive markets.
- **Telephone company internal funds:** Established operators with steady and profitable revenue streams may be able to allocate portions of their funds as seed money to expand network access to more remote areas, especially if there are tax, subsidy, or other incentives for doing so.
- **Universal Access Funds:** These funds can channel common industry resources and public financing toward expanding and stimulating market access.
- **Donor and IFI financing:** These outside financing sources can help supplement market and public funding, especially by targeting the gaps and risk margins inhibiting private investment.
- **Community and NGO investment and ownership:** Local communities and public service organizations can contribute to the cause of bringing access to themselves, through financial or in-kind investments, and partnerships with regional and national providers. Community ownership and control is potentially a powerful force in building out the network's 'first-mile' (a better term to describe the proposed approach than the usual 'last mile') to poor rural communities, especially deploying the new wave of wireless technologies. This is considered next. (*boxes [4.3.1](#) and [4.3.2](#)*)

**Box 4.3.1**

**Senegal's Private Telecentre Program**

In Senegal, an initiative begun by the national telephone operator, Sonatel, to "outsource" the provision of public pay telephones, has blossomed into one of the most successful small business sectors in the country, and a model that is being emulated in other countries. Sonatel encourages private entrepreneurs to set up small local telecentres or phone shops, in which public customers can place telephone calls, and sometimes use computers, printers, and other facilities. Sonatel loosely manages the program by accepting applications and providing metering equipment and basic training to the telecentre operators. Telecentres charge customers premium (unregulated) to place phone calls, then remit approximately 70% of the payments to Sonatel. For some, which become formally affiliated with Sonatel, preferential wholesale tariffs are available. There are now over 23,100 such private telecentres throughout Senegal, representing 40% of the overall turnover of commercial outlets.



**Box 4.3.2**  
**Hungary's Telecottages**

In Hungary, a different approach has yielded a similar boom in local communications access centers, known as "telecottages" (teleház). The telecottage movement began and continues as a community-driven initiative, where local civil society and NGO organizations have banded together to provide public access to ICT (telephone, computers, Internet) as well as many other traditional forms of information, from library books to bulletin boards. The program was launched by local activists, and gained financial support from the Hungarian government, NGOs, and international donors such as USAID. The telecottages are not yet wholly self-sustaining, generating about 30% of operating costs from local revenues, while public and donor sources make up the difference. On the other hand, there has been little instance of failure (less than 3%), in comparison with much higher failure rates for telecentre projects in other countries. This growing movement has spread not only throughout Hungary, where telecottages occupy at least 500 towns and villages, but to neighboring countries as well.

Contribution by Mátyás Gáspár, Hungarian Telecottage Association, Hungary; <http://www.telehaz.hu/>

*Community Ownership for the 'First Mile' in Poor Rural Areas*<sup>90</sup>

As noted above, poor rural communities cost more to service with networks and have less to spend per capita. Current market incentives and traditional investment sources are unlikely to have a major impact there, at least for some time. Practices outlined above do help, yet a major shortfall still exists in relation, firstly, to developing the local level access (the 'first inch') where the infrastructure has already reached, but secondly and more acutely to building that 'first mile' which will link remote and poor communities to the nearest backbone access.

Thus many poor rural communities fall into a large gap in the current formula for telephony and ICT access: large-scale solutions to network infrastructure extension very often cannot reach far enough to enable the implementation of local solutions to the 'first inch'. Bridging that distance between the local need and the nearest network infrastructure is often simply not profitable, in conventional terms, even based on pooling local demand. It is this bind – the gap in the conventional economics of the 'first mile' – which is keeping much of the world's rural poor from access to telephony and to ICTs.

Now a new model is emerging, one based on community empowerment and ownership, principles long practiced in development activities generally but increasingly seen also in community-based ICTs applications-based initiatives (such as in Box 4.3.3<sup>91</sup>). The new component (although it has a long history) is that communities are now taking the lead responsibility, often with public authorities and private partners, in initiating, designing, resources and managing network solutions. Innovative technologies can play a vital role, especially since they reduce the per-connection investment needed even for a small number of users, are low-maintenance and can be incrementally extended. The new formula is thus local solutions for *both* network extension *and* service provision (and indeed applications and content development), combined with a realistic business plan and an empowering, development oriented, ethos. Different configurations are emerging in different areas, according to circumstances, some pursuing a locally-owned cooperative model, others building partnerships.

<sup>90</sup> This section draws on the draft of the report by Seán Ó Siochrú & Bruce Girard "Innovative Technologies and Community Ownership: A New Model of ICT Access for the Rural Poor", commissioned as a contribution to the work of the Task Force on Financial Mechanisms. Case studies under development include reviews of initiatives in Argentina, India, Poland, Peru and South Africa amongst others.

<sup>91</sup> Increasingly, community ownership is seen as central to success in local ICT applications initiatives. See for instance Ballantyne, Peter (2003) *Ownership and Partnership: Keys to Sustaining ICT-enabled Development Activities*, IICD, Netherlands. [http://www.iicd.org/iicd/articles/IICDnews\\_import2286](http://www.iicd.org/iicd/articles/IICDnews_import2286) and Cecchini, Simone and Christopher Scott, (2003) *Can Information and Communications Technology Applications Contribute to Poverty Reduction? Lessons from Rural India*. April. [http://www.developmentgateway.org/download/181634/cecchini\\_scott ICT.pdf](http://www.developmentgateway.org/download/181634/cecchini_scott ICT.pdf)



The community-owned rural telephony cooperative has a very long history. In the US some 6,000 rural telephone cooperatives were in existence by 1927, and 1,000 still operate most now delivering broadband. From the 1960s and 1970s, cooperatives emerged in Argentina and Bolivia and later in Poland and Peru, often associated with other rural infrastructure enterprises (as in Huaral, Peru where the telecom network is being operated by the valley's irrigation association; and in the US where the cooperative often provide electricity and water services), and are thriving. They have many strengths over the for-profit model.

Leveraging local resources at no cost and reinvesting all profits back into the community

#### **Box 4.3.3 Cooperative Networks in Poland**

In Poland in 1991, two pioneering local cooperative networks, WIST and Tyczyn, were joined by numerous private-investment local networks, which meant they were directly comparable. However, many of the private networks found that they could not offer the level of return demanded by their investors and were forced to sell, sometimes at a loss, to the national telecoms provider. According to a comprehensive review in 2003:

“Unlike investor owned companies, [the cooperatives] were able to build out their systems, pay off their loans rapidly, and prosper while many investor-owned systems - dependent on outside capital and profit, rather than service as their motivation - have been less successful or failed. A critical element in the success was their community ownership. (NTCA 2003 p14)

Both cooperatives grew by means of both extending into unserved areas and poaching customers from the state provider TPSA using incentives such as immediate repairs as against the weeks or months it took TPSA. The cooperatives also boosted revenues and clients through household enterprises, farm processing and businesses attracted business relocating into the service area, underlining the importance of a good quality, reasonably priced and responsive system to business development. The cooperative are credited with having given a major boost to business as a whole.

But the spin-off benefits were also important.

“The projects proved the importance of telecommunications for community strengthening and local economic development In both cases, their success resulted in the formation of relationships among local mayors and *gminas* [county] that lead to other important public services, including wastewater treatment and household natural gas networks. The cooperatives spurred enterprise development, helped in the formation and success of a credit union and large dairy cooperative. (p15)”

Source: Adapted from case study on the cooperatives, [http://www.ntca.org/ka/ka-3.cfm?content\\_item\\_id=1599&folder\\_id=324](http://www.ntca.org/ka/ka-3.cfm?content_item_id=1599&folder_id=324) and <http://www.coopdevelopmentcenter.coop/CDP%20case%20studies/NTCA%20Case%20Study.pdf>

have allowed them, in Poland, to offer lower tariffs than for-profit operators and a higher level of service. With the emergence of more sophisticated content-driven services, the direct link to local needs is also more likely to yield viable and sustainable services, in turn generating further income. Sometimes more important to the communities is that such cooperative usually engage in wider community development activities, and have reinvigorated local economies. And experience in Poland and elsewhere shows that the minimum return on investment required is less for the cooperative model, and that sustained periods of limited income can be weathered more easily – it can thus potentially reach further into rural marginal areas.

In India, another model of community network control has emerged through the empowerment approach to local development, building partnerships with a very distinct flavour. While the public telecoms operator and the private entrepreneur may play a vital role, the local community stays in the driving seat in terms of the determination of needs, the terms and nature of service, affordability and in bestowing additional community benefits. The Akshaya experience ([Box 4.3.4](#)) has proven to be highly replicable and brings the 'first mile' via a public operator and more recently WiFi to over 600 information kiosk offering community-driven ICT services. Another example in India, the N-Logue project, was initiated by the Institute of Technology in Madras, combines a social enterprise model with local enterprise and has connected hundreds of villages previously lacking network

access across seven states with, in effect, an internet café and phone booth access. Community network solutions, driven by local needs, can be found elsewhere too. In Laos,<sup>92</sup> the demand for a network had arisen directly as a result of other development activities of the villagers, which gave rise to a need for specific services including both telephony and internet access. And the myriad local informal WiFi networks springing up

#### **Box 4.3.4 The Akshaya Initiative**

The Akshaya experience in India an interesting hybrid: a determining level of community control is exerted in the context of a state government programme that offers franchises to private entrepreneurs and local entities. The Kerala State programme now extends to over 600 information kiosks, offering a range of ICT services beyond telephony, such as bill payment, registration of complaints at police stations, and birth and death registration. The state provides the connectivity, and is in fact currently testing WiFi based connectivity for its rural kiosks.

This goes well beyond a case of harnessing a local entrepreneur in a poor area. A vital factor is that the local elected village bodies, the Panchayati Raj Institutions (PRIs), have a major legally-sanctioned role in governing these. In addition to a policy that all franchisees train at least one member of every family in the use of ICTs, the PRI has a strong voice in who is selected and supervising the franchisee. These can and are used to set affordable tariffs for the poor, to ensure that profits are proportionate to the role played by the franchisee, and that excess goes to community purposes, in selecting the range of services.

Such rights to participate in effect give the community most of the benefits of ownership by ensuring a clear and firm pro-poor mandate, enabling the mobilization of considerable local resources. They underpin the huge success of this programme, said to be the largest in India.

through Indonesia can be seen as an expression of the same process.

Community-ownership is not a panacea for the 'first mile' to poor rural communities. But the combination of self-help, needs driven, non-profit enterprise, often in collaborations suitable to the country or region, with innovative low-cost, incrementally expandable technologies, has the potential to make a significant difference. There is strong evidence that community-owned and driven initiatives can extend networks further into rural and poor areas, can provide better services at lower cost, and can link more effectively link into other development and empowerment activities in these areas. They build upwards from recognized demand for specific applications, as distinct from a general desire to roll out a network, and can leverage community resources. They can also mean, in terms of the economics of network provision, that a rural network of no interest to an external investor is feasible for the community themselves to undertake.

**The path ahead:** When it comes to seeking financial support for extending access networks, facilities, and services for rural and low income populations, all available resources should contribute. This is not an "either-or" choice between market-based private sector solutions and public or donor financed subsidies. Current models of access economics define a theoretical threshold between the "market efficiency gaps", which are caused by artificial barriers in the market and "true access gaps" which result from fundamental cost and demand conditions, and requires subsidy and other mechanisms to resolve. In practice, the boundary between these conditions is often difficult to identify with precision, and changing industry dynamics and market realities will constantly shift the target on a region-by-region basis. Furthermore, a bottom-up community-driven approach outlined above can considerably reduce the level of the "true access gap", making access to many poor rural communities viable. Public finance and donor assistance should work hand-in-hand with market-based mechanisms to accelerate access network investment, in the context of enabling policies and other incentives. Key features of such an integrated strategy should include:

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<sup>92</sup> See Community-Owned Wifi/VoIP Network in Laos. [http://www.jhai.org/jhai\\_remote\\_launch\\_follow.htm](http://www.jhai.org/jhai_remote_launch_follow.htm)

- **Market opportunity:** Outdated licensing and market access barriers which restrict even investors willing to construct new facilities in currently unserved areas, need to be eliminated, and other policy initiatives – such as access to frequencies and rights of way, minimal taxes and fees, etc. – should be designed to maximize the incentives for new entrants.
- **Market risk:** Financial institutions and governments should work with potential investors to mitigate perceived risk levels as much as possible. This involves working with and reforming financial markets, guaranteeing low-interest loans, enforcing contracts and business practices laws, working to stabilize currencies and inflation, and ensuring full disclosure of relevant market information.
- **Funding resources:** Subsidy and seed financing from private, public, and outside sources should be channeled to support investment in uneconomic unprofitable and risky projects which will benefit the ICT sector as a whole and development priorities. Such resources could usefully be coordinated through a central implementation source such as a Universal Access Fund, with transparent and equitable criteria for distributing funds among competing sector participants and target locations.
- **Community-driven solutions:** Community-driven ‘first mile’ solutions, as cooperatives or in community-controlled partnerships, can leverage considerable local resources and render networks to poor rural communities more viable. These should be examined with a view to determining the optimal regulatory, funding, capacity-building and institutional requirements.
- **Public and institutional coordination:** ICT access projects should be planned and coordinated together with other public infrastructure and networking initiatives to maximize efficiency and aggregate market demand. E-government and e-governance programs should be closely linked to universal access rollouts, utilizing common facilities to permit integrated public and private networks to be delivered on a commercially viable basis.

#### **4.4 Enriching Development: Applications and Content**

In many ways, the realm of Applications and Content represents the next frontier for ICT development strategies, as well as for the financing stakeholders. Ultimately, information resources are only valuable if they can reach the communities most in need, and can engage people in a manner that connects with their daily lives and individual aspirations.

With basic two-way voice telephone service, the “content” exchanged is direct, person-to-person knowledge and “real-time” information, which can often be of the greatest lasting value. A friend or relative or respected elder who explains about the risks of HIV/AIDS or the means to nurture crops will likely receive more credence than any well-meaning outsider. The collective wisdom of indigenous populations, shared and extended through distant contact, holds unlimited promise to help enable developing communities to find their own paths to greater prosperity. For this reason, many analysts argue that voice telephony (fixed or mobile) should remain the first priority for infrastructure and service expansion in the context of development goals.

But the ICT revolution is about much more than telephones. It is about the prospect that new technologies of unlimited, instantaneous access to infinite information can transform the fundamental dynamic of human society, at all levels. It is not about the vast majority of the world’s population gradually catching up to mid-20<sup>th</sup> Century technology and living standards, while those already enjoying an abundance of wealth and opportunity race into the future with ever greater speed. The new, worldwide paradigm of ICT is that information, all information, is no longer the exclusive property of privileged gatekeepers, but the currency and lifeblood of the masses everywhere.

The present state of the "supply side" of the global Information Society is still far removed from this ideal. The centers of content production are based overwhelmingly in the industrialized world, from software platforms and applications to Internet Web sites to news media and entertainment studios. Some 70% of Web pages are still in the English language. Microsoft's Windows operating system controls in the range of 90% of the worldwide desktop PC market, its applications software packages are similarly dominant, and most corporate software competitors are also U.S.-based. Hollywood television and film studios and their affiliates produce and/or distribute a huge proportion of the entertainment programming on the international market, even in countries with few linguistic or cultural links to the stories that they tell. Beyond the "access gap", which divides the connected from the disconnected, this imbalance between creators and consumers of information is even greater, and possibly more difficult to overcome.

