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WSIS Stocktaking:
Success Stories 2012

WSIS Stocktaking: Success Stories 2012

World Summit Geneva 2003 Tunis 2005
on the Information Society
Turning targets into action

Version 1.0

www.wsis.org/stocktaking

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Introduction

The publication WSIS Stocktaking: Success Stories builds upon last year's first edition while greatly innovating in the identification process of projects. This year's case studies were selected through a contest of WSIS Project Prizes 2012 (www.wsis.org/stocktaking/prizes), open to all stakeholders from submission to voting and served as the basis for WSIS Stocktaking 2012: Success Stories. The announcement of WSIS Project Prizes came in response to requests from participants at the WSIS Forum 2011 for a mechanism to evaluate and reward stakeholders for the success of their efforts in implementing development-oriented strategies that leverage the power of information and communication technologies. The new WSIS Project Prizes is now an integral part of the WSIS Stocktaking Process established in 2004. Prior to the identification of the winners, the WSIS Project Prizes 2012 contest went through several phases, namely, submission and appreciation. The contest had a multi-stakeholder character involving the participation of governments, international organizations, civil society, private sector and others.

From 10 October 2011 to 4 February 2012, WSIS Stocktaking made a public call for projects for WSIS Project Prizes 2012. More than 170 ICT related projects from 50 countries were nominated for the contest. Between 9 February 2012 and 10 April 2012, all stakeholders were invited to register and evaluate projects according to the rules clearly posted online. After dutifully verifying the authenticity of the information provided, registered and vetted users were able to express their voice by casting a vote in each category. The winning projects have received the highest number of votes by eligible stakeholders registered at the WSIS Stocktaking platform. The winner of each category of the voting contest was given the opportunity to describe their projects at length via this publication. The WSIS Team intervene neither in the project identification process nor in the content creation process, and as a consequence, does not endorse, promote, or support any of the views expressed in this document.

The 2012 success stories are in accordance with the mandate of the WSIS Stocktaking set in paragraph 120 of the Tunis Agenda[1] on the Information Society and the Resolution 2011/16 on "Assessment of the progress made in the implementation of and follow-up to the outcomes of the World Summit on the Information Society" which encouraged all stakeholders to continue contributing to the WSIS Stocktaking database.[2][3]

At the Opening Ceremony of WSIS Forum 2012, eighteen winners of WSIS Project Prizes 2012 were announced and handed over with the prizes recognizing excellence in the implementation of projects and initiatives which furthered the World Summit on the Information Society (WSIS) goals of improving connectivity to information and communication technologies (ICTs), particularly within underserved communities.

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[1]   Tunis Agenda, para 120

[2]   ECOSOC Resolution 2011/16 Assessment of the progress made in the implementation of and follow-up to the outcomes of the World Summit on the Information Society, para 4

Interactive sessions "WSIS project Prize Showcasing" that were held at the WSIS Forum 2012 further ensured that the projects were presented to the widest audience possible. Lastly, the diversity of projects in this publication as well as the wide geographic areas that they cover is representative of the many different aspects that the 'information society' touches upon.

Each case study attempts to define challenges and lessons that can serve as a basis for other projects in different contexts. The projects reflected in the publication have already being or are currently being implemented and the vote therefore provides an up-to-date insight into people's concerns on the orientation of the implementation of WSIS related activities. Bridging the 'digital divide' and continuing to innovate with new applications for information and communication technologies are at the core of this publication.

More projects, that follow the same principle of this publication, can be consulted in the online database at www.wsis.org/stocktaking. The database aggregates diverse initiatives aiming at fostering the WSIS outcomes and can provide valuable information to other stakeholders through information sharing of experience and models of implementation. Information submitted in response to ITU official calls serves and will serve as a basis for biennial WSIS Stocktaking reports.

Overview of projects

C1. The role of public governance authorities and all stakeholders in the promotion of ICTs for development: Global Information Society Watch (Association for Progressive Communications, South Africa, Civil Society)

GISWatch is a space for collaborative monitoring of implementation of commitments made by governments towards the creation of an inclusive information society. It focuses on monitoring progress made towards implementing the WSIS action agenda and other commitments related to information and communications. It also provides analytical overviews of institutions involved in implementation. It aims to make governments and international organisations accountable for meeting the commitments they make through contributing to building a strong and sustainable global civil society policy advocacy network. The GISWatch annual report covers the state of the information society from the perspectives of civil society.

C2. Information and communication infrastructure: Sudanese Internet Exchange Point (National Information Center, Sudan, Government)

The National Information Center established the Sudan Internet Exchange Point (SIXP) in August 2010. It allows the members to exchange traffic to each other, encourages the use of local resources and reduces the load on the global Internet. Each member connects to the peering point and then agrees to allow other members to transfer to and from their local network. The exchange point started with only four Internet Service Providers (Sudatel, Zain, Canar, Vision Valle) connected via Fast Ethernet. The goal of the project is to connect all the Internet service providers in Sudan so that the traffic uses less international bandwidth.

C3. Access to information and knowledge: Computers to Educate – "A road to knowledge" (Ministry of Information and Communication Technologies, Colombia, Government)

"Computers to Educate" is a Government program responsible for bridging the social and regional gaps in Colombia by bringing information and communication technologies to children in rural and remote zones of Colombia and by training teachers to use the technology. Its commitment is to contribute to the improvement of educational quality in public schools. This program also contributes to the conservation of the environment by recycling obsolete computers. Computers help reduce paper usage and, as an extended consequence, limit deforestation. The project also helps save carbon emissions, as the recycling of old computers avoid the purchase of new ones.

C4. Capacity building: Digital Poland of Equal Opportunities (Ministry of Administration and Digitization, Poland, Government)

The national digital literacy programme, in partnership with the Ministry of Administration and Digitization, is planning on recruiting 2,600 local community leaders. These leaders, called Lighthouse keepers will teach computers in an informal ways to at least 54,000 adults aged 45 or over. All Lighthouse keepers will receive a certified training and tools useful for their work. A social research team will help them, while a promotional campaign will be conducted to reach out to adults. 200 Lighthouse keepers will receive a grant for educational projects in their communities.

C5. Building confidence and security in the use of ICTs: Building a Safer Internet for Educational Institutions (Odessa National Academia of Telecommunications N.A. Popov, Ukraine, Civil Society)

The project aims at setting a content-filtering solution with a database of inappropriate resources for educational institutions. To facilitate the update of the systems, the processing of the log-files is centralized. The database already includes more than 1 million entries of banned resources, and is spread over 130 servers. The system can be exported in other countries or regions.

C6. Enabling environment: Rural Technology and Business Incubator (Rural Technology and Business Incubator, India, Private Sector)

The company Rural Technology and Business Incubator enables capacity building for sectors in under-served regions by supporting social and rural inclusive start-ups. Prior experience is not always available in rural areas and so the company also undertakes various exploratory trials, pre-incubation experiments, business and field trials as well as technology innovation work in the areas of agriculture, financial inclusion, healthcare or energy. Development and prototyping of relevant, low cost technologies is a core value that the company brings to other companies.

C7.1 ICT Applications, e-Government: Samadhan Project (NICT Indore India, Private Sector)

The project goal is to implement new e-Government capabilities. Information and communication technologies are used to enhance transparency and to reduce the processing time between requests made by citizens and their delivery by the government. It also reduces travelling obligations for citizens who live sometimes further than 4km away from the nearest service centre.

C7.2 ICT Applications, e-Business: Government Business Services (One Stop Shop) System (Ministry of Commerce and Industry, Oman, Government)

The One Stop Shop is an initiative from the Ministry of Commerce and Industry offering a quicker and smoother business registration process for investors based on a paperless environment. The shop provides more than 60 fully automated e-services for investors in Oman covering commercial, industrial and mining sectors with a number of average transactions of 20,000 per month. It promotes transparency and efficiency. It has reduced the processing time from 10 days to less than a day for some applications. Plans are in place and under process to improve, enhance the management of, and fine-tune the application.

C7.3 ICT Applications, e-Learning: Noor Program (Ministry of Education, Saudi Arabia, Government)

Noor System is a comprehensive and integrated structure to provide advance technology for administrations in education. The system covers all the schools affiliated to the Ministry, the Ministry, and other educational directorates. The system will provide many online services for students, teachers, parents and school directors. It will also contribute in the preparation of required reports and provide information on the educational process, through a central database linked with other present and future systems.

C7.4 ICT Applications, e-Health: Ruhanga – Real Time Remote Health Monitoring (Cognizant Technology Solutions, United States of America and India, Private Sector)

Ruhanga is a healthcare application leveraging the power of cloud computing and wireless technologies. It provides simplistic and inexpensive primary healthcare solutions to people living in remote areas across the globe. It also allows the remote monitoring of terminally ill patients who cannot move away from their room. Ruhanga consists of a patient report system, a physician system, a central intelligent processing system and a live video streaming system enabling live interaction between patients and physicians from their mobile phones.

C7.5 ICT Applications, e-Employment: National Unemployment Assistance Program (Human Resources Development Fund, Saudi Arabia, Government)

The Saudi National Unemployment Assistance Program (Hafiz) was created to address the critical need of support for job seekers in finding jobs. This effort was designed to further develop Saudi's Information Society commitment to gender equity and youth empowerment, The Kingdom of Saudi Arabia invested a significant budget in Hafiz e-employment assistance program to match qualified people with job offers through an online system. The Hafiz system gives priority to disabled job seekers.

C7.6 ICT Applications, e-Environment: GreenVoice (ICVolunteers, Switzerland, Civil Society)

The GreenVoice programme of ICVolunteers.org aims to spread awareness about environmental issues and serve as a showcase for projects seeking an answer to those issues. Through the most conscious use of technology, the GreenVoice initiatives target young people in order to instil a culture of care and protection for our natural habitat. GreenVoice works in close collaboration with volunteers in projects such as tree planting, creative photography exhibitions and environmental workshops. These projects aim to strengthen everyone's involvement with the environment in order to limit the negative impact of human activity on the natural habitat.

C7.7 ICT Applications, e-Agriculture: e-Agriculture Community (Food and Agriculture Organization of the United Nations, International Organization)

The e-Agriculture Community is a catalyst for knowledge sharing about the role of information and communication technology in sustainable agriculture and rural development. Established in 2007, e-Agriculture has now over 8,000 members from 160 countries, who shared over 1,600 information resources and 2,000 news and events, and expressed their viewpoints through blogs. 16 online forums on important community identified topics have brought together 16,000 participants, making 3,000 discussion posts and producing 19 tri-lingual policy briefs. Online events are complimented with face-to-face events. Partnerships and collaborations come from both the private sector and development organizations.

C7.8 ICT Applications, e-Science: Automatic Meteorological Stations Network (Universidad de La Punta, Argentina, Civil Society)

During recent decades significant climate patterns have been recorded, which can be arguably linked with the current global climate change. Since the 1960s, precipitations have notably increased, reaching annual average levels much higher than those registered before. In San Luis, as a result of these changes, agricultural areas expanded and there were significant improvements in livestock fields. But negative changes also occurred, such as the rise of rivers' levels and floods, which in turn added to the vulnerability of communities and of the agricultural activity. Scientists, farmers and other stockholders use weather related data to better plan their respective activities. The Automatic Meteorological Stations Network gathers and broadcasts this data in real time and may lead to the further development of climate change scenarios in San Luis.

C8. Cultural diversity and identity, linguistic diversity and local content: Telecentre.org Community Learning Programme (Telecentre.org Foundation, Philippines, Civil Society)

The Telecentre.org Community Learning Program helps facilitate the sharing of ideas, resources, learning, and best practices among members of the telecentre community through the following tools. First the community sites are in multiple languages (English, Spanish, French, Arabic, Russian). Through these sites, member interaction is encouraged via blogs, forum, group discussion, the sharing of photos, videos, and online events (e.g. quarterly webinars, photo contests). Second, there is an Online Library, which is a repository of multimedia resources. Last, the Global Telecentre Map connects telecentre networks across the globe.

C9. Media: Building a Community Newswire Service (Video Volunteers, India, Civil Society)

Video Volunteers aims to democratize the media and empower marginalized communities to voice. Video Volunteers trains communities to produce news, watch it, take action and devise solutions to endemic problems. They have trained over 100 people; over 500 videos have been made that have been watched by over 300,000 people in outdoor screenings and by hundreds of thousands more online. Video Volunteers has records of over 17,000 people taking action after seeing these videos. Lack of connectivity in rural areas remains the biggest challenge. Nevertheless, the organization is committed to making their network grow to 645 correspondents, namely one in every district in India.

C10. Ethical dimensions of the Information Society: Promotion of the Information Society Among People with Disabilities (Ministry of Information Society and Telecommunications, Montenegro, Government)

The Ministry for Information Society and Telecommunications implemented the project "Portal for people with disabilities" with the aim of promoting the Information Society among disabled people. The aim of the web portal is to enable organizations and associations to connect together disabled people in a fast, safe and simple manner as well as to inform the public about different aspects of their life, work and activities taking place in Montenegro. This project will raise the level of information technology literacy of disabled people.

C11. International and regional cooperation: WSIS Cooperation: Research Study and Preparation of International Strategic Documents for the Information Society (Information Technology Organization and Iran University of Science and Technology, Islamic Republic of Iran, Government and Civil Society)

The research project, initiated by the Information Technology Organization and carried out by the Iran University of Science and Technology, aims at reviewing and analyzing domestic and international documents issued within the framework of the World Summit on the Information Society. The analysis, supported by a statistical tool developed in order to process the different data, informs decision makers of the current implementation status of the WSIS outcomes at different levels (domestic, international). The project led to different activities such as the creation of the National Committee for WSIS and the organization of a national yearly conference on WSIS. The project may also lead to furthering regional activities supporting the realization of the WSIS outcomes.

C1. The role of public governance authorities and all stakeholders in the promotion of ICTs for development: Global Information Society Watch (South Africa)

Submitted by the Association for Progressive Communications (APC), South Africa[4]

Background
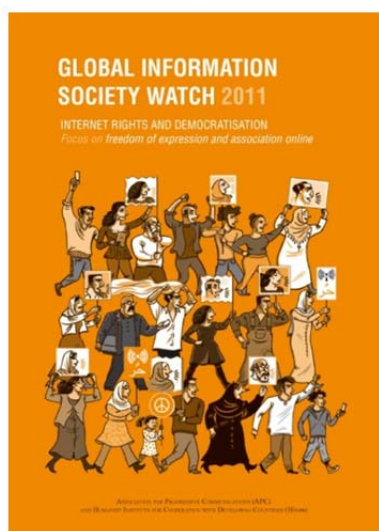
World leaders expressed a 'desire and commitment to build a people-centered, inclusive and development-oriented Information Society' during the World Summit on the Information Society (WSIS).[5] Civil society organizations involved in the WSIS made their own commitment to 'social Justice and People-Centered Sustainable Development' as a core principle.

Unlike other United Nations summits, the United Nations did not establish a centralized follow-up process, either at global or national level, making it difficult for civil society to be actively involved in the follow-up. GISWatch knew that building on the achievements of the WSIS was necessary to assess and link local progress against a wider global setting and to continue building a strong global movement of national civil society policy advocacy networks.

It is in this context that the first edition of Global Information Society Watch was published in 2007 when the Association for Progressive Communications joined forces first with ITeM (the Third World Institute) and Hivos, a Dutch non-governmental organisation, to produce the Global Information Society Watch annual report.

Global Information Society Watch identifies two distinct target groups:

1. Direct target groups: national contributors, civil society/social movements; decision-makers and regulators (at national, regional and global levels) and media. The total number of direct beneficiaries is estimated to be at least 2,000 people by the end of 2012.

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[4]   Note on Authors: To date over 140 different organizations and individuals have contributed thematic, regional or country reports to GISWatch. In addition, GISWatch has an editor, sub-editor, coordination committee and communications and media team who all contribute to the annual production.

[5]   2005. Geneva Declaration of Principles and Plan of Action, A1. Geneva: ITU

2. Indirect target groups: academia/researchers, private sector and other groups or associations. It is difficult to estimate the expected indirect beneficiaries. It is hoped the GISWatch in 2012 ultimately reaches 20,000 people globally[6].

The scope and strategy of GISWatch includes nine elements:

Annual stocktaking

GISWatch is published each year, giving focus to the annual policy development process and in particular to civil society networking and advocacy national levels. Launches of the publication, which take place globally or nationally at strategic events, create useful opportunities for civil society to take stock of the state of ICT policy and implementation.

