The outlook for using Information and Communications Technologies (ICT) in international development assistance - Issues, trends and opportunities

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GKP Task-Force Inputs Study

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1. Background

The emergence of the Internet along with low-cost computing in the late 1990's triggered new aspirations for the global community and to ensure that that South was part of this revolution in communication, information-use and knowledge sharing. Out of this, the Global Knowledge Partnership (GKP) was born in 1997, the outcome of the first Global Knowledge Conference in Toronto, initiated by the World Bank as a global effort to assist with this process. As an international NGO, the GKP was established as an independent multi-stakeholder partnership of all organisations interested in helping to further these goals - governments, the private sector, NGOs and grass-roots organisations.

Twelve years later, ICTs have evolved considerably and development priorities have changed. The pervasion and use of ICTs in developing countries has improved dramatically, especially through mobile phones, and aid has moved away from ICT focussed programmes, toward investments in key sectors such as education and health, often through increased direct budget support to governments in developing countries. As an ICT focussed development organisation, these new conditions, combined with the crisis in the global economy required the GKP to re-consider its role and the needs of its membership.

To assist in addressing this question, the GKP Task Force commissioned this report to analyse trends in the ICT4D and KM4D environment to assist the Task Force in making recommendations on future strategy for the GKP. More specifically, this study aimed to help determine the general trends in ICT4D, to identify new areas such as social entrepreneurship, or innovation funds, and takes into account:

- The current patterns of technological development affecting ICT4D
- The current priorities and plans of donors regarding their ICT4D programmes
- The role of new 'non-traditional' private and public sector donors such as Nokia and Microsoft, India and China

- Trends in developing country strategies toward support for ICT4D
- The current economic outlook and how it is affecting the commitments of donors toward international development and ICT4D and KM4D in particular.

The study, carried out from March-May 2009, was based on personal interviews with representatives of the development community in the ICT4D field, augmented by additional information gleaned from web-based research, covering in total 70 agencies working in ICTs. Due to the high priority placed on Sub-Saharan Africa (the only region not expected to meet the MDGs), and owing to the consultant's work in Africa, the report covers activities in this region to a greater extent than the other regions.

Note: The views expressed in this report are those of the consultant of do not necessarily reflect the views of GKP

2. Summary, Synthesis and Conclusions

The world is undergoing unprecedented shifts in the global economic and bio-geo-political landscape. Today, the convergence of the food-energy-financial crisis, compounded by the threat of climate change, is already affecting almost everyone on the planet. In this complex and interlinked environment, recent rapid changes are taking place in all development sectors leading to outcomes which are unpredictable and will take more time to filter through to all levels.

As such, this would appear to be an inopportune moment to be conducting this assessment, and on the surface there might appear to be a negative outlook for programmes and projects to support the increased use of technology, when many other more basic needs are being unmet. It is certainly a difficult and uncertain time to be looking for new funders for development projects, however in the course of the research for this report, it has become apparent that there is as much support for the use of ICT in development as before, if not more. At the least,it seems that while aid budgets may be cut overall, expenditure on ICTs is unlikely to be reduced any more than other expenditure items. At best, we may be at an inflection point in development support generally, in which information, communication and knowledge management will see much higher levels of use in development and much more pervasive adoption of the technologies necessary to support them.

It is clear the financial crisis and declining fossil fuel availability, combined with climate change, presents new threats that could inflict widespread social and economic misery, especially the very poor in developing countries. Reinforced by the long-term commitments of OECD countries to increase levels of ODA, it is likely that most developed economies will at least maintain current

levels of development assistance. This is evident, for example, by the UK Government's April 2009 announcement of its ODA budget, which continues at 2008 levels despite a shrinking economy. Similarly, NGOs, foundations and the private sector are sensitive to cutting back on projects and corporate social responsibility programmes in times of hardship, as these programmes benefit those who are likely to be most affected.

Of course, if economic conditions continue to worsen, governments, many may have little choice but to cut assistance programmes. In any event, there will nevertheless be increased pressure to rationalise programmes to ensure that they are more closely aligned with funding objectives. More generally, efforts are also being made to increase aid efficiency and accountability.

This leads to the role of ICT. The sectors of broadband, media and information technology continue to converge and have been key growth areas in the global economy. Since 2007 in the US, these sectors have expanded at a rate between two to five times faster than the overall economy, and are projected to remain among the leading high-growth areas for at least the next 10 years[1]. And despite the economic downturn, Forrester estimates that global IT spending will grow by 3% this year.

It is therefore unsurprising that ICTs are seen by many countries as offering special opportunities to improve their economies and to address social inequalities. Significant numbers of both developing and developed countries are embarking on or continuing to ramp up substantial national ICT strategies. These range from the US and Australia's multi-billion-dollar rural broadband projects to large-scale telecentre networks in India and the Philippines, or the national initiatives with even wider scope in Morocco and Rwanda. For many Southern countries, awareness of the importance of these strategies was highlighted during the first GK conference and further developed during the WSIS process of 2003–2005. Following the consensus that these activities have built, implementation is now beginning to take off.

Fortuitously, many ICTs have matured and become much more pervasive over the last 10–15 years. Combined with the substantial experience in using ICT in development that has now accumulated, there is more recognition than ever before that knowledge, information and communication has a fundamental role to play in economic development generally, and in the upliftment of the poor. This ranges from improving the delivery of basic educational and health services to job creation opportunities in urban and rural areas resulting from the roll out of more ubiquitous broadband capacity. At the same time, development organisations

1 USTelecom Report, May 2009 - http://www.ustelecom.org/Video_Blogs/Blog/index.php/2009/05/14/new-ustelecom-analysis-shows-broadband-drives-us-economic-growth/

are not only increasingly focussed on their knowledge transfer roles, but are also looking to use ICT to improve the communications and information management necessary for designing more effective programmes, and in their implementation, monitoring and scaling.

As a result there is unprecedented demand today for advice on how to use ICTs in development programme areas. This has certainly been accelerated by the fact that a much higher proportion of the poor now have access to at least some form of more or less affordable ICT. This was not the case in the late 1990s and early 2000s, and perhaps the case for using ICT in development during this period was overstated. Certainly many projects did not reach their full potential because the more limited access and higher costs were overlooked.

There are also other reasons why the use of ICTs in development might be increasing at present. One is that the new generation of development professionals who 'grew up with ICT' is beginning to reaching critical mass, and being more familiar with these technologies, they are much more at ease with supporting their use in their programmatic areas. Another is that some of the world's most successful ICT companies, such as AMD, Intel, Microsoft and Nokia, have been adapting their technologies for the 'Bottom of the Pyramid' (BOP), and have also continued to ramp up their support for ICTs in various aspects of development as part of their corporate social responsibility programmes. Similarly, there are a growing number of foundations with a development focus that have been set up by the founders of leading ICT companies, such as the Bill and Melinda Gates Foundation, Omidyar (eBay), Google.org etc.

In addition, the burst of the dot-com bubble in 2000 is now well behind us. Tempering the initial euphoria over the emergence of the Internet, the bubble-burst caused many organisations to pull back on their ICT-led strategies, with possibly overly-conservative responses, and it now appears the pendulum is swinging the other way. In this respect it is noteworthy that the GKP was formed during the hype of the dot-com era of the late 1990s, and its role in some ways could be said to reflect this history.

While there is little question that the growth of the Internet in the 1990s was a key point in globalisation that provided new opportunities for the South, there were considerable elements of fad-ism in many of the early ICT4D programmes because there was little experience and understanding of the field. Because of the Internet hype of that time, many organisations were persuaded that this was a worthy programme area in itself.

As an unfamiliar and cross-cutting area, in many respects ICT was indeed worthy of special attention. GKP took on a strong evangelist role because of the need for advocacy in the early days when there were many more questions over the need

for ICTs in development. Now that its importance is much more well accepted, it could be said that the GKP's advocacy role is no longer as necessary. Similarly, this is reflected in the mainstreaming of many ICT4D and knowledge management programmes, which were initially established to ensure that this new area had visibility. Now that this is not as necessary, there is less need to focus less on 'selling' ICTs and best practices, and more need to focus on supporting development practitioners with the ICT tools and knowledge management tools they need to get on with their jobs.

In this respect, the real constituency of the GKP is no longer the organisations working on ICT4D, but all the individuals responsible for and working with ICTs within all development agencies.

At the same time, the emphasis on technology is diminishing as the tendency to focus more on the information and knowledge components increases. Solving the technology problems are now less of a priority due to the relative maturity and pervasion of ICT infrastructure and applications, and also because the focus on technology creates the impression that ICT4D is comprised of technology evangelists pushing pipes and gadgets, or technology driven 'solutions looking for a problem'. In the past this view has been reinforced by efforts to use development funds to get ICTs into the hands of the ultimate beneficiaries of development assistance - the people at the bottom of the pyramid. This is now being seen as relatively ineffective or unscalable, or more of a private sector function where it is viable. Thus ICT4D can be seen to have a more immediate and direct role in supporting development agencies and developing countries with ICT and KM tools and expertise, rather than simply trying to put these tools into the hands of those at the bottom of the pyramid.

3. Cross Cutting Trends in ICT4D and KM

3.1 The Financial Crisis

The financial crisis is clearly having a deep and drastic negative affect on developing countries, many of which have economies based on commodities for which both demand and prices have dropped. In May 2009 the IMF and World Bank said the global slump had driven more than 50 million people into extreme poverty. Based on the observations of those working in the development sector, a number conclusions can be made and a variety issues and trends are apparent:

- The full extent of the impact of the crisis on levels of development assistance is not yet apparent and will not be known for some time. Aid budgets and programmes are often drawn up to span 2 or more years, and many these will last until 2010, if not longer.