To some extent, these trends may reflect an almost inevitable blending of cultures and interests, as global mass media contribute to a certain convergence of perspectives and common experiences. For example, in recent years, virtually the entire world has been transfixed by a sequence of events of nearly universal interest and fascination: the Year 2000 Millennium celebrations (even in countries which nominally follow a different calendar); the September 11<sup>th</sup>, 2001, terror attacks on the United States and their aftermath; and the 2002 FIFA World Cup football championship, which by many measures was the single most "observed" event (via television, radio, Internet, print media, etc.) in the history of humankind.<sup>93</sup> As the ICT revolution continues to spread, there will be more of these types of globally captivating, cross-cultural experiences, which will be as much in "demand" in the developing world as anywhere. (Indeed, the 2010 World Cup, in South Africa, is certain to be the most popular cultural/sporting event on that continent ever, and should be an unprecedented catalyst to accelerate demand for all forms of ICT connectivity.)

But what is most missing from the limitless worldwide knowledge base is an adequate representation of the vast diversity and richness of knowledge, ideas, experience, and imagination that thrive throughout the developing world, but rarely find their way into the consciousness of the commercially driven, mass media markets, or often even into the minds of people in the village down the road.

For development practitioners, especially those in the field, the issue of information content is absolutely central to the question of how ICT can be effectively integrated with traditional development programs. In this context, Information can play a wide variety of roles:

- For Poverty Reduction: Training and shared experiences in small business management and job skills; market information; agricultural techniques; crafts making skills.
- For Health Care: Basic awareness, prevention and treatment of common illnesses; critical disease and epidemic data gathering; remote diagnosis; doctor/nurse training.
- For Education: Curriculum supplemental materials, audio-visual teaching tools; research data sources; teacher training and interaction; technical training programs.
- For Good Governance: Facts, figures, instructions on public service operations, tax revenues and spending, legal rights and obligations; political campaign and electoral information; support and assistance for women, youth, the elderly, the disabled; shared municipal and regional programs and practices.

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<sup>93</sup> Townsend, David, "The World Cup and Communications Development: A New Vision?", paper presented to ITU-TRASA Workshop on Universal Service, Dar Es Salaam, and Asia-Pacific Telecommunity Seminar on ICTs and Poverty Reduction, Thailand, 2002.

- For Gender Equality: to develop awareness on women's human rights, training and capacity on strategic use of ICT, ICT as tools for advocacy on social change, networking and information dissemination.

**Challenges:** The challenges for expanding the scope of useful, accessible information content in the developing world are numerous. In particular, the issue of financing for various forms of content and applications requires new attention, as this area has often been overlooked by the focus on ICT infrastructure.

One key question is to what extent there is, or can be, a market for information resources that are relevant to, and produced by and for, the populations of developing countries. The evidence on this point is only modestly encouraging to date. Certainly local and national audiences are more interested in learning from and being entertained by people who speak and look like themselves and understand their environment, as opposed to stereotype international media images. However, the challenge lies in creating functioning, sustainable business relationships at all levels of the information value chain, from producers to distributors to retail sales to customers, whether the material in question is training software, regional Web portals, community radio broadcasts, or motion picture DVDs. For authors, filmmakers, Web designers, programmers, journalists, or performers to be able to earn a reasonable income from their crafts, they must be confident of steady pay, which most often requires producers and distributors at higher levels to gain adequate, ongoing market positions – and ultimately the financing support necessary to launch and nurture start-up media, information, or entertainment enterprises.

This leads to a classic “chicken-and-egg” problem: The relatively low levels of access to information media in developing markets minimize the potential audience (customers) for commercial content, discouraging establishment of domestic production businesses. And the lack of locally relevant content diminishes interest in and demand for ICT services. This is true for the market for end-user purchased media (software, audio/video recordings) as well as advertiser-sponsored media (broadcasting, Web sites).

The financing challenge for development targeted content is still greater. There is very little potential “market,” at least in the short run, for much of the information that development agencies seek to deliver, and that developing communities most need to help themselves. Again, this is partly a function of the chicken-egg problem: poor people do not have the means to pay for information, even if it might help them rise out of poverty. In the developed world, there are huge, thriving markets for ICT-based “self-help” information, from business and investment primers to health remedies to child care to personal and spiritual growth (not to mention myriad “get-rich-quick” schemes). But it will be many years, even under the most hopeful scenarios, before most poor, underprivileged, struggling communities will reach a position where they can purchase all the knowledge they require to manage their own destinies. And it will be even longer before they can also produce and exchange that knowledge among themselves, on a truly commercial basis.

This means that the task of generating, distributing, and especially financing development-focused information resources lies primarily with outside agents: governments above all, along with civil society and the international aid community. The long-term goal should be self-sustainability, in which both the funding of content production and the content itself are chiefly driven by local markets around the world. The near-term imperative, however, is to reinvigorate the mission of development programs with the promise of ICT-based information distribution, supported by public and international financial and technical resources wherever possible.

**Promising Practices:** There are many encouraging experiences on both the commercial and the public service fronts, which can offer a vision of ICT content and applications can truly change lives. Commercially, it is evident that sheer market size can be a critical incentive in the creation of successful domestic information and media industries. India has

been famous for its successful "Bollywood" film industry for many years, and has more recently become a center of custom software production. Spanish language film, television, and especially music recordings have been growing across Latin America in recent years. And the emergence of the Al Arabiya and Al-Jazeera Arabic regional news organizations has fundamentally shifted the dynamic of international journalism in the Middle East.

In smaller countries and less homogeneous regions, however, domestic and regional media production has remained much more fragmented, with few major commercial success stories. This is not for a lack of creative initiative, or even audience interest, as the burgeoning independent film, television, community radio, and publishing fields throughout the developing world attest. The biannual Festival Panafricain du Cinéma et de la Télévision de Ouagadougou (FESPACO) in Burkina Faso, the largest film festival in Africa, draws over 100,000 viewers to see scores of original African dramas and documentaries from across the continent. Few of these, however, even the top award winners, go on to become commercially successful or receive international distribution contracts. UNESCO is beginning a partnership with FESPACO for the 2005 festival to help promote on-line access to the films and industry efforts to increase their circulation throughout the world.<sup>94</sup>

Nearly every country has established at least a nominal presence on the World Wide Web, most prominently through government-sponsored portals to encourage trade, investment, and tourism, and to distribute basic public sector information. Increasingly, however, Internet entrepreneurs in all regions have been developing private Web sites on a commercial basis. Among the oldest and most comprehensive of these is the Africa Online service.<sup>95</sup> Launched in 1994 (reportedly financed by credit cards), Africa Online became the first major subscription Internet and e-mail service in Sub-Saharan Africa (outside of South Africa), the service has grown to host affiliates in eight countries, and over 100,000 subscribers, while attracting substantial equity and debt financing from international partners. The Africa Online Web portal offers a full range of links to over 12,000 African news, entertainment, culture, business, and government Web sites, discussion groups, and interactive features.

Traditional media are also an important component of the development equation, and often a mechanism for delivering valuable content effectively and affordably. Community radio, for example, is being utilized in a number of countries to reach target populations and engage them with information and discussions relevant to their immediate social and economic needs. Women in particular have become a focus of this medium. An example is Femtalk 89.2, a women's community radio initiative in of femLINKpacific (Media Initiatives for Women) based in Suva, Fiji. The project, funded by UNESCO, uses a mobile 'suitcase' radio to broadcasts to women and their communities in the semi urban and rural communities of Fiji and addresses peace initiatives in Fiji's post-conflict reality. In Zimbabwe, some 52 women's radio listening clubs are active in the Development Through Radio (DTR) project, aimed at giving rural women access to radio and participation in the production of programs based on their development needs and priorities. The women engage in dialogue with political officials: women pose questions and an information intermediary transmits the women's questions to concerned officials. The responses then become part of the weekly broadcast. DTR is now extending its programmed to women in Sierra Leone, who are in particular need of connection to civic and political life as their country rebuilds.<sup>96</sup>

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<sup>94</sup> [http://www.fespaco.bf/unesco\\_audiovisual\\_platform.htm](http://www.fespaco.bf/unesco_audiovisual_platform.htm)

<sup>95</sup> <http://www.africaonline.com/>

<sup>96</sup> Nancy Hafkin and Helen Hambly Odame, "Gender, ICT and Agriculture," a situational analysis for the 5th consultative expert meeting of CTA's ICT observatory meeting on Gender and Agriculture in the Information Society, August 2002. <http://www.agricta.org/observatory2002/documents.htm>.

In the realm of software, the Open Source movement has been a focus of considerable attention in the developing world.<sup>97</sup> Open source software does not involve costly license fees, and allows users to customize the source code to adapt programs to their unique needs. Governments in particular are looking at open source alternatives to implement internal database and networking plans where budgets are tight and needs vary from one location to another. Outside, expert assistance is a crucial factor in pursuing this alternative, as few administrations have the resources to create and maintain open source solutions by themselves. The Association for Progressive Communications (APC) has produced a software package known as ActionApps, which permits user-friendly interactive Web publishing for civil society and other organizations, without requiring programming knowledge.<sup>98</sup> Colnodo, an APC consortium member in Colombia, with financing assistance from USAID, has built and donated a software package based on the ActionApps platform, known as "Internet for Accountability" for use by 500 municipal governments to make available local public information via the Internet.<sup>99</sup>

There are numerous other important examples of publicly sponsored, internationally financed, innovative content programs in all development fields, from microenterprise to health care to cultural enrichment. (See Boxes)

**Box 4.4.1 Uganda: Interactive business training for women**

In a 1999 needs assessment, a sample of rural women living near the Nakaseke Telecentre said they needed more information to assist them in income-generation and marketing food crops and other products and finding prices for food and crafts in nearby markets. With funding and support from IDRC, the International Women's Tribune Center in the Nakaseke region of Uganda designed an CD-ROM of interactive learning materials about microenterprise, in a highly audio-visual package using local languages and graphic interfaces easily accessible to women with low literacy skills. Women in the area are now coming to the local telecentre and using the CD-ROM to help learn how to increase their flocks of chickens, extend their land holdings and sell surplus food. Some are saving to acquire mobile telephones so that they can improve their marketing. And they are using what they have learned to help train women from other areas in the use of ICT.

[Source: UN DAW Expert Group Meeting Report 2002.]

**Box 4.4.2 Health Information System for Madagascar**

Madagascar is among the world's poorest countries, with 70% of the population below the poverty line, and serious health care problems, especially in its widespread rural regions. Child mortality, malnutrition, malaria, and cholera have all worsened in recent years, and there have been severe outbreaks of preventable diseases that have spread widely and fatally before they could be contained. One major problem is the timely reporting of accurate health and disease surveillance data to public health officials. A well functioning disease surveillance system provides 'early warning' for rapid response and control of epidemics, as well as information for planning, implementation, monitoring and evaluation of public health intervention programs. Now, with assistance from the World Health Organization and the World Bank, the government is introducing an ICT-based 'Integrated Disease Surveillance and Response' (IDSR) system, to obtain current data on diseases, and transmit this information from all remote districts via a network of shortwave radios, for central analysis and coordination of responses. There is a likelihood that hundreds or thousands of needless deaths, especially among children, can be prevented simply by implementing this system.

<sup>97</sup> See Dravis, Paul, "Open Source Software: Perspectives for Development," infoDev, 2003.

<sup>98</sup> <http://www.apc.org/english/news/index.shtml?x=16314>

<sup>99</sup> <http://www.apc.org/english/news/index.shtml?x=17998>

**Box 4.4.3****Cultural Anthropology in the Digital Age**

Around the world, anthropologists are finding that ICT tools are a new and indispensable method for recording, preserving, and celebrating cultural diversity. In a field that was once captive to written treatises augmented by occasional photographs and recordings, the advent of low cost, convenient digital videography and other media is helping bring to life hidden societies and vanishing traditions in all corners of the world. Anthropologists, and even indigenous peoples themselves, are using these technologies to produce lasting multimedia records of ritual ceremonies, oral traditions, artifacts, and belief systems, and sharing and exchanging them with virtually anyone, anywhere who may be interested. Typically financed by academic institutions and foundations such as the Royal Anthropological Institute, these efforts are often implemented one village and one tribe at a time. There is a sense of urgency that many cultural treasures are being lost to the thrust of modernization and globalization, but the hope is that at least this one intrusion of advanced technology in traditional societies can help preserve their legacies for future generations.

**The path ahead:** Governments, international donors and finance institutions, NGOs, and even private sector stakeholders need to pay new and urgent attention to the gaps in ICT content and applications relevant to developing country populations. Sector reforms and infrastructure focused initiatives will not, by themselves, generate adequate investment in software and other media that fits the needs and interests of the poor, the illiterate, those who don't speak international languages, those who have no money to pay for information programs. Yet without such locally relevant content, the benefits of infrastructure and access expansion strategies will be minimized for countless numbers of people who should be the main targets of ICT-based development programs.

In channeling resources toward ICT content and applications, public officials and development agencies should emphasize, *inter alia*:

- Projects which are audio-visual, graphic, interactive, and user-friendly, taking account of end users' literacy limitations and unfamiliarity with information technologies;
- Delivery of information in local native languages;
- Instructional and awareness raising content which takes account of diverse cultural, religious, and traditional beliefs and sensitivities, while also exposing indigenous people to broader viewpoints and new understanding;
- Opportunities for local, self-directed production of relevant content, including folklore, traditional knowledge, and informed approaches to health care, business, education, and governance;
- Fostering of sustainable, innovative local markets and production facilities for information content development and distribution;
- Support for shared development of ICT applications platforms and programs, including government information systems, which can be replicated and implemented on a cost-effective scale.

#### **4.5 Strengthening Human Resource Capacity, Promoting Opportunity**

There is one resource that is more indispensable than any other in fostering the potential of knowledge and network driven development: the human mind. The unique attribute of ICTs is that they can be utilized at all levels of all societies, regardless of the presence or absence of most other resources. Assuming basic access to technology, a software programmer or Web designer can operate just as effectively in a rural village as in a teeming metropolis. Indeed, this characteristic of ICT holds tremendous promise for leveling market prospects not only between countries whose natural resources have helped create economic



disparities, but also between urban and rural areas, permitting a reversal of excessive urbanization and the empowerment of long marginalized regions.

**Challenges:** For these visions to be realized, the fundamental role of education, training, and public awareness of ICT must be recognized and given priority in national development strategies. There are multiple levels on which ICT oriented education and human resource capacity building must be addressed:

- Basic education programs incorporating ICT tools:
  - learning through ICT;
  - learning about ICT (see Box)
- Advanced, specialized technical training:
  - university and post-graduate engineering and technical degrees;
  - ongoing training, skills enhancement, career development;
  - business management skills and functions involving ICT
- Government, public employee training, skills, management:
  - ICT sector strategy and policy design, regulation;
  - ICTD mainstreaming & planning capacity development
  - E-government planning, implementation;
  - Public management, operations utilizing ICT
- Public awareness campaigns
  - Market development, demand stimulation;
  - Exposure to technology choices, roles in society;
  - Enhanced political participation via ICT

**Box 4.5.1**

**Global e-Schools and Communities Initiative (GeSCI)**

Over 370 million of the 1.3 billion school-aged children in the world are not in school. Furthermore, the problem of poor schooling in the developing world is unlikely to improve without major interventions. For example, according to UNESCO, an additional 15-35 million educated and trained teachers will be needed over the next decade if all countries are to achieve the MDG of universal primary education by 2015. The basic building blocks of a quality education system -- teachers, infrastructure, curriculum & content, teaching & learning tools and administration -- are not present in many developing countries. However, according to a study by McKinsey & Company for the UN ICT Task Force, ICTs can help overcome many of the major issues faced in these building blocks in an efficient and economic way. For instance, ICT-based distance training can overcome the shortage or inadequate training of school teachers by accelerating instruction. Ineffective distribution of content can be tackled through ICT based delivery of rich and traditional content. Also, high volumes of manual administration for teachers and principals can be managed through basic ICT applications. In addition to educational impact, ICTs in schools can also impact far beyond the classroom, delivering enormous benefits to their local communities in the areas of employment, adult education, health, business services, communication and e-government.