Ownership by civil society

GISWatch aims to be the foremost legitimate report from civil society practitioners, not experts alone. To achieve this, GISWatch encourages civil society organizations to contribute and provide support in the form of networking platforms, capacity building in research, analysis and writing.

National networking

GISWatch has a strong component for capacity development to help civil society actors engage effectively in ICT policy processes at the national level. Country reports are a way of encouraging organisations to work together and deepen their shared experiences. National activities around the development and dissemination of the report build partnership, networking, capacity and advocacy.

Policy oriented

GISWatch wants to be up to date with policy trends and debates to be in a position to influence national and global policy agenda's. Every year it focusses on a current issue of major public policy importance.

Global reach

GISWatch aims to cover a significant number of countries thereby providing a comparative, international overview. Given the focus of WSIS and the mandate of the initiating organisations of GISWatch, developing countries are prioritised, though we believe that reviewing progress in developed countries is equally important. GISWatch's target is to include 120 countries by 2012.

An essential element of global reach is language access. Publishing GISWatch in many languages is crucial to enable the involvement of national stakeholders and to reach out widely. GISWatch 2007 was published in English, GISWatch 2008 in English and French, GISWatch 2009 in English and Spanish, and a selection of many articles from GISWatch 2011 were translated into Spanish. Our longer-term goal is to make the report available in English, French, Spanish, Russian, and Arabic.

Comparable indicators

A global monitoring mechanism requires a set of indicators that can span geographies over time. Although several such indicators already exist, a critical assessment and possibly additional

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[6] Through an active dissemination strategy, using traditional media and the internet.

development of indicators is needed to rank countries by achievement an inclusive information society.[7]

Critical but reliable

GISWatch is expected to become an authoritative and influential publication in the international field of information-and-communication-technology-for-development (ICT4D) with direct impacts in advocacy. This requires that GISWatch gathers and presents factual information from a diversity of sources. The reports and the website intend to be of interest not only to specialists but also to journalists and students.

Multimedia approach

In order to maximize the impact of GISWatch on global, regional and national developments and to reach out to a diversity of target groups worldwide, GISWatch develops an innovative dissemination and outreach strategy beyond the reports and website. This entails dissemination and access via CD-ROM, video, radio, mobile technology, press packages, targeted brochures columns and articles for newspapers and magazines.

Synergy with existing activities

Wherever possible, GISWatch makes use of and contributes to other relevant activities of its project partner, Hivos, to ensure cost-effectiveness and strategic use of resources and networks.

Goals & timeframe

The long term goal of Global Information Society Watch is:

To become the premier information platform for civil society perspectives on the state of the Information Society on global, regional and national levels, as well as a vehicle for improvement of an Information Society that deepens democracy and social justice.

Derived from its overarching vision, aim, and values, GISWatch has formulated two core objectives:

1. The in-depth and reliable assessments of and factual information on ICT and information society challenges in GISWatch publications will influence policy-makers to enact decisions that are people-centered, and rooted in sustainable development and social justice.

2. Through access to training, coaching, advice, and networking, representatives of civil society organisations will be better able to influence national, regional and global ICT policies and information society processes and challenges.

More specifically, Global Information Society Watch aims to (i) encourage critical dialogue; (ii) empower and motivate national civil society organisations and their constituencies, and (iii) inform decision makers and the media.

Each year, the short term goal of GISWatch is to directly address an issue or theme that is central to WSIS Government and Civil Society commitments through critical assessment, review and monitoring of trends, emerging issues and implementation of activities.

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[7]   See Measuring Progress, GISWatch 2007, p. 77 – 95

To date, GISWatch has addressed the following themes:

2007:   Focus on Participation
2008:   Access to Infrastructure
2009:   Access to Online Information and Knowledge
2010:   ICTs and Environmental Sustainability
2011:   Internet Rights and Democratisation
2012:   Transparency and accountability – with a focus on corruption.

The annual short term goal is achieved practically in the form of the publication, which includes a series of chapters focussing on thematic aspects of the issue; a review of institutions involved in policy making and governance in relation to the theme; and regional reports and country reports.

An important element of this annual process is to support members of the GISW network to develop a deeper understanding of the issue, to identify opportunities for policy advocacy at national, regional and international levels, and to identify emerging trends as well as gaps in implementation of existing commitments.

Project's added value and importance

To date over 140 different organisations and individuals representing 55 different countries have contributed thematic, regional or country reports to GISWatch.

Participation in GISWatch at its simplest includes joining the network and writing a thematic, regional or country report for GISWatch. To this end, the project is very replicable. However, there is a limit to the number of reports that can be included in each annual report due to the limits on cost of production and effective dissemination.

Responding to this, in 2010, an interactive website was designed to provide a platform for the addition of 'soft copy' reports, related material, blogs and other content. This platform provides opportunities for participation by a far wider audience than hard copy distribution.

Increased participation in the network-building element of the initiative has been made possible since much of the network's activity takes place online and through activities at the local level, which are not as resource intensive.

Participation in effective advocacy and capacity building is limited by the availability of staff support time and resources. However, many GISWatch members undertake significant activity, particularly in relation to policy advocacy, often at their own initiative and expense, indicating the commitment and seriousness with which they approach GISWatch.

GISWatch members implement local activities to build awareness around issues, translate GISWatch content into local languages, build constituencies, develop common policy positions and develop action agendas.

Support is provided where possible by the Association for Progressive Communication and HIVOS staff, either directly through GISWatch or through relevant organisational activities such as participation in the global WSIS Forum, Internet Governance Forum, and various regional and national level activities.

Partners of GISWatch regularly evaluate the impact of the project and it's value to participating members. In the 2007-2010 evaluation report, participants were unanimous in commenting that GISWatch has brought added value to their organisations, committing themselves to stay involved in GISWatch, and noting the impact their participation had made in strengthening their capacity as civil society advocates:

The second Middle East story came from Sam Bahour in Palestine. It described how GISWatch had led to a relationship being established with an Israeli partner. This relationship was initiated when the Israeli introduced the report to Sam. The establishment of this relationship was in itself seen as a "win", with one of the side-benefits being that the Israeli learnt how the pace of Palestinian ICT development was negatively affected by the Israeli occupation. The following year the Israeli "partner" again forwarded the call for proposals and Sam then worked with a Palestinian research partner to produce the "first-ever" report on ICTs and environmental sustainability in Palestine.

The report sparked interest on the issue of ICT waste, on which there had previously been minimal, if any, interest. Sam participated again in 2011, with the topic of human rights (and social resistance) seeming especially appropriate for Palestine. At a personal level, Sam felt that GISWatch had disciplined him to look deep into the sector while at the same time taking a step back to analyse where Palestine stands in relation to the various topics. For him, a strong message that has come out of his experience in the initiative, which he wishes to continue, is: "We are all in this together." [8]

The Asian story, entitled "From Socio-Cultural to Internet Enabled!", came from Syed Kazi, of the Digital Empowerment Foundation in India. It focused on achievements of and changes within the Foundation. The Foundation's involvement in GISWatch started in 2008 and Syed feels that their involvement has helped them extend their perspective on ICT and expand the organisation's objective and mission in respect of environment and climate change, on the one hand, and internet rights and human rights on the other. This happened firstly through collaboration with APC on a five-country comparative study for the 2010 report, which resulted in a subsequent report 'Mapping Policy Advocacy on ICTs, Environmental Sustainability & Climate Change in India' which will be launched during the Manthan Award in December 2011, at the ICT Environment special consultative session.

In undertaking the study, the Foundation made contact with key policy makers, and laid the basis for collaborative work with government. The study also led to the creation of a new project within the organisation, entitled Green Prakriya, which aims to create a knowledge eco-web platform for ongoing learning, sharing and collaboration amongst all stake holders.

The Foundation's GISWatch chapter of 2011 was entitled 'The Internet, Human Rights and Social Resistance'. Again, the process of producing this chapter led to modification of the objectives of the organisation to incorporate advocacy around Internet as a basic human right. The Foundation had published articles in the local media and also planned to organise a workshop on Right to Information, Internet Access and Inclusive Development at the Internet Governance Forum (IGF) meeting in Kenya in September 2011.[9]

The final story came from Nodo Tau in Argentina, which has been part of the GISWatch initiative from the time of the London workshop in 2006 at which the project was presented and discussed. This meeting, in itself, was seen as very enriching. Since that time, Nodo Tau has produced chapters for GISWatch on an annual basis. The story of change focuses on what this has meant for Nodo Tau.

The strength of the project lies in its well-developed and successful annual production of the GISWatch report; an increasing network of GISWatch members who wish to join the initiative; and

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[8]   Evaluation of GISW, 2007-2010. Debbie Budlender, Community Agency for Social Enquiry, August 2011, page 22

[9]   Evaluation of GISW, 2007-2010. Debbie Budlender, Community Agency for Social Enquiry, August 2011, page 23

the unique niche that GISWatch occupies as the only international civil-society focussed initiative prioritising monitoring of critical issues central to the 'Information Society' and advocating for 'Social Justice and People-Centred Sustainable Development'.

"No other publication, to my knowledge, is dedicated to monitoring the ongoing evolution of the Information Society from the perspective of civil society, and particularly the growing movements for people's empowerment rooted in the global South." Marc Raboy – Beaverbrook Chair in Ethics, Media and Communications at McGill University (Canada)

Challenges

Our main challenges in producing GISWatch over the past five years include:

- The limit to the number of country chapters that can be included in the report. Our response was to provide innovative ways for new civil society advocates to join GISWatch, primarily through participating in the online network, and accessing the interactive GISWatch online platform.

- The significant resources required to provide meaningful support to GISWatch members in capacity building and advocacy work. The resources required are significant, making this is a more difficult challenge to mitigate. The hosting partners, APC and HIVOS, provide opportunities for GISWatch members to participate in their own related advocacy and capacity building activities.

Conclusion

Analysis of policy and policy implementation contexts is improved and the outcomes potentially more influential when dedicated staff are able to support the work of national advocates, leading to more active engagement by government and more inclusion of civil society in processes as a result.

Having more reports does not necessarily mean better reports nor policy analysis. However, in spite of sometimes varying quality of work, the 2007-2010 evaluation revealed that a large number of people use their own work in a number of ways to support local advocacy and in the absence of GISWatch, members would never have developed their capacity to engage in debate and discussion on a range of issues.

Capacity building of country partners and contributors

A creative and multifaceted approach to capacity building is needed to address the needs of the increasing number of GISWatch members. Demands can only be met effectively by securing significant additional funds, or by integrating capacity building into relevant activities that are part of the host organisations' core work.

Partnership building and support for partners

- Strong partnerships are built most effectively through one-to-one support, provided primarily by the GISWatch editor, supported by project staff,

- Provision of a facilitated online discussion space and platform also strengthens partnerships,

- Providing opportunities for GISWatch members to participate in relevant events and processes is an excellent strategy for building one-to-one partnerships and building the network as a whole, and

- Providing launch support packs, particularly support for translation of material into local languages, is a cost-effective means of building partnerships and supporting partners in local advocacy work.

Dissemination and outreach is critically important in terms of influence, however, costs to print and disseminate the annual publication are becoming prohibitive. More targeted dissemination of GISWatch is needed to specific decision-makers, key organisations, and issue experts as well as social media and online dissemination strategies.

GISWatch is needed

There continues to be a pressing need for GISWatch, which remains the only initiative focussing on building global civil society advocacy to further the goals and commitments agreed by stakeholders in the WSIS and post WSIS period.

C2. Information and communication infrastructure: Sudanese Internet Exchange Point (Sudan)

Submitted by the National Information Center

Background

Internet Exchange Points interconnect Internet service providers in a region or a country, allowing them to exchange domestic Internet traffic locally without having to send those messages across multiple international hops to reach their destination. By keeping local traffic local and avoiding international links, local operators reap substantial cost savings and thereby extend such savings to the local users' community. Internet Exchange Points are not limited to fixed data or to traditional service providers; they can serve a very diverse and unique mix of service providers, including international carriers, mobile operators, content providers, Voice over Internet Protocol parties, application providers, hosting companies, TV broadcasters and other related businesses. In case of disasters and complete blackouts from global Internet connectivity, the Internet Exchange Point provides for local traffic exchange with a high availability.

Sudan Internet Exchange Point (SIXP) has been proposed as a component of Internet infrastructure that can increase the affordability and quality of the Internet for local communities. The project enables local networks to efficiently exchange information at a common point within the country rather than exchanging local Internet traffic overseas.

Scope of the Project

The project aims at the following:

- Connecting local Internet service providers between each other.

- Avoiding the unnecessary use of the international bandwidth of the country by keeping the local Internet traffic at local level.

- Promoting the implementation of new services and the development of local contents.

Project Objectives

The Sudan Internet Exchange Point interconnects local Internet service providers in the country, allowing them to exchange domestic Internet traffic locally without having to send those messages across multiple international hops to reach their destination. This will reduce the overall cost and provide fast communication between the local providers.

From a business point of view, the exchange point delivers many benefits summarized as follow:

- Lower the transit costs.

- Lower latency.

- Increased usage revenues.

- More and better services.
- Increased customer satisfaction.

About Sudan Internet Exchange Point

The Sudan Internet exchange point is a physical infrastructure that allows several Internet Service Providers in Sudan and network operators to exchange traffic between their networks, generally referred to as autonomous systems, by means of mutual peering agreements allowing traffic to be exchanged at no cost. The project is an initiative of the local Internet community in Sudan with a common purpose to encourage the exchange of Internet traffic in a free-market environment between all interested parties. Organizations that connect their networks to an exchange point benefits from reduced reliance on expensive international transit for exchanging local traffic between themselves, and improved the efficiency of their operations and communications. Not only will this reduce transport costs and network latency, but it will also ensure faster access to local content because local traffic is exchanged locally, rather than through one or more third party. This exchange of traffic between networks at an Internet Exchange Point is known as 'peering'.

Description

A resilient and redundant topology is considered to allow for the effective and efficient interchange of local traffic locally. To speed Internet integration, the cost of Internet connectivity and of bandwidth must be reduced and the quality of service improved. One of the most effective mechanisms to accomplish both cost and service gains is with an Internet Exchange Point. An Internet Exchange Point is a facility operated by a single entity that owns and operates the routing and switching platforms used to interconnect the various subscribers.

Currently there is no Internet Exchange Point in Sudan. As a result, nearly every Internet service provider must either have multilateral arrangements with other service providers or alternatively rely on their Internet connectivity to reach other networks. Both alternatives are either logistically difficult to arrange for and maintain or expensive and entail delay in communication. Internet Exchange Points are vital elements of Internet infrastructure that enable networks to exchange traffic. Multiple Internet service providers can connect at a single Internet Exchange Point.