- Although some developing countries have been insulated from the global recession due to the limited extent of their credit-based economies, the

general deceleration in the volume and value of trade, and increases in trade deficits have considerably reduced funds available for investments in the social sector. FDI levels are also expected to decrease due to the reduced capital availability and risk appetite of foreign companies. As a result many developing countries are likely to become even more dependent on foreign aid and soft funding than before.

- Severe cutbacks in funding are expected particularly from the mainly North American and UK investment-based foundations whose endowments have dropped in value by an average of 30%-40%[2] since the start of the crisis. Grant making by these organisations is already visibly beginning to decline, and they are also generally being more ponderous and careful in their donations than before mid-2008. Some are closing some of their field offices and requesting others to focus on smaller numbers of projects. Although it will only be this time next year that it will be possible to assess the full extent of falls in foundation grant levels, declines in support will probably not be as severe in the drop in endowments. To smooth the reduction in grant budgets, many foundation's are expected to raise giving as a percentage of their endowments. For example, Hewlett Foundation has said that although its endowment dropped by over 30%, it is only reducing 2009 funding by 20% over last year. There may also be other reasons why some Foundations are choosing to 'spend down' their endowments now, such as those involved in climate change. However, it is clear that many foundations are generally not taking on new projects, putting others on hold and scaling up of existing initiatives.

- Corporate Social Responsibility (CSR) programmes of the private sector appear are currently being maintained, but in the longer term could also be cut if the global economy does not recover quickly. ICT equipment and service providers, particularly handset manufacturers and mobile operators, have made huge profits in developing countries and in general are keen to carry out visible and effective CSR programmes.

- Agencies dependent on development funds will need to work hard to protect current funding relationships, and may have to adapt to reduced levels of support. A worrying concern however is that although short term additional support is usually a possibility for agencies that are in financial difficulties, this type of 'slack' may not be as available as it has been in the past. As a result there may not be resources available to keep all organisations which get into trouble from going to the wall.

2 Hewlett Foundation for example announced in May 2009 that from $9 billion in early 2008, its endowment currently stands at approximately $5.9 billion.

- Many governments, and regional bodies such as the European Union, are putting much emphasis on supporting a 'Green recovery' in their fiscal stimulus packages and this may benefit agencies working in the area of environmental protection, natural resource management, climate change and energy conservation.

3.2 Increased use of ICTs and KM for project related communications

The increased pervasion of connectivity in developing countries, either via the Internet, VoIP, or via mobile and SMS, means that funding agencies are much more in touch with recipients of aid, making for faster decision-making and more efficiently run projects. This in turn is likely increase the willingness of funders to engage in more 'risky' projects or those in more remote areas.

ICTs are also increasingly being used by the development community for promoting dialogue and debate, for making their institutional knowledge-base more widely available and to make decision-taking more transparent. In particular, short term online 'e-consultations' with stakeholders on particular issues are now occurring much more regularly, and development workers and executives in many agencies now often use blogs to comment on issues and maintain awareness.

Although most developing country governments have not yet taken full advantage of the electronic tools that are now available, many national stakeholder groups are using them to carry out more effective policy dialogue and participatory, shared decision-making. On the other hand, traditional communications departments engaged in awareness raising and outreach in many agencies have usually not worked closely enough with their counterparts in IT/ICT divisions. There is often mistrust or lack of recognition of the commonalities between these two groups which could achieve considerable synergies if their activities were more closely aligned.

In addition there continue to be challenges in stimulating learning and sharing across different geographic regions and between different language groups.

3.3 Research, Innovation and Intellectual Property Rights

The importance of supporting research and innovation, along with entrepreneurship development has become more widely recognised among many bilateral and multilateral agencies, as well as the private sector.

The bilateral agencies DfID and AusAID have recently substantially increased the resources allocated to research and communications. Augmenting the more well established ICT4D oriented research agencies such as IDRC and Microsoft Research, a number of developed country universities support ICT4D research, as do the multilateral agencies such as the European Commission's Euro-Africa

Cooperation Forum on ICT Research (EuroAfricaICT) and the World Bank's InfoDev. The latter has continued its strong focus on ICT-enabled innovation and business incubation, and is hosting the 3rd infoDev Global Forum on Business Incubation in Brazil October 2009. New private sector research initiatives include Nokia's NoRa centre in Kenya and IBM's Africa Innovation Centre in South Africa.

Also of particular note was the global developing countries ICT research event, ICTD2009 in Doha in April 2009 supported by IDRC, Microsoft, IBM, IEEE which attracted more than 300 ICT4D researchers.

Increased support for innovation and research is also leading to increased efforts to help ensure protection of ownership of intellectual property rights and indigenous knowledge, and support for discounted developing country access to copyright journals. At the same time, there is also growing interest in supporting Open Access models for sharing knowledge.

3.4 Challenges and Prize Incentives for Innovation

Challenges and prize incentives for excellence and innovations in development have become a particularly popular means to identify, encourage and support best practices, new innovations and build awareness of the area. In 2009 Intel, USAID, Intel, Nokia and Microsoft all announced invitations for awards relating to ICTs in development, often in the mobile area but also in agriculture and rural development. Other notable awards include the Stockholm Challenge, the Prix Ars Electronica, the World Summit Awards supported by GAID to select best practice in e-Content and innovative ICT applications, and the Panos Institute West Africa (PIWA) Information Society Award.

3.5 South South Cross-Continental Co-operation

Non traditional bilateral and multilateral donor support for ICT is becoming increasingly evident as some countries move from recipients of aid to being donors. This is particularly evident in Asia, where China, India, Japan and Korea have become more active, plus to some extent Malaysia and Singapore and also in Eastern Europe and the Middle East.

For example, as a part of its 'Aid to Africa' programme, in February 2009 the Indian Government Ministry of External Affairs launched the Pan African e-Network, following a pilot in 2007. The USD100 million project aims to connect the universities and hospitals of African countries with Indian counterparts for telemedicine and tele-education activities. This coincides with the growing involvement of Indian private sector ICT companies such as Infosys, Reliance and Tata which have also begun investing significantly in Africa, such as in fixed line operators and call centres.

Increased support from China has mainly been for infrastructure and improved

trade, especially for natural resources. Activity in ICTs in Africa has largely been devoted to soft loans for building national fibre infrastructure with support from Chinese companies ZTE and Huawei which have recently won the majority of contracts for deploying national fibre infrastructure.

Latin America and the Asia-Pacific have continued to benefit from linkages through APEC and through the Forum for East Asia and Latin America Co-operation (FEALAC). FEALAC's Economy and Society Working Group focusses on ICT along with Sustainable Development, Promotion of Small Medium Enterprises (SMEs), and Poverty Reduction. Renewable Energy, Natural Disaster Management and Epidemic Diseases are the three focal areas for the Science and Technology Working Group. Priority projects for co-operation are those which encompass a large number of members and reconcile the goals of fostering a knowledge-based economy, promoting inclusive and sustainable development and alleviating poverty.

As can be seen from the above, there is a distinct absence of Latin America-Africa co-operation, or more inclusive South-South co-operation from all regions. The main exception to this is the India-Brazil-South Africa Dialogue Forum (IBSA) which aims to stimulate economic co-operation between the three countries. One of IBSA's working groups focuses on the Information Society.

Also of note is the China-Brazil Earth Resources Satellite (CBERS) programme which was established to gather and monitor agricultural and natural resource information for the two countries. One satellite has already been launched, with one more in 2010 and another in 2012 planned. China and Brazil have jointly agreed that the African data that can be gathered while the satellites pass over the continent will be made available free of charge.

3.6 Cross-sectoral knowledge sharing and platform development

In implementing development project , the cross-cutting nature of ICTs has still to be fully exploited in promoting knowledge sharing between different sectors, and in the development of common platforms that can be shared or re-used across projects in different sectors. As ICTs have become more mainstreamed, individual ICT experts in organisations can be the glue that helps projects in different sectors or different agencies build on each others' experiences. However many institutions have not yet created ICT policies or staff positions which promote knowledge sharing between projects in different sectors, and there are few national, international or regional fora for the cross-sectoral exchange of experiences.

Similarly, there is growing recognition in some agencies that technical platforms are being specially (and often expensively) built on a 'one-off' basis for projects in a particular sector without the recognition that the same platform could be designed or easily adapted to serve the needs of multiple

projects, in different sectors or even even for different development agencies.

4. Sector Trends and ICTs in Programmatic Support Areas

Although recent trends are encouraging, many developing countries have still to establish fully functioning, widely accessible and cost-effective e-infrastructures, especially in Africa. Aside from low income levels and small markets which discourage investment in the sector, there continue to be barriers created by non-conducive telecom and information/communication policy environments in many countries, and lack of policy harmony between countries. This situation is of increasing concern due to the growing 'broadband divide' that is now taking place which sees urban areas and developed countries with much higher levels of bandwidth availability than rural areas and developing countries. Unfortunately there appear to be fewer development agencies working to support change in this area. Among those that remain are the regional economic bodies, the World Bank, the European Union, the ITU, Canada's IDRC and German Co-operation (BMZ).

Most agencies however continue to support one or more of the 'big 5' well-known programme areas - Education, Health, Agriculture/NRM, Economic Development and Governance, often under the rubric of 'poverty alleviation'. The important role of ICTs and knowledge management in most of these areas is now well accepted, with agriculture probably being the one area that has been behind the others, although it is now receiving more attention, such as through the FAO, the Bill and Melinda Gates Foundation, IICD (Netherlands), IDRC and the Commonwealth of Learning. The World Conference on Agricultural Information and IT took place in August 2008 in Japan.