The McKinsey study found that numerous pilot projects in ICT for Education (ICT4E) have shown the potential of ICTs in schools, but that it is essential to move beyond these pilots and create comprehensive, demand-driven, coordinated 'end-to-end' systems.

Arising from the study, the UN ICT Task Force decided to endorse the launch of the Global eSchools and Communities Initiative (GeSCI), with the aim to catalyse and support national/regional e-schools initiatives that bring together local actors, under the leadership of the local Ministries of Education and ICT. GeSCI will provide assistance with planning and with connecting to global partners, be they donors or others who can provide expertise and financial support to the development and implementation of the national initiative.

GeSCI has been supported to date by the Governments of Canada, Ireland, Sweden and Switzerland. It is currently working with national/regional coalitions in Ghana, Namibia, Bolivia and Andhra Pradesh (India).

As ICT penetrates further into any society, the scope of human resource skills needed to sustain and expand its contribution to development increases exponentially. Conversely, lack of capacity can be an insurmountable constraint to effective ICT development. Virtually

any business, institution, NGO, and government agency that utilizes ICT tools requires a degree of in-house expertise in the installation, operation, maintenance, integration, and use of computers, software, phone systems, the Internet, and related functions. For individual citizens, exposure to and education in ICT facilities and applications can form a critical gateway to job opportunities and access to a wealth of valuable information. And for companies and entrepreneurs looking to build new opportunities in the ICT sector, access to a reliable supply of skilled workers is a basic prerequisite.

**Promising Practices:** A wide variety of technical training programs are supported by international donors and institutions, often in partnership with private sector companies, such as:

- Francophone programs:
  - AFNIC (Association française de nommage Internet en coopération) International College's FFTI Project;<sup>100</sup>
  - Training in Internet server and Website administration and maintenance by the Africa Computing Association;<sup>101</sup>
  - RESAFAD (Réseau Africain de Formation A Distance – African Distance Learning Network);<sup>102</sup>
  - FORCIIR (Formation continue d'information informatisées en réseau), focusing on training of librarians and journalists<sup>103</sup>
- United States Telecommunications Training Institute (USTTI)<sup>104</sup>: The USTTI is a non-profit joint venture between leading U.S.-based communications and IT corporations and the U.S. Federal government, which provides tuition-free management, policy, and technical training for professionals from developing countries. The Institute sponsors both on-site training at participating companies and selected classroom courses in dozens of technical and policy areas. Classes take place in the United States, and attendees are generally encouraged to obtain funding for travel costs from their employers or governments, although fellowships are available from a number of international agencies, along with some funding assistance from the Institute.
- International Telecommunication Union: ITU sponsors a wide variety of training workshops, courses, in-country technical assistance and capacity building, as well as regional Centers of Excellence,<sup>105</sup> which are operated in partnership with governments, academia, and private sector entities to offer high-level management, technical, and policy training programs in all major regions of the world.
- AITEC<sup>106</sup>: An Africa-based training and IT services institute with offices in seven countries, which offers training courses, Web-based information, conferences and exhibitions, and research programs, all in support of "Africa's digital transformation".
- University of the West Indies<sup>107</sup>: Provides an on-line advanced degree course in Telecommunications Policy and Regulation, jointly developed with ITU, for residents

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<sup>100</sup> <http://www.nic.fr>

<sup>101</sup> <http://www.africacomputing.org>

<sup>102</sup> <http://www.edusud.org>

<sup>103</sup> <http://www.ebad.ucad.sn/forciiir>

<sup>104</sup> <http://ustti.org/>

<sup>105</sup> <http://www.itu.int/ITU-D/hrd/coe/>

<sup>106</sup> <http://www.aitecafrica.com/>

<sup>107</sup> <http://mrp.uwi.tt/>

of the Caribbean region. Some fellowships are underwritten by the Cable & Wireless Academy.

Some countries have pursued ambitious national policies to promote technical capacity building throughout their societies, to accelerate adoption of ICT and expand both domestic and international trade market opportunities. (See Boxes on India and Estonia.)

**Box 4.5.2**

**India: The NIIT Story**

India's NIIT is perhaps the most successful Information Technology business venture based in the developing world, and the largest Asia-based training provider, with programs in 42 countries, annual revenues in excess of US\$230-million, and 4,500 employees worldwide. The company was founded in 1981, when IIT Delhi batch mates, Rajendra S. Pawar and Vijay K. Thadani, decided to create a unique company with a revolutionary mission. Their pioneering vision of 'bringing people and computers together' created for the first time in India an organization dedicated to creating a large mass of IT-educated population. This subsequently led to ushering in IT education and proliferating the use of computers in the country, and India's establishment as a world leader in software and IT industry development. NIIT's evolution, and that of the Indian IT sector, occurred in three "waves":

Wave I: NIIT began in 1982 with limited personal funds of the founders, and loan support by IOB, backed by refinancing from IDBI. They initially set up local IT Education Centers, expanding to thousands of small towns around the country as demand grew, via a successful franchise model, which was funded by ICICI. Then followed a successful IPO in 1993. Today, NIIT runs 3500 centers across the globe with training programs encompassing Careers, Literacy, Advanced Technology, Multimedia, Bioinformatics, and Schools - addressing the learning needs of a wide segment, from individuals to large enterprises, serving 500,000 students per year.

Wave II: The Indian Government began sponsoring IT education in schools, and in 1999, NIIT signed agreements with state Governments to provide IT education to school students. This included a wealth of innovative methods and techniques to overcome problems of no electricity or computers, provide scholarships, and raise awareness among target students, including women and the poor and illiterate. NIIT is now providing IT education to over 2500 schools reaching over a million students every year, with Government support.

Wave III: The third wave is the new challenge to NIIT and India, to help deliver education to the 50-million or so children under age 13 who cannot afford to attend school. NIIT conducts research in a wide range of advanced technologies to develop unique products and interfaces, including its innovative Minimally Invasive Education (MIE) project, through which children are encouraged to learn on their own through computer and Internet-based tools. Funding for MIE has come from NIIT Limited, IFC, ICICI, and Delhi Government.

Case material provided by Mr. Rajendra S Pawar, founder of NIIT. See <http://www.niit.com/> for more information.

**Box 4.5.3****IT Training and E-Government Initiatives in Estonia**

Estonia has achieved exceptional success in introducing ICT on a broad scale within both the private and public sectors, and promoting ICT awareness and training for large segments of its population and workforce. These accomplishments have resulted from a series of multi-stakeholder initiatives, including:

**1. National Basic Computer and Internet Training:** The Look@World Foundation of Estonia organized from 2002 to 2004 free of charge basic training courses for people who never before had used the Internet. Altogether over 100,000 persons i.e. some 10% of the adult population of Estonia, received the training, and some 70% of these were women. The course was short – just 8 hours altogether including 4 hours for general usage on computer and another 4 hours on how to use Internet. The courses were held in small groups of 8-11 persons, held in some 250 locations throughout the country. The courses were fully financed by four Estonian private companies – two Banks (Hansabank and Union Bank of Estonia) and two Telecoms companies (Elion and EMT). Because of the scale effect the total cost of the project was only 2,55 MEUR or 25 EUR per participant. ([www.vaatamaailma.ee/eng](http://www.vaatamaailma.ee/eng))

**2. E-Government Initiatives:** During 2000-2001 several larger towns in Estonia started to develop their own e-services independently. Many of the planned e-services overlapped from town to town, but they all planned separate investments. The national government established an obligation to coordinate and co-finance the development of municipality e-services under the State Information Systems Development Centre (RIA) within the Ministry of Economic Affairs and Communication. This RIA also developed the central E-citizen portal through which all the municipal e-services must be accessible in future. Today, any municipality can apply to co-develop a new service or application, which RIA then jointly finances and co-manages to ensure compatibility. Once the service is developed and tested in the pilot municipality it will be provided free of charge to all other municipalities so each one of them can start providing the same e-service. Some services are even being adapted internationally. For example, the Latvian tax office took over and adopted the e-tax office system developed in Estonia as the services tax office has to offer are similar everywhere.

Estonia has also established the E-Governance Academy (EGA), an organization set up by UNDP, the Estonian Government, and the Open Society Foundation (Soros Foundation). This is a competence centre for e-governance policies and applications. EGA's main activities are training of high public servants in developing countries and analysis of E-governance projects. (<http://www.ega.ee>)

**The path ahead:** Despite the broad range of activities supporting key areas of technical training, particularly within the private sector and by certain leading international institutions, it is clear that ICT capacity building in general remains a comparatively new and underserved focus of development. At the most basic level, within primary and secondary schools and educational policies in general, the role of ICT is most often a minor consideration, for which very limited school budget can seldom be allocated. Yet the experience of India and other promising initiatives and studies suggests that introducing ICT into mainstream public educational programs can help dramatically accelerate both learning opportunities in general and the awareness and integration of ICT within society and the economy. As the next generation comes of age in a world increasingly saturated with these technologies, their degree of exposure to and familiarity with computers, Internet, smart phones, and a range of new applications, will largely determine the success of any country's Information Society programs. To concentrate ICT training and capacity programs only upon higher-level managers and officials would risk missing this vital contribution to future growth.

In the private sector, in addition to employee and management training, capacity building needs include a growing demand and opportunity to foster entrepreneurial business development both utilizing ICT tools and serving niche ICT market segments. Most technical training institutions, including public university degree programs and industry-sponsored professional training, emphasize specific skills in such areas as electrical engineering, software certification, and operation and maintenance of mainstream systems and facilities, for which there is steady and growing demand for workers. However, entrepreneurial initiatives involve somewhat different skill sets, which are less readily taught in traditional classrooms. It is no secret that many of the most successful startup ventures

in the ICT field, in both the developed and the developing world, were launched by individuals (often just out of school) with little connection to the entrenched industry and educational hierarchy. Still, capacity programs can encourage this type of experimental, innovative thinking, through linkage with public-private incubators, support for SME microfinance, and open admission and tuition assistance policies at public education facilities. Of course, the ICT world itself, especially the on-line communities of inventors and other mavericks, is possibly the most fertile ground to promote innovative business development ideas, which reinforces the value of promoting access to and utilization of Internet facilities throughout the educational system.

Finally, at the level of Government, public agency capacity building programs require an infusion of resources throughout the full scope of government responsibilities, for visions of e-government, ICT strategies, and competitive sector development to become a reality. As the developers of the successful District Net program in Uganda have observed: "Human resource capacity is crucial to the process of embedding [ICT in government]. Good governance projects require capacities to manage, guarantee, and maintain the quality of data."<sup>108</sup> Policymaking ministries and regulatory agencies require highly skilled, technically expert personnel to oversee implementation of market-oriented reforms. Agencies tasked with poverty reduction and development responsibilities must understand and embrace ICTs themselves before they can effectively integrate them in e-development and poverty reduction strategies. Government IT networks and operational offices demand well trained technicians, software engineers, and others who must be paid commensurate with the income these skills would earn in the private sector. Local officials and administrators must be able to become familiar with new internal computer, database, accounting, and message systems for these to be at all effective in improving government performance. Public service systems such as Web sites, interactive call centers, electronic messaging, and the like, require persistent updating and monitoring by trained personnel. Programs serving all of these needs are mostly in their infancy, and compete for funding with virtually all other public capacity and resource needs. Yet there is reason to believe that placing a high priority on public sector ICT capacity building could yield some of the greatest medium-term benefits, and help to accelerate nearly all of the other objectives of ICT-based development.

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<sup>108</sup>Constantine Bitwayiki, Project Manager, District Net, Uganda, "The District Net Uganda Programme: a case for good governance and ICT," *Capacity.org*: 23:7; [www.capacity.org](http://www.capacity.org)

## **Conclusions:**

The Task Force's conclusions, based on the extensive research, analysis and discussions undertaken by the Task Force members, are a response to the substantive issues that were identified by the World Summit. They are organized into four main categories, which include a range of suggested priorities, options, and considerations for the participants in the Tunis Phase to take into account during their deliberations.

### **C1. Concerning "fully exploiting" existing mechanisms:**

The scope and diversity of the existing financial mechanisms to support ICTD investments is quite extensive, as documented by the Task Force report. Many of the mechanisms studied are not unique to ICTD and are also supporting other development areas and sectors. While quite extensive, it appears that nevertheless, most developing countries are not yet been able to leverage the full benefits of these existing mechanisms.

In the case of ICTD, most of the major financing mechanisms are primarily designed to promote the ongoing expansion of ICT infrastructure by assisting private companies to leverage public and private capital, to push back the access frontier and bring services to new customers. This is particularly true with respect to financing of "hard" infrastructure and access facilities to expand the availability and use of ICT among under-served, rural, lower income, and other marginalized populations. As barriers to such investments are eliminated, new entrepreneurs and additional funds are often quick to rush into newly opened markets. However, there are gaps, particularly where country risk (economic or political) is perceived to be unacceptably high and/or the enabling environment is weak. Investors may hesitate, and development financial institutions and donor support can assist by stepping in to provide technical support and financing to facilitate risk-sharing and stimulate additional financing and investment.

*In the context of infrastructure development and enhanced access to ICT, national Governments and other stakeholders have many tools and opportunities available to them to enhance the attractiveness of their ICT markets for investors and financiers:*

1. Continued promotion of a level playing field for ICT investments and regulatory policies that entice open access and fair competition for enhanced service provision, and new entrepreneurial investment in under-served areas.
2. Refinement and efficient implementation of targeted public finance mechanisms such as loan guarantees, Universal Access Funds, and partnership investments
3. Continued support and promotion of domestic, regional and South-South investment and increased sub-regional and regional cooperation to address current infrastructure and last mile gaps
4. Enabling tax, tariff, import, and business regulation policies designed to reduce risks and financial burdens for and provide incentives to ICT investors and financiers
5. Coordinated "e-governance" networking, service delivery, education and training, and procurement plans, which leverage ICT industry competition policies and private sector development to encourage new business opportunities

*In the context of ICTD initiatives and mainstreaming, securing funding from available (primarily ODA) resources have proved to be a challenge for many stakeholders and developing country governments. First, ICTD is a relatively new area and "mainstreaming" capacities within the development sectors of ODA departments and developing country stakeholders are still evolving.*

Secondly, stakeholders also often confronted by “process” challenges ranging from a lack of easily accessible information about available resources and mechanisms to tap, to high transaction and information gathering costs and time lags in finalizing requests for ODA support.

And finally, the list of “content” challenges include differing assessments of potential and risk, development priorities to be funded, and capacities to absorb, mainstream and effectively transition to self-financing, up-scaling and/or sustainability.