Descriptive Details

The National Information Center in Sudan is considering establishing a Sudan Internet Exchange Point with Data Center operating a 24/7 Network Operating Center.
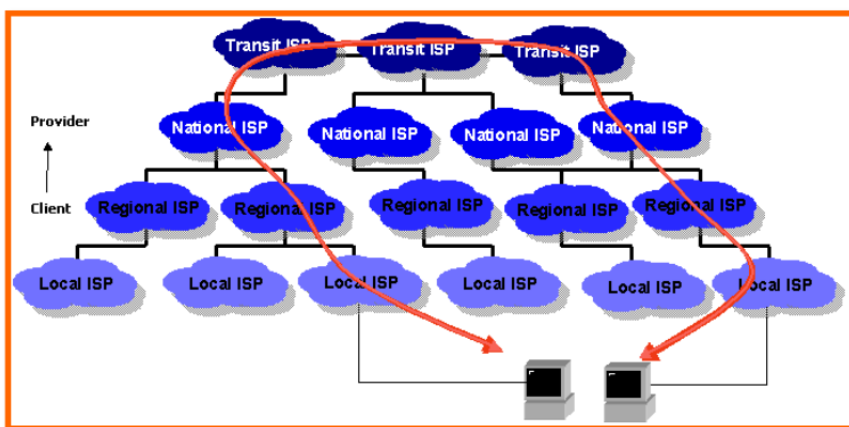

Figure 1 Internet without Local Internet Exchange points

The Figure 1 above shows the worst case scenario of an Internet without peering: the traffic from one local Internet service provider to another must pass up and down through several tiers of transit providers. In many cases, particularly in developing nations, the ultimate transit providers are in a different country from the local service providers. The result is that traffic between Internet service providers in the same city might be routed via servers in Europe or the US. This is expensive and inefficient. The solution is for local Internet service providers to peer: the shorter the distance a packet must travel, the cheaper, faster and more efficient its journey. Where there are more than two local Internet service providers in a market, it makes sense for all of them to get together for peering at an exchange point, rather than concluding a series of separate peering agreements.
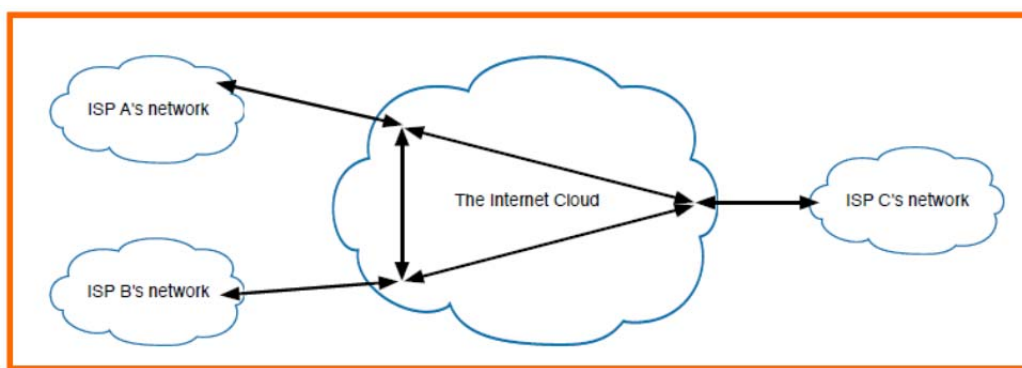
Figure 2 Local ISP's are connected through International link

As shown in Figure 2 above, the absence of an Internet Exchange Point results in all traffic between Internet service providers (assuming A, B, and C are in only one country) being exchanged via international links whose costs, particularly for developing countries, are significantly higher than those of local links. Typically, even if only 20 percent of a nation's traffic is local, it is economically viable to offload the local traffic from the expensive links in favour of a local link interconnection offered by an Internet Exchange Point solution

Figure 3 Local ISP's are connect through Internet Exchange Points

As shown in its simplest form in Figure 3 above, reducing operating costs by establishing a local Internet Exchange Point not only decreases Internet access prices to the end user, but it also provides faster response times to local websites and other local Internet services.

Objectives and Requirements:

The objective is to provide high-speed, reliable and resilient traffic exchange facility for both Sudan and external entities, allowing them to rout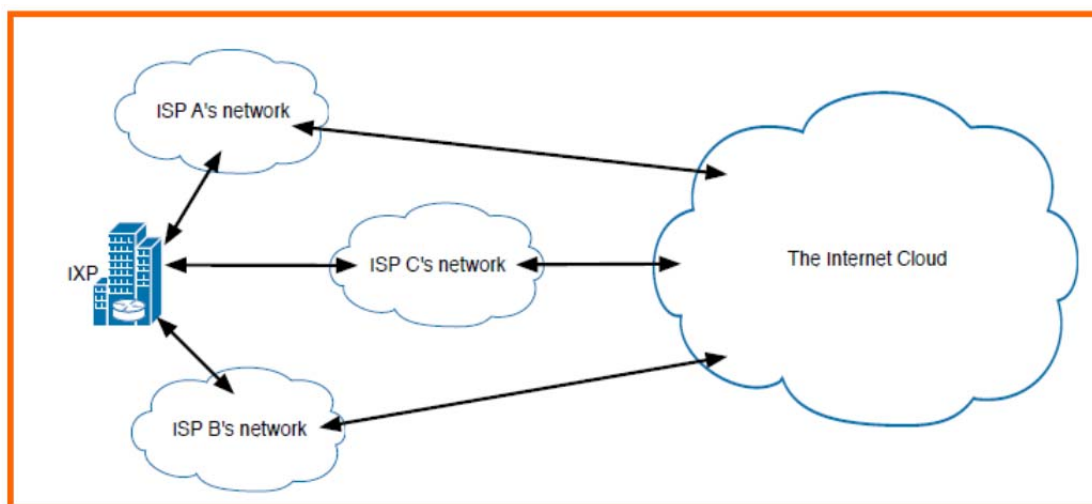e IP traffic efficiently, thereby providing faster, more reliable and lower-latency Internet access for their customers. The overriding aim is to keep local Internet traffic local while deriving other benefits**.**

- A redundant and resilient topology will be required in order to provide the expected quality of a service providers networks meeting point (an Internet Exchange).

- The design must cater for expansion of the network and growth of the customer

- The network must provide excellent availability so that no one trunk or node failure will cause major outages of the network.

- Diverse routing must be available allowing connections to be rerouted around then network in case of trunk outages.

The new network will enable domestic exchange of domestic Internet traffic between Internet service providers in Sudan, to reduce the cost of Internet connectivity, increase the bandwidth for local traffic and provide an improved quality of service.

More Benefits

- The Exchange Point reduces operational costs for Internet service providers

- Spurs competition among Internet service provider leading to decrease prices for consumers

- Improves reliability and performance leading to cost benefits to end users

- Creates new local Internet bandwidth in the local market

Business Impact

A peering agreement is a bilateral business and technical arrangement in which two connectivity providers agree to accept traffic from one another (and from their customers, and their customers' customers). In a peering agreement, there is no obligation for the peer to carry traffic to third parties. There are no cash payments involved. It is rather more like bartering, with each Internet service provider trading direct connectivity to its customers in exchange for connectivity to the other service provider's customers. The transit provider also agrees to carry traffic from the customer to third parties, and from third parties to the customer. The customer service provider is thus regarded as an end point for the traffic; the transit provider serves as a conduit to the global Internet. Generally, the transit provider will undertake to carry traffic not only to and from its other customers, but also to and from every destination on the Internet. Transit agreements typically involve a defined price for access to the entire Internet.

For virtually all Internet service providers located in developing countries, the only option for connectivity to the global Internet is a transit agreement. That is, a given developing country service provider has such a small customer base that the international Tier 1 and Tier 2 providers have no business incentive to enter a shared- cost peering agreement with it. Instead, the developing country Internet service provider must sign a transit agreement with its upstream provider.

The result (to oversimplify slightly) is that developing country Internet service providers pays 100% of both outbound and inbound traffic; under the terms of the transit agreement, the service provider on the other end of the international link does not share the cost of exchanged traffic. This means that the developing country service provider must pay 100% of the international transit costs for all

packet traffic (e.g. email, web pages, file transfers) that originates with its customers and that terminates with its customers.

Quality of Service Advantages

Without an Internet Exchange Point, even domestic traffic must be exchanged internationally, entailing delay in the network. There may be satellite circuits involved in the international link that introduces more delay in the communication. Significant network latency translates into slow connections for users, putting a tremendous range of Internet services out of practical reach. Local Internet enterprises find themselves at an inherent disadvantage if they attempt to serve local customers. Ironically, they find themselves at a double disadvantage in serving domestic customers, delay to reach them and the delay for the response, as it has to come and go through the international links. Indeed, many and perhaps most developing country Internet services are hosted on servers in the United States or Europe, to eliminate at least the delay to half for each transaction.

An Internet Exchange Point removes network latency by eliminating the need for any international hops in the routing of domestic-bound traffic. The result is that more customers use domestic Internet services, increasing local demand for bandwidth and prompting a cycle in which ever more bandwidth is dedicated to local interconnection. Moreover, each domestically-exchanged transaction effectively frees up an equal amount of international bandwidth, improving connection speeds and reducing latency of Internet service providers' international links. Since domestic bandwidth is always cheaper than international bandwidth, the business cases for domestic Internet enterprises can improve dramatically, not just for Internet service providers, but also for online banking services, e-commerce sites, online government, content hosting and web services. Consideration can also be given for interconnecting other Internet exchange points in different region, which would create a latticed network of interconnected Internet exchange point, for the purpose of reducing the cost of regionally-bound traffic. Regardless of the medium a closer connection will be cheaper, faster, and more efficient.

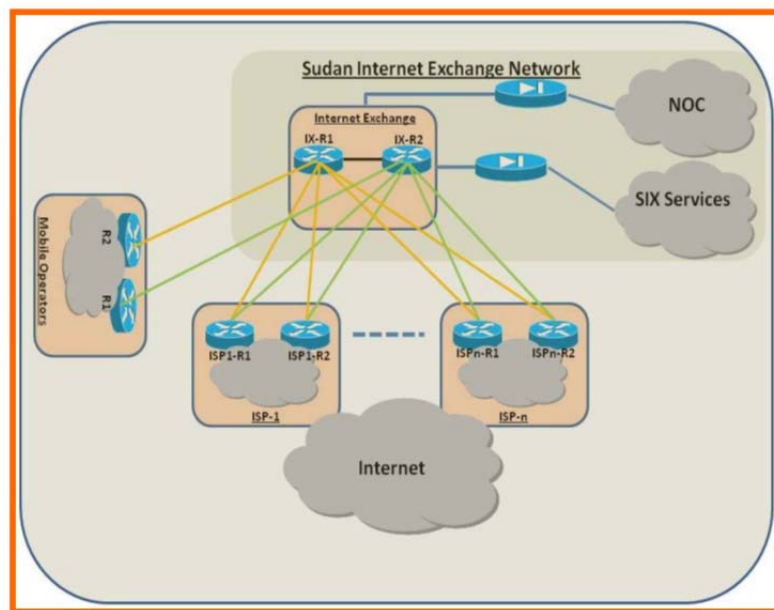## Short Technical Details of the Network Design

Figure 4 Network Diagram

The above diagram depicts the proposed Sudan Internet Exchange Point designed with a Cisco 7600 Router. It shows that there will be two Cisco 7600 routers for this design, and that Gig interfaces will interconnect these routers. For disaster recovery it is recommended to install them in two different locations (different buildings, different rooms or at least in two different racks). Fiber-optic connectivity will be there between Internet service provider and SIX and between the SIX Cisco 7600 routers. This topology provides a full mesh connectivity to avoid network outage in case of any single connectivity or device failure in the network. Each of the 7600 will be equipped with a 24 port switch with 1Gig interfaces. Internet service providers will connect directly to the router port.

In the above diagram, NOC stands for Network Operation Centre and represents all the related services, including monitoring applications, servers and PCs fulfilled by the centre.

In order to support this design, various hardware components are required. These include two 7606 Cisco routers. There will be two separate cabinets, and each will house one of the Cisco 7606 routers. Each cabinet will be supplied with a different power source so that a single power failure within the location cannot take both routers out of service. It is recommended however that this equipment should be installed in separate premises in case a disaster should occur.

Network Operation Centre Specifications

The Network Operation Centre provides around-the-clock proactive monitoring to the Sudan Internet exchange point network, hosted applications, and services. The centre provides the capability for effective service-based monitoring for the service providers community. To meet the ever-increasing challenges of maintaining a stable, reliable, technology environment for its

customers, the National Information Center has established a state-of-the-art operations centre with the following points in mind:

- The operation centre is in a spacious hall to easily accommodate 3-5 individuals with their office equipment (a desk, PCs, monitors).

- Ideally, the hall is partitioned into two sections: one for the network operation centre and one for the data center where the devices are. In case of physical failure, the personnel of the network operation centre can have an easy access to the data centre.

- The data centre is located in the basement. The personnel have a fast and easy 24/7 access to the data centre.

- The centre is located at the 6th floor, as high as possible so it can have a better view to monitor the surroundings, as one of the duties of the centre is to monitor against natural disasters.

- The Network Operation Centre has three parts: a command center, an automation center and a service center

- The command center is a fully self-contained group within the IT organization that is largely invisible to end users automation tools. Even with such a broad awareness of this, both tools and processes ownership are often fragmented. It makes sense to unify the ownership of the tools and of the processes. By ownership, we suggest that a single group be responsible for the entire life cycle of management and automation of software tools. This group acquires, installs, configures, integrates, maintains, and optimizes the tools.

- When the tools are in many hands of many organizational entities, unification for the purpose of operational optimization is nearly impossible.

- The automation center may exist as a subset of the command center or it can be a sister group within the operations center. Either way, a very tight bond exists between them.

- A service center encompasses functions previously done by the help desk. It is also a center of excellence within the IT organization, not just a "virtual desk" to approach with service incidents. It is the face of IT to the customers, receiving not only distress calls, but also service requests.

The Network Operating Center is shown below:

Traffic Analysis

There are lots of tools available for monitoring and analyzing network traffic. The Sudan Exchange Internet Point uses some of the standard tools that will monitor SNMP network devices and plot pictures showing how much traffic has passed through each interface.
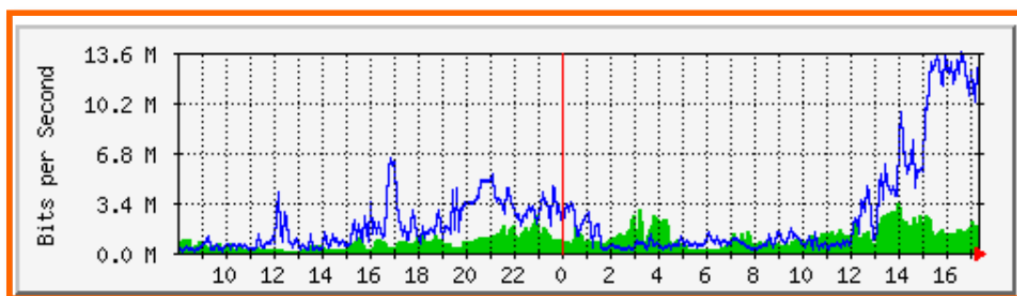
Figure 5 Traffic monitoring system graph

National Hosting

Some services are national, meaning that they are offered to all Sudanese nationals. An example is the federal government departments' web sites. These are not supposed to be offered through a specific operator, but rather from an independent provider. Having Sudan Internet Exchange Point to serve as the interconnection point for all operators and service providers makes it the best spot to offer hosting facilities for the government departments.

For More information about the Sudan Internet Exchange Point, please check the following website: http://sixp.sd/brtg.php

C3. Access to information and knowledge: Computers to Educate – "A road to knowledge" (Colombia)

Submitted by the Ministry of Information and Communication Technologies, Colombia[10]

Background

Figure 6 Multipoint computers

Computers to Educate (CPE) is a social program from the Ministry of Information and Communications Technology and from the Ministry of Education in Colombia. It seeks to reduce social and regional gaps and to help improve education quality based on the incorporation of Information and Communications Technology (ICT) in basic and intermediate public education. This was evaluated in a study made by the *Universidad de los Andes* in 2010. The study concluded that variables such as desertion, academic achievement measured, and access to higher education have been positively impacted by information and communication technology, provided that the teachers are also properly trained.[11]

So, the integral strategy of Computers to Educate shows that there are clear impacts in educational quality and reduction of gaps; the challenge is to increase its order of magnitude, which will be achieved with the targets of Plan Vive Digital.

The objectives of the National Development Plan 2010 – 2014 are to generate more employment, to reduce poverty and to achieve a greater security. To achieve these objectives, it is necessary that Colombia remains on the path of growth and competitiveness, a challenge promoted at least since 2010.

Figure 7 Indigenous' first time with a computer

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[10] Note to the reader: The text was also published in: ITU, 2011. WSIS Success Stories, Geneva, ITU

[11] Academic achievement was measured using a score scale system created by the Ministry of Education (ICFES)

The mission of Computers to Educate responds to these principles, especially in the chapter of Sustainable Growth and Competitiveness of the National Development Plan (chapter III).

The strategy of "Innovation for Prosperity", in its dimension of "Knowledge and Innovation" highlights the importance of information and communication technologies and the importance of promoting their use for the following reasons:

- They support the country's productivity and competitiveness

Figure 8 Indigenous' first time with a computer

- They enable the development of knowledge-generating contents and applications

- They are excellent platforms for the educational process

- They strengthen the capacities of the elementary and high school teachers

In addition, all this is in line with the issues defined at a level of objectives and methodologies by the Vive Digital Plan for Colombia, the Ministry of Information and Communication Technology, in its purpose of broadly disseminating the use of the Internet as means for prosperity. Likewise, this is also in line with the Quality Education Plan of the National Ministry of Education, thus contributing to the improvement of the quality of elementary and high school education. Finally, this responds to the approach of the Ministry of Environment as to the rational environmental management of computers residues, and is in agreement with the Law 1341 of 2009, also mentioned in the Development Plan, on the responsible management of the information and communication technologies.