The role of ICT in economic development is also receiving greater support, partly because of the increased pervasion of connectivity on which new jobs can be built, and also because some bilateral agencies see developing countries as new markets for their ICT industries. There is continued interest in micro-finance and the role ICT can play in administering these funds and in creating linkages up and down the supply chain. Also, as mentioned earlier, InfoDev's work in supporting business incubation for ICT companies is noteworthy, as is the rapidly emerging area of mobile payment and alternative banking systems.

Climate change and related energy issues have most recently become high on the agenda world wide and this is reflected in changes in priorities for many development agencies such as ITU, SDC and DfID which have made climate change a priority area. There are five aspects which relate to ICTs and knowledge management: 1) providing off-grid energy for ICT devices, 2) minimising the energy consumption of ICT infrastructure, 3) use of ICTs to monitor/measure and reduce/control energy consumption, 4) training and awareness raising on the adoption of renewable energy sources and 5) to monitor and adapt to climate

change.

Aside from the cross-cutting aspects mentioned in the previous section, other areas which are also receiving greater attention for the role ICTs and knowledge management can play include:

- Disaster preparedness and relief (many projects using satellite networks and rural terrestrial connectivity for communications and remote sensing)
- Social and youth entrepreneurship (for example projects by IICD and Ashoka)
- Natural resource management (for example projects by FAO and IDRC)
- Culture (such as various projects to support job creation in the music industry through online provision of music files and digitisation of cultural artifacts. Of note here also is that in April 2009 the EC supported a meeting of experts on Culture and Creativity as vectors of Development.

5. Technology Trends in ICT4D

By all accounts ICT equipment prices and capabilities continue to follow Moore's Law, with ever-more powerful and low cost devices continuing to appear on the market. Aside from mobile phones, which at the low end, now cost only USD 20, the USD100 Netbook computer is almost with us, and digital cameras, GPS and RFID tags are increasingly ubiquitous. Continued improvements in lower power consumption and increased battery-life, along with low-cost solar charging is also having a significant impact in improving access to ICTs in the off-grid locations where much of the BOP reside. Free and open source software has also reached maturity on the desk top and on mobile phones, resulting in significantly reduced costs and increased involvement from developers in the South.

5.1 Mobile Devices and Networks

Clearly, mobile technologies have gained the most attention over last two years of ICT-related development assistance. The rapid uptake of mobile telephony in developing countries is now seeing the extension of mobile networks into more remote and rural areas. This, combined with the recent roll-out of higher bandwidth data services and emergence of mobile handsets with higher functionality, along with low cost or rugged portable PCs is being seen as having significant potential to address many areas of development work. As a result, use of mobile technologies in sectoral programmes, particularly health, education, economic development, agriculture, governance and human rights, is the most prominent new area of focus for many development projects.

Nevertheless gaps in mobile phone coverage and broadband services in the more remote and rural areas continues to be a barrier to rolling out broad-based

mobile services in many locations. It is estimated that about 40% of the world's population is still without terrestrial coverage. So far there has been little effort to identify and highlight these gaps in coverage which determine the extent of exclusion from national programmes based on mobile telephony.

There has also been increasing criticism of the hype surrounding mobile applications with doubts being expressed about their potential development impact considering their high data costs, limited coverage in rural areas, low functionality and small screens. Growing numbers of development practitioners also feel that the benefit of mobile phone for poor people has been overstated, and ignores the fact that except voice communication, even SMS is not being used by majority of the users, due to illiteracy and affordability problems.

3.2 Mass Media

The traditional mass media (national/regional broadcasting and the press) are under considerable threat in developed countries. Some major outlets have already closed and many more are expected to merge or go to the wall. Their advertising revenues are being steadily eroded by the increasing numbers of successful online publications which are now rapidly eating into this market as broadband penetration increases. The financial crisis has also exacerbated this situation, and web 2.0 technologies are changing the whole structure of news, and commentary consumption. These technologies are now empowering non-professionals with access to ICTs who can blog or Twitter and use a mobile to take photos or videos.

At the same time, in the development context, there is also a swing back towards use of more traditional technologies after the hype of the Internet and interactive technologies of the previous ten years. There is a growing recognition amongst development practitioners that the emphasis purely on support for new interactive ICTs has been at the expense of the traditional and print-based broadcast technologies which can still be used to support development processes. In addition there continues to be interest in the potential of convergence between the older technologies and the new, such as in mobile text messaging or email being used to request information or make comments to a local radio station.

Given the media's key role in helping to improve government accountability, support for this area fits in well with the growing emphasis on supporting improved governance and citizen participation in democracy. Agencies such as UNESCO, OSI, OneWorld, Amarc and PANOS continue to support traditional media while others, such as Bill and Melinda Gates Foundation, DfID and IDRC have recently increased their interest in this area, particularly in relation to the convergence between the broadcast and interactive ICTs. The key constraint in this area is that broadcasting licenses are still not easy to obtain in many

developing countries, which drastically limits the potential of this medium.

The special roles that the broadcast media can play in reaching rural areas and the poor are reflected in support for efforts to use these media for agricultural information, health information and governance. More recently awareness raising on adapting to climate change has become of interest here.

3.3 Web 2.0 Tools

The profusion of software tools that can now be used for online collaboration, information dissemination, knowledge management, social networking and crowd sourced information is clearly one of the 'hottest' new areas in ICT4D. This interest is also partly being fed by the improvements in mobile and broadband coverage in developing countries, along with the ability to connect mobiles and hand-held devices to the web. Aside from the potential of these tools to improve access to the world's knowledge in general, and to link people with similar interests, or common concerns, they offer new opportunities for the people of the South to move from purely being information consumers to also being producers.

3.4 Location based decision support tools and GPS/GIS

The emergence of cheap and low power consuming GPS devices, along with consumer mapping tools such as Google Earth, and low cost GIS applications has created many new opportunities to improve decision-making through the inclusion of geo-location data in knowledge management systems. The use of these tools is already beginning to gain ascendancy in natural resource and land-use management, disease and disaster early warning systems, in agriculture and in human rights abuse reporting.

3.5 Other relevant technology trends

There are a wide variety of other technology trends that could also have a potential role in supporting development. These include:

- Low Cost PCs - first triggered by the OLPC, many mainstream hardware manufacturers have now come to the market with low cost equipment that is much more affordable for Southern institutions and individuals. At the same time powerful low cost file servers and make it much more affordable e to host local multimedia content.
- Mesh networks - these are now reaching maturity and are attractive in a development context because they just need to be plugged in to work. They self-organise in terms of upstream connectivity, redundant routing, etc and can quickly establish a pervasive, reliable communications network, either for disaster relief or in areas where there is little technical expertise.
- Virtual Reality (VR), simulation, video games and edutainment are now demonstrating their potential in human capacity building and even in

broadening the reach of meetings such as through Second Life. These technologies are also being more widely adopted in some development projects, such as to train the youth in ICT and even farmers and rural households in techniques such as building pit latrines and contour farming.

6. Thematic Support Areas and Trends in ICT4D Activities Among Key Development Funders and Implementing Organisations

The organisational profiles below comprise a selected mix of general development actors and more specifically focussed ICT4D agencies, outlining current and future activities and priorities generally, and specific ICT areas. Selection of the organisations listed here and extent of coverage was not based on systematic criteria but tried to focus on the main players and also reflected accessibility of information on the agency and familiarity by the researcher.

AMD

Under the 50X15 programme AMD has in the past supported e-schools and learning labs, especially in Brazil, South Africa and Uganda. However the programme appears to be on hold or in decline - the most recent information on the 50X15 web site is dated October 2008.

AMARC

The World Association of Community Broadcasters (AMARC) held its 4th Pan African Conference for which the key points on the agenda were:

- Contribution of community radio towards conflict resolution and good governance within African communities.
- Strategies for lobbying and advocating for recognition and development of community radio by African government and the community.
- Role of community radio and communication rights and challenges as regards climate change.
- Community radio content for development and gender equality strategies.
- Increasing sustainability and effectiveness of community radios through better programming and increased participation.
- Strengthening the AMARC Africa network for increased impact and effectiveness.

AMARC has a recent capacity building programme funded by CIDA which will be working with six radio stations from five African countries, producing a ten-programme radio series over three years, starting with HIV/ AIDS, followed by water and sanitation and the third year would be governance issues.

APC

The APC continues to support the use of internet and ICTs for social justice, sustainable development and citizen empowerment. In collaboration with Hivos and IteM it publishes the annual Global Information Society Watch (GISWatch). In May 2009 APC announced its strategic priorities until 2012:

- Affordable internet access for all
- Creative engagement with strategic technologies
- Making ICTs work for a sustainable environment
- Strengthening the "information commons"
- Securing and defending internet rights
- Improving governance, including the governance of the internet

APC's crosscutting goals are Gender equality and women's empowerment, and openness.

APEC

APEC supports work to protect the privacy of citizen information, trade facilitation through e-commerce, seamless international trade, paperless trading and cyber security. It also encourages policies which ensure that services are accessible to the poor and under-served, e.g. the Asia Pacific Women's Information Network Centre, and the nineteen ADOC partner offices which have been set up in seven economies. These offices train the underprivileged, focusing on programs to train IT professionals in ICT applications as well as in subjects related to trade facilitation and electronic business.

Ashoka Foundation

Ashoka supports social entrepreneurs from about 60 countries that are actively delivering innovative results within their communities. The main programme support areas are social entrepreneurs, group entrepreneurship and supporting infrastructure - including seed financing and capital, bridges to the business and academic sectors, and strategic partnerships that deliver social and financial value. Ashoka continues to support a variety of social entrepreneurs working in ICT related fields.