Possible actions include:

1. Specification of the key role of ICT in national poverty reduction strategies (PRS), as identified in Poverty Reduction Strategy Papers, which clarify the high priority placed on ICT projects among broad development goals
2. Elaboration of national “e-strategies” in conjunction with PRS/P priorities, designating the specific key areas of policy initiatives and investment needs, including coordination of cross-sectoral infrastructure and service development plans
3. Peer-partner reviews to assess blockages as well as to collectively identify priorities, design effective approaches to support mainstreaming and learn from participant and action-oriented research
4. Encouragement to pool proposals on similar themes or from same region to enhance synergies and learning and to reduce transaction costs
5. Ensuring that initiatives proposed for funding explicitly build capacity and ensure a concrete focus business/development models to maximize efficiency and scalability
6. Commissioning shared e-government application frameworks for common applications such as procurement, accounting, and tax administration which can be collected in a global or regional resource and used by most developing countries.

## **C2. Concerning the “adequacy” of existing mechanisms:**

The above considerations address means by which existing sources of financing can be more successfully exploited. However, even where these initiatives are ambitiously pursued, there remains the question of whether the existing array of financial mechanisms is “adequate” to “meet the challenges of ICT for development”.

As the Task Force Findings indicate, there are a number of areas in which current approaches to ICTD financing, by both the public and private sectors, have not devoted sufficient attention to date, and which represent fundamental challenges to the financial and development communities. These include:

1. ICT capacity-building programs, materials, tools, educational funding, and specialized training initiatives, especially for regulators and other public sector employees and organizations
2. Communications access and connectivity for voice, mobile, and data services in remote rural areas, isolated islands, and other locations presenting unique technological and market challenges
3. Regional backbone infrastructure to link networks across borders in economically disadvantaged regions requiring coordinated legal, regulatory, and financial frameworks and seed financing

4. Broadband capacity to facilitate the delivery of services, catalyze investment and provide Internet access at affordable prices to both existing and new users
5. Coordinated assistance for small islands and countries, in order to lower otherwise prohibitive transaction costs in access to international donor support
6. ICT applications and content aimed at facilitating the integration of ICT into the implementation of development sector programmes particularly in health, education and poverty reduction. There is also a need to focus on applications and processes that can ensure development of content relevant to the needs of the developing world, including material in indigenous languages, information accessible to non-literate audiences, user-friendly and affordable software platforms and interactive applications, and diverse, locally produced multimedia content.

The reasons that existing mechanisms and traditional approaches may not be adequately oriented to address these emerging needs are several:

- Private sector investors and businesses are often reluctant to commit capital to projects with high risk/low return profiles.
- Donors have taken initiatives in many of these areas, but do not have sufficient resources to cover the broad scope of needs across the developing world.
- Development Banks have to date focused on supporting private sector initiatives and concerning public financing have concentrated mostly on policy reforms.
- Governments have very limited resources and multiple commitments, as well as inexperience with many of the key areas of need.

Many of these new areas of attention will depend greatly upon the active and creative participation of local entrepreneurs and SMEs, civil society, community groups, and others who are most intimately aware of the needs and opportunities of developing populations. This implies that a renewed emphasis on domestic modes of finance, including microfinance, venture capital, and small business development, must play a central role in filling many of the key gaps, particularly in such realms as content, applications, capacity building, and knowledge sharing, by stimulating and leveraging market demand together with public development initiatives.

At present, domestic financial mechanisms, and financial systems in general, in many developing countries are far behind industrialized and international institutions; their level of "adequacy" is partly a function of their degree of experience, which will increase with more time, effort, and resources. Many of these, from private domestic banks and lending funds to public financial instruments and procedures, have the potential to improve their operations and expand their scope of influence substantially.

Recently established Universal Access Funds and their equivalent, with proper political and organizational mandates, can play an important coordinating role for the channelling of both industry and outside funds toward a variety of complementary ICT development projects, and can also be scaled up through innovative financing instruments. All of these types of mechanisms offer the promise of shifting the emphasis of ICT finance and implementation increasingly toward local involvement, and deserve support and encouragement from the international community.

The issue of the "adequacy" of the existing financial mechanisms for ICTD should be seen in the context of available financing for the broader set of development agendas and goals. From one vantage point, it seems clear that ICT, although unique in itself, is not the only "sector" or area that requires the attention of donors, IFIs/MDBs and private investors. On the other hand, ICT's importance lies in the fact that it is an enabler of development and



can contribute to meeting the broader set of development objectives. Its financing thus needs to be framed in the context of the Monterey Consensus and the Millennium Declaration that can be seen as overall drivers for development financing in the global and national contexts.

Financing of ICTD at the national level needs to be framed within the context of priorities for PRS and PRSP processes and with regard to the broader goal of achieving the goals outlined in the Millennium Declaration. National ownership and priorities highlighted through a process of multi-stakeholder involvement should determine the role that ICT can play in the overall process. Most developing countries are indeed supporting ICT as a tool that can not only enhance their role in the global economy but also help them achieve the MDGs. Appropriate ODA, IFI/MDB and private investment should be ready to help meet these goals.

### **C3. Concerning “improvements and innovations” to existing financing mechanisms:**

As the Task Force report has documented, nearly every major financial institution, organization, company, and Government agency that deals with the ICT development sector is almost constantly in some stage of self-evaluation, reorientation, and exploration of new and improved modes of operation. It is difficult to pinpoint specific changes that any individual or group of mechanisms should urgently undertake, which those institutions themselves are not already actively considering to one degree or another.

On the other hand, the Task Force discussions have provided a unique forum for many of these stakeholders to exchange and propose ideas, both individually and collectively, for new initiatives and approaches that might be worthy of further consideration by the larger body of international ICTD players. While none of these options should be taken as officially evaluated or “endorsed” by the full Task Force or the affected participants, there has been at least significant discussion and open-minded consideration of a healthy range of prospects for enhancing the global ICTD financing dynamic.

These include, *inter alia*:

1. Coordination: Greater cross-sectoral and cross-institutional coordination of financing programs and ICT development initiatives would improve effectiveness and make better use of resources. It was generally agreed that the onus for coordinating inputs rests primarily with national Governments (coordinating at the national, regional, and international levels), which should identify priorities and ensure multi-sectoral participation in ICT programs through strategic planning. Donors and other financial institutions should, for their part, be prepared to work within these national frameworks on a complementary basis, while making renewed efforts to coordinate planning, implementation, and evaluation on an international and regional basis as well.
2. Multi-Stakeholder Partnerships: The emerging trend of multi-stakeholder initiatives to support ICT development and financing needs should continue and expand, to enhance overall program coordination and ensure that diverse views and experiences are brought together to address sector challenges. Some specific options for new multi-stakeholder approaches on an international or regional level could include:
  - Establishment of a “virtual” financing facility to leverage multiple sources in support of identified investment objectives in key locations (notably broadband, rural and regional projects, and capacity building);
  - Creation of a mechanism for coordinating research and analysis into enabling policy environments, to identify best practices and priority needs for shared action by financial actors;

- Development of a “rapid response” policy and regulatory support mechanism to intervene in support of short-term ICT sector policy initiatives;
  - Coordinated programs by governments and major financial players to mitigate investment risks and transaction costs for operators entering less attractive rural and low income market segments; consideration of new paradigms for network and service development involving a separation of an ‘open-access’ backbone and diverse service provision
  - Coordinated programs by governments of small countries and major financial players to address otherwise prohibitive transaction costs in access to international donor support;
  - Collective initiatives to engage regional, inter-governmental organizations together with diverse financial institutions and investors to create incentives for building regional infrastructure capacity;
  - Creation of jointly financed international and regional programs for public sector capacity building and e-government applications development, offering low cost tools and training options to government ICT policy and implementation officials.
  - Public-public and public-private approaches to support the upfront investment, capacity development and mainstreaming costs to facilitate the effective integration of ICT in health, education and other development sectors to permit the more cost-effective and broader delivery of public services.
  - Continued exploration by donors and MDBs of new modalities – including the consideration of re-engaging in infrastructure investments - through which they can provide financial support to well designed public sector ICT projects and programmes, particularly when they have the potential to leverage additional private resources.
3. New emphasis on domestic finance: Governments, bilateral donors, multilateral banks, as well as private sector contributors, can all help accelerate the growth of domestic financial mechanisms by providing more direct and creative support to local microfinance instruments, ICT small business incubators, public credit instruments, franchises, reverse auction mechanisms, community networking initiatives, and other innovations. Such approaches require a combination of outside seed funding assistance, technical expertise and best practice advice, risk mitigation, and commitments to support local entrepreneurs and investors, particularly in the start-up stages of new projects. The finance and development communities must recognize that failures are inevitable in these newly emerging markets, but that the lessons of these experiments, together with selected, well-documented successes, can yield long-term benefits and self-reinforcing growth throughout the developing world.
  4. Private sector support for locally relevant applications and content: Commercial private sector companies could help jump-start wider demand for ICT services by supporting local producers, programmers, artists, and small businesses in the applications and content fields. Collective contributions to international and national competitions and awards, film festivals, foundations, and similar programs that encourage creative content development could go a long way toward expanding the diversity and appeal of ICT-delivered information sources.
  5. Strengthening capacities to enhance the potential of securing funds and utilising them effectively
  6. Encouragement of increased voluntary, consumer-based contributions: Many consumers in the wealthy countries of the world (including immigrant expatriates)

would be receptive to the introduction of new voluntary mechanisms for donating small contributions toward ICT-based development. New vehicles should be explored to facilitate such contributions on a simple, technology-driven basis, while ensuring that any funds collected are devoted directly to pertinent development needs, including support for creative applications and low-price access to services for the poor and access /service cooperatives owned by communities themselves.

In summing up, the Task Force found that there is both a strong development rationale as well as incentives for governments, private companies, civil society and international and other development organizations to work together on multiple levels to ensure the rapid and efficient mobilization of resources across the spectrum of existing and innovative financial mechanisms, to take maximum advantage of the potential of ICT to facilitate an inclusive society for all and the unique and golden opportunity to contribute to the achievement of critical objectives as outlined in the Millennium Declaration.

With a view to enhancing the achievement of the development agendas outlined in the Millennium Declaration, the digital solidarity agenda of WSIS, and related national development strategies, proposals have been made at the global, regional and national levels to increase the effectiveness of existing ICTD financing mechanisms and to raise additional resources through reaching out to new constituencies and/or more effectively leverage resources through putting in place a variety of cooperation and coordination mechanisms.

The Task Force's mandate was to look into existing mechanisms so as to facilitate a discussion at WSIS-Tunis on the question of financing including a consideration of new mechanisms such as the proposal to setup a voluntary Digital Solidarity Fund (DSF). In this context, findings and options based on an analysis of existing trends and proposals for improving the effectiveness of existing mechanisms have been outlined in the report.

A voluntary Digital Solidarity Fund (see <http://www.dsf-fsn.org>), announced at the time of WSIS, is described and presented in the report in the section on multi-stakeholder partnerships and emerging initiatives.<sup>109</sup> Initial contributions to the fund have come from a number of local authorities such as cities, departments, provinces, Regions, and provinces (Länder), in addition to contributions from some nation states. Endorsements have continued, including most recently from the Francophonie. The involvement of local authorities and actors in this effort was seen as the most innovative dimension of the DSF initiative, since it could encourage interactive collaboration between municipal governments, including between local authorities of different developing countries, as well as provide a platform and opportunities for other types of North-South and South-South cooperation. However, since this mechanism is yet to be operational and its more concrete goals and objectives are still evolving, the Task Force felt that it was not in a position to assess its role among the various ICT financial mechanisms.

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109 An initiative committee formed by the President of Senegal, the Mayor of Geneva, Mr. Christian Ferrazino, the Mayor of Lyon, Mr. Gérard Collomb, and the President of the Province of Torino, Ms Mercedes Bresso decided to establish the Digital Solidarity Fund. The [announcement of its creation](#) by the Mayor of Lyon and the Mayor of Geneva in the WSIS Plenary of 12 December 2003 followed its adoption by the [World Summit of Cities and Local Authorities on the Information Society](#) (4-5 December 2003).

## Acknowledgements

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## **Annex 1**

### **Definitions of ODA, OOF and Private Flows**

**OFFICIAL DEVELOPMENT ASSISTANCE (ODA):** grants or loans to countries and territories on Part I of the DAC List of Aid Recipients (developing countries) that are:

- undertaken by the official sector;
- with the promotion of economic development and welfare as the main objective;
- at concessional financial terms (if a loan, having a grant element of at least 25%).

In addition to financial flows, technical co-operation is included in aid. Grants, loans and credits for military purposes are excluded.

**OTHER OFFICIAL FLOWS (OOF):** Transactions by the official sector with countries on the DAC List of Aid Recipients which do not meet the conditions for eligibility as official development assistance or official aid, either because they are not primarily aimed at development, or because they have a grant element of less than 25%.

**PRIVATE FLOWS:** Consist of flows at market terms financed out of private sector resources (*i.e.* changes in holdings of private long-term assets held by residents of the reporting country) and private grants (*i.e.* grants by non-governmental organisations, net of subsidies received from the official sector). In presentations focusing on the receipts of recipient countries, flows at market terms are shown as follows:

- **Direct investment:** Investment made to acquire or add to a lasting interest in an enterprise in a country on the DAC List of Aid Recipients. "Lasting interest" implies a long-term relationship where the direct investor has a significant influence on the management of the enterprise, reflected by ownership of at least 10% of the shares, or equivalent voting power or other means of control. In practice it is recorded as the change in the net worth of a subsidiary in a recipient country to the parent company, as shown in the books of the latter.
- **International bank lending:** Net lending to countries on the DAC List of Aid Recipients by banks in OECD countries. Loans from central monetary authorities are excluded. Guaranteed bank loans and bonds are included under other private or bond lending (see below) in these presentations.
- **Bond lending:** Net completed international bonds issued by countries on the DAC List of Aid Recipients.
- **Other private:** Mainly reported holdings of equities issued by firms in aid recipient countries.

**DAC LIST OF AID RECIPIENTS:** For statistical purposes, the DAC uses a List of Aid Recipients which it revises every three years. From 1 January 2000, Part I of the List is presented in the following categories (the word "countries" includes territories):

- **LDCs:** Least Developed Countries. Group established by the United Nations. To be classified as an LDC, countries must fall below thresholds established for income, economic diversification and social development. The DAC List is updated immediately to reflect any change in the LDC group.
- **Other LICs:** Other Low-Income Countries. Includes all non-LDC countries with per capita GNP \$760 or less in 1998 (World Bank Atlas basis).
- **LMICs:** Lower Middle-Income Countries, *i.e.* with GNP per capita (Atlas basis) between \$761 and \$3 030 in 1998. LDCs which are also LMICs are only shown as LDCs – not as LMICs.
- **UMICs:** Upper Middle-Income Countries, *i.e.* with GNP per capita (Atlas basis) between \$3 031 and \$9 360 in 1998.
- **HICs:** High-Income Countries, *i.e.* with GNP per capita (Atlas basis) more than \$9 360 in 1998.

Part II of the List comprises "Countries in Transition". These comprise *i)* more advanced Central and Eastern European Countries and New Independent States of the former Soviet Union; and *ii)* more advanced developing countries.

## **Annex 2**

### **The Monterrey Consensus and Efforts of DAC Members<sup>110</sup>**

The Monterrey Consensus, adopted at the International Conference on Financing for Development in March 2002, built on the Millennium Declaration. It laid out a new framework of mutual accountability by reaffirming developing countries' full acceptance of their responsibility for their own development, while stressing the critical importance of support from the developed countries.