Computers to Educate has been a strong advocate for the introduction of information and communication technologies into basic and intermediate public education in Colombia. Over 11 years, lessons have been learned which have enabled the management model to be adjusted to make it more efficient, with a stronger cost-benefit ratio, and a more inclusive, more integral and more sustainable program. This has also brought environmental, economic, social and educational benefits, through strategies ranging from reconditioning, maintenance and educational accompaniment, through, to the management efficiency of electronic waste. Since 2000, and till 31 December 31 2011, Computers to Educate has been providing benefits to 27,377 public schools (more than 60% of all schools in Colombia) with 373,271 computers, which have given access to almost 6,400,000 children (65% of enrollments in the public system). Educational accompaniment has been provided to more than 15,000 schools, encouraging competences among 50,842 teachers, or 18% of the total number of teachers in the country. Furthermore, 168,235 computers have been remanufactured, and the inappropriate final disposal of 5,059 tons of electronic waste has been avoided. Computers to

Figure 9 The refurbish fabric of Computers to Educate

Educate has carried out social investment worth USD172 million over ten years for the most in needs. This investment has generated a return of 2.41 to society, according to Econometria (2008).

This program, seeks a Colombia without social exclusion. It aims at guaranteeing access to, and capacity of use of information and communication technology for the entire population before 2014. This will allow learning environments to be enriched by obtaining new forms of access to knowledge, contributing to its production, and supporting education activity from a pedagogical point of view. Therefore, the program is of benefit to public educational institutions, Houses of Culture and public

Figure 10 The refurbish fabric of Computer to Educate

libraries across the country, consolidating a model of integral management of electronic waste complementary to the strategy for reconditioning and assembling computers. This places Computers to Educate at the forefront of international recognition. With these activities, thousands of tons of outdated computers and peripherals have been saved from inappropriate forms of open-air disposal or discharge into sanitary fills, with which there would have been serious environmental consequences due to the hazardous waste they contain.

Furthermore, Computers to Educate generates economic benefits for society by placing a value on waste through practices of recovery and use of items and materials, for subsequent conversion into robot didactic platforms which can be used by our children and the young.

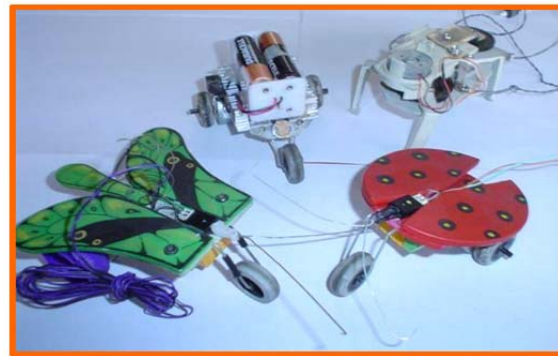Figure 11 Electronic waste material that Computers to Educate found and that was transformed into raw material

Figure 12 Robots made by children from waste material

When the computers are delivered to their recipients, they have a one year guarantee, and after that, Computers to Educate offers a preventive and corrective maintenance service for the following year in order to prolong the useful life of equipment delivered, and to guarantee the sustainability of the processes initiated. Along with this management strategy the program seeks to generate a culture of use and care of computers.

With these tools to be used in educational activity, it is not sufficient just to deliver them to the schools. There is an entire process of formation and accompaniment to be implemented so that

these tools may be used effectively, and this involved developing strategies designed to incorporate information and communication technology in the best possible way into the local processes of each educational establishment. The integration of computers into pedagogical processes promotes collaborative learning, creativity, new ideas and the personal and professional growth of pupils and teachers alike. This has a positive impact on the development of communities and on their production processes.

Figure 13 Some transportation ways to rural areas

Figure 14: The Computer to Educate team has to go to remote rural area using different transportation means. In this photo, this team is trying to deliver computers by a canoe via the Casanare River in order to get to Hato Corozal, Casanare town.

Reduction of social and regional gaps

UNCTAD has often stressed the capacity of information and communication technology to reduce poverty, as it reduces distance, provides opportunities and generates knowledge. Similarly, the WSIS Outcome Documents (2003) stated that information technologies can foster the achievement of the Millennium Goals.

Figure 15 Girls using a computer for the first time

Figure 16 Kids making robots with e-waste

Many of the barriers, which in the past made access to education difficult or even impossible for a good part of the population, have now been reduced with telecommunications. Today, digital educational content, and Internet applications such as social networks make it possible for thousands

of people, wherever they may be and whatever their socio-economic situation is, to obtain and share knowledge.

Therefore, information and communication technologies have arisen as a factor of equity, since the increased opportunities for learning potentiate the flow of knowledge within a wide range of populations, especially those that have traditionally been considered to be the most vulnerable, as described by Haddad and Draxler (2002).[12]

Therefore, it is impossible today to propose any target in education without taking technology into account. The equitable generation of opportunities for members of society should lead to the eradication of poverty and misery and education is the best way for people to improve their conditions of life.

However, the simple fact of providing access to the technology does not guarantee real impact in educational quality or in closing gaps.[13] Therefore, more than six years ago, Computer to Educated initiated a process of formations for teachers and managers, with regard to competences and skills which are not merely technological, but also cover basic areas. The scheme seeks to support the learning of children and the young in areas such as natural sciences, mathematics and social sciences, and also, to promote community development through the formulation and development of productive products, creating wealth for the population living around schools benefitting from the program. This formation is catered for teachers, since their role in this process of appropriation and use of new technologies is of primary importance. The teacher is a dynamic agent, and a promoter of collective processes of the construction of knowledge, developing creative and innovative qualities among pupils, by using technological tools. These technologies, far from claiming to replace the valuable work of traditional teaching, in fact reinforce it, 'potentiating the quality of learning achievements, facilitating the acquisition, of latest generation competences, promoting learning throughout life, and improving institutional management'.[14]

Figure 17 A kid making a robot

Computer to Educate makes a decisive contribution to this, according to a research from CEDE, Universidad de los Andes.[15] The research finds that the program has a positive and measurable impact on students in schools which benefit from it, in lower desertion rates, better academic achievement, increased access to higher education, and higher levels of income in employment for

[12] Haddad, W. D. & Draxler, A. 2002. *Technologies for education : potentials, parameters, and prospects,* Paris; Washington, DC, UNESCO; Academy for Educational Development.

[13] Angrist, J. D. & Lavy, V. 2002. New evidence on classroom computers and pupil learning, Cambridge, MA, National Bureau of Economic Research.

[14] UNESCO Institute for Statistics 2009. Guide to measuring information and communication technologies (ICT) in education, Montreal, UNESCO.

[15] Mejía, M. a. I. 2010. Evaluación de Impacto y Sostenibilidad del Programa Computadores para Educar.

those most in need. All of this, according to the University, suggests that the use of information and communication technology reduces the gaps in knowledge between rural and urban pupils, and between the boys and girls, at the same time as benefiting the poorest students and those with parents who have the lowest level of education. The study found evidence that the use of these technologies increases the possibility of access to higher education among the poorest groups, potentiating the capacity for education policy to be a decisive factor in inclusion and social mobility. In summary, the use of technology, with proper appropriation, encourages the reduction of social and regional gaps. The following are some of the main results of the study:

1. Fewer children out of school. As a result of the educational accompaniment, the impact evaluation found that the schools which benefited from the program in 2005, and had previously had no kind of technology program, had a reduce probability of desertion by four percentage points after three years of benefit from the Program, with an integral strategy for educational accompaniment. So, for example, if the school had a desertion rate of 10%, after three years of the program it would fall to 6%.

2. Higher scores for greater opportunities. With regard to academic achievement, the research concluded that the Program also contributes to improvements of results of State examinations (ICFES), with 18.8 percentage points higher than the standard deviation, eight years after a school starts to receive benefits. In other words, any Grade 11 student, whose school has been receiving equipment from the Program for eight years, has a score 2.1 higher than it would have had if the same school had not received the integral strategy from the Program during that time.

3. More educated young people make a better country. The study also found that young people who graduated from the schools where teachers had access to the Program, increased their admission to higher education by 2.7%. So, if a school which had been receiving program benefits for eight years graduated 100 young people in 2009, and 42 went on to higher education, only 30 would have done so if the school had not received the benefits of the Program over the last eight years.

4. Higher income means greater progress. Finally, and according to international studies which show that higher academic achievement means higher employment income, results show that the Program can increase employment income by up to 4.6% for students in schools that benefited from the program.

The importance of the impact on beneficiaries is even more important, as they are the poorest students in Colombia. The majority of poor students have SISBEN level 11 scores,[16] while the average families in public

Figure 18 e-waste that is transformed into raw material

schools have a score of 13.2. The beneficiaries' parents have an average of 4.7 years education compared to parents of students in public schools, who generally have an average of 5.2 years education. SISBEN helps to identify potential beneficiaries of social programmes. For example, a

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[16]   SISBEN is the system to identify potential beneficiaries of social programs. It is a tool for identification which organizes individuals in accordance with their standard of living and allows technical, objective, uniform and equitable selection of beneficiaries for State social programs, in accordance with their specific socio-economic situation.

student with a level between 1 and 3, may have access to state subsidies through a number of programmes, and in accordance with the regulations.

This program is ready to be rolled out to 100 per cent of the public schools across the country in Colombia. The reason why it cannot be rolled out, however, is that there are more than 11,500 schools, covering almost 1,000,000 children, who live in the most vulnerable regions of Colombia and who have never had the opportunity to see or touch a computer. Moreover, 89 per cent of these schools have only 20 pupils, and 70 per cent do not even have electricity. Furthermore, 60 per cent of the teachers in public schools do not know how to best take advantage of these technologies, Thus, there is also a challenge to increase coverage of the pedagogical formation in ICTs.

Goals & timeframe

In 2014, as an integral and sustainable strategy, Computers to Educate will allow 100% of the public schools to have access to terminals. An average ratio of 12 children per computer should be reached, thus fostering the sustainability of the infrastructure, its pedagogic adoption, the development of quality education, and its rational environmental management within the framework of the vive Digital Plan and the Educational Quality policy.

Project's added value and importance

Computer to Educate is an 11 years old project, which has been strengthened by three different presidents in Colombia, because it is an effective initiative, which allows children and youths in Colombia to improve their access to technology tools within their learning environment. The Program has been a neutral technology project, which has made to go beyond the market trends. It works on a daily basis towards generating a culture of innovation that encourages young people to develop abilities based on the scientific and technology formation required not only to promote the human development, but also to compete within the labor market.

Therefore, it is definitely a project that could be easily replicates in other countries, by respecting three main pillars: promoting universal access over universal service, training teachers and mitigating environmental impacts.

Figure 19 Boys in rural areas

Challenges

Some of the main challenges are the lack of energy and Internet connection in some parts of Colombia. Therefore the computers that are delivered must have offline content so that the academic community can use them at their best.

Training the teachers is also an important challenge. Their training needs to be followed up continuously to match the rapid pace of innovations.

Technology trends are also challenge because a project like Computer to Educate cannot updates all its computers following the release of new technologies.

Conclusion

As corroborated by the *Universidad de los Andes*, information and communication technology together with the strategy for appropriation, Computer to Educate has had a quantifiable impact in reducing social and regional gaps. As a result, it contributes to improving the quality of education, in reducing desertion rates, and in increasing the probability that the young in public schools will be admitted into higher education. However, the challenges in Colombia for the next four years are twofold. First, the program needs to cover 100% of the 43,000 public schools, that is, to reach the 11,500 of them who have never had access to information and communication technologies. And second, the program needs to provide a formation to all the teachers in digital skills to increase the impact of the program by a significant order of magnitude.

The main contribution of Computers to Educate has been of offer educational mentoring procedures to teachers for the correct implementation and use of information and communication technologies in education, in addition to supplying children and youths in Colombia with the necessary equipment.

Figure 20 A kid who thought that a mouse was a mobile

C4. Capacity building: Digital Poland of Equal Opportunitie(Poland)

Submitted by the Ministry of Administration and Digitization, "Cities on Internet" Association, Poland
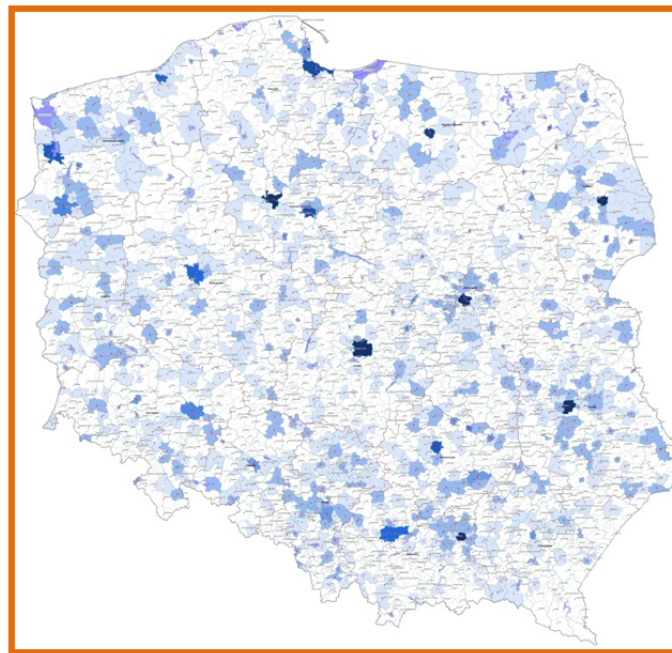

Figure 21 Digital champions – "Digital Lighthouse Keepers"
working within the PCRS - break down,
by region and municipality.
Photo credit: "Cities on Internet" Association

Background information

Out of 38 million Poles, 10 million adults aged 50 and over have never used the Internet. It is a huge social and economic problem for Poland. Research conducted in recent years has shown that contrary to popular opinion in Poland, the primary challenge for adults Poles are the mental barriers which prohibit them from making the first step into the Internet. In order to change the *status quo,* it was necessary to employ a new, specific approach towards adult Poles in guiding them towards the digital world. Based on conclusions drawn from research and experiments conducted by experts in the field, a social campaign under the banner "Digital Poland of Equal Opportunities" (PCRS) was initiated. Towards the end of last year it was reshaped into a nationwide digital literacy project realized in partnership between the **Ministry Administration and Digitization and Cities "On Internet Association"**

Key actions within the project include:

- **Involvement & certified training of 2600** "**Lighthouse Keepers"**, Polish local digital champions: trusted, creative local community leaders/animators tasked with introducing

adults aged 50 and over from their own communities into the digital world. In the course of the project, **each digital champion** creates a concept of his/her own initiative, realized in cooperation with NGOs and local authorities, to encourage adults to enter the digital world in their own community. All digital champions participate in the project on a voluntary basis, however important the contribution to the program is made by the partners supporting their actions, be them local governments or non-governmental organizations.

• **Establishmen**t **of National Competence Centre/Social portal** devoted to digital training of adults, equipped with corresponding technical infrastructure, web portal, research team and experts complementing actions by Lighthouse Keepers.

• **Grant awarding scheme**: 18 month of support, for local educational projects selected in an open procedure, benefitting best ideas by Lighthouse Keepers acting in coordination with non-governmental agencies and local governments.

• **Promotional/awareness raising campaign**: addressed to the 50 years old and over generation, demonstrating the advantages Internet brings at work and in private life.

Goals & timeframe

Figure 22 Commissioner Kroes during her visit to Gdańsk,
at the Innovation for Digital Inclusion Conference,
endorsing the "Digital Poland of Equal Opportunities" Project.
Photo credit: "Cities on Internet" Association

The strategic goal of the project is a reduction of digital exclusion among adults aged 50 and over. It will be achieved by overcoming competence barrier thanks to involvement of Lighthouse Keepers who will facilitate initial entry into the digital world of ca. 60,000 adult Poles. The project establishes an essential and organizational basis for a national scheme of combating digital exclusion through informal training and dissemination of information.

Those goals are to be achieved primarily with the work of Lighthouse Keepers, who upon completion of stationary courses on practical aspects of digital literacy training later work in their own communities (selected initiatives benefit from grants, but all receive assistance from the National Competence Centre which includes an e-learning platform). In parallel, national level conferences take place around the country, together with regional meetings of digital champions and workshops.

In the wider context, the project's goal is to spread knowledge on the role of digital literacy in the socio-economic development of Poland among decision makers and local leaders in rural areas and

in small towns. The tools employed include: information activities and reports from research within the project, presenting economic implications brought by e-inclusion of Poles from the 50 years old and over generation, including stimulation of the demand for broadband access & services.

The project was launched in November 2011 and it is foreseen to conclude in June 2014.