Asian Development Bank (ADB)

The ADB supports regional infrastructure integration and also provides country grants to develop the use of ICTs in basic and distance education. The e-Asia programme aims to:

- Strengthen the capacity of Development Member Countries (DMCs) to achieve the targets of the WSIS Plan of Action.
- Provide technical assistance for promoting ICT and bridging the digital divide, through national and regional e-strategies.
- Assist national programmes to support ICT entrepreneurs and micro-

enterprises.
- Works to develop the ADB's ICT strategy and ICT contribution to atrategic thrusts. However this work is on standby depending on further budget availability.

Ausaid

The Australian Government is continuing to keep a strong national focus on ICT - there is now a Ministry for Broadband, Communications and Digital Economy. In 2008 Ausaid outlined a new 2008-2010 strategy on research. Five core elements to this new approach are:

- Funding increases for development research to 2010.
- New quality assurance and control processes.
- Improving links between research and policy makers.
- Increasing focus on capacity building needs when considering research.
- Leveraging existing linkages with the rest of the Australian Government and with other donors to strengthen research quality.

The strategy document however does not mention ICT.

BCO Alliance

The BCO is a network of organisations working in ICT4D which have made a joint commitment to learning and collaboration. BCO members include donor agencies from Canada, the Netherlands, Switzerland and the UK and international non-governmental organisations such as the APC, although future funding from SDC and others appears unlikely. The Alliance's main issue areas are:

- Integrating ICT4D in development sectors such as health, agriculture or education.
- Strengthening the voice of poor and excluded communities and facilitate debate and dialogue through the use of ICTs.
- Demonstrating the impact of ICT4D on poverty.

A cornerstone of the partnership is peer learning and knowledge-sharing on how ICT can be used as a strategic tool for sustainable development and poverty alleviation.

Bill and Melinda Gates Foundation

While the Foundation has no specific programmes of its own in ICT4D at this point, however Bill Gates recent move to head the Foundation and participation in the Doha ICTD2009 event indicates increased interest in this area. ICTs also continue to be used in many of its development programme areas - in particular, Global Development - Agriculture (mAgriculture) and the Global Libraries programme (public access ICT facilities). It is also the main funder of IDRC's Global Impact Study of Public Access to ICT (see IDRC).

BMZ (German Federal Ministry for Economic Cooperation and Development)

BMZ has no specific ICT4D programmes but maintains an in-house ICT advisor to work with the other programmatic staff. Of particular note is that it is also expected to publish for the first time, a position paper on ICT4D in May or June 2009. Aside from support for GTZ, which is Germany's main development programme implementation vehicle, BMZ also funds InWent which supports capacity building in the SME ICT sector, emphasising the use of open source software. InWent hosted a workshop on the benefits of Open Educational Resources (OER) for capacity development in Africa at Online Educa Berlin in 2008. Since early 2008 BMZ has been supporting national telecommunication policy harmonisation and reform in Sub-Saharan Africa under a co-operation agreement with the ITU for Sierra Leone and Benin. The work is based on the outcomes of ITU's work supported by the European Commission to develop best practices in regulatory frameworks. Support for ICTs is also evident in BMZ's funding for improved governance, health and environment. Other ICT related activities of BMZ are support for the World Bank's InfoDev programme and the Development Gateway, and investments in infrastructure through KfW.

Carnegie Corporation

Carnegie's International Program focuses on the growth of globalization and the danger of deepening fragmentation along cultural, regional and religious divides and the role of developing countries in advancing global cohesion and prosperity. The key programme areas comprise:

- Public and policy-level support for the reduction of nuclear weapons and their proliferation risk.
- Deepening the international engagement of American expert and policy communities and encouraging fresh perspectives on U.S. foreign policy.
- Improving U.S., UN and regional organizations' policies designed to assist states emerging from conflict or facing the risk of instability or collapse.
- Increasing understanding of the diversity of thought, cultures and history of Muslim states and societies, and U.S. engagement with them.
- Strengthening universities and academic capacities in sub-Saharan Africa and in Eurasia.
- Revitalizing public and university libraries in sub-Saharan Africa.

CIDA

The Canadian Government has said that it remains committed to doubling its international assistance spending to CAD$5-billion by 2010-11, a promise it inherited from the previous government. CIDA's new priority areas of programming are food security, youth and economic growth. CIDA's Business Process RoadMap updated in April 2009, states that: "During project initiation (screening and preparation of the concept paper) and project planning (appraisal and design), staff should consider the applicability of ICT to the project under

consideration and role that ICTs can play in achieving project results."

CISCO

Cisco has a major CSR and market building focus on e-Government support. Equipment donations and financial support have been made to NEPAD e-Schools Initiative in Africa, with UNDP to a wide variety of developing country governments, to the University of London ICT4D Research Collective, the e-Learning Africa event, and in e-health and connectivity analysis, jointly sponsoring the 2009 WEF Global IT Report.

Commonwealth of Learning (COL)

Most of COL's work is focussed around supporting the use of ICTs in Education and Livelihoods & Health. Its 2009-20012 Plan announced in May 2009 outlines the priorities:

Education

· Open Schooling: Support for open schooling to address the lack of schools
· Teacher Education: Support for adopting the methods of Open Distance Learning.
· Higher Education: To facilitate the expansion of higher education and share programmes among institutions and courseware.
· Virtual University for Small States of the Commonwealth: Assistance to acquire advanced ICT skills by producing and sharing eCourses in skills-related areas within a new Transnational Qualifications Framework

Livelihoods & Health:

· Skills Development: works with partners to design and deliver courses rich in ICTs. Partnerships among institutions at different
stages of development operate in to support south-south co-operation.
· Learning for Farming: Lifelong Learning for Farmers (L3F) promotes a grassroots model for increasing rural prosperity using ICTs to link banks and universities to village communities to exploit new economic opportunities. It is now being implemented at scale by training a cadre of knowledge info-mediaries.
· Healthy Communities: COL's Media Empowerment model is being used to transmit health messages to communities. and will be scaled up by training health groups and communities to create and share learning materials and to make effective use of community media.
· Integrating eLearning: Training educators to develop eLearning materials, to conduct eTutoring, and to share materials as open educational resources through communities of practice.

COL's cross-cutting themes in this plan are: Gender (under the premise that technology-mediated learning is particularly helpful for women and girls) and quality and appropriate technology

Commonwealth Telecommunications Organisation (CTO)

CTO provides support to Commonwealth countries for policy development, awareness raising and capacity building. Key areas of current focus are Next Generation Networks (NGNs) and rural telecommunications, such as the Commonwealth African Rural Connectivity Initiative (COMARCI)

Development Gateway (DG)

Initiated by the World Bank, the DG's key focal areas are:

- ICT for Development
- Making Aid Effective
- Procurement Reform
- E-government.

Work in these areas include:

- Sharing Knowledge - focusing on areas where small investments in ICT can make a major difference.
- Effective government - enabling better aid management and coordination, and more efficient and transparent government procurement.
- Knowledge sharing and collaboration - leveraging the Internet for online communications among development practitioners worldwide.
- Local partner programs in about 50 countries - connecting developing country organisations into a global network to empower them to use ICT to bolster local development efforts.

DG has also established the aid information management platform, AiDA and the online procurement facility - Development Marketplace.

Development Bank of Southern Africa (DBSA)

DBSA supports the Knowledge Management Africa (KMA) initiative which seeks to build networks that facilitate the sharing and use of knowledge across Africa. This takes place via an online hub linking five regional chapters on the continent - the West African hub focuses on technologies for development.

Development Initiatives

Tracking development assistance funding and supports the AidInfo online portal to encourage aid effectiveness, open-government data and greater government transparency in development support.

DfID

In April 2009, the UK government announced that its ODA budget would remain the same at STG 9.1bn. The agency no longer has an ICT4D programme, although it continues to work with and provide funds for IDRC's ICT4D programme in Africa and Asia. Since 2007 it has placed greater emphasis on research, communicating research evidence and getting research into use, although ICTs do not feature

significantly within this agenda. Priority thematic areas are:

- Agriculture and food
- Climate and environment
- Conflict and security
- Debt
- Education
- Gender equality
- Government
- Health
- HIV and AIDS
- Human rights
- Humanitarian disasters
- Stronger economies
- Trade
- Water and sanitation

European Commission

The EC currently supports a wide variety of ICT4D related activities both for its member states and for ACP countries, including:

- The eTEN programme, was supporting the deployment of trans-European e-services in the public interest, aiming to accelerate uptake of services which sustain the European social model of an inclusive, cohesive society. eTEN's six themes included eGovernment, eHealth, eInclusion, eLearning, Services for SMEs and Trust & Security. The programme finished at the end of 2006 but some projects continue through 2009 and 2010.
- The European eGovernment Awards 2009 is the fourth bi-annual awards programme to select good practices in the use of ICT in public services.
- The third call for proposals for the ICT Policy Support Programme (PSP) is open until 2 June 2009.
- ePractice.eu, which is an initiative to provide a broad range of services targeted to the communities of eGovernment, eInclusion and eHealth professionals including on-and-off-line activities. The portal reached 15,000 members in January 2009.
- ELAN (Electronic learning and assistance network) project is an eLearning marketplace, connecting different e-learning applications, users and suppliers.
- The AfricaConnect initiative which in March 2009 announced that it would grant a total of EUR12 million to design and procure Internet connections from African telecom providers to build a Sub-Saharan regional research and education network.
- Support for the first Euro-Africa Cooperation Forum on ICT Research in Feb 2009 where sub-Saharan African and European policy-makers were brought together with ICT research organisations to address the development of

collaborative projects. The follow-up event will be hosted in Addis Ababa, Ethiopia, in early 2010.