Domestic resources will remain the primary driving force for development. Governments of developing countries and countries in transition need to redouble their efforts to increase the resources spent on development and ensure that they are used effectively. To this end, many developing countries will need to improve their structures of governance and public administration. However, as the High-Level Panel on Financing for Development, led by the former President of Mexico Ernesto Zedillo, concluded, even assuming developing countries adopt sound policies and maximise use of domestic resources, at least \$50 billion a year in additional aid is likely to be needed to meet the Millennium Development Goals (MDGs).

As the authors of *Shaping the 21<sup>st</sup> Century*<sup>111</sup> recognised, aid can by no means be regarded as a tool which can achieve the goals on its own. It can only complement the efforts of people and governments of the developing countries themselves and requires also the support of a broader set of pro-development policies in the economic, political and environmental areas. However, as they also stated, "Effective international support can make a real difference in achieving these goals."

The Monterrey Conference on Financing for Development in March 2002 appears to have marked the start of a new trend in aid allocations. Following a sharp decline in ODA in real terms (and still more as a proportion of DAC Gross National Income) between 1992 and 1997, aid from DAC members had roughly stabilised as a proportion of DAC GNI at around 0.22% between 1997 and 2001, and thus returned to real growth, but at a very modest level. In 2002 itself, ODA grew in real terms by 7%, and in 2003 by a further 5%, bringing it to a level of 0.25% of DAC GNI in that year and finally surpassing the real value of aid in 1992, the previous peak year. The outturn for 2004 is not known, but there is every reason to suppose that real growth of some significance will have occurred for the third year running. The pledges made at Monterrey would imply that by 2006, DAC ODA will have reached some 0.29% of DAC GNI, or some \$87 billion in 2003 US dollars. This would represent a real increase of 40% over 2001.

Table 1.1 gives the latest DAC Secretariat estimates for 2006.

This welcome prospective increase needs to be carefully qualified. First, we have yet to see whether DAC members will in fact deliver on their pledges.

The latest budget decisions by the contributors which promised the largest increments of aid at Monterrey are mixed. In the USA, the Millennium Challenge Corporation has selected 16 of the world's poorest countries for assistance and as of October 2004 was evaluating proposals from 13 of them. It has also nominated a further seven countries that do not quite meet the Millennium Challenge Account criteria for assistance under the associated Threshold Programme. However, Congress seems unlikely to grant the full Administration request for FY2005. The delivery by all the then EU member states of the Barcelona

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<sup>110</sup> Adapted from OECD's *2003 Development Co-operation Report* (ISBN 92-64-01961-8) and draft *2004 Development Co-operation Report*.

<sup>111</sup> [www.oecd.org/dataoecd/23/25/2508761.pdf](http://www.oecd.org/dataoecd/23/25/2508761.pdf)

commitment in 2002 to a minimum of 0.33% by 2006 is of particular significance, and most EU donors are making good progress towards this ambitious goal. Indeed, of the donors listed above, France and the UK have both announced commitments that extend their Barcelona undertakings both in amount and time scale. However, both Germany and Italy have set 2005 budgets which leave a long distance to travel in 2006. Japan remains the only large donor that has not so far been able to make firm ODA volume commitments in the wake of Monterrey.

**Table 1.1 Annex.2.1 Simulation of ODA prospects for 2006**

Country	Net ODA in 2003 (US\$ m)		Commitment/ Announcement/ Assumption	Year to be attained	Net ODA in 2006 (in millions of 2003 US\$)		Real change in ODA in 2006 compared with 2003 (at 2003 prices and exchange rates) <sup>1</sup>		
	ODA/GNI in 2003	ODA/GNI in 2006			(US\$ m)	Per cent			
Austria	505	0.20%		0.33%	2006	877	0.33%	372	74%
Belgium <sup>2</sup>	1 853	0.60%		0.7%	2010	2 099	0.64%	245	13%
Denmark	1 748	0.84%		>0.7%	n.a.	1 838	0.83%	89	5%
Finland <sup>2</sup>	558	0.35%		0.44%	2007	706	0.41%	148	26%
France <sup>2</sup>	7 253	0.41%		0.5% (0.7% by 2012)	2007	8 908	0.48%	1 655	23%
Germany	6 784	0.28%		0.33%	2006	8 381	0.33%	1 597	24%
Greece	362	0.21%		0.33%	2006	642	0.33%	280	77%
Ireland <sup>2</sup>	504	0.39%		0.7%	2007	821	0.61%	318	63%
Italy	2 433	0.17%		0.33%	2006	5 092	0.33%	2 659	109%
Luxembourg	194	0.81%		1%	2005	255	1.00%	61	31%
Netherlands	3 981	0.80%		0.8%	Already	4 240	0.80%	259	7%
Portugal	320	0.22%		0.33%	2006	510	0.33%	190	59%
Spain	1 961	0.23%		0.5% (with 0.33% in 2006)	2008	2 940	0.33%	979	50%
Sweden	2 400	0.79%		Long term goal 1% (at least 0.87% in 2006)		2 789	0.87%	389	16%
United Kingdom	6 282	0.34%		0.47%	2007-08	8 242	0.42%	1 960	31%
<b>EU Members, Total</b>	<b>37 139</b>	<b>0.35%</b>		<b>0.39%</b>	<b>2006</b>	<b>48 338</b>	<b>0.43%</b>	<b>11 199</b>	<b>30%</b>
Australia <sup>3</sup>	1 219	0.25%		0.26%	2003-04	1 360	0.26%	142	12%
Canada	2 031	0.24%		8% annual increase	to 2010	2 558	0.27%	527	26%
Japan	8 880	0.20%		2001-2003 av. level (US\$ 9.5bn)	in 2006	9 500	0.20%	620	7%
New Zealand	165	0.23%		Future level is under review		202	0.26%	37	22%
Norway	2 042	0.92%		1%	2005	2 359	1.00%	317	16%
Switzerland <sup>2</sup>	1 299	0.39%		0.4%	2010	1 359	0.38%	60	5%
United States <sup>5</sup>	16 254	0.15%		See footnote 5		20 894	0.17%	4 640	29%
<b>DAC Members, Total</b>	<b>69 029</b>	<b>0.25%</b>				<b>86 571</b>	<b>0.29%</b>	<b>17 542</b>	<b>25%</b>

<sup>1</sup> Assumes average real growth in GNI of 2% p.a. [3% for Canada, 4% for Greece, and 2.75% for UK] from 2003 to 2006.  
<sup>2</sup> ODA/GNI ratio for 2006 interpolated between 2003 and year target scheduled to be attained.  
<sup>3</sup> As aid volume determined in annual budgets, assumes same ratio in forward years.  
<sup>4</sup> Assumes 5% nominal GNI growth and 2% inflation to 2006, and includes estimated \$4 billion expenditure from Millennium Challenge Account in 2006.

Second, even the estimated figure for 2006 falls far short of the estimates of what it would take to reach the full range of MDGs at global, let alone regional or country level. Reports prepared in 2001 for the United Nations and for the IMF/World Bank concurred that adequate progress would require an approximate doubling of aid in real terms. This would imply a figure close to USD 120 billion in 2006, or more than USD 30 billion higher current projections for that year, and USD 50 billion higher than actual ODA in 2003.<sup>112</sup> Preliminary projections from the forthcoming Report of the Millennium Project suggest an even higher funding gap: of the order of USD 50 billion in 2003 dollars.

<sup>112</sup> *Report of the High-Level Panel on Financing for Development* ["Zedillo Report"], United Nations, New York, 2001 and *Financing for Development*, prepared by the staffs of the World Bank and the IMF for the Development Committee, 18 September 2001. These and other estimates of the costs of meeting MDGs were reviewed at pages 74-78 of the 2001 edition of this Report.



**Annex.3**  
**Summary of available instruments at MDBs**

Bank	Public recipients					Private recipients								Comments, particular focus, etc
	Grants	Concessional Loans	Market loans	Guarantee	Analytical and Advisory Activities (AAA)	Grants	Debt	Equity	VC	Resource mobilization	Risk Management	Guarantee	Analytical and Advisory Activities (AAA)	
<b>WBG</b>	Yes, but v. limited. IDF. Bank also administers TFs ( <i>InfoDev, PPIAF, etc</i> )	Yes, IDA credits. Includes Investment and Development Policy loans	Yes, IBRD loans Includes Investment and Development Policy loans	Yes, IBRD/IDA, but not used last 5 years	Yes, Economic and Sector Work (ESW) and Technical Assistance (TA non-lending)	Indirectly, through e.g. InfoDev	Yes, IFC A-loans	Yes, IFC	Yes, C-loans? Quasi-equity?	Yes, B-loans	IFC currency and interest rate swaps, futures and options on interest rates, currencies, and other derivatives (available for hedging)	Yes, MIGA and IFC	Yes, Advisory Services and Technical Assistance for IFC and MIGA	WBG operation focus is private sector. Invest in public sector only as catalytic, emergency, or where market alone is not enough. WBG portfolio: - 36% IFC - 15% IFC B-loans - 21% MIGA - 27% IBRD/IDA - 1% management of Trust Funds
<b>ADB</b>	Japan Fund for ICT (JFICT), Japan Poverty Reduction Fund (JPRF) and other TFs.	Yes, Asian Development Fund (ADF)	Yes, Ordinary Capital Resources/ (OCR)	Yes, ADF/ORC, but not used last 5 years		Japan Fund for ICT (JFICT), Japan Poverty Reduction Fund (JPRF) and other TFs.	Yes, Private Sector Operations (PSO)	Yes, PSO, but not used last 5 years			Yes, PSO, but not used last 5 years			<i>ADB focus trend: e-governance, e-education &amp; pilot ICT projects</i>  <i>Policy on increased use of ICT applications at ADB.</i>

Bank	Public recipients					Private recipients							Comments, particular focus, etc	
	Grants	Concessional Loans	Market loans	Guarantee	Analytical and Advisory Activities (AAA)	Grants	Debt	Equity	VC	Resource mobilization	Risk Management	Guarantee		Analytical and Advisory Activities (AAA)
AfDB	Nigeria Trust Fund and AfricAN development Fund	Yes, Nigerian Trust Fund and African Development Fund (AfDF)	Yes, AfDB	Yes, AfDB		Nigeria Trust Fund and African Development Fund	Yes, Private Sector Operations (PSO)	Yes, PSO	Yes, PSO	Yes, PSO				
EBRD	Technical Cooperation Program	No	Yes	Yes	Technical Assist (through Technical Cooperation Funds – non lending) and through Policy Studies Activities (including participation to international conferences)	Technical Assistance (through Technical Cooperation Funds – non lending)	Yes	Yes,	Yes	Yes	EBRD can provide intermediate products such as mezzanine loans, convertible debt and guarantees. The EBRD also offers treasury products such as derivatives to support its investments.	Yes		EBRD is focusings increasingly on offering equity products to smaller but fast growing operators (e.g. Internet Framework Facility) and to support broadband and media operators

Bank	Public recipients					Private recipients							Comments, particular focus, etc	
	Grants	Concessional Loans	Market loans	Guarantee	Analytical and Advisory Activities (AAA)	Grants	Debt	Equity	VC	Resource mobilization	Risk Management	Guarantee		Analytical and Advisory Activities (AAA)
<b>EIB</b>														
Own resources	No	No	Yes	No	No	Loans w/subsidy	Yes	No	No	No	No	No	No	The Bank has facilities with local or regional financial institutions in almost all the ACP/MED States for providing loan and/or equity finance for smaller projects.
Investment Facility (IF)	No	No	Yes	Yes	No	Loans w/subsidy	Yes	Yes	Yes	No	No	Yes	No	
FEMIP	No	No	Yes	Yes	Yes, Technical Assist	No	Yes	Yes	Yes	No	No	Yes	Yes, Technical Assist	
<b>IADB</b>	Technical Cooperation Program: - TF resources from donor countries Regional Technical Cooperation (includes recently Regional Public Goods Program.) -Resource Mobilization from Fund for Special Operations (FSO)	Fund for Special Operations  Ordinary Capital Fund  New Financial Instruments (Innovation Loans; Sectoral Facilities; Project Preparation ; Execution Facility)				Multilateral Investment Fund (MIF) ( technical assistance, non-reimbursable funding investments, risk capital and contingent recuperation loans)								

**Annex 4**  
**Donor ICT for Development Programmes and Expenditures**  
**Summary Table (as of September 2004)**

Donor	Bilateral ICT-specific programmes	Contribution to international, multi-donor initiatives	Integration of ICT into development programmes	Scale of Funding
Australia	Virtual Colombo Plan	<ul style="list-style-type: none"> <li>▶ World Bank Knowledge Initiative</li> <li>▶ World Bank Development Gateway initiative</li> <li>▶ Global Development Learning Network</li> </ul>	Integration of ICTs within the objectives and activities of its broader official aid program to meet the objectives of reducing poverty and promoting growth, peace and stability	US\$121.3 Million over 5 years
Austria	No specific programme but some investment in the telecommunication sector.		In the future, the Austrian Development Co-operation intends to integrate, where feasible, ICTs in every new project/programme of development co-operation.	
Belgium	Belgium does not have co-operation programmes (government-to-government) in these sub-sectors.			Approx. US\$2.6 million in 2002
Canada	<p>CIDA's approach to ICT for Development is at two levels - programming and strategic institutional partnerships.</p> <p><b>IDRC:</b></p> <ul style="list-style-type: none"> <li>▶ Acacia</li> <li>▶ Pan Asia Networking</li> <li>▶ Pan Americas Networking</li> <li>▶ Institute for Connectivity in the Americas</li> <li>▶ Bellanet</li> <li>▶ Connectivity Africa</li> </ul> <p>Industry Canada:</p> <ul style="list-style-type: none"> <li>▶ Planning and co-ordinating the implementation Global e-Policy Resource Network (ePol-NET, formerly IeDRN). Canadian e-Policy Resource Centre (CePRC) as a contribution to ePol-NET</li> <li>▶ Connectivity Africa</li> <li>▶ Open Knowledge Network (OKN)</li> </ul>	<p><b>CIDA:</b></p> <ul style="list-style-type: none"> <li>▶ InfoDev</li> <li>▶ Development Gateway Foundation</li> <li>▶ Bellanet</li> <li>▶ Global Development Learning Network (GDLN)</li> <li>▶ Global Knowledge Partnership</li> <li>▶ International Institute for Democracy and Electoral Assistance (IIDEA)</li> <li>▶ Orbicom</li> <li>▶ International Institute for Sustainable Development (IISD)</li> <li>▶ Building Communication Opportunities (BCO)</li> </ul> <p><b>IDRC:</b></p> <ul style="list-style-type: none"> <li>▶ Bellanet founding member</li> <li>▶ GKP</li> </ul>	Preliminary results from this coding exercise indicate that CIDA has integrated ICTs to various extents in approximately 20 – 25 % of its bilateral projects.	<ul style="list-style-type: none"> <li>▶ CIDA: estimated at a minimum of US\$20 million (Fiscal Year 2000/2001)</li> <li>▶ IDRC: US\$13.4 million per annum</li> <li>▶ Industry Canada: US\$23.5 million for the three mentioned programmes (US\$13.4 million over five years and US\$10.1 million over three years)</li> </ul>