Project's added value and importance

The target audience of the project forms an **important, yet under-utilized reservoir** of demand for digital economy services, including access to the Internet; for this reason, their e-inclusion might bring about economic and social effects of extraordinary value.

Challenges

The biggest is the overcoming of barriers discouraging adult Poles from using the Internet. The project is therefore aimed primarily at overcoming main obstacles indicated by academic studies:

- Lack of personal motivation (perception of no real gains),
- Fear of new, unknown technologies,
- Deficit of knowledge and practical information on the use of the Internet.

Another challenge is the creation of innovative model for the introduction of Poles into the digital world, founded on sound research, methodology, training and promotional activities within the project.

The approach adopted is universal at its baseline and may serve as a remedy for ineffective, for the most part, existing digital literacy programs addressed to the 50 years old and over generation.

Conclusion

With custom approaches, the digital literacy gap may be closed, once the audience is made aware of personal opportunities and advantages that come with the Internet. Informal training is most effective where traditional forms fail, due to a lack of flexibility. Each community has a **reserved volunteer who** may be put into work if the goal is genuine and recognized.

Figure 23 2011 Meeting of Digital Champions in Zielonka, Mazovia region.
Photo credit: "Cities on Internet" Association

C5. Building confidence and security in the use of ICTs: Building a safer Internet for educational institutions (Ukraine)

Submitted by A.S. Popov Odessa National Academy of Telecommunications, Ukraine

The increasing ubiquity of information society fostered by legislative acts, national task programs and grants for equipping educational institutions and student accommodations with computers has given the Internet community a new challenge: to ensure secure access to information for pupils and students. The Internet is in its major part practically unregulated and filled with content ranging from scientific journals to promotion of violence, to content with inappropriate language or openly pornographic. Under these conditions, preserving moral values of societies becomes an increasingly difficult task.

In Ukraine, the A.S. Popov Odessa National Academy of Telecommunications created a System for restricting access to inappropriate Internet content in educational institutions (e.g. schools, universities) and student accommodations. The System covers a wide range of technical solutions (e.g. centralized and decentralized filtering, filtering through proxy-servers and DNS-servers).

The main advantages of this system are its scalability, reliability and its adaptive filtering of negative content. It significantly reduces the overall http-traffic by caching information (hence reducing the exploitation cost for educational institutions and student accommodations) and can adjust to the emergence of new inappropriate resources. Creation of such system allowed free and safe (i.e. released from pornography and other "negative" information) Internet access for students living in accommodations and a free-of-charge access to the Internet using Wi-Fi in educational institutions.

Basic principles of the functioning of the system

The basis of the proposed System is the setting of a local proxy-server in each educational institution or accommodation that contains a database of inappropriate resources. In order to facilitate the updates, a central server periodically sends a new list of all inappropriate resources to all other proxy-servers.
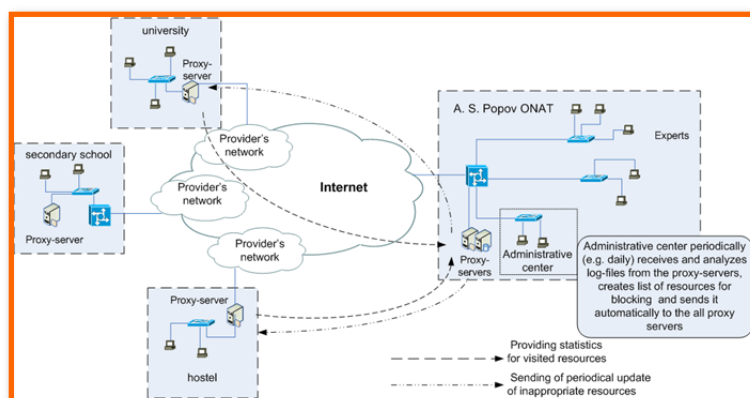
With the help of a special software developed by A.S. Popov ONAT for the analysis of information, experts from all over the globe can be involved.

At each attempt of gaining an access to any resource, the proxy-server checks whether the resource is included in the list of inappropriate content. In case that this resource is listed, its access is blocked, and the user is provided with a message explaining the blocking. This screen also may be used to promote other useful Internet resources (e.g. for education or research).

If the requested resource is not listed as banned, an access to the resource is provided, and a record about the visit is kept in a special log-file.

The software used for the creation of the system is free and open source. It did not require any additional funds for licensing. Such a choice allows the use of an adaptive approach for each case and allows to easily make modifications in the system. It should also be mentioned that using the proposed approach allows to constantly update the list of blocked resources as soon as new resources appear on the Internet.

Participation to the project is completely voluntary. A.S. Popov Odessa National Academy of Telecommunications only offers advice about the connection to the system, provides a free access to databases and ensures their updates on the basis of analysis. The latter is requested by the majority of the users.

Each institution can implement its blocking policy according to its own rules. For example, one institution can choose to block only pornographic websites, but to give access to online game platforms outside working hours. A special software was developed for this purpose that network administrator or teachers can use.

The cost of connection of one organization to the System depends on many factors, including the presence of a dedicated hardware platform for the implementation of a proxy-server, the availability of technical personnel or the method to access the Internet. The main expenditures inherent to the implementation of the System concern hardware, travel expenses and payment of the staff for the initial installation, configuration and maintenance of the System.

History

The System was created in Ukraine at the A.S. Popov Odessa National Academy of Telecommunications and was presented for the first time at the First meeting of the ITU Council Working Group on Child online Protection in March 2010.

In May 2010 the first project was implemented with the support of one of the largest Ukrainian mobile operators to the System. By the end of the month, the total of connected organizations amounted to 135, and included 5 universities, 4 colleges, 118 schools, 9 hostels and several state

organizations, scattered in the following regions: Dnepropetrovsk, Donetsk, Zaporizhia, Kyiv, Lugansk, Lviv, Mykolayiv, Odesa, Sumy, Kharkiv, Kherson, Cherkasy and Chernihiv regions, and in Crimea, Kyiv and Sevastopol.

Today, there are more than one million resources on the "black list" of the System. Most resources listed are operating within the Commonwealth of Independent States.

In September 2010, the General Secretary of the International Telecommunication Union, Dr. Hamadoun Touré inaugurated the International Centre for the International Telecommunication Union at the A.S. Popov ONAT. One of the mandates of the center is to carry out the initiatives of the General Secretary on Child Online Protection. One priority of this Center is to determine the most effective way to connect local corporate networks to

the System. An algorithm for selecting the most appropriate filtering systems based on specified requirements and customer wishes was developed.
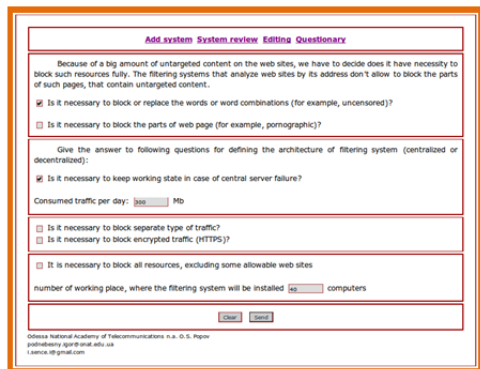
In September 2010 the State Administration of Communication of Ukraine and the National Academy of Pedagogical Sciences of Ukraine signed an agreement to develop a system for Restricting Access to Inappropriate Internet Content called "Open World". Basic design principles of the System were used in the national project "Open World", initiated by the President of Ukraine.

One of the most significant steps in direction of developing the System was the seminar on "Integrated aspects of child protection over the Internet", which was held between 6 and 8 April 2011 at the A.S. Popov Odessa National Academy of Telecommunications (ONAT). Participants of the seminar requested the International Telecommunication Union to carry out the implementation of a regional filtering system in the Commonwealth of Independent States countries and to use the technical solutions created by the A.S. Popov ONAT, acting thereupon within its membership to the ITU Telecommunication Development Sector.

At the beginning of 2011, the infrastructure of the System was used in different schools to extend the support of information and communication technologies to other purposes, such as archiving or the creation of digital libraries.

In October 2011, the Ministry of Education and Science, Youth and Sport of Ukraine gave an award to the project. The Gold Medal was conferred for the successful implementation of the System for Restricting Access to Inappropriate Internet Content and for introducing information and communication technologies in educations.

By the end of 2012, an additional 150 schools in Ukraine will be connected to the System.

Conclusion

The System for Restricting Access to Inappropriate Internet Content is to ensure the protection of children, students or staff from intentional or accidental access to inappropriate resources within any organizations. The System may help save time and money in comparison with the implementation and support of local filtering system in each institution.

A.S. Popov Odessa National Academy of Telecommunications, the developer and coordinator of the System, encourages any organization regardless of their location to join the project.

C6. Enabling environment: Rural Technology and Business Incubator (India)

Submitted by Rural Technology and Business Incubator

Background information

Aim of the Project

IIT Madras' Rural Technology and Business Incubator (RTBI) was registered as a not-for-profit society on 16 October 2006. Established as a formal business incubator with the support of the Department of Science and Technology (DST), the Government of India and the World Bank's Infodev arm, the primary aim of the organization was **to support rural and social inclusive start-ups**, primarily those that enable scalable products and services for the under-served and bottom-of-the-pyramid segment. Business incubation was seen as a strategy to enable capacity building, livelihood generation and enablement of relevant services and products.
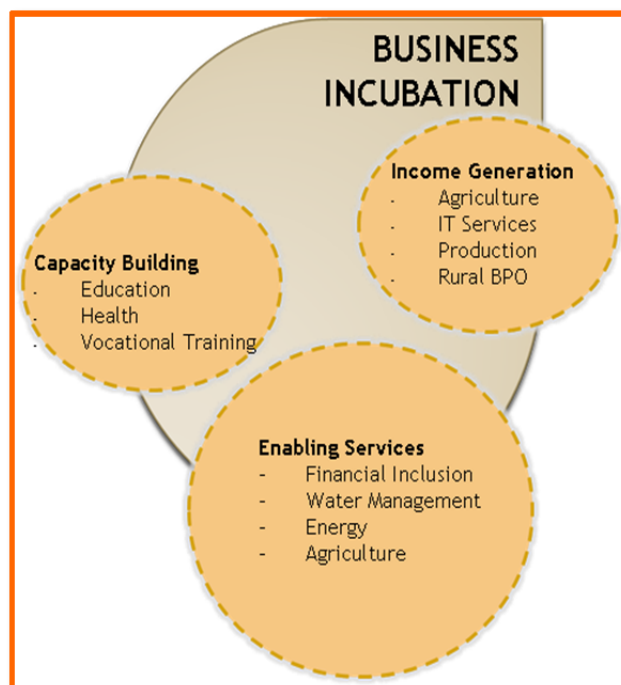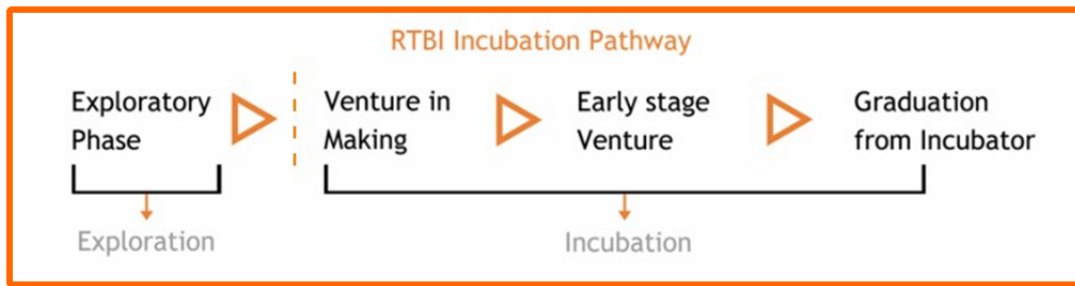
Methodology

The methodology was two pronged:

Incubation: Find ways and means to strengthen entrepreneurs with business models for innovative, low-cost and relevant products and services. A company with a successful business model was a sure way to inspire similar companies.

Exploration: Develop depth and understanding of the underserved segment by sustained efforts (including a variety of independently funded initiatives) via grass root trials (involving technology creation, business modelling or service design) such as in areas like financial inclusion, energy, education, agriculture, or healthcare.

The aim was also to see whether viable grass root explorations could evolve sustainable and scalable business models that can eventually translate into incubations and replicable and positive impact.

RTBI Incubation Pathway

Exploratory Phase ▷ Venture in Making ▷ Early stage Venture ▷ Graduation from Incubator

Exploration | Incubation

Target Segment

The target group for RTBI was social entrepreneurs in the selected expertise areas. The intention was that strengthening and supporting these individuals in their start-up aims would enable having a larger and cascading impact on the ultimate targeted beneficiary segment of the rural and underserved populace. Currently, there are over 19 companies in the organization's portfolio in diverse areas such as speech and mobility solutions, solar energy, or IT for diary management,

Portfolio of Incubated Companies from 2006 - 2011

desicrew — desicrew.in — Rural BPO 3.0	rope — ropeinternational.com — Home Decor & Lifestyle	InteliZON — intelizon.com — Reliable & Affordable Solar Energy Solutions
Uniphore — uniphore.com — Speech based Mobility Solutions	eJeevika — ejeevika.com — Enhancing Employability Skills	aaum — aaumanalytics.com — Analytics/ Deriving actionable insights from the data
Arogyam Organics — arogyamorganics.com — 100% Certified Organic Foods Processing	invention labs — inventionlabs.in — Indigenous Product Development Solutions Consulting	ASTRA — customattire.co.in — Distributed Garment Production
augurtron — augurtron.com — Embedded Solutions	etinteractive.net — Design, Branding & Sourcing Consultancy	TRAYI — trayi.in — Interactive Learning Solutions for Rural India
AYZH — ayzh.com — Affordable medical products for impoverished women	microspin — microspin.co.in — Committed to building an inclusive textile industry	MobilTrain — mobiltrain.com — Pioneer Mobile on-the go learning
newDigm — newdigm.com — Mobile- Affordable Rural Diagnostics Healthcare solutions	Phoenix WebMasters — thephoenix-seo.com — Search Engine Optimization and Web Design Services	stellapps.com — Smart IT & Automation for Diary, Agri & Logistics
The School of Skills — theschoolofskills.com — Online Interactive Learning Platform for Programming Skills		

There are two kinds of beneficiaries: One group are beneficiaries via the organization's incubatees in terms of the product, service or livelihood impact. And a second group with a much smaller number of people who are direct beneficiaries by virtue of being part of a grassroots project implementation trial.

Though the organization's work focuses on India, the technologies, business models and social learning from the organization have significant applicability to many of the underdeveloped and under-served communities across the globe.

Impact

Some examples of the social impact created by the incubatees during their short period of existence include:
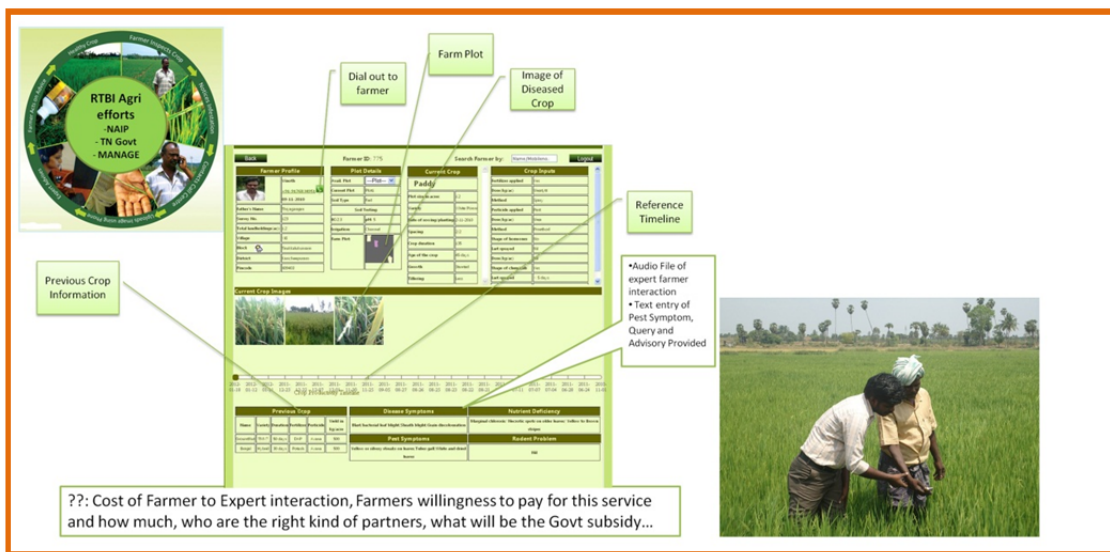
- **EJeevika** has secured placements for over 400+ previously unemployed candidates.