- The EU Africa Partnership aims to support activities in Space, IT and Science. Activities in IT has been very slow to get off the ground. There will be a meeting in January 2010 to evaluate what has been done, but it is likely to show very little.

Food and Agriculture Organisation (UN FAO)

FAO's activities comprise four main themes:

- Putting information within reach. Collect, analyse and disseminate data that aids development.
- Sharing policy expertise. Assists member countries in devising agricultural policy, supporting planning, drafting effective legislation and creating national strategies to achieve rural development and hunger alleviation goals.
- Providing a meeting place for nations. Supports policy-makers and experts to forge agreements on major food and agriculture issues.
- Bringing knowledge to the field. FAO provides the technical know-how.

A recently announced new area of priority support is in mitigating the impacts of climate change.

Key ICT related programmes are:

- Bridging the Rural Digital Divide,
- E-learning on Information Management,
- Information Management Standards,
- Portals & Online Libraries on agriculture and food information,
- Early Warning and Agricultural Information Systems, and Rural Radio.

Finland

The Government of Finland continues to make ICT a priority area in its development assistance. The 2009 ICT Cluster Review stated that Finland sees opportunities in strengthening the economic capacities of developing countries through ICT and that the government's next step in development co-operation is to "build new kinds of partnerships in ICT-markets that are emerging in developing countries", fostering innovation and entrepreneurship. Finland is also responsible for IT within the EU Africa Partnership. In December 2008 it was announced that Finland would support UNECA to strengthen ICT policy implementation in Africa in EUR3.7 million programme which will last to 2010. This is the second phase of support aims to "improve capacities at the national and regional levels to implement information policies and strategies and to evaluate the impact on development in Africa".

In addition Finland supports the South Africa - Finland

Knowledge Partnership Programme on ICT (SAFIPA) to facilitate the use of ICT service applications for South African citizens. The programme consists of three components for which calls for funding proposals are being made in 2009:

- Human Capital Development
- Innovative IS applications for end users
- Network creation and dissemination

Ford Foundation

The Foundation's mission is to: strengthen democratic values, reduce poverty and injustice, promote international cooperation and advance human achievement. It has few ICT-specific activities, on of which is its support to the US consortium of foundation's Partnership for Higher Education in Africa (PHEA), which is helping to build high-bandwidth connections to PHEA Universities in 8 African countries. Following the financial crisis this year Ford is expected to close its offices in Russia and Vietnam, and has requested its other country offices streamline their activities and reduce the number of projects being supported.

French Ministry of Foreign Affairs

The French Government's major ICT4D initiative in Africa - supporting digital inclusion (Aden) - ceased in 2008 and little in the area of ICT4D has subsequently taken place, aside from its support for the Digital Solidarity Alliance.

Global Alliance for ICT in Development (GAID)

A multi-stakeholder partnership with similar goals to the GKP, GAID announced in April 2009 that it faces the need to strengthen communication and interactions among its partners, stakeholders and members. In January 2009 GAID announced the "500/12 Initiative", whose goal, by 2012, is to provide 500,000 computers across 10,000 schools servicing 33,000,000 students in 60 countries. A pilot for the project has been initiated in Burkina Faso. In February 2009 GAID's Latin America seminar reviewed the state of development and incorporation of ICTs in education in Latin America and the Caribbean countries.

Global Digital Solidarity Fund (DSF) and the Digital Solidarity Agency (DSA)

Launched at WSIS and supported by the French and Swiss Governments, the DSF promotes the voluntary 1% digital solidarity contribution. The fund has not continued to receive the support it was hoping for and is expected to close down amid talk of fund mismanagement. However it is possible that the DSF will be re-established in Africa, without the 1% commitment. By contrast the DSA has strong support at high levels in the French government. Its priorities for support are education, health,connectivity and e-waste.

Global eSchools Initiative (GeSci)

Supported by Ireland, Sweden, Switzerland and Finland, GeSCI continues to provide strategic advice to ministries of education in developing countries on the effective use of ICTs for education and communities of learning. GeSCI has country programmes in Bolivia, Ghana, Rwanda, India and Namibia.

Google.org

The Google Foundation works very closely with its corporate parent, Google.com to leverage the company's assets to address 'the global challenges of our age: climate change, poverty and emerging diseases'. In collaboration with partners working in these fields, it uses the resources of Google's employees and global operations to advance initiatives supporting a) clean energy and b) global health and c) improved public services. These are:

- Develop Renewable Energy Cheaper Than Coal (RE<C)
- RechargeIT (to reduce CO2 emissions, cut oil use, and stabilize the electrical grid by accelerating the adoption of plug-in electric vehicles
- Flu Trends (to use search statistics to identify trends in flu activity)
- Predict and Prevent, (to empower communities to predict and prevent emerging threats before they become local, regional, or global crises),
- Inform and Empower to Improve Public Services, (starting with a focus on education, health, and water and sanitation services in East Africa and India).

Google.org's strategy is under review following the financial crisis and the change in its leadership which saw the departure of Larry Brilliant (to the Skol Foundation) and Megan Smith, VP New Business Development take over in February 2009, but nevertheless Google.com re-iterated in February 2009 that it stands behind the commitment made in 2004 to devote 1% of its equity and profits to philanthropy.

Grameen Foundation

Work focuses on six key areas, mainly in support of micro-finance institutions (MFIs):

- Connecting micro-finance institutions with capital markets.
- Capacity building for MFIs and other poverty and development-focused organisations.
- Harnessing the power of ICT for the micro-finance and international development communities by supporting innovations that increase the efficiency of MFI operations, create new micro-business opportunities for the poor, provide telecommunications access for the rural poor, and improve their access to health and agriculture information and other services.
- Helping track people's movement out of poverty.
- Sharing knowledge widely for broader impact.
- Social business support.

GSMA Development Fund

The fund concentrated on three areas in 2008:

- Improving access through the creation of locally owned entrepreneurs which can act as channels to market within remote communities.
- Addressing energy needs for off grid locations.
- Support for specific emerging market applications for areas such as agribusiness, micro-finance and job search tools.

Hewlett Foundation

While largely focussed on US philanthropy, two of Hewlett's 7 programme areas have an international focus. The Global Development Program makes grants to reduce the number of people living on less than $2 a day by:

- improving the efficiency of agricultural markets,
- promoting transparent and accountable governance, and
- improving the quality of Education in the developing world.

The Population Program makes grants to:

- Enhance and protect the reproductive health and rights of individuals, and
- Stabilize global populations in ways that promote social and economic well-being and sustain the environment.

While Hewlett has not made any specific ICT grants internationally, some of its grants have had ICT components, and some US grants to organisations such as IssueLab may have international benefits.

Hewlett Packard (HP)

HP's world e-inclusion programme, took a back seat in the early 2000s following the dot-com bubble burst and restructuring of its top leadership, however the company is now making greater efforts in this area. HP's current focus is on digital literacy training combined with entrepreneurship training for young people (GET-IT). It plans to provide access to the program for 500,000 students by 2010. HP says that more than 1 million people in EMEA have benefited from its education and e-skills programs in 2008. Gender issues are also being addressed in its programmes and a particular concern is to adopt innovative ways of learning to address the needs of the 'Y generation'. In Feb 2008 HP announced the first results of a pilot project, based in Cape Town, to tackle the problem of electronic waste (e-waste) in Africa.

HIVOS

HIVOS provides financial and political support to local private organisations in about 30 countries in Africa, Asia, Latin America and South-Eastern Europe. Activities centre around the five Hivos policy themes: economy and credit

facilities, culture and the arts, women and development, sustainable development, human rights and AIDS. The working activities support:

- Sustainable production methods, sustainable consumption patterns and behaviour.
- Organisations that broaden the basis for the sustainable management of natural resources by forming strategic alliances.
- Using networking and collaborative technologies.
- Applying e-commerce and e-business models

Hivos' main ICT4D focussed activity is the 'Making Civil Voices Heard, Media, Information and Communication (MIC) for development programme'. The MIC programme operates on two levels. One is the main-streaming of ICT usage and stimulation of knowledge sharing among all Hivos partners of the different sectors. The other level focuses on Hivos partners working in the field of ICT & Media. The current 3-year funding cycle with the Dutch government is only due to be renegotiated later this year.

HIVOS is also part of the Alliance2015, a network of six European development organisations which focus on structural poverty alleviation. The Alliance members are CESVI from Italy, Concern Worldwide from Ireland, Welthungerhilfe from Germany, Hivos from the Netherlands, IBIS from Denmark and People in Need from the Czech Republic.

ICT4D Collective, Royal Holloway, University of London

Carries out research on rural grass-roots development and the role of ICT. The Collective is following the mobile sector in particular.

IDRC

The ICT4D program area at IDRC is currently one among four program areas - the others are Energy and Natural Resources Management (ENRM), Social and Economic Policy (SEP) and Innovation Policy and Science (IPS). In the future, ICT4D activities may be incorporated into the SEP programme area.
In Africa and the Middle East (MENA), the three focal areas for the Acacia (ICT4D) programme until 2011 are:

- People Empowerment: Understanding the individual and social changes that Africans are experiencing that are being brought about through the use of ICTs.
- Social Service Delivery: Research on how ICTs can help address the reality of limited resources to effectively deliver social services.
- Economic Development and Opportunity which explores the broader impact of ICTs on social and economic growth in Africa.