Donor	Bilateral ICT-specific programmes	Contribution to international, multi-donor initiatives	Integration of ICT into development programmes	Scale of Funding
	<ul style="list-style-type: none"> <li>▶ Enblis</li> </ul>	<ul style="list-style-type: none"> <li>▶ DOT Force</li> <li>▶ WEF</li> </ul>		
<b>Denmark</b>	Use of Information and Communication Technology is generally included in the Danish bilateral and multilateral development assistance.	<ul style="list-style-type: none"> <li>▶ Bellanet</li> <li>▶ <i>InfoDev</i></li> <li>▶ Building Communication Opportunities (BCO)</li> </ul>	Mainstreamed, not possible to designate an exact sums of funds for ICT.	
<b>European Commission</b>	<ul style="list-style-type: none"> <li>▶ ASI@ITC 30M€</li> <li>▶ EUMEDIS 65M€ - Start date 1999 – Duration: 8 years + New Approaches Regarding Telecommunications Policy Among Mediterranean Partners (NATP) 2.15 M€ - Start date 1999 – Duration: 3 years</li> <li>▶ @LIS Latin America 63.5M€</li> <li>▶ African-Caribbean-Pacific 90M€ (earmarked)</li> </ul>	<ul style="list-style-type: none"> <li>▶ WSIS</li> <li>▶ UN ICTTF</li> <li>▶ WEF</li> <li>▶ GKP</li> <li>▶ <i>InfoDev</i></li> </ul> <p>EC's contributions to UN organisations and International Financial Organisations:</p> <p>2001: 1.9M € 2002: 3.5M € 2004: 1.9M €</p>	For the time being ICT components, within a mainstreamed financing scheme, are most frequently found in education and, in a second position, health projects aimed at poverty reduction. The EC does not have yet a complete inventory of projects with an ICT component.	<ul style="list-style-type: none"> <li>▶ ICT-specific: 250M€ (US\$310m)</li> <li>▶ European Development Fund: 110.3M€ (US\$136 m)</li> <li>▶ European Investment Bank (EIB): 750M€ (US\$931 m) from 1999 to 2003</li> </ul>
<b>Finland</b>	Information and communication technologies and the elements of information society policies are mainstreamed in bilateral development cooperation in Finland. However, the theme is also identified as one of the focus areas in the Finnish development policy.	<p><b>Global level:</b> WSIS, IFC, UNICT Task Force</p> <p><b>Regional level:</b> UNECA's, and SADC's ICT activities and ITU's Asian ICT strategy study</p>	<b>National level:</b> usually integrated in other sectors, like education, governance, etc	Specific ICT projects and multilateral programmes approximately US\$ 5,7 Million in 2004 + integrated programmes.

Donor	Bilateral ICT-specific programmes	Contribution to international, multi-donor initiatives	Integration of ICT into development programmes	Scale of Funding
France	<p><b>General Department for International Co-operation and Development:</b></p> <ul style="list-style-type: none"> <li>▶ ADEN Programme</li> <li>▶ Local content support fund</li> <li>▶ SIST Programme (Système d'Information Scientifique et Technique – Scientific and technical Information System)</li> <li>▶ RESAFAD (Réseau Africain de Formation A Distance – African Distance Learning Network)</li> <li>▶ FORCIIR (Formation continue d'information informatisées en réseau)</li> </ul> <p><b>Agence Francaise de Développement (Afd)</b> contributed more than € 416 million to ICT projects representing a total project cost of € 3 billion.</p>	<ul style="list-style-type: none"> <li>▶ <b>Agence intergouvernementale de la francophonie</b></li> <li>▶ Agence Universitaire de la Francophonie (AUF)</li> <li>▶ UNICT TF</li> <li>▶ UNESCO Information for All programme</li> <li>▶ WTC/UNCTAD e-commerce programme</li> <li>▶ Africa Information Society Initiative (AISI) UNECA</li> <li>▶ Project to support to the telecommunication sector in coordination with UNDP Afghanistan</li> <li>▶ Organisation of Eastern Caribbean States (OECS)</li> </ul>	<ul style="list-style-type: none"> <li>▶ MADSUP Programme</li> <li>▶ COMETES Programme</li> </ul> <p><b>Afd</b> does not have a global image of the ICT component that is mainstreamed in other sectors</p>	<p><b>General Department for International Co-operation and Development (GDCID)</b>'s global expenditures : approx. € 40 million (approx. US\$50 m) (2002 – 2005) excluding experts working on ICT projects in international organizations and technical assistance in countries.</p> <p><b>Afd</b>: more than € 416 million (US\$516 m) to ICT projects representing a total project cost of € 3 billion (US\$3.72 billion).</p>
Germany	<p>ICT applications in a cross-sectional function are the predominant conceptual approach of German development co-operation. At present Germany supports such ICT applications in developing countries with an amount of approx. € 180 million. Today ICTs are used to support government or business modernisation programs, or to foster projects e.g. in the fields of general or vocational education, health and society empowerment. Germany so far has abstained from the creation of specific bilateral financing mechanisms towards ICT for development.</p>	<p>The German Ministry for Economic Co-operation and Development (BMZ) is a founding member of the Development Gateway Foundation and has contributed € 5.4 million to its resources. Furthermore BMZ is a member of InfoDev with annual contributions of € 0.5 million</p>	<p>The € 180 million mentioned in column 1 do not include the numerous projects of financial and technical co-operation of which ICT applications are a part without having been recorded separately.</p>	<p>The total amount Germany has made available since 1961 for ICT within its development co-operation adds up to approx. US\$ 1 billion.</p>
Greece				<p>“HELLENIC AID” is currently processing detailed data of projects and programmes implemented in the year 2003, in order to report to the Creditor Reporting System (CRS) of the DAC.</p>
Ireland	<p>Delivery of support for ICT development should be in accordance with national and sectoral development priorities.</p>	<p>Member of the UN ICT Task Force</p>	<p>Most Irish Development Assistance is delivered through joint programme modalities. Funding for ICT</p>	

Donor	Bilateral ICT-specific programmes	Contribution to international, multi-donor initiatives	Integration of ICT into development programmes	Scale of Funding
			constitutes a component of this and as such is not easily distinguishable or attributable to a single donor.	
<b>Italy</b>	<ul style="list-style-type: none"> <li>▶ e-Government for Development Initiative</li> <li>▶ e-Government in the South East Europe</li> </ul>	<ul style="list-style-type: none"> <li>▶ UNDESA</li> <li>▶ UNDP</li> <li>▶ IDB</li> <li>▶ Development Gateway Foundation</li> </ul>		US\$16 million
<b>Japan</b>	<p>The <b>Comprehensive Co-operation Package</b> for bridging the digital divide consists of non-ODA (Other Official Flows) and ODA public funding with a total of US\$ 15 billion over five years. The plan is implemented through existing cooperation schemes by non-ODA and ODA public funding. The Implementation programme includes (assistance provided to March 2004): <b>Grant Aid for IT</b> projects, <b>Loan Aid for IT</b> projects, and <b>JICA-NET</b>. No special framework will be set up for IT co-operation.</p> <p><b>JBIC</b> in ODA loan operations has primarily focused on the telecommunications sector in support of building infrastructure for the more prevalent use of IT.</p>	<ul style="list-style-type: none"> <li>▶ UNDP ICT Trust Fund: US\$ 7 million</li> <li>▶ ITU</li> <li>▶ ADB</li> <li>▶ <i>InfoDev</i></li> <li>▶ Development Gateway Foundation</li> <li>▶ Global Development Learning Network (GDLN)</li> <li>▶ IDB</li> <li>▶ EBRD</li> <li>▶ UNESCO</li> <li>▶ APT</li> <li>▶ Asia Broadband Program - Seeks to make Asia, as a whole, a global information hub through the development of broadband in Asia.</li> </ul>		<p>Disbursement of the Comprehensive Cooperation Package (ODA + OOF):</p> <p>FY 2003 – USD 1,163 million (ODA alone 352 million)</p> <p>FY 2002 – USD 2,235 million (ODA alone 295 million)</p> <p>FY 2001 ODA alone – USD 404 million; OOF Unknown</p> <p>N.B.: Japanese fiscal year starts 1 April and ends 31 March.</p>
<b>Luxembourg</b>		<ul style="list-style-type: none"> <li>▶ <i>InfoDev</i>: US\$0.2 million</li> <li>▶ Development Gateway Foundation: US\$1 million</li> </ul>		
<b>Netherlands</b>	<ul style="list-style-type: none"> <li>▶ DGIS's ICT strategy is implemented through partnerships (IICD and Hivos)</li> <li>▶ Trust Fund</li> </ul>	<ul style="list-style-type: none"> <li>▶ Development Gateway Foundation: €5.5 million in 2001</li> <li>▶ Netherlands Development Finance Company</li> <li>▶ Building Communication Opportunities (BCO)</li> </ul>	The mainstreamed part cannot be estimated. Projects planned and managed by embassies.	<p>US\$ 9 million in 2003 (not including 'mainstreamed' support to ICT)</p> <p>FMO's telecom contracts totalled some EUR. 160 million in 2003</p>
<b>New Zealand</b>	<ul style="list-style-type: none"> <li>▶ Education management information system</li> </ul>			

Donor	Bilateral ICT-specific programmes	Contribution to international, multi-donor initiatives	Integration of ICT into development programmes	Scale of Funding
	<p>and support to Pacific First Network</p> <ul style="list-style-type: none"> <li>▶ Open learning initiative at Fiji School of Medicine</li> <li>▶ Regional education support for ICTs through funding to Pacific Regional Initiatives for the Delivery of Basic Education (PRIDE)</li> <li>▶ Rural internet project, Solomon Islands</li> <li>▶ Web-based discussion on peace and conflict issues</li> <li>▶ Regional law and justice project at Emalus Campus (Vanuatu) on online law reporting</li> </ul>			
<b>Norway</b>				N/A
<b>Portugal</b>	<p>In the Information Society Action Plan, axis 3 – Ensuring a Universal Presence - the development of ICT co-operation is foreseen in a continuous way.</p>	<ul style="list-style-type: none"> <li>▶ @LIS – Alliance for the Information Society</li> <li>▶ CYTED – Ibero-American Programme for Science and Technology for Development [<a href="http://www.cyted.org">http://www.cyted.org</a>]</li> <li>▶ Observatory for the Information Society in Portuguese-speaking countries (UNESCO)</li> </ul>	<p>ICT activities must be integrated in planning and implementation of development projects.</p>	
<b>Spain</b>	<ul style="list-style-type: none"> <li>▶ CEDDET Foundation</li> <li>▶ Ciberamerica</li> <li>▶ Casa Asia Virtual</li> <li>▶ CYTED Programme</li> <li>▶ Regional Programme for Training in Economy and Agricultural and Rural Development Policies</li> </ul>	<ul style="list-style-type: none"> <li>▶ Global Development Learning Network (GDLN)</li> <li>▶ Food and Agriculture Organisation (FAO)</li> <li>▶ Interamerican Commission on Human Rights of the Organization of American States (OEA)</li> </ul>	<ul style="list-style-type: none"> <li>▶ Consulting, Technical Support and Creation of Co-operation networks for the Fishing Arrangement in the Occidental and Central Mediterranean Sea</li> <li>▶ Programme on Teachers Distance Learning for Nature.</li> </ul>	<p>Approx. US\$38 million for the 2002-2004 period.</p>
<b>Sweden</b>	<p>Sida support to explicit ICT projects was to the tune of 50 million SEK in the year 2000 which rose to 125 million SEK in 2003. (Approx. US\$17 million)</p>	<p>Bellonet, WSIS, UN-ICT TF, InfoDev, GKP and Eldis to the tune of 10 million SEK during 2004 (US\$1.37 million)</p>		<p>Approx. US\$18 million in 2003</p>
<b>Switzerland</b>	<p>SDC set up an "ICT for Development" (ICT4D) Division which supports networks and organisations with a focus on:</p> <ul style="list-style-type: none"> <li>▶ strengthening the institutional and organisational basis for effective use of ICT</li> </ul>	<ul style="list-style-type: none"> <li>▶ Building Communication Opportunities (BCO)</li> <li>▶ Global Knowledge Partnership</li> <li>▶ UN ICT Task Force</li> <li>▶ UNESCO Community Multimedia Francophonie (ICT)</li> </ul>		<p>2003: CHF 9 mio (approx. US\$7 million) plus mainstreamed ICT components (programmes, projects, etc.) 2004: CHF 7 mio (approx. US\$5.5 million) plus mainstreamed ICT</p>



Donor	Bilateral ICT-specific programmes	Contribution to international, multi-donor initiatives	Integration of ICT into development programmes	Scale of Funding
	<ul style="list-style-type: none"> <li>▶ strengthening the voice of developing countries and disadvantaged communities in the global policy dialogue</li> <li>▶ empowering local networks and organisations and facilitating South-South co-operation through local knowledge and content</li> </ul>	<ul style="list-style-type: none"> <li>▶ Bellanet</li> <li>▶ OneWorld International</li> <li>▶ infoDev (seco)</li> <li>▶ ITC - International Trade Centre's e-trade bridge programme (seco)</li> </ul>		components
<b>United Kingdom</b>	<ul style="list-style-type: none"> <li>▶ CATIA</li> <li>▶ Imfunido</li> <li>▶ BCO</li> <li>▶ ICD Seed Fund</li> <li>▶ OKN</li> </ul>		ICT component cannot be identified	<ul style="list-style-type: none"> <li>▶ DFID: US\$83 million</li> <li>▶ Commitments in joint efforts: approx. US\$65 million</li> <li>▶ CDC: US\$200 million in 2003</li> </ul>
<b>United States</b>	<p>USAID's primary investments in ICTs are made directly through its worldwide network of field missions. These investments are typically part and parcel of broader programmatic investments in such areas as health, democracy, agriculture, economic growth, and the environment. USAID in Washington plays a supporting role, offering technical advice and promoting ICT implementations in field programs.</p>		<p>According to a recent survey of current programs, 95 percent of the more than 80 USAID Missions worldwide have one or more ICT activities in their portfolio – comprising 351 separate ICT for development activities worldwide. The total estimated spending on these activities in FY 02-03 is about \$200 million in USAID funds and \$240 million in outside contributions (leveraged or matching resources). About 30 percent of these activities focus on ICT as a sector and 70 percent on ICT as a development tool.</p>	<p>Total estimated spending on these activities in FY 02-03 is about \$200 million in USAID funds and \$240 million in outside contributions (leveraged or matching resources).</p>

## **Annex 5 Selected Donor Programmes and Initiatives<sup>113</sup>**

### **Canada**

#### ***Canadian International Development Agency (CIDA)***

CIDA estimated at a minimum expenditure of US\$13.4 million (Fiscal Year 2000/2001).

CIDA is in the process of updating its coding for ICT4D in order to derive better future information. Preliminary results from this coding exercise indicate that CIDA has integrated ICTs to various extents in approximately 20 – 25 % of its bilateral projects.

#### **International Development Research Center (IDRC)**

The IDRC has been among the most active donor-funded programs in the area of ICT development. IDRC's Acacia Initiative<sup>114</sup> was launched in 1996 in South Africa, with a focus on empowering communities in Sub-Saharan Africa to access, utilize, and learn from information and communication technologies. The program has allocated some CAD\$8-million through grants, partnerships, and technical assistance in support of strategy development, infrastructure investment, capacity building, and research projects across the spectrum of ICT development goals, throughout Africa.