- **DesiCrew and ROPE** have created livelihood impact for over 500 rural employees.

- **Invention Labs** has impacted over 150 children with speech disabilities through 'Avaz', a hand held communication device.

- **Uniphore** through its unique speech solutions (voice biometrics and voice response) has reached out to over half a million end user base.

- **InteliZon** has lighted 5.5 Lakh lives using its Solar and LED based lighting products

- **ROPE** provides employment for 1000+ rural artisans involved in eco friendly natural fibre based production

- **MobilTrain** has reached over a 1000 teachers receiving training through this medium.

Significance of the model

While many schemes exist to alleviate poverty in India, the sustainability of these schemes are dependent on many factors like the funds available through organization involved with the program or government schemes. A program like Rural Technology and Business Incubator combines scalability with sustainability, ensuring financial independence and hence continuity of the initiative with viability and utility value built into the core foundation. A commercial venture succeeds only when its cost, utility value and saleability are acceptable to the target consumer segment. Moreover, it allows expertise building and specialisation in a variety of area through entrepreneurs and their long-term commitment.

Rural Technology and Business Incubator has the unique advantage of a powerful brand ambassador in Prof. Ashok Jhunjhunwala, Chairman of the Board and the visionary behind the idea. The organization has leveraged an unshakeable commitment to rural empowerment and India development in establishing itself quickly and attracting the right profile of social centric incubatees. As part of the Telecommunication and Networking group of Indian Institute of Madras, the organization also leverages the extensive network and experience of a diverse cross section of faculty, students and entrepreneurs of the Telecommunication and Networking group.

Being housed in the Indian Institute of Technology Madras' Research Park (India's first Research Park for Industry-Academia innovation), Rural Technology and Business Incubator is evolving an ecosystem for incubation. An in-house intellectual property attorney, chartered accountancy support, 5 entrepreneurs and the Indus Entrepreneurs Chennai Chapter co-located with Rural development interest partner organisation (such as Villgro and IFMR) makes the environment a vibrant entrepreneurial system.

??: Cost of Farmer to Expert interaction, Farmers willingness to pay for this service and how much, who are the right kind of partners, what will be the Govt subsidy...

Scope of the work

Being located in Tamil Nadu state of India, the organization's initial work in any trial often commences in the locales of Tamil Nadu, especially with a view to leverage accessibility, reduce travel time, increase responsiveness and allow for optimisation of cost and effort. At the same time, one of the key initiatives under the Rural Technology and Business Incubator is in working towards financial inclusion and enabling mobile-to-mobile payment via the Mobile Payment Forum of India. In this case, trial deployments across India have already commenced by five large banks.

In parallel, in the context of the incubatee companies, their work often starts with trials in Tamil Nadu, leveraging the organization presence. They then expand operations in other states when interest in their business idea gives rise to opportunities. Desicrew, a rural Business process outsourcing company, has undertaken operations in Nagaland, Rajasthan, Tamil Nadu and Karnataka. Uniphore, the voice services company, has operations in 17 states. Other companies have similarly expanded operations to other states. At least 2 companies in the Rural Technology and Business Incubator's portfolio are in the process of exploring opportunities in the African continent. Understanding cost sensitivity and financial viability is a key step to expanding scope.

Relevance in the context of the WSIS Goals

Towards building an inclusive society and towards making effective use of information and communication technology for development, mobile is a powerful tool for enabling low cost and inclusive information access. Going beyond the realm of computers, and within the organization's work, designing services for rural and social inclusion often makes use of the ubiquitous mobile platform as a tool. Some Rural Technology and Business Incubator exploratory example scenarios are: in the use of health for real-time bio-surveillance and epidemic tracking, for the National Rural Employment Guarantee Scheme survey of unskilled and often unlettered beneficiaries, for voice based authentication of mother and child under specialised health supplement distribution program, for tools related to production tracking of Self Help Group Producers and tools for Small and Medium scale entrepreneurs and most impactful of all, towards enabling mobile-to-mobile payment across India via Mobile Payment Forum of India. Besides this, the incubatees have also successfully explored using mobile as a medium for health diagnostics, educational training and reinforcement, voice and voice biometrics based services. In other cases, the computer has undergone a transformation into a handheld computer like device used to enable children with speech disability like cerebral palsy to

communicate. Information and communication technology is therefore a core aspect for inclusive technology innovation and design, and is an integral part of the strategy of Rural Technology and Business Incubator's support towards enabling inclusive development, very much in line with the goal envisioned by the World Summit on the Information Society.

A few exploratory case studies

Mobile Payments Forum of India

Drawing on Rural Technology Business Incubator's experiences from previous initiatives driving financial inclusion (such as the Internet kiosk-based business correspondent assisted models or rural low-power solar ATMs) coupled with the increasing mobile penetration rate in most rural areas led the organization to be involved in creating an ecosystem for mobile money transfers.

In order to facilitate this, the Institute for Development and Research in Banking Technology and Rural Technology Business Incubator of IIT Madras jointly formed an industrial forum called **Mobile Payments Forum of India (MPFI)**.

The Reserve Bank of India now allows transacting up to Rs50,000 through mobile payments. This will benefit an important number of customers, especially people at the 'bottom of the pyramid', who cannot have access to various banking services. The forum, with more than hundred organizations as members, focuses mainly to guide banks, telecom organizations, service providers, government and others for providing mobile payments in an interoperable and heterogeneous environment including the rural masses.

In connection with mobile payments, the National Payments Corporation of India launched the **'Interbank Mobile Payment Service'** in November 2010 with many member banks providing this service to the public.

Moving a step further, Rural Technology Business Incubator is now working in partnership with Uniphore Software Systems and State Bank of India to deliver banking services through the Reserve Bank of India approved business correspondent model using voice biometrics for authentication. The pilot project will soon roll out in Villupuram, District of Tamilnadu.

Agriculture Disease Mitigation and Advisory System (ADMAS)

In a traditional agrarian system, farmers understood their crops and knew conventional ways to mitigate plant diseases and pest attacks. But in contemporary times, with new hybrid seeds, genetically modified crops and advanced agricultural methods, a glaring information gap has formed. The current extension/advisory systems lack farm specific solution for the agricultural problems and most of the agricultural advice is generic to block-levels and rarely deals with plot level advice. Therefore, there is a strong need to provide advisory services with plot-specific data being made available to experts.

The Agriculture Disease Mitigation and Advisory System is an initiative aiming to offer service to the farmers by integrating them with the agricultural experts to avail agriculture related pest and disease information and timely advisory services by:

- Creating an agricultural advisory call centre for the farmers
- Attempting to automate disease recognition process using image processing

The call center is functional at the Indian Institute of Technology, Madras since January 2011. Over 900 farmers have been registered and over 179 farmers have availed advisory services. The disease mitigation steps have been very effective in curtailing the crop loss of a particular variety of paddy (ADT 37) in the Kancheepuram district.

Evaluating a Real Time Bio-surveillance Program

Detecting communicable diseases before it reaches an epidemic state is vital. The challenge lies in receiving health information in a timely manner in order to prevent diseases reaching epidemic states. The current surveillance system does not provide the much needed "real-time" information flow and analysis to detect such an event of increased number of scattered cases. The real-time detection shortcomings can be easily overcome with reliable and robust information and communication technologies and intelligent software.

To address the above issue, Rural Technology Business Incubator in partnership with LIRNE Asia initiated the implementation of a digitally based surveillance and epidemic detection and notification system to be jointly conducted in Sri Lanka and in India. The overall goal of the project is to improve the ability of India and Sri Lanka to collect and respond to clinical, spatial, and weather data to form an overall probabilistic assessment of threats, and combine this probabilistic output from the detection algorithms. The detection algorithms, combined with the results of the decision analyses, creates an implemented response decision-making system for the Epidemiology Units in the national/state/regional settings before the disease reaches a "tipping point".

Goals and timeframe

In the short term, the organization seeks to strengthen the start up segment by effective business incubation. Given the rough start-up environment in India, business incubators are said to improve the success rate of start-ups by about 30%. Given the social sector where business modelling often takes a longer time, as a young incubator with just five years experience, the goal is to improve the delivery of this basic service.

In the long term, visualizing business incubation as a powerful strategy for inclusive development, the organization hopes to see impact in terms of rural and social enablement, inclusion and positive impact on livelihood.

Value and importance

The core incubation model seeks to manifest and scale only those ideas that are viable in terms of socially acceptable solutions – be it in terms of value addition, price point, customer segment, product or service design. Hence supporting passionate and committed entrepreneurs to such ideas along with selection criteria of expertise availability provides a cascading effect. The entrepreneurial initiatives are for-profit and hence focused on revenue generation and financial viability. This model is therefore highly replicable.
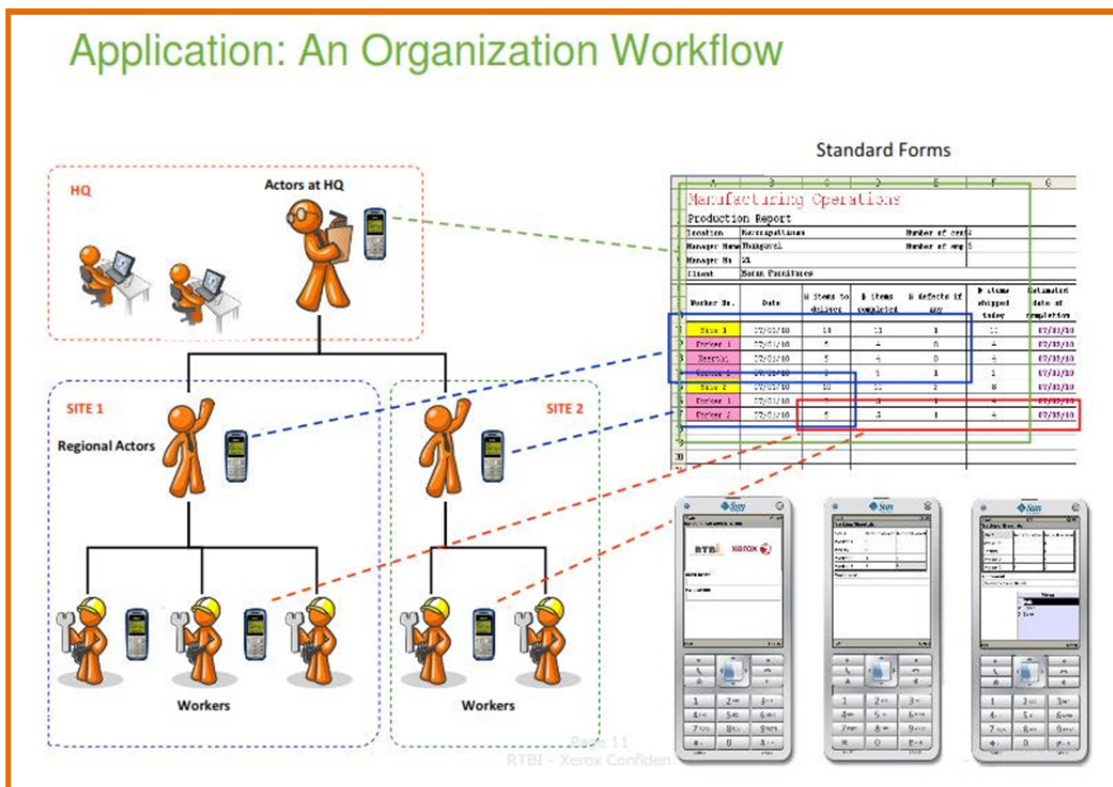
Challenges

Rural Technology and Business Incubator's segment of focus is rural and social inclusive ventures. Though the ventures themselves become sustainable between one to four years of start, the parent incubator is still in the process of evolving revenue models that reduce the dependency on grant support.

Also, towards ensuring an impact in challenging grassroots exploratory areas, it is important to make repeated and varied attempts. Sustained independently funded trials over four years have enabled progress in the area of financial inclusion. Similar sustained trials over three years in agriculture, despite set backs, have now started yielding positive results. These trials feed into learning that incubatees can leverage and improve success of ventures in areas where there are no lessons learnt and prior experiences to fall back on. At the same time, undertaking such trials is an integral part of the challenge.

Conclusion

Rural Technology and Business Incubator is one of the first incubators with a strong mix of rural and social inclusive enterprises, technology centric approach and horizontal diversity. Though just five years old, the organization's methodology of combining exploration and incubation seems to be a scalable and internationally replicable approach to finding solutions to hard social challenges in a potentially sustainable manner.

C7. ICT Applications

C7.1 e-Government: Samadhan Project(India)
Submitted by Network for Information and Computer Technology, India

Background

Figure 24 NICT Samadhan Kendra Mhow IRTC Booking

Figure 25 NICT Samadhan Kendra Mhow

Samadhan Project Indore is an initiative of Indore Collector in association with Network for Information and Computer Technology as an implementation agency. Through these common service centres (*Samadhan Kendras*), it is envisaged to provide citizens with many services all at the same place. The services are delivered via a digital platform where citizens' request for services is tracked by a software co-relating data with the citizen charter. This software has an escalation mechanism system, which helps district administration, specially the Collector who is the head of administration, to monitor and to track the processing of any individual application. This project has created multiple centers, with multiple counters where citizen do not need to come to the Collector Office from the center of the city anymore simply to file an application.

Target Audience

The target audience in District Samadhan Project is citizens of both rural and urban area, as the Samadhan Project covers districts, blocks, Tehsils (*jurisdiction of a city*) and village areas.

Need to implement the project

It is being felt that the majority of the public is not getting government services quickly enough and that vested parties sometimes challenge the quality of the services. In order to remove the involvement of middlemen, and to make the system transparent and corruption free the Government

Figure 26 Services at Samadhan Kendras

of Madhya Pradesh initiated the idea of the Samadhan project.

The project was implemented to make the Government operations transparent, error free and quick so that the public would not need not to wait a long time as it was used to. The necessity of such a system was understood from grievances expressed by the public and from common knowledge about the current functioning of the services

Scope of the project

The citizens can access the services from various service centers (*Samadhan Kendras*), opened in different part of Indore city and blocks of Indore.

The information and services provided at these centers are as follows:

Government Services

Arms license renewal, affidavits, bank *Challan*, *Nakal*, help desk, domicile certificate, caste certificate, OBC certificate, income certificate

Additional Services

Member of Parliament Online, rail ticket, electricity bill payments

Places of implementation

Name of Samadhan Kendra	Date of opening
Samadhan Kendra Sanwer	01-12-2006
Samadhan Kendra Palika Plaza Indore	02-01-2007
Samadhan Kendra Depalpur	02-03-2007
Samadhan Kendra Mhow	13-03-2007
Samadhan Kendra Hatod	02-02-2010
Samadhan Kendra Shipra	08-05-2010

Contribution of the project to achieve the WSIS goals

- This project is based on a self sustainable model. The fund generated through the application form and the service fee is used for maintenance and improvement of these services.

- Bring awareness among rural and urban citizens about the Government services they can get benefit all in one place.

- The use of information technology and the good training of employees support the good functioning of the project.

- Empowering women by training and to contribute in their social and economic growth from the weaker section by providing employment at these centers.

Goals & timeframe

Before the Samadhan Project started, the public had to face the following situation:

- Long wait to get any service from departments, as the processes were lengthy and as they needed to go through a lot of formalities.

- The output was very slow, as the departments were overloaded with other internal activities

- It was not possible for higher authorities to get up to date reports immediately. In case they did obtain a report, they could not be sure of its authenticity.

Figure 27 NICT Samadhan Kendra Depalpur and Sanwer Tehsils

The goal of the project was to bring a thorough improvement to the system. The new system will not allow malpractices or mishandling of data. The public can also immediately complain if they feel this is not followed properly.

The information centre works as a complimentary setup of a larger unit for the right to information, following the Indian Government's policy to bring transparency. This unit is strictly bound to provide the needful services to citizens without any delay. The citizens have responded overwhelmingly positively to the project. Teamwork takes an important place to achieve the goals in the *Samadhan Kendras*.

Project's added value and importance

Day to Day operation

Applicants buy, fill up the form and submit it to the *Samadhan Kendra* with the attached documents from 10:00am to 1:00pm. After this, a related officer processes the application. After 4:00pm the required certificate are given to the applicants. Every day the software is updated.