Acacia funding has supported translation for multilingual applications, wireless networking, national health information networks (a new eHealth research network

is being planned - OASIS 2 - (Open Architecture, Standards and Information Systems), and in education through the PanAfEdu project which is designed to enable African institutions and researchers to participate in the construction and networking of education development knowledge. In support of innovation, the Publishing and Alternative Licensing Models Africa (PALM)project is closely working with publishers and various other actors to explore alternative publishing models and licensing models with the aim to reduce cost of publishing. Acacia is focussing new efforts on ICTs in agriculture, primarily through the eAgriculture Network for Africa (eARN) which is researching the impact of efforts to link farmers to markets with ICT. Acacia is also currently scoping activities for building a research programme in Natural Resource Management and ICT. The Knowledge Access in Rural Interconnected Areas Network (KariaNet) project researches the best strategies and approaches in generating and disseminating knowledge in rural development and natural resources management projects in the MENA region.

In Asia, until 2011, the PAN (ICT4D) programme has three focal areas:

- Policies: building evidence and promoting dialogue to inform policies that enable knowledge societies.
- Technologies: applied research and piloting of innovative ICT applications for development (notably in education, health, livelihoods and governance).
- Effects: research and build capacity for understanding the socioeconomic effects of ICTs on Asian communities.
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The PANACeA project (PAN Asian Collaboration for Evidence-based e-Health Adoption and Application), is a regional research network comprising eight multi-country projects and several cross-cutting thematic areas. PAN is supporting a research program on gender and ICTs, and also supports the OpenNet Initiative Asia (ONI-Asia) network, which aims to understand the technical and social aspects of digital censorship and surveillance across different countries in South and Southeast Asia. Also of note, in support of innovation is the Information Society Innovation Fund (ISIF) - a competitive grants programme that was established in June 2008 with the mandate to stimulate creative solutions to ICT development needs in the Asia Pacific region. Topics represented by the grants included mobile application development in healthcare, the use of WiMAX technologies to access the Internet via television broadcasting infrastructure; bandwidth maximising technology, and health emergency and disaster management systems using mobile and virtual earth technology.

There are also a variety of activities to support capacity building among southern researchers and to look at the convergence between traditional (broadcast-based) ICTs and the newer interactive ICTs. Both Acacia and PAN are supporting networks examining governance and ICT - PANGOV will examine the

changing relationship between the citizen and the state in Asia, while in Africa, Acacia is supporting the Local Governance and ICTs Research Network for Africa (LOGIN Africa).

In Latin America, IDRC's ICT4D programmes have focussed on five main areas:

- E-health, such as the HIV/AIDS portal Punto J, Chagas disease awareness raising and Enhancing the Effectiveness of ICT Applications and Tools for Disaster Management in the Caribbean
- E-Governance and E-Citizenship (notably the the Observatory for the Information Society in Latin America and the Caribbean - OSILAC, and the Latin American Network of e-Government Leaders)
- E-Economy, including a large projects on e-Waste and media piracy, as well as telework and disability
- E-Education, such as RELPE: Latin American Network of Educational Portals, and the Regional Fund for Digital Innovation in the Latin America and Caribbean (FRIDA)

IDRC is also executing the Global Impact Study of Public Access to ICT. A five-year, CAD$7.2 million research project with co-funding from the Bill & Melinda Gates Foundation. The project is managed by telecentre.org which is hosted at IDRC, in partnership with the Centre for Information & Society at the University of Washington.

International Institute for Communications in Development (IICD)

One of the few large bilaterally funded agencies focussing on ICTs in development, IICD had specific ICT4D programmes but is now moving to a sectoral focus. IICD is funded mainly by the Dutch government and currently focusses on education, environment, governance, health and livelihoods (agriculture). Recent new areas of programmatic emphasis include: youth entrepreneurship, agriculture, and the impact of climate change on health, such as in malaria prophylaxis and prevention.

IICD is active in Bolivia, Burkina Faso, Ecuador, Ghana, Jamaica, Mali, Tanzania, Uganda and Zambia where it has developed considerable experience in establishing national multi-stakeholder partnerships. IICD collaborates with the other Dutch NGOs working with ICTs - Cordaid, ITC and Hivos as well as with Spider, the Swedish ICT4D initiative. IICD is in the process of developing its next planning phase to 2015 and is participating in an alliance of NGOs which will jointly apply for their next phase of Dutch government funding.

Infrastructure Consortium for Africa (ICA)

In March 2009, ICA announced that despite the financial crisis, ICA members kept their 2008 commitments to infrastructure projects in Africa at the same level as

the previous year at around US$12 billion. Participants took note of the US$80bn per year estimated by the Africa Infrastructure Country Diagnostic (AICD) study to be required. Half of this need, about US$40 billion, is currently being met - but US$20 billion, about half of the gap, could be found through improved efficiency. This includes putting in place good policy, legal and regulatory frameworks, improving the performance of state owned enterprises. Projects are mainly being impacted through higher cost of financing, delays and cancellations due the withdrawal of commercial lenders.

InfoDev

This unit of the World Bank focussing on ICT4D continues to be active although to a lesser extent in funding implementation of projects and is now focussing more on research and awareness raising. InfoDev has three main themes: Access for All; Mainstreaming ICT; and Innovation, Entrepreneurship & Growth. Topics include Access to ICT Devices Education Governance Health Innovation & Entrepreneurship Monitoring & Evaluation Rural Livelihoods. The agency has maintained a strong focus on ICT-enabled innovation and business incubation, and is hosting the 3rd infoDev Global Forum on Business Incubation in Brazil October 2009.

Inter American Development Bank

IDB Trust Fund on ICT for Development is being used to support programmes in E-government in Latin America.

InterNaut Consulting

Provides consulting on ICTs generally, focussing on advice to US foundations. It has carried out recent work in capacity building of US grant makers to understand ICTs.

Intel

Intel is supporting research on the role of Trust in ICT4D and its INSPIRE*EMPOWER Challenge Awards which were launched in 2008. The challenge called on the developer community to submit the most innovative ideas for applying technology to address problems related to education, health care, economic development and the environment.

The Internet Society (ISOC)

ISOC has a guaranteed form income from .org domain registrations. It supports a variety of efforts to improve internet infrastructure in developing countries, such as awareness raising on the need for Internet Exchange points (IXPs), critical internet infrastructure, domain name registrars, IPV6 and related Internet governance issues.

Italian Co-operation

The Italian Government has recently pledged EUR5 million to finance the third phase of the Mozambique Government's Electronic Network programme. It is currently supporting the FAO's Multipurpose Africover Databases on Environmental resources (MADE).

ITC Canarias

The ITC Canarias, funded by Spain, is carrying out its main cooperation activities in Mauritania, Morocco and Tunisia in a number of projects that are under way in different regions of these countries. These include renewable energies, water and sustainability, and technology transfer with the aim of promoting sustainable development in these regions.

ITU-D / BDT

The development unit of ITU co-hosts with UNESCO on the WSIS events and closely collaborates with the EU, and works with the Swiss Government to support developing country national ICT policy development. In the implementation of the WSIS Action Plan, areas being supported include:

- Information and Communication Infrastructure
- Access to Information and Knowledge
- Capacity Building
- Building Confidence and Security in the Use of ICTs
- Enabling Environment
- ICT Applications
- Cultural and Linguistic Diversity, Local Content
- Media
- Ethical Dimensions of the Information Society
- Capacity building in cyber security and telecom sector reform

Last year it began work with a series of studies and guides to the use of ICTs in environmental protection.

Japan International Co-operation (JICA)

Despite the size of its economy and the extent of its ICT industries, Japan has so far been relatively inactive in the ICT4D arena globally, except for its traditional telecommunication integration support in the Asian region. However this could change considerably in the future, in line with significant changes in Japanese foreign asistance generally. JICA was reorganized in October 2008 and merged with the overseas economic cooperation operations of Japan Bank of International Cooperation (JBIC). This formed a new and unusual organization that incorporates soft loans, grant aid, technical cooperation and even volunteer work. Now one of the largest bilateral aid organizations aid in the world, JICA has an annual budget over US$10 billion, covering operations in 155 countries. The outcome of the merger is expected to allow JICA to operate infrastructure development and capacity building in a more efficient and

integrated manner.

In addition, Japan has expanded its cooperation to Africa. Following the G8 and TICAD IV (Tokyo International Conference on African Development) meetings last year greater emphasis is being placed on "poverty reduction through economic development" and it has commited to double ODA to Africa by 2012, focussed on three areas: infrastructure support, private investment and food security through rice production. JICA has also said it will promote cooperation that uses technological advances such as in Rwanda, where it is targetting technical education and public health services in the context of Rwanda's ICT development strategy. In Egypt JICA supports the E-JUST initiative (Egypt-Japan University for Science and Technology), and is collaborating in a higher education program to support nationwide science and technology education.

Japan is a leader in green initiatives is also looking at ways to combine support for economic development with environmental protection. Last year (2008) it launched the "Cool Earth Partnership" program, a capital mechanism for climate change measures which plans to use US$10 billion over 5 years for climate change measures in developing countries.

Korea Agency for Digital Opportunity and Promotion (KADO)

Korea's development assistance is focused upon the community population that is mostly left behind in developing countries. It finances the ADB's US$20 million e-Asia and Knowledge Partnership Fund and the World Bank's ICT4D Korea Trust Fund which supports ICT integration into national sectoral development strategies and such activities as the integration of ICT into the delivery of government services to citizens, and enabling innovation in small and medium enterprises in developing countries. KADO is supporting the African eDevelopment Resource Centre.

MacArthur Foundation

The MacArthur Foundation launched its five-year,US$50 million digital media and learning initiative in 2006 to help determine how digital technologies are changing the way young people learn, play, socialise and participate in civic life. The initiative is both marshalling what is already known about the field and seeding innovation for continued growth. Most funding goes to US research institutions and has a developed country focus, but much of the learning emanating from this work could also be applied in a developing country context.