#### **Industry Canada**

The Canadian government is providing \$12 million (CDN) to launch Connectivity Africa to promote connectivity, increase access and support the creation of local content and applications in Africa. Connectivity Africa will be incubated at the International Development Research Centre (IDRC) for a period of three years (see the entry for IDRC). Linked to Connectivity Africa is another \$3 million (CDN) DOT Force initiative, the Open Knowledge Network (OKN), which is being developed under the chairmanship of OneWorld International, with initial support from the UK Government. Local content development is closely tied to human development, and the ultimately goal of the OKN is the empowerment of local communities. Enablis: initial \$10 Million (CDN) over five years contribution from the Government of Canada

#### **European Commission**

While ICTs are not to be seen as a priority sector as such for Community development co-operation, they do provide, however, an important tool for more efficient and effective aid delivery and need to be recognised as an increasingly important element in the economic and social fabric of countries worldwide. The Commission recognises that assisting the poor to obtain access to ICTs can indeed contribute to the fight against poverty and the EC is gradually enlarging and diversifying its portfolio in ICT and development

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<sup>113</sup> Source: OECD/DAC (2004), "ICTs for Development: Financing Activities of DAC Members" [DCD(2004)20], November 2004.

<sup>114</sup> [http://web.idrc.ca/en/ev-5895-201-1-DO\\_TOPIC.html](http://web.idrc.ca/en/ev-5895-201-1-DO_TOPIC.html)

*Some ICT-specific programmes:*

- ASI@ITC 30M€
- EUMEDIS 65M€ - Start date 1999 – Duration: 8 years + New Approaches Regarding Telecommunications Policy Among Mediterranean Partners (NATP) 2.15 M€ - Start date 1999 – Duration: 3 years
- @LIS Latin America 63.5M€
- African-Caribbean-Pacific 90M€ (earmarked)

**Mainstreamed financing schemes:**

For the time being ICT components, within a mainstreamed financing scheme, are most frequently found in education and, in a second position, health projects aimed at poverty reduction. For the ACP area, most of the ICT projects funded are on telecommunications regulation. The EC does not have yet a complete inventory of projects with an ICT component.

**European Development Fund (EDF):**

In the past EDFs, the contribution to the ICT sector in the ACP countries was limited. This funding either came from National Indicative Programmes (80.3M€), Regional Indicative programmes (29.3M€) or the All ACP programme (559k€). This leads to a total of 110.3M€.

Grants to the telecom sector, which used to be a practice until a few years ago are now excluded in order to avoid distortion of the market.

- The National Indicative Programmes (NIPs) in the 9th EDF: Only few countries have mentioned ICT as a pillar for the national development: Jamaica, Grenada, St.Kitts&Nevis and Papua New Guinea. Papua-New Guinea has also mentioned ICTs for the educational sector.
- The Regional Indicative Programmes (RIPs) in the 9th EDF:  
Most Regional Indicative Programmes contain an ICT element:  
The SADC has planned a Knowledge-economy based programme of 17M€.  
The COMESA has earmarked 23M€ for a COMESA-wide e-commerce project.  
In the Pacific region an 8M€ Basic Education programme that contains a large e-learning component, has been recently approved.
- The Caribbean has allocated 3M€ for participation in the @LIS programme.
- Under the focal sector infrastructure, CEMAC foresees the necessary regulatory actions to liberalise the telecom sector, as well as other activities in the capacity building for ICTs.
- Under the auspices of the ECOWAS/UEMOA the liberalisation of the telecom sector has started with the creation of the WATRA. Further activities are planned.
- The Commission of the Indian Ocean, is working on a 10M€ project which includes a substantial ICT component.

**Additional support programmes:**

- The EU mainly works on the basis of bilateral cooperation strategies for which overall budgets are assigned as subsidies. Support to ICT policy development and technical assistance to regulation, for example, are activities normally funded through subsidies
- Policy-based support and technical assistance on regulation: key component of ASI@ITC, ALIS and NATP

## **France**

French Assistance for ICT for Development has experienced a steady decline over the 1990s, starting in 1991 from a high of US\$265-million and falling to US\$9-million in 2002. The commitments for ICTD stem from different institutions within French development cooperation. From 1990 to 2003, the group **Agence Francaise de Développement (Afd)** contributed more than € 416-million to ICT projects. Since 2003, the agency is in the process of reviewing its strategy in infrastructure development and the use of ICT in other sectors such as health, education, and support and modernising of the private sector. The Société de Promotion et de Participation pour la Coopération Economique (Proparco), a subsidiary of the Afd, has a current exposure of € 70-million while its total contribution since 1997 amounts to € 122-million.

The **General Department for International Co-operation and Development (GDCID)**'s ICT for development strategy comprises a variety of financing initiatives and projects, as well as participation in multilateral ICTD programs. Examples of some of these initiatives include:

- Creating a network of community Internet access points in Sub-Saharan Africa via the ADEN program<sup>115</sup> (€6-million, 2004-2006). The program includes training of network administrators, managers and telecentre intermediaries;
- Fostering interconnection of Universities, in cooperation with RENATER (French Research Network); examples include the MADSUP Program for Madagascar's six universities is an example, (€ 340,000 for the ICT component, 2002 – 2005), and the COMETES Program (Coordination and Modernising of Technological Higher education Institutions) in Cameroon (€ 700,000 for the ICT component, 2002 – 2005)
- High level technical training through the AFNIC (Association française de nommage Internet en coopération) International College's FFTI Project<sup>116</sup>;
- Promotion of applications and content, for example through reation of a portal to promote Caribbean culture (€ 300,000 for 2002-2005), and funding of the Francophone Information Highway Fund (FFI)<sup>117</sup> (€ 1 million/year)
- Using ICT to strengthen development strategies, including support for African scientific and technical research programs (€ 3 million), the African Distance Learning Network (RESAFAD<sup>118</sup>, € 3 million), regional economic integration, e-governance, tele-medicine, and rural development projects, among others.

## **Germany**

Germany has made available approximately US\$1-billion since 1961 for ICT within its development cooperation programs, but since a peak of US\$178-million in 1993, German aid for ICT infrastructure have followed the same dramatic downward trend as for the majority of bilateral donors, dropping to a current level around US\$30-million. Support for telecommunications and broadcasting infrastructure have made up the bulk of this assistance. Some representative examples of ICT projects with specific focus on development goals include:

- Health and family planning sector program, Vietnam (Financial Co-operation): Establishment of a computer-based logistical management system to improve stock-keeping, order processing, and the distribution and monitoring of drug flows.

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<sup>115</sup> <http://www.africaden.net>

<sup>116</sup> <http://www.nic.fr>

<sup>117</sup> <http://www.francophonie.org/fonds>

<sup>118</sup> <http://www.edusud.org>

- African Drive Project (Technical Co-operation): Improving training for primary and secondary school teachers, relying on ICT-assisted learning processes.
- Global Campus 21: An e-learning management system that serves as a basis for all basic and advanced training activities of German development agencies.
- SANTREN (Southern African Network for Training and Research on the Environment):
- E-learning programs comprising some 30 educational and research institutions with 500 experts in the SADC region.

Germany also contributes extensively to multilateral ICT development programs. The German Ministry for Economic Co-operation and Development (BMZ) is a founding member of the Development Gateway Foundation and has contributed € 5.4 million to its resources.

### **Italy**

Italy has a clear focus on e-government for development and provides USD 16 million per annum.

### **Japan**

Overall commitments from Japan have declined from a high of US\$550-million in 1991 to a low of US\$40-million in 2001. In 2002, commitments to ICT infrastructure from Japan showed a slight increase to US\$52-million, but were still far below their levels in the early 1990s.

At the G8 Kyushu-Okinawa Summit in July 2000, Japan presented a **Comprehensive Cooperation Package** for bridging the digital divide consisting of non-ODA (Other Official Flows) and ODA public funding with a total of US\$15-billion over five years. The plan is being implemented through existing cooperation schemes by non-ODA and ODA public funding, through a number of programs including (assistance provided to March 2004<sup>119</sup>):

- Grant Aid for IT projects: 26 billion yen for the construction of telecommunication infrastructure, facilities for remote education, etc.;
- Loan Aid for IT projects: 96 billion yen for the construction of telecommunication infrastructure, facilities for remote education etc.;
- JICA-NET: 2.3 billion yen for the establishment and operation of IT centres in developing countries and Japan for human resources development;
- JBIC: Notable assistances made in FY2003 include:
  - Maritime Telecommunication System Development Project (IV): The Loan amounting to 5.567-million Yen was newly committed for improving and modernizing the maritime telecommunication system in order to secure the safety of life and property at sea and efficient sea transport by setting up 37 onshore telecommunication stations in total along the Indonesian Coast.
  - Broadcasting Infrastructure Improvement Project: Loans amounting to 20.202-million Yen in five rural provinces and one city were newly committed to support human resource development in China through broadcasting services that make use of Japanese technology.

In addition to bilateral support programmes, Japan contributes to the UNDP ICT Trust Fund with an amount of US\$7-million.

Disbursement of the Comprehensive Cooperation Package (ODA + OOF):

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<sup>119</sup> According to JBIC, a substantial majority of these funds were yet to be committed through mid-2004, although the 5-year program was some 75% complete.

FY 2003 – USD 1,163 million (ODA alone 352 million)  
FY 2002 – USD 2,235 million (ODA alone 295 million)  
FY 2001 ODA alone – USD 404 million; OOF Unknown

*N.B.:* Japanese fiscal year starts 1 April and ends 31 March.

## **Sweden**

**Sida** support to explicit ICT projects was to the tune of 50 million SEK in the year 2000 which rose to 125 million SEK (approx. US\$17 million) in 2003. The countries supported include: Tanzania, Mozambique, Ethiopia, Rwanda, Namibia, Burkina Faso, Uganda, Sri Lanka, Vietnam, Laos, Bolivia and Nicaragua. In the pipeline for support are Kenya and Honduras. Sida's most illustrative and successful projects include computerization of whole universities in most of the above-mentioned countries, installation of Internet Exchanges in Bolivia, Nicaragua, Rwanda, Mozambique and Laos as well as SchoolNet Namibia. The projects in universities can also be counted as examples of mainstreaming projects in the field of Research and Higher Education.

Sida has provided support to Sri Lanka, Rwanda, Mozambique and Tanzania to develop ICT Policy and/or creation of ICT Regulatory bodies.

Sida also supported Bellanet, WSIS, UN-ICT TF, InfoDev, GKP and Eldis to the tune of 10 million SEK (approx. US\$1.3 million) during 2004.

Sida has over the years developed a specific financing mechanism called GuarantCo though it has not yet been applied in any ICT project specifically. GuarantCo is a financial entity developed to facilitate the provision of infrastructure and infrastructure services through sub-sovereign financing without the necessity of sovereign guarantee.<sup>120</sup>

## **Strategy papers**

In recent years, Sida and other donors have cut back their activities in the telecommunications field. Sida finances but does not work pro-actively with telecommunications.

Special funds to stimulate innovative activities are needed for several years to come in order to speed up the integration of IT. In addition, special funds are also required to develop Sida's capacity to handle IT for development, to develop general aspects on the use of IT in development co-operation and to develop IT as a strategic area for Swedish development co-operation.

## **Sida's effort in linking Universities through ICTs:**

In order to make the investment sustainable, there is a need to develop a long-term financing model for ICT at the universities. But who will pay? Sustainability requires income generation and universities can actually also make money so co-operation with the private sector is of vital importance.

## **United Kingdom**

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<sup>120</sup> <http://wbi0018.worldbank.org/dgf/dgf.nsf/0/004bec81b24568ea85256d9b005d57d3?OpenDocument>

**DFID** has allocated a total of approximately £40 million (approx.US\$72 million) to a number of information and communication for development (ICD) programmes and projects. The main programmes include: Catalysing Access to ICTs in Africa (CATIA) a £9 million three-year programme of DFID carried out in close collaboration with other donors and players (started in November 03); Imfundo Partnerships for IT & Education, a £7 million programme over five years (18 months left); the multi-donor Building Digital Opportunities (BDO) ended in April 2004 and has been succeeded by the Building Communications Opportunities (BCO) Alliance (£8 million, 2004-2007); ICD Seed Fund (£3 million); the Open Knowledge Network (OKN), a £1.5 million programme over three years (started in November 03). In addition to these projects and programmes already in contract, DFID has firmly committed another £6 million on different programmes/projects.

### **Infrastructure development**

The private sector plays a crucial role in this area through direct investment, innovation and rolling out the information infrastructure. Private sector investment exceeds by many times the official development assistance. But the policy environment in developing countries has to be right if the private sector is to be persuaded to invest. CATIA, Imfundo and OKN are good examples of DFID's working in close partnership with the private sector ranging from small African Internet service providers through to major phone and satellite companies. DFID is a major supporter of the multi-donor **Public Private Infrastructure Advisory Facility (PPIAF)**, which advises developing country governments on improving the enabling environment (policies, laws, regulations and institutions) for private sector participation in infrastructure including telecommunications (which accounts for about 11% of PPIAF's expenditure).

The **Emerging Africa Infrastructure Fund** - which is financed by private banks, DFIs and donors including DFID - has funded Celtel International, one of Africa's principal regional mobile phone operators (<http://www.emergingafricafund.com/stake.htm>). DFID contributes to the Global Programme for Output Based Aid (GPOBA) which supports performance-based approaches to public funding delivery of basic services to the poor. Recent activities include telecommunications in Bolivia and Guatemala.

The **Commonwealth Development Corporation (CDC)**, which is 100% owned by DFID, is a significant investor in technology companies in developing countries, providing capital on a commercial basis in countries where firms typically have difficulty accessing finance. In 2003, CDC's investments in the telecommunications, media and technology (TMT) sector accounted to some £111m (approx. US\$200m), about 10% of CDC's total portfolio. Significant investments include Celtel, Africa's second largest mobile telephone operator, in which CDC has been investing since 1998, and Digicel, an El Salvador based operator which works throughout Central America. In 1999, CDC together with IFC and the Asian Development Bank signed a financing package agreement of US\$55 million with GrameenPhone in Bangladesh (See DAC Network on Poverty Reduction document, *GrameenPhone Revisited: Investors Reaching Out to the Poor*).<sup>121</sup>

## **USA**

### **US Agency for International Development (USAID)**

The principal aid arm of the United States government continues to support a wide range of ICT related projects.

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<sup>121</sup> <http://www.oecd.org/dataoecd/36/6/33962074.pdf>

In a 2003 survey of USAID programs, 95% of the more than 80 USAID Missions worldwide reported one or more ICT activities in their portfolio—comprising 351 separate ICT for development activities worldwide. The total estimated spending on these activities in Fiscal Year 2002-2003 was US\$200-million in USAID’s own funds combined with US\$240-million in outside contributions. See <http://www.dec.org/partners/ict/ICTsearch.cfm> for the full inventory of USAID’s ICT activities.<sup>122</sup>

Some 30% of these activities concentrated on the ICT sector directly. This includes:

- Promoting pro-competitive ICT policy and regulatory reform
- Fostering ICT access, especially for under-served populations
- Developing institutional and individual ICT capacity

The remaining 70% involves demonstrating innovative ICT applications (particularly in the democracy and governance, education, economic growth, natural resources management, and health sectors). In the USAID strategy, ICTD has become an important USAID cross-cutting theme.