Since all domicile certificates are provided under the Lokseva Guarantee Act 2011, the Tehsil Samadhan has to give other related services and certificates online.

The project can be easily replicated all over India and in other countries, since the services are also provided in other states in a similar fashion. So the implementation of the project will be easy and the public can also welcome it in other states and countries. The software is developed and maintained free of cost by the National Informatics Centre, which has its Headquarters in New Delhi, State Units in all the 28 State capitals and in the 7 union territory headquarters and district centres in almost all the districts of India. The Organization has a large pool of efficient technical manpower. The National Informatics Centre has implemented a large number of nation wide projects successfully. So the project is easily transferable and can be implemented all over India through the National Informatics Centre.

Challenges

The biggest challenge that was faced concerned finding suitable premises, the lack of general awareness among the public, and the lack of availability of computers. The Collector Indore intervened directly and addressed the various administrative problem. The technical problem pertaining to a lack of updated data at the back end was overcome by dividing the process flow into two parts: the front end and the back end. The front end processes the citizen charter and the escalation mechanism, The back end implements a typical digital input output mechanism. The public private partnership has provided a capital investment of Rs50 but lacked trained human resources to work at the counter.

Requirements of Process re-engineering and Legal Framework Technology Architecture

The system was previously manually operated, with each department having their own procedures and criteria. When a system to bring different departments under one roof was planned, a lot of practical difficulties aroused:

- Designing a common application form for different services given by different departments

- Finding out manpower who can handle computer operations and are also aware of departmental activities so that they can effectively work at the front office

- Setting up infrastructure and scheduling the activities of the centre as well as at the respective departments so that the services can be delivered on the same day than they are requested.

For these activities a process re-engineering" of the system was done and contributed to the success of the system.

Figure 28 NICT Samadhran Kendra Palika Plaza Indore District

Conclusion

The achievement of this project is shown through statistical data of citizens subscribing to the services.

Table 1 Statistical data of citizen benefiting from the program from June 2006 to January 2012

SN	Services	Total					
		Palika Plaza	Mhow	Sanwer	Depalpur	Hatod	Total
1	Domicile Certificate	29,400	19,255	6938	8,336	971	64,900
2	Caste Certificate	2,666	4,063	1164	761	244	8,898
3	OBC Certificate	5,932	2,865	1604	1,692	417	12,520
4	Income Certificate	77,256	48,017	15364	15,474	2,980	159,091
5	Birth Certificate	1,430	1,294	985	424	25	4,158
6	Death Certificate	16	392	232	226	7	873
7	Nakal	0	21,943	10516	15,591	0	48,050
8	Electricity Bill	78,813	30,480	7370	2,408	0	119,071
Grand Total		195,513	128,309	44,173	44,912	4,654	417,561

The debate on use and reach of information technology as a tool for development commonly focuses on the poor and under privileged communities specially residing in rural areas. The debate usually ends discussing the success of pilot projects and the challenges of connectivity, local content, language barrier and infrastructure that they overcame. There is no doubt that information and communication technology has to play a very important and crucial role in development. Several major and minor projects and important efforts in terms of investment for technical innovation have been carried out, with more and more solution providers integrating information and communication technology in their solutions. The resources are abundant, the technology is available, organization of volunteers are on their toes working hard day and night to make sure information and communication technology plays a major role in rural development. But all the efforts follows a top-bottom approach.

The important question is whether the rural masses in India are ready to give a warm reception to all these efforts, whether they are aware and have the capacity to adopt and accept these resources because the literacy rate is still not very high. Child labour in urban areas and in rural areas still needs lot of attention. Grass root mechanism and basic infrastructure are lacking as much as awareness and knowledge. Most of the time, while visiting villages, it has been found that villagers are waiting outside the *Gram Panchayat* for work. Issues are enormous and information and communication technology can definitely help. But there is a need to start at the bottom of the pyramid and a strategy needs to be defined in such a manner that the poor are empowered with basic capacity and awareness to take advantage of technology related initiatives.

The current projects are aiming high with the best solutions. There is a need to have more user community projects. Resources outside the community can provide support but there is a need to have user community in the projects to make them economically sustainable.

News of NICT Samadhan Kendras published in different newspapers

C7.2 e-Business: Government Business Services (One Stop Shop) System (Oman)

Submitted by the Ministry of Commerce and Industry, Sultanate of Oman

Background information

The government believes in the importance of investment in all economic fields, and in the care of having all the facilities and advantages that encourage all the citizens and foreigners to start their business in the Sultanate by providing continuous support to investors regardless of their nationality. The government also believes in enhancing the collaborative effort of different government entities in order to serve investors in a quick, efficient and low cost way and in one place. To concretize these ideas, the Investors Services Department of the Ministry of Commerce and Industry developed a project called One Stop Shop system in the Sultanate in 2001, in line with the e.oman strategy. This strategy implements the e-Government's vision and coordinates with the Information Technology Authority (ITA) to serve the business sector using latest technologies and aiming at achieving high level of efficiency and ability to serve investors.

The implementation of the One Stop Shop was preceded by a study, which recommended a new business model. The new model is composed of technical and non-technical components that are related to human resources, policies and procedures that should be implemented. The main component in the new business model consists in providing integrated services through the Internet to act as a front gate to the Ministry of Commerce and Industry. In order to achieve the desired goals, the study has focused on how to increase the operational efficiency, better utilization of the ministry's capabilities, using practices that enable smart management within environment that uses advanced IT solutions.

The Ministry has now launched the first phase of One Stop Shop, designed to provide 25 e-commercial services. The launching included the following services:

- Developing commercial registration system.

- Using new national classification for commercial activities (ISIC).

- Changing commercial registration numbers by introducing unique serial number generated by the One Stop Shop.

- Migration of data from the old system to the new and modern database.

- Automation of commercial services for the investors services department, in the ministry's main branch and regional offices. These services deal with commercial names reservations,

commercial registration, agencies registration, commercial licenses, commercial registration renewal, etc.

The One Stop Shop provides quick and efficient services for investors. The system organizes applications flow with the approvals from other government entities. In addition, the system removes the need for manual follow-up for e-applications. Moreover, it provides investors the ability to submit their applications electronically through the Internet and they can follow their applications' status at any time.

Figure 29 Before One Stop Shop

The One Stop Shop supports the Ministry of Commerce and Industry's vision in attracting foreign and domestic investments by granting custom exemptions to entities engaged in manufacturing, mining, export of manufactured and processed products and public utilities. It has contributed in developing the necessary programs to implement policies related to the development of business and trade sectors and to support the six industrial estates in Oman, which are managed by the Public Establishment for Industrial Estates. The Shop eases the process, reduces the costs, is smooth and transparent. It has facilitated the bureaucratic process, but has also enhanced the workers' digital literacy.

The One Stop Shop is in line with the WSIS Outcome Documents to develop and use information and communication technology in the business sector. It required all investors to use the online system to submit their application for business investments and has hence provided a unique and efficient e-business environment. During the development of the Shop, the focus was to create a model, which would involve the government and the business sector utilizing the full potential offered by information and communication technologies. Nowadays, using these technologies is a necessity for all types of infrastructures in Oman and the Shop has become a model to all business entities in Oman, especially for the small en medium enterprises.

Figure 30 Before One Stop Shop

The One Stop Shop has played an important role for the growth of investments in Oman. The number of registered companies before the system was 155,547. The number of new registered companies

using the system (from 2006 to 2011) is 109,069. Hence the number of new registered companies has increased by 70.12%.

According to the report 'Doing Business 2011' published by the World Bank, Oman ranks 57th as a result of reducing the number of procedures and of reducing the time taken to process applications to three days. In fact, the majority of applications are processed within the same day.

Goals & timeframe

The One Stop Shop is the main and only portal for commercial, industrial, and mineral entities to apply in the Sultanate. It contains more than 60 e-services accessible via the Internet. The short project goals were to have all entities in Oman gathered in the same hub, by having a centralized system and database that would facilitate all applications for investment in Oman.

The long-term goals include the long run impact on the national economy. The project will help attract more domestic and foreign investments. In addition, it was planned to be a role model for the domestic business sector as well as to increase the use of information and communication technology in the private sector.

Project's added value and importance

The system's features include:

- A better service in a shorter time without the dependent on manual documents.
- Investors following their e-applications through the Internet.
- Sending quick notifications for investors through SMS and e-mail about the documents missing in their applications.
- Providing 24 hours service.
- The creation of a better investment environment.
- Investors being informed of the required procedures for business administration.
- Providing multiple channels to reach investors.

The system has different categories of users:

- Self Service Users: registered users for self service on the Internet. The functionality given to Self Service users is only to submit their applications through the Internet. They can register through a registration link on the homepage of the portal.
- Kiosk Office Users: registered users for Kiosk Offices. These users can apply and follow their applications. They can register through a link on the homepage of the portal.
- Front Office Users: they are ministry's employees. They have additional functionalities and permissions that distinguish them from other users. They have the permission of verifying applications and choosing appropriate approvals for each application.
- Back Office Users: they are ministry or other government entities employees. The system enables these users to perform specific tasks such as verifying and approving applications.
- System Administration Users: the system administration users have the permission to access all administration tools such as users' administration and system metadata. These users' functionalities are only accessible for system metadata administrators, who cannot apply or process applications.

In addition, the system was designed in a way that allows for further integration with other associated government entities. It uses web services to facilitate this integration, as other government entities use open standards.

Hence, the system has a clear flow and can be replicated and adopted by other countries according to their needs and already-existing infrastructure.

Challenges

The adoption of the system by the business sector was a first challenge overcome by the mandatory policy of registering through the One Shop Stop. The low digital literacy rate, Internet and PC penetration rate could have hindered the applicability of this policy. But since the launch of the national e.oman strategy in 2006, digital literacy has increased and turned into an advantage.

There were two other challengers. First, the project had to cover a vast geographical area of 309,500 square km for a total population of 2.9 million. The Ministry engaged with public and private entities to create the required services all throughout the country. Second, linking between concerned government entities was a challenge solved by involving the concerned entities as partners and by introducing the adequate policies, procedures and legal measures from the beginning of the project.

Conclusion

The introduction of such technological project needs an effective strategic planning to ensure the achievement of the goals. This strategic planning needs to involve the support of the top managers and decision maker, and requires a dedicated team to handle the system, solve the problems encountered during the implementation and to receive the feedback from the target in a constant manner. Reaching out to the targeted population to convince them to use the service must also be part of this strategic planning. To conclude, such information and communication related projects are important to increase digital literacy and enhance the development of e-government as well as the national economic growth.

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C7.3 e-Learning: Noor Program (Saudi Arabia)

Submitted by the Ministry of Education of Saudi Arabia (National Centre for Education Information)

Background

As part of the Kingdom's efforts to develop its e-government public services and information infrastructure, the ministry needed to provide students, parents, teachers, administrators, planners and policy makers across the Kingdom with access to education related data and e-services relevant to their needs.

The current policies of the Ministry of Education of Saudi Arabia are focused on:

- Enrolling all Saudi children of primary school-going age.

- Increasing the number of enrolments by encouraging educational programs to fulfill the needs of the Ministry and the industry.

- Constructing schools and initiating campaigns and programs to eradicate illiteracy in all parts of the Kingdom.

- Overseeing and enabling special educational services to the handicapped including blind, deaf and those with other disabilities.

- Working on early detection of disabilities and publishing information on ways to deal with them.

- Exchanging industrial and cultural information between the Kingdom and the Arab, Islamic, and friendly countries in accordance with the cultural exchange agreements.

- Developing national solidarity and national integration through a well-balanced educational curriculum

Project's Goals and Added Value

The "Noor" project is considered as one of the Kingdom's most strategic initiatives. It aims at connecting the Ministry of Education and all schools and school districts in the various areas and regions within the Kingdom to a centralized information system and database. The implemented solution is based on the latest technologies. The solution provides a wide range of features and e-services (around 2,763 functionalities). The solution aggregates real-time and accurate data from various sources and provides comprehensive reports. The reports serve the education community, and facilitate planning, analysis and decision making across the country.

The deployed solution is centralised, and accessible by the community through the Internet. Special considerations were made to accommodate the few schools that are not connected to the Internet, through a specialized offline mode application and clear work procedures were developed to ensure the use of the data.

The number of beneficiaries from the Noor Project is around 10 million (including 5.5 million students in over 35,000 schools).

The Noor Project also involves other entities outside the Ministry of Education, such as the e-Government Program "Yesser", the Ministry of Interior, the Ministry of Higher Education, colleges, universities and military institutes to facilitate students admission and registration procedures.

The key benefits of the Noor Project are:

- An increased efficiency and effectiveness in the public education sector.

- An increased transparency and accountability.

- An improved quality of data, due to elimination of data redundancy and reduced human error.

- A streamlined workflow between Ministry and the various related departments, school districts, schools, in addition to stakeholders and entities outside the Ministry of Education.

- An improved public service thus achieving higher citizen satisfaction.

- A reduction of operational costs due to the high level of automation, and due to the centralized deployment of the solution (further elaboration under the impacts below).

- Providing real live countrywide data for use in planning, policy making, and decision support.

- An ability to achieve better-informed decisions and develop plans and policies based on proper and comprehensive live data and statistics.

- Providing the various stakeholders in the education committee with information and education services relevant to their needs.

As part of the project, a main operations centre was created, through which the key ministry administrators responsible for this project can monitor the operations and ensure that all aspects are sustained and under control.

Impact of the Noor System: an Improved Efficiency

Time/Cost Impact:

- Time saving due to a much faster data cycle

- Cost reduction due to the decrease of staff hours spent on supporting the system, and an improved utilization of teachers' and administrators' time.

- Improved performance and increased productivity due to full automation of procedures and improved work distribution among staff, which in turn improves overall productivity and efficiency. The system also allows school districts to perform continuous online follow up on postings performed by all schools, to avoid any delays in schedule.

For example, on one of the sub-systems results, the duration required today for the ministry to process and publish the national exams results for all students is 6 days. Prior to the Noor Project, three to five weeks were needed. Another example is the average time needed for installation of upgrades. On the previous system, 20,000 hours were required, whereas less than one hour is now sufficient.

Environmental Impact:

The initiative encourages the decrease of use of paper, and aims to reach a paperless environment. Moreover, the centralized deployment of data canter eliminates the requirement for high-end servers at schools, and reduces the need for technical support staff to travel to school sites for technical support and maintenance issues.

Impact on Other Entities:

Noor Project positively affected positively other entities outside the Ministry of Education. For example, providing students with electronic results facilitates their admission and registration processes and has extended consequences.

Equal Access, and Access Anytime/Anywhere

- The solution is fully remotely accessible through the Internet, and can thus be accessed at anytime and from anywhere.

- The full automation of all systems and procedures and the application of standard procedures created transparency, unification of rules, and an overall equality among all users and schools in the various areas and regions.

Key development and implementation steps of Noor

Key implementation steps include the following:

- Development of the idea based on identified need.

- Development of a needs assessment report.

- Initiation of the search firms to implement the project through public tendering.

- Selection of a firm to implement the project.

- Initiation of the implementation of the project in 5 phases.

- Conduction of awareness, training and knowledge transfer in parallel with the project implementation.

- Completion of implementation.

- Operations and support.

Statistical information

The tables below show the latest statistics gathered from Noor in the first semester 2011/2012:

Table 2: Current number of Noor Users

Users Types	Number of users
Minister & Vice-Minister	3
Principals (Schools Admin)	32,995
Parents	1,251,551
Teachers	523,121
Students	5,122,309
Administrative	52,612
Directorate Head	45
System Admin & Help Desk users	3,495
Total	**6,986,177**

Table 3: Current Number of entities working with Noor

Entity Type	Number of Entities
School Directorates	45
Schools	30,436
Total	**30,527**

Table 4: Numbers of grades registered in the last semester with Noor

Stage	Number of Grades
Primary Schools	699,657,269
Intermediate Schools	87,413,948
High Schools	86,023,472
Total	**873,094,689**

Challenges

Over the past years, the Kingdom of Saudi Arabia has been undergoing various activities related to its national public education reform plans. One of the most significant aspects of such reform is the ability to make better-informed decisions, and to be able to base the design of reforms on statistics, and real live data provided by all schools and users from all over the country.