Microsoft Corporation

The two areas of Microsoft's corporate social responsibility are:

- Unlimited Potential: a global program that focuses on improving lifelong learning for under-served young people and adults by providing technology skills through community-based organisations around the world. One of

telecentre.org's funders, it's focal areas are: Transforming Education, Fostering Local Innovation, Enabling Jobs and Opportunities. MS says that under this program, one-billion people will be reached by 2015 so as to promote social and economic development around the world. It provides community centres with funding to launch or sustain IT skills training programs, including hiring and training technology instructors and expanding course offerings to reach a broader base of community members.

- Responsible Business, which focuses on: Environmental Stewardship, Preserving Freedom of Expression, Communities in Crisis, Supporting local communities, Innovative R&D, Advancing Privacy/Internet Safety & Security, Protecting IP and New Innovations and Interoperability.

Microsoft is also developing training curricula on technology applications which will be available in multiple languages. It is looking at doing work in the area of small scale agriculture and has announced that it will work with partners to launch a global support network to deliver technology research, tools and services to training centres worldwide.

Microsoft Research

The group conducts research in sociology, political science, anthropology and economics, which explore the social context of technology. It also carries out technical research in hardware and software to devise solutions that are designed for emerging and under-served markets, both in rural and urban environments. Microsoft Research works with a range of technologies, from shared computing to digital video, and is also interested in applications of mobile communication in economic and social development, conducting primary research on understanding the ways in which rural and urban low-income households access and use financial services from formal and informal providers, including micro-finance providers. It co-funds the ICT4D Collective at London University.

NetHope

NetHope is a nonprofit IT consortium of 26 of the largest international NGOs such as Care and Oxfam. Its members have well-established ICT departments that use technology strategically to support their programs. NetHope aims to enable members to:

- Share ICT knowledge for rapid and effective deployment and efficient operations
- Collaborate with nonprofit and industry leaders to develop for best practices for public benefit technology deployment in the NGO world, and
- Facilitate innovative and cost-effective use of ICT

NetHope also aims to be a catalyst for collaboration in the International NGO community and enable best use of technology for connectivity in the developing parts of the world.

Nexus Mundi Foundation

Nexus Mundi is a Columbia University based that was established in 2008 to support public access to ICTs, particularly multimedia content, in faith based communities in developing countries. It is currently in the first stages of piloting its first national programme in Zambia in co-operation with Telecom Italia and the Society of Jesus (the Jesuits).

Nokia Siemens

Nokia Siemens Networks has built a CSR strategy that focuses on three programs:

- Unite and connect communities: providing new solutions for rural connectivity to help connect the next billion, and to support their social and economic development.
- Disaster relief and preparedness: working with its parent companies (Nokia and Siemens) to provide technical expertise in disaster situations.
- Improve access to education: creating initiatives that improve education opportunities, contributing sustainably to improved educational outcomes.

Nokia has opened a sub-Saharan research centre in Nairobi called NoRa, which aims to study the use of Nokia products and services across the continent to tackle issues related to entrepreneurship, energy management, healthcare, education, transportation, social media, arts and culture. NoRa plans to work closely with African universities and NGOs to develop prototypes of devices that are suited for the African market, and to study the telecommunications trends in the various countries.

Omidyar Foundation

Omidyar Foundation focusses on two initiatives:

- Access to Capital in four areas: Microfinance, Small & Medium-Sized, Emerging Market Ventures, Property Rights and Media.
- Markets & Transparency in four areas: Social Media, Marketplaces, Government Transparency, Trust, Reputation & Identity

Building on the founder's experience with eBay, Omydiar mainly supports US-based activities, although it is increasingly showing interest in the international arena.

OECD

The OECD Ministerial Meeting on the Future of the Internet Economy took place in June 2008 in Korea and focused on social, economic and technological trends shaping the development of the Internet Economy. The Summit forged broad principles that can provide an enabling policy environment for the Internet Economy.

Open Society Institute (OSI)
OSI's continues to focus on building democracies whose governments are accountable to their citizens. It does this by supporting efforts which help to shape public policies that assure greater fairness in political, legal, and economic systems and safeguard fundamental rights. On a local level, OSI implements a range of initiatives to advance justice, education, public health, and independent media. At the same time, OSI builds alliances across borders and continents on issues such as corruption and freedom of information. OSI also places a high priority on protecting and improving the lives of people in marginalized communities

Panos Institute West Africa (PIWA)
PIWA continues to maintain an ICT programme but is primarily interested in activities which fund ICT policies or communication policies more generally, in particular media and citizen communication. PIWA also has thematic programmes in globalisation and governance which have ICT components. In general, the ICT programme is collaborating more and more with other PIWA programmes for joint activities.

Rockefeller Foundation
Rockefeller main ICT related activity is the eHealth Initiative for the Global South, including mHealth which is part of its overall health support programme area. The eHealth Initiative has eight components: The path to inter-operability, Public health informatics and national health information systems, Access to health information and knowledge-sharing, eHealth capacity building, Electronic health records, Mobile phones and telemedicine, Unlocking eHealth markets, and National eHealth policies. This includes support for local capacity building to support private sector health ecosystems. Rockefeller is also supporting access to ICTs in higher education in Africa through the PHEA, primarily through funding improved bandwidth in SSA universities. Its programmes in support of adaptive measures to climate change in vulnerable countries and cities, disease surveillance and disaster preparedness also have ICT components.

SDC
While closing its ICT4D programme, SDC has continued to maintain a dedicated position in the organisation responsible for the support of SDC's Operational Divisions in making optimal use of ICTs in the newly created Knowledge and Learning Processes Division of SDC.

Shuttleworth Foundation
The Foundation is in the process of expanding the geographic scope of its programmes from a focus on South Africa to a global approach. Its telecommunications work forms alliances and partnerships with international

groups where activities are likely to have local relevance. One of the current areas of activity is access to radio spectrum. The Wireless Innovation Alliance (earlier known as the Whitespace Alliance) is focussed on freeing up unused TV spectrum which is particularly valuable for rural communication.

In the mobile area, of particular note is its support for the Open Mobile Consortium which is a partnership of application providers striving to develop a common framework for mobile applications, and the OpenRosa effort to achieve standardisation in mobile health data gathering applications is a related activity which could have value for agriculture related mobile data gathering. The Foundation is also helping to fund the development of the Mesh Potato, a simple to use VoIP box based on mesh networking protocols to bring low cost voice communications to under-served areas.

SIDA

Sweden's new government has been undertaking a re-organisation of SIDA since October last year. Similarly to SDC, the country teams have been given more direct responsibilities for programmes and funding. Most new funding proposals need to go through the local SIDA office and there are no funds allocated centrally a national programme other than the local country fund. SIDA's main ICT4D initiative is the Spider unit which is undergoing an evaluation.

Spanish Foreign Co-operation

The Spanish government has recently made strong efforts to increase its foreign aid, extending it beyond Spanish speaking countries and in which both Africa and ICT are high on the priority list. Spain disbursed 10 million Euros as the first part of a 30 million Euro pledge to support the African Union's efforts to address peace and security issues and strengthening the Pan African body's structures and capacities.

Telecentre.org

Aiming to increase the social and economic impact of grassroots telecentres, telecentre.org's current funding ends in March 2010 after which Telecentre.org 2.0 which be established as an international organisation based in Manila. IDRC will likely remain as the main investing organisation, although it will also look for other sources of funds for its operations. Between US$10-15 million were spent during the first five years of the Telecentre.org. It is expected that about the same amount would be spent for the next five years.

UNDP

Most of UNDP's work on ICT4D has been main-streamed for some years. Work on the remaining ICT4D programme - Community-based Networks and Innovative Technologies - was also mainstreamed, into the Poverty Group, last year, leaving e-government as the only major ICT4D programmatic area, with smaller support for open source

software.

The Sub-Regional Facility for Arab States (SURF-AS) on Governance is supporting countries in the region to promote and mainstream ICT for Development programmes. As is the UNDP Thematic Trust Fund on ICT for Development funded by the Government of Japan.

UNDP also funds the UN-APCICT ESCAP Centre on ICT for Development. The UN-APCICT's work is in its third phase (Expansion Phase 2009-2010) and is focused on three pillars:

- Training - to enhance the knowledge and skills in ICT for policy makers and ICT professionals, and strengthen the capacity of ICT trainers and ICT training institutions.
- Research - to undertake analytical studies related to human resource development in ICT.
- Advisory - to provide advisory services on human resource development programmes to member and associate members.

The International Open Source Network (IOSN) is a Centre of Excellence for FOSS in the Asia-Pacific Region. Finally, the UNDP also supports the Millenium Villages Project which includes the use of ICTs as part of integrated development programmes.

UNESCO - Communication Development

Unesco's Communication Development themes include: Access to Information; Capacity Building; Content Development; Freedom of Expression; Media Development; and, Memory of the World. Among its main programmes is the Open Training Platform funded by IDRC, Spider, FAO, UNV, WHO, ITU, ITC, UNU, WFP, UNITAR, UNEP, FAO, DG Foundation, Telecentre.org, OER Commons, Curriki, Merlot, Global Learning Portal, Telecentre.org, Humaninfo and the Shuttleworth Foundation. In mid 2008 it recruited additional human resources to manage its WSIS followup programmes (see ITU).

UNESCO also hosts sector portals on 1) Libraries 2) Archives 3) Free Software and 4) The Information Society Observatory which focusses on access to information in public domain, electronic commerce, privacy and confidentiality in cyberspace, violence in cyberspace. Similar to the GKP, the Observatory aims to: function as "clearing house" and monitor the development of knowledge societies byidentifying, collecting and organising pertinent, high-quality and multilingual information on the evolution of ethical, legal, socio-cultural and policy issues of the Information Society at the national, regional and international levels, with particular attention to education, science, culture and communication; timely presentation of new trends and contexts; covering broad international developments and events; sharing information about the

challenges of the Information Society and advances in ICT.