Major USAID ICT programs include:

- **Last Mile Initiative** was launched in April 2004 to spur increases in productivity and transform the develop prospects in rural areas presently underserved by the world's major voice and data telecommunications networks. [www.usaid.gov](http://www.usaid.gov) Keyword: Last Mile Initiative (see Box below).
- **Digital Freedom Initiative** of the Bush Administration has placed volunteers in businesses and community centers to provide small businesses and entrepreneurs with ICT skills and knowledge. [www.dfi.gov](http://www.dfi.gov)
- **Leland Initiative** has helped to establish Internet gateways and national Internet connectivity in ten African countries, allowing two million Africans, with emphasis on rural, poor, ethnical minorities, and women, to obtain Internet access. [www.usaid.gov/leland/index.html](http://www.usaid.gov/leland/index.html) (see Box below)
- **NetTel@Africa** has developed a comprehensive curriculum for training IT policy and regulatory officials and has developed a growing network of more than 20 higher education institutions in the U.S. and Africa offering joint degrees in this area. [www.nettelafrika.org](http://www.nettelafrika.org)
- Digital Opportunity through Technology and Communications (**DOT-COM**) **Alliance** has developed a partnership between USAID and more than 75 partners—each with specialized expertise in using ICT for development [www.dot-com-alliance.org](http://www.dot-com-alliance.org)
- **US Telecommunications Training Institute** has leveraged more than \$45 million from the private sector from USAID’s \$10 million investment in order to provide policy and regulatory courses to worldwide trainees. [www.ustti.org](http://www.ustti.org)
- **Telecom Leadership Program** has allowed USAID and the State Department to provide expertise from US federal agencies in support of numerous ICT regional workshops, training programs and international conferences. [www.state.gov/e/eb/cip](http://www.state.gov/e/eb/cip)
- **Cybersecurity Workshops** have been conducted in collaboration with the US Departments of Justice and State to promote international and regional cooperation in combating cybercrime. [www.abanet.org/abapubs/books/54500301/](http://www.abanet.org/abapubs/books/54500301/)

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<sup>122</sup> USAID, Bureau for Economic Growth, Agriculture and Trade, “Information and Communication Technology for Development: USAID’s Worldwide Program”, May 2004.



- **Cisco Networking Academies** have been established in partnership with USAID to expand workforce training for ICT technicians in 32 countries with over 5000 students enrolled—25 percent are women. [cisco.netacad.net](http://cisco.netacad.net)
- **IT Mentors Alliances** have been established in partnership with USAID for IT business associations to ensure they have the capacity to actively and effectively engage policymakers. [www.witsa.org](http://www.witsa.org)

#### **Focusing on the field – The U.S. experience in Mali**

Building on the vision provided by the “Africa Leland Initiative”, the United States Government has launched pilot projects for the use of Internet technology for development in 22 countries of Africa. Among the first was that of Mali, for which the national Internet gateway, its framework legislation and regulations, and a range of technical assistance and training have been funded since 1996 by the Leland team and the USAID mission in Bamako.

The Washington-based Leland team played the role of initiator and resource link at the level of Internet technology and the USAID mission sought to adapt the technology as a development tool to the specific field conditions found in Mali. The Mali mission created a small “Communication for Development” team around the concept of “accelerating development by making information accessible through innovative communication techniques and appropriate tools”. As USAID evolved its thinking along these lines, it quickly made the logical next link from Internet to the far more widespread communication tool of rural radio and moved to integrate both technologies across the USAID portfolio, which included objectives in economic growth, health, education and democracy.

Mali, one of the poorest countries in the world, has responded enthusiastically to the development opportunities offered by international Internet access. USAID’s ability to harness this demand depended on its strong local capacity within the mission. Effective use of new communication technology required an understanding of local realities and the targeting of support for (frequently small) activities that supported the concept of “accelerating development”. This also has permitted the resources of Leland and USAID to be flexibly shaped around the evolving needs of local development, rather than upstream supply side considerations. Specific attention, from the beginning, to the sustainability of this effort caused the local team to avoid unduly expensive hardware or construction, and to emphasise local organisational structures and partnerships that are sensitive to issues of recurrent cost and sustainability. The rural radio link is opening up use of the information highway to the majority of Malians living in rural areas without electricity and other modern infrastructure. USAID now believes that, within five years, an astonishing 95% of Malians will have access to a local radio station broadcasting in their local language.

*Source:* OECD

**Annex 6**  
**Selected UN organizations Activities/Initiatives – Summary Table** <sup>123</sup>

<b>Organization</b>	<b>Priorities/Focus</b>
ITU	Activities cover all aspects of telecommunication, from setting standards to programmes to improve telecommunication infrastructure, capacity building, e-Strategies & applications, technologies & Network development, economy & finance, special programme for LDCs, & universal access & rural connectivity.
UNDP	ICTD policy and programme initiatives supported in the context of poverty reduction and democratic governance areas of focus. Activities cover assistance with formulation & implementation of national ICTD strategies & programmes. <ul style="list-style-type: none"> <li>▪ Supporting programme countries through global network of ICT &amp; development experts, regional &amp; country programmes.</li> <li>▪ Research &amp; analysis effective strategies, use of ICT enhance achievement of MDGs.</li> </ul>
UNCTAD	Actively support member countries through the Electronic Commerce Branch; one of three Branches of the SIDTE Division <ul style="list-style-type: none"> <li>▪ Activities cover technical cooperation &amp; support to application of ICT for business, facilitation of e-commerce, economic development &amp; competitiveness.</li> <li>▪ Research &amp; analysis on ICT for economic development</li> <li>▪ Measurement of e-business &amp; related indicators, public domain software to enhance ICT usage, &amp; assessments of the digital divide,</li> </ul>
UNESCO	Promotion of the free flow of information, knowledge and data to encourage the creation of diversified contents and to facilitate equitable access to information and the means of sharing knowledge with due attention to institutional capacity-building. <ul style="list-style-type: none"> <li>▪ Promoting the free flow of ideas and universal access to information.</li> <li>▪ Promoting the expression of pluralism and cultural diversity in the media and world information networks.</li> <li>▪ Access for all to ICTs especially in the public domain. Research &amp; analysis on ICT for economic development</li> </ul>
UNV	UNV - UN Volunteers, through the UNITEs initiative, bring expertise in information and communication technologies (ICT) to benefit "information-poor" communities, also in such sectors as health, education and small business development.
UN ICT Taskforce	It aims to address issues of the digital divide, generally charged with carrying on the work launched by the G8 DOT Force in the context of the broader UN membership. It seeks to provide a global forum for: <ul style="list-style-type: none"> <li>▪ integrating ICT into development programmes and addressing such issues as strategy, infrastructure, enterprise, human capacity, content, applications, and smart partnerships and the use of ICT to assist in the achievement of the MDGs</li> <li>▪ consulting sub-regional, regional, and international policy and governance issues related to the digital revolution</li> <li>▪ enhancing synergies among UN agencies</li> <li>▪ exploring partnerships of public, private, non-profit, civil society and multilateral stakeholders by helping develop new models of leadership and collaboration</li> </ul>
UNECA	The <i>Harnessing Information for Development</i> programme has a number of sub programmes such as the Africa Information Society Initiative (AISI), Information Technology Centre of Africa (ITCA) & its activities focus on: <ul style="list-style-type: none"> <li>▪ National ICT strategies (NICIs)</li> <li>▪ Sectoral (e-health, e-education, e-commerce, etc.) strategies</li> <li>▪ Regional ICT strategies Information &amp; knowledge development</li> </ul>

<sup>123</sup> Compiled from OECD Donor ICT Strategies Matrix, OECD-DAC, December 2003 and other sources.

## **Annex 7 Example of Complexity of Financing**

### **Case Study of Grameen Village Phones<sup>124</sup>**

**GrameenPhone** is a joint-venture telecom company set up in Bangladesh by Grameen Bank – with capital from the Norwegian company Telenor and loans from international financial institutions – to provide mobile telephony to its subscribers. Its “**Village Phone Programme**” provides a remarkable example of how innovative private-sector initiatives can work to stimulate development even in conditions of considerable poverty.

Since 1997 the Village Phone Programme has provided some 45,000 telephones to 39,000 villages in Bangladesh, bringing access to the telephone networks to some 70 million people (as of end of 2003).

The formula is simple: a subscriber – usually a woman, hence the label “Village Phone lady” – borrows around \$350 from Grameen Bank and repays the loan by selling phone services to her fellow villagers who, usually for the first time, can enjoy the economic and social benefits of telecommunication contact with the outside world.

The overall partnership structure of GrameenPhone Ltd is included in Annex 1. **Its financing structure is multi-dimensional and mixed with a variety of available existing instruments, from domestic financing through FDI to ODA grants.**

The **Village Phone programme** is managed by the Grameen Telecom and financially supported by the Grameen Bank’s microfinance (domestic private resource). Grameen Telecom itself is supported logistically and service-wise by the Bank’s community network and family organisations.

GrameenPhone extends tariff discount to Village Phone operators through Grameen Telecom (in-company cross-subsidy and corporate social responsibility funding).

Behind the scene, at the initial pilot stage back in 1997-1999, donors such as CIDA and NORAD (grants and technical cooperation) helped field-testing of the business model and conducted its socio-economic impact study in collaboration with universities, NGOs, and other local organisations. The majority shareholder of GrameenPhone, Telenor, provided research funding (private grants) as well.

Also, many organisations such as IDRC, World Bank (InfoDev), Development Gateway Foundation, UNDP/Markle, PlaNET Finance, among others, disseminate information on this programme to enhance international visibility as well as to promote its replication (a variety of grants). Regarding the replication effort, one example is the MTN villagePhone in Uganda, jointly created by MTN Uganda and Grameen Foundation USA. Financial resources of the Grameen Foundation USA were provided by the World Bank’s grants and loans.

**Grameen Telecom** manages the programme and participates in GrameenPhone as equity investor (35%). This participation was initially funded by Soros Foundation under its “Open Society Initiative” (finance through international foundation) and recently it is refinanced by the local bank (domestic finance) with a guarantee from Soros Foundation.

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<sup>124</sup> Based on the OECD-DAC document: “GrameenPhone Revisited: Investors Reaching Out to the Poor” [DCD/DAC/POVNET(2004)8/REV1]

**GrameenPhone Ltd**, a mobile phone operator in the programme, is a joint-venture company, set up by Telenor, Grameem Telecom, Marubeni and Gonofone with initial equity capital of USD 51 million. (FDI) Its capital structure is presented below in Table 1.

**Table Annex 7.1 - GrameenPhone Capital Structure, 2002**

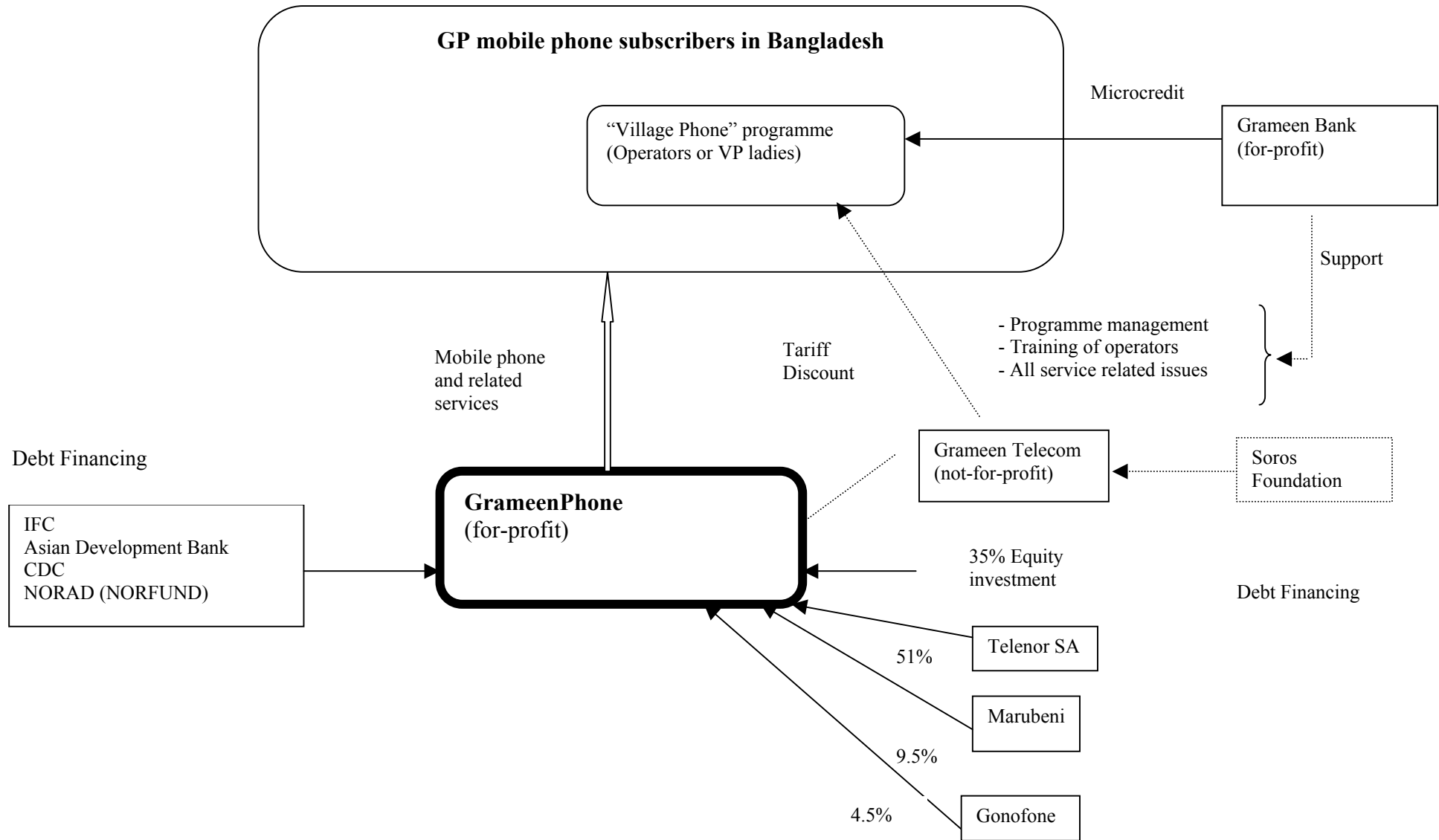
US\$ 136 Million
Share Capital US\$ 56 Million
<b>EQUITY (ORDINARY SHARE): US\$ 51 MILLION</b> Telenor Grameen Telecom Marubeni Gonofone Development Corp.
<b>EQUITY (PREFERENCE SHARE): US\$ 5 MILLION</b> International Finance Corporation (IFC) Asian Development Bank (ADB) Commonwealth Development Corporation (CDC)
Total Debt Financing: US\$ 80 Million
<b>LOAN FROM SENIOR LENDERS: US\$ 60 MILLION</b> IFC ADB CDC Norwegian Agency for Development Cooperation (NORAD)
<b>LOAN FROM SHAREHOLDERS: US\$ 20 MILLION</b> Telenor (US\$ 18 Million) Marubeni (US\$ 2 Million)

Source : GrameenPhone Ltd., *Annual Report 2002*.

**Initial debt financing** USD 60 million was provided by the World Bank's International Finance Corporation (IFC), Asian Development Bank (ADB), UK Commonwealth Development Corporation (CDC) and Norway (NORAD/NORFUND).

GrameenPhone is leasing from the government (Bangladesh Railways) with commercial terms through the international tender process, the **1,800 km fiber-optic network facility** as a backbone infrastructure. This fiber-optic network was initially built in the 1980s with funding from Norway (it is not known whether this was ODA or OOF).

**Diagram - Annex7.1**  
**PARTNERSHIP STRUCTURE OF GRAMEENPHONE LTD.**



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