UNESCO provides a joint platform for UNESCO's clearing houses related to the Information Society issues (including ICT in Education Portal, Free Software Portal, Multilingualism in Cyberspace website, UNESCO WSIS Action Directory, IFAP Projects data base, IFAP Best Practices data base) and serving as a best practice for other organisations working in the area of the Information Society. However no recent additions have been made to the observatory online portal.

UNESCO also supports the Observatory for Cultural and Audiovisual Communication (OCCAM) which hosts the InfoPovertyworld conferences which aim to be a common platform to help reduce poverty through the innovative use of ICT.

UNDESA

Supports the Global Centre for ICTs in Parliament with the Inter-Parliamentary Union (IPU). It launched the second Global Survey on ICT in Legislatures in April 2009.

UNIDO

UNIDO focusses on building and strengthening local capacities through the use of ICT applications. Encouraging the use of innovative ICT solutions among small and medium enterprises to create a dynamic bottom-up process of economic development. It is also engaging global business players to form effective linkages and broader partnerships for development and working in partnership with transnational corporations and public sector agencies to overcome the 'digital divide'.

USAID

The US foreign assistance program has traditionally sought to support US national security interests and promote economic growth, poverty reduction, and humanitarian relief abroad. US foreign aid programs improved in many ways during the Bush presidency and official development assistance increased from $10 billion in 2000 to $22 billion in 2008. More recently, plans have been announced to double US aid to US$50bn per year by 2012, and also fund debt cancellation, invest in the AIDS/Tuberculosis/Malaria Global Fund, and Global Education Fund. It also envisages a range of actions to support African prosperity around agriculture, SMEs, access to green technology, and access to US markets and investment. However observers have noted that US development efforts lack coherent policy guidance and are spread across a large number of agencies with little coordination among them.

The importance the US attaches to ICTs in development is as yet unclear. Obama has moved to put ICT as an upfront issue in domestic government (the USD7

billion fund to support broadband in rural areas is the most significant evidence of this so-far), but there is currently no direction on this at USAID as the administrator has not been named as yet (the previous director was supportive of ICT). The issue holding this up appears to be indecision as to where in government structures to put USAID. It was a division of Department of State under the Bush administration but this is seen as unlikely under Obama. Overall, there is a growing trend within USAID to (1) include more and more sophisticated public-private partnerships with ICT players (noreene can tell you more about this); to integrate ICT tools into major initiatives (USAID is now doing this well in our HIV/AIDS and Malaria work and is now ramping up in our food security work globally).

Currently, the $600m PEPFAR programme to combat HIV/AIDs is among the largest of USAID's programmes and has a significant ICT component. One specific goal is to strengthen and expand Strategic Information (SI) activities through:

- The development, implementation and support for innovative HMIS and public health informatics systems for better information flow from health facilities to the national level.
- Collaboration with the Ministries of Health, CDC and other partners to develop a national HMIS strategy that enable integration of health related systems in the lab, pharmacy and clinics.
- Capacity building for governments and other local institutions on the three key components of SI, namely Disease Surveillance, M&E and Informatics/HMIS.

ICTs are also part of the agriculture programme in Zambia, Mozambique and Malawi where local radio is used along with the delivery of mobile phone based information on local market prices. The project includes capacity building for extension officers, and is also using web-based and print-media. USAID's GIS mapping initiative is currently used by the Famine Early Warning System (FEWS).

Vodafone Group Foundation & UN Foundation

Primary areas of involvement by the Vodafone Group Foundation are education, health and welfare, and safety and security. Secondary areas are arts and culture, sports development and the environment. In Sept 2008 the group launched an expansion of its mobile health programme to 22 countries in Africa. The joint programme with the UN Foundation focusses on connecting families separated by disaster, helping emergency relief workers respond more quickly and empowering health workers operating in rural areas. The three technology priorities for the programme are: Disaster relief communications, Mobile health for development and Thought Leadership and Innovation which produces studies that give governments, civil society groups and the private sector research and recommendations on how to use technology - especially wireless technology - to effectively address some of the world's toughest challenges.

WK Kellogg Foundation

Supports the development of content that addresses broader rural skills and as a first phase the enhancement of agricultural skills. Last year it engaged a consultancy to examine how ICTs can best support its programmes.

WIPO

Key areas of activity are to:

- Support Member States in technology transfer programs, especially by building capacity in critical areas such as technology licensing and patent drafting.
- Work with Member States on IP strategies to foster innovation, and to promote the creation, ownership, and exploitation of IP assets.
- Provision of support, expertise and economic analysis to enable policy makers to formulate appropriate policies in response to existing and emerging IP issues.
- Technical cooperation to help national IP offices modernize their office automation and human resources infrastructure, and to assist in drafting IP legislation.

Worldbank/GICT

The World Bank's long-term strategy vision was last outlined in October 2007 which was dubbed "An Inclusive & Sustainable Globalization". Six themes were proposed to address the theme: (1) Helping to overcome poverty and spur sustainable growth in the poorest countries, especially in Africa; (2) Addressing the special challenges of states coming out of conflict; (3) Developing a competitive menu of "development solutions" for middle income countries, involving customized services as well as finance; (4) Playing a more active role with regional and global "public goods" on issues crossing national borders, including climate change, HIV/AIDS, malaria, and aid for trade; (5) Supporting those advancing development and opportunity in the Arab world; and (6) Fostering a "knowledge and learning" agenda across the World Bank Group to support its role as a "brain trust" of applied experience. These priorities are likely to be adjusted in light of the economic crisis and the Bank launched a $55bn infrastructure fund in May 2009 to help developing countries weather the financial downturn.

ICT support has mainly focussed on infrastructure development, however it is known to have taken a recent interest in ICTs in health and agriculture. World Bank president Robert Zoellick and his executive appear to understand the the value of using ICT in development but many of the lower level programmatic staff lack expertise in this area and the financial crisis may see resources diverted to other areas. In early 2009 the WB announced that it had set aside US$50 million for ICT infrastructure development, connectivity, skills development and

capacity building for Nigeria. The funds follow last year's mixed grant and loan funding totalloing US$424 million for the development of eastern and southern Africa communication infrastructure. The WB also administers the $15m ICT4D Korea Trust Fund launched in 2007 to support national ICT initiatives. Priority areas for the fund include:

- Use of ICT for economic and social integration of rural areas;
- Broadband connectivity
- Innovative applications in health, education, agriculture and rural development, clean technology and public financial management
- ICT-enabled enterprise creation
- Mobile applications.

The WB is also due to publish IC4D 2009 this year which tracks ICT for development trends, and focusses on scaling up. Through the GDLN, the Bank supports the use of ICT in Education reform.

Annex 1. Thematic areas in international development

- **1 Health**
  - 1.1 Reproductive Health
  - 1.2 Infectious diseases
    - 1.2.1 HIV/AIDS
  - 1.3 Early Child Health
  - 1.4 Nutrition
  - 1.5 Sanitation
- **2 Education**
  - 2.1 Youth
  - 2.2 Unemployed
  - 2.3 Employed
- **3 Natural Environment**
  - 3.1 Natural Resource Management
    - 3.1.1 Water
      - 3.1.1.1 Irrigation
      - 3.1.1.2 Drinking
      - 3.1.1.3 Fishing
    - 3.1.2 Land
      - 3.1.2.1 Mining
      - 3.1.2.2 Plant/Tree Harvesting
      - 3.1.2.3 Building
    - 3.1.3 Biodiversity & Endangered Species
  - 3.2 Climate Change
    - 3.2.1 Water
    - 3.2.2 Biodiversity & Endangered Species
    - 3.2.3 The Poor
- **4 Agriculture**
  - 4.1 Small Scale Farming
  - 4.2 Exports
- **5 Economic development**
  - 5.1 Finance
    - 5.1.1 Micro-Finance /Credit
    - 5.1.2 Venture Capital
    - 5.1.3 Remittances
  - 5.2 International Trade
    - 5.2.1 Trade Barriers
    - 5.2.2 Fair Trade
  - 5.3 Legislation
    - 5.3.1 Intellectual Property Rights
    - 5.3.2 Business rights and commerce laws
  - 5.4 SME Incubation
  - 5.5 Entrepreneurship

5.6 Job Creation
5.7 Labour issues
5.8 Regional Integration

6 **Human** Rights
6.1 Mass Media
6.2 Ethnic minorities
6.3 Migration
6.4 Land ownership
6.5 Housing
6.6 Disaster Relief
6.7 Peace Building

7 Social Development and Culture
7.1 Universal Access
7.2 Access to Knowledge
7.3 Heritage
7.4 Youth
7.5 Creative Arts

8 Governance
8.1 Parliament
8.2 Citizens
8.2.1 Taxation
8.2.2 Land tenure
8.3 Civil Service
8.3.1 National
8.3.2 Local
8.4 Business
8.5 NGOs/CBOs
8.6

9 Cross Cutting Areas
9.1 Poverty
9.2 Food security and hunger
9.3 Gender
9.4 Youth
9.5 Disability
9.6 Infrastructure
9.6.1 Road, Rail, Sea, Air Transport
9.6.2 Energy
9.6.2.1 Renewable
9.6.2.2 Resource-based
9.6.2.3 Distribution
9.6.3 Telecommunication
9.6.3.1 Fibre
9.6.3.2 Wireless
9.6.3.3 Satellite