The main challenge was to ensure the consistent and continuous use of the system. This required commitment from the various stakeholders, especially the teachers and administrators. Several factors contributed to achieving an overall participation rate of 98.5%. This included a continuous monitoring and follow-up by the management and by the operation teams of the Ministry, a state-of-the-art operations center especially created for this purpose, and scheduled awareness and training sessions attended by the different stakeholders.

The Ministry of Education manages over 5.5 million students, 30,400 schools, 508,000 teachers and 45 school directorates that generate over 200 million annual records. The Ministry faced the challenge of accessing real-time data and records to facilitate an accurate analysis and reporting of the impact education policy across the Kingdom.

Although some data were available up to a certain extent, some key challenges existed, such as:

- Data redundancy

- High probability of human error

- Inability to develop reports and analysis based on real-time generated data

- Need for timely feedback and results.

- Limited data integration and workflow between the Ministry and its various related departments, school districts, schools, and other stakeholders.

Based on the above, the need for a centralized database was raised. Accordingly, the Ministry of Education launched the Education Management Information Solution (EMIS) initiative, later named the Noor Project from the Arabic word "Noor" that means "Illumination".

Conclusion

To conclude, the Noor system can help the Ministry of Education to collect accurate data and help educational leaders of the ministry to take inform decision in the future. Most of the Noor's beneficiaries stated that the system helped them to enhance the quality of education in Saudi Arabia by providing them with real-time education related information, The program will also further increase competitiveness among students, teachers, and schools, on top of encouraging many users to learn how to use computers and the Internet.
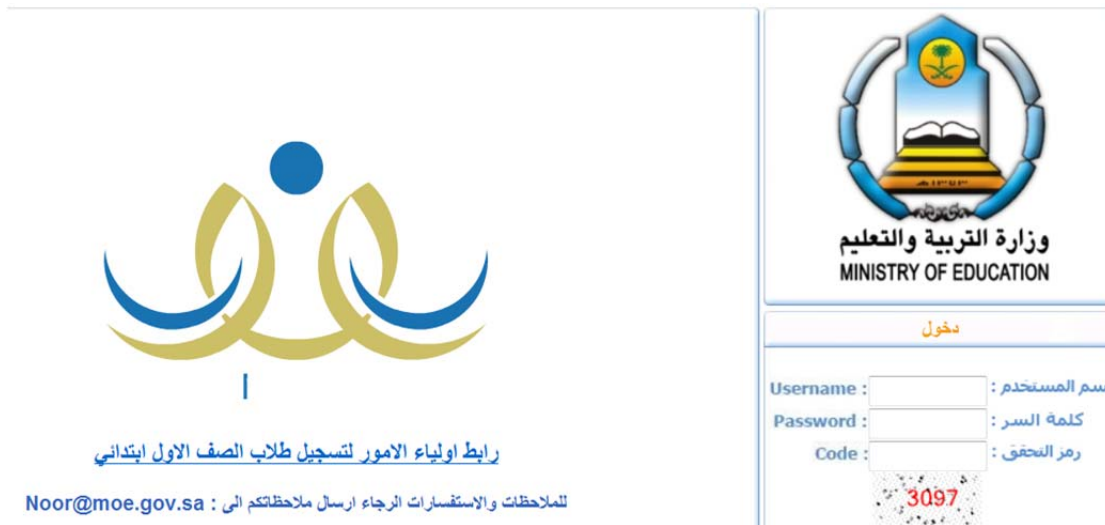
Figure 31 Noor System

C7.4 e-Health: Ruhanga – Real Time Remote Health Monitoring (United States of America)

Submitted by Cognizant Technology Solutions, United States of America and India

Background

The quality of healthcare in urban and rural places of developed countries is not evenly distributed due to the absence of adequate number of physicians in rural places.[17] The condition is even worse in developing countries where the majority of the population lives in rural areas. In these places even curable diseases dominate morbidity rates.[18]

Need for Ruhanga

Countries all over the world, irrespective of their population density have a common problem: access to affordable healthcare. According to the World Health Organization, there is a shortage of 4.3 million health workers worldwide, particularly in the poorest countries where they are needed the most.

Ruhanga

'Ruhanga' is a healthcare application, which leverages the power of convergence of Cloud Computing and Wireless Technologies. Ruhanga is targeted towards providing healthcare to the people living in deep rural areas as well as remote areas across the globe. Remote monitoring of terminally ill patients who cannot move away from their room is a benefit that can be leveraged through Ruhanga.

Features of Ruhanga

- The architecture of the Ruhanga system consists of the following:

- A patient report system, which records patient complaints

- A physician system, which can be used to view the details of the concerned patients

- A central intelligent processing system, which will decide on details to be sent to external systems like pharmacist, insurance companies and billing systems.

- A live video streaming system present on patients mobile phone, which enables live interaction between the patient and the physician.

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[17] van Dis J. MSJAMA. Where we live: health care in rural vs urban America. *JAMA* 2002 Jan 2;287(1):108.

[18] Delanyo Dovlo, "Using mid-level cadres as substitutes for internationally mobile health professionals in Africa. A desk review", Human Resources for Health 2004, 2:7, BS Bedi,"Telemedicine in India: Initiatives and Perspective" eHealth International Journal (online),October, 2006 – ehealthinternational.org

Salient Advantages of Ruhanga

The low cost mobile solution definitely has a wide reach and touches nearly every aspect of health care. Some of its important features are highlighted below:

- It can work in places where there is an acute shortage of power

- It can generate reports for the health worker once the physician has updated the prescription and diagnosis for the concerned patient

- It can also send the prescription to the nearby pharmacy where the patient can go and collect medicine

- It can also upload medical images to the database

- It can provide live streaming facility which would enable the patient to directly interact with the physician in case of a necessity, in real time

- *It can reduce travel and make quality healthcare available to people in rural places.*

- Billing and insurance systems could be plugged-in

Figure 32 Photo credit, *see* G Subrahmanya VRK Rao, Karthik Sundararaman & Jinka Parthasarathi, "Dhatri: A Pervasive Cloud Initiative for Primary Healthcare Services", Proceedings of IEEE-ICIN 2010, Berlin, Oct 11-14 2010
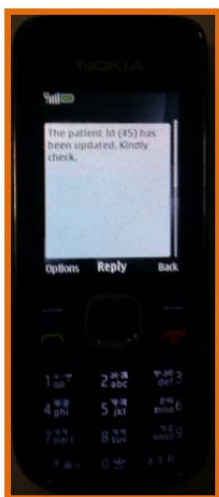
We have tested the system in a Wi-Fi Environment in our Lab premises and an empirical pilot in a rural terrain in India. However the system is yet to be tested in a real environment and we are currently working on operational and logistical issues to achieve this goal.

In most of the available telemedicine applications, large servers, which store data are present in the hospitals to enable physicians to view the relevant data. Increasing the number of servers enhances scalability but is tedious. Ruhanga replaces the conventional means of interaction and communication between patients and doctors as well as the data storage technology. Ruhanga uses cloud computing which minimizes infrastructure requirements and facilitates automatic scalability. Ruhanga provides a real competitive advantage, as it is a healthcare on demand service. Being a forward looking technology making a lot of sense to solve the current healthcare delivery technology issues, Ruhanga can help achieving the goals of the World Summit on the Information Society.

Goals & timeframe

Operational and logistical issues towards deploying Ruhanga in a real environment include

- Lack of manpower to work in rural areas or difficulty to get volunteers who are living in those rural areas

- Return on Investment

- Resolution of streaming videos and the related real time delays

The cloud model is continuously being modified and an acceptable metering model is about to be finalized. The team is also trying to explore the acquisition of biomedical signals from electrocardiogram or electrooculogram for instance, into the mobile to make the solution more effective and comprehensive. On the operational front the team is currently trying to explore collaboration possibilities with a few hospitals, physicians, non-governmental organizations and telecom companies.

Figure 33 Photo credit, *see* G Subrahmanya VRK Rao, Karthik Sundararaman & Jinka Parthasarathi, "Dhatri: A Pervasive Cloud Initiative for Primary Healthcare Services", Proceedings of IEEE-ICIN 2010, Berlin, Oct 11-14 2010

Project's added value and importance

Healthcare is major issue in almost all countries and in most of the developing and underdeveloped countries mortality rate is growing despite the disease leading to death being curable. This could be reduced if appropriate healthcare advice were given at the right time to the people. In most countries, the government plays an important role in financing healthcare to its population and hence a low cost, sustainable healthcare solution like Ruhanga is surely a viable and attractive option. Ruhanga makes lot of sense for African, Asian, the Pacific region, and South American markets where this kind of innovative solution can prove to be of practical use.

Ruhanga is:

- A life saving solution for patient in emergency situations

- Useful in the remotest of the locations in terms of patient care

- A tertiary care provided at a simplistic setting

- A timely diagnostic and therapeutic support

- Low cost

- Ease of use

- Ease of training

- A global and innovative tool

- A forward-looking technology

Challenges

Quality and affordable healthcare is a necessity for all people. We foresee that as the load increases, performance issues due to traffic will occur and hence a larger bandwidth will be required. Other features requiring a larger bandwidth such as live streaming, are also a great challenge. Similarly medical images and signals of larger size need a proper bandwidth for faster transmission. Technologies like WiMax, Wi-Fi and 3G have evolved and can provide a large bandwidth to transfer the details at a faster rate. Such technologies and hybrid models of such technologies could help in solving the performance issues. Security is also a major issue since healthcare information is quite confidential and this is why an advanced encryption standard algorithm was implemented.
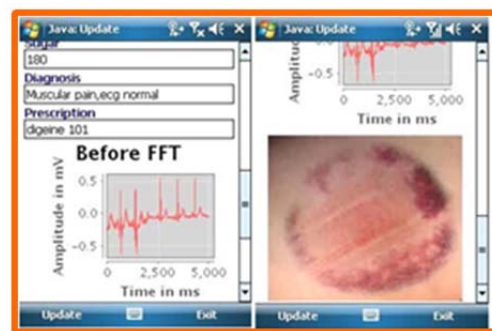
Conclusion

The exploitation of emerging technologies towards solving issues of telemedicine is a growing phenomenon around the world. The advent of smart phones has made mobile health solutions a very viable and cheap option. Another advantage of providing a mobile health solution is that the solution could be made available at anyplace and anytime. Developing and integrating Ruhanga was a great experience and the challenges the team overcame proved to be a great experience. The team had developed Ruhanga in such a way that most of its components like security, database architecture, role based access and streaming abilities could be used for similar applications in different industrial scenarios. Charging and metering a software application by understanding the load and its potential usage in the future has helped the team to use the knowledge acquired in hosting service applications.

C7.5 e-Employment: National Unemployment Assistance Program (Hafiz) (Saudi Arabia)

Submitted by the Human Resources Development Fund, Saudi Arabia

In February 2011, the Custodian of the Two Holy Mosques King Abdullah Bin Abdul Aziz Al Saud issued a Royal Decree announcing the start of the financial unemployment assistance to Saudi job seekers.[19] The Royal Decree also asked for a prompt and sustainable framework to address the unemployment problem in the Kingdom of Saudi Arabia. The Ministry of Labor, along with the Human Resources Development Fund (HRDF), were tasked with the development of comprehensive policies and programs to implement the Royal Decree.

As part of this task, the Ministry of Labor engaged a number of leading international organization and consulting firms to undertake an extensive global benchmarking exercise. The purpose of this engagement was to identify best practices in delivering unemployment assistance and related services such as training and job search support to the Saudi job seekers. Based on recommendations from experts, coupled with a consultation process with key stakeholders, including the International Labor Organization (ILO) and the World Bank, His Excellency the Minister of Labor quickly moved forward to establishing the National Unemployment Assistance Program (Hafiz), which logo and identity are depicted in Figure 33.

Figure 34 The Hafiz Program Logo

Hafiz is a program that is governed by a sophisticated policy developed to verify the individuals who claim to be job seekers so that they can apply to obtain a financial support (of 2,000 Saudi Riyals as designated by the Royal Decree). Hafiz policy is at the core of the program and the main driver for creating a sustainable process of capturing all the needed data and information about applicants (e-resumes) then referring them to the appropriate employment channels. This database, or resume bank, is targeted to formulate the National Manpower supply side of the newly restructured Saudi

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[19]   Royal Order no. A/30 retrieved from www.spa.gov.sa/Englih/awamer.php

labor market. The incentive for applicants to approach the Hafiz program and fill in their resumes is two-fold. First, the financial incentive is made attractive enough to entice applicants, and second the Human Resources Development Fund provides training and employment opportunities.

The policy was meticulously designed with a number of factors in mind. First, the young women and men were targeted. Second, an equal treatment of both genders is firmly made. Third, the financial support is formulated to be sufficient both in terms of duration and amount to assist a job seeker in obtaining training focused on personal and functional skills related to their fields of interest. Fourth, the policy relies on a monthly eligibility check whereby the applicants' relevant data is verified against the different databases of other public and private agencies to maintain fairness and equality. Finally, the policy was aimed at maintaining moral justice among all Hafiz applicants.

The target population of job seekers is challenging to define and understand. The Kingdom of Saudi Arabia is a vast country with a largely scattered population, and relatively sparse cities and towns. The unemployment among Saudis is mostly among the youth (between 20 to 35 years) and with more inclination towards females than males.[20] With the mandate of the Royal Decree and the firm implementation deadline, the Ministry of Labor and the Human Resources Development Fund made a strategic decision to adopt the tools of electronic governments to reach out to the most possible number of unemployed Saudis quickly and reliably.

Immediately after the issuance of the Royal Decree and while developing the policy and official endorsement, the Fund created a simple and optional registration mechanism via a website and Short Message Services (SMS) for job seekers to apply to the program. To register, all what the applicant needed to do was to merely provide her or his National ID Number (NIN) and a mobile phone number for future communication purposes. A confirmation SMS is sent back to the registered mobile number informing the applicant that her or his registration has been completed. This simple process was followed by a requirement for the applicant to log on to the Hafiz system (website) and start building their electronic application (CV). Completing this CV is a mandatory criterion for eligibility.

The Hafiz Program policy contains a set of eligibility conditions that should all be fulfilled for an applicant to qualify for financial support. At the moment, there are more than 400 public and private agencies that are electronically linked and referenced to carry out the validation process each month. The eligibility conditions defined by Hafiz policy are:

- The applicant should be Saudi or a non-Saudi from a Saudi mother
- The age should be more than 20 and less than 35 years
- The applicant should be able to work
- The applicant should not be an employee in either the public or private sectors
- The applicant should not be a student or a trainee
- The applicant should not have a commercial license
- The applicant should not have a fixed income of 2000 Saudi Riyals or more
- The applicant should not be retired
- The applicant should not be a beneficiary of an unemployment insurance

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[20]   Manpower Research Bulletin, 2009, Central Department of Statistics and Information, Saudi Arabia.

- The applicant should be a resident in the Kingdom for at least 10 months during the last 12 months

- The applicant should not be a beneficiary of the Saudi Social Assistance programs that pays more than 2000 riyals per month.

Financial Allowances Transactional Processing

The payment of the monthly financial support allowances represented a major challenge for an expected large number of eligible Hafiz applicants considering the country's natural geography and the demography of the Saudi population. Allowance distribution follows the same process as the one for registration, i.e., via the use of electronic channels. The applicant is required to provide a valid bank account as part of her or his Hafiz application. The bank account is limited to banks that operate within the Kingdom and are administered by the Saudi central bank. Once an applicant is identified as eligible at a given month, the Hafiz program will electronically transfer the financial allowance directly to the bank account provided by the applicant.

The program policy, on the other hand, demands that the applicant declares the sources of fixed income at the month of eligibility check. The declared amount is then deducted from the total allowance and the remaining is amount is directly transferred to the applicant's account. On the day of the first Hafiz payment, which was on 31 December 2011, a total number of 554,655 job seekers received the unemployment allowance at the same time. This corresponded to a total of 1.1 billion Saudi Riyals.

The process of paying the allowance to the beneficiaries is automated, safe, and reliable. To mitigate potentials of fraud, the Hafiz Program was designed to interface directly with banks utilizing the country's robust and efficient payment network. In addition to the Hafiz Program, two main stakeholders are involved in the allowance payment process. These stakeholders are the Master Bank and the Saudi Arabian Monetary Agency.

The Master Bank

A major local bank was formally selected to act as the hub for allowances distribution to all other local banks where Hafiz applicants have their bank accounts. The Master Bank also carries out a number of pre and post payment processes, including banks account validations, processing of rejected payments, and assisting in managing and reconciling payments transactions. The entire processes of validating accounts, distributing allowances, and sending deposit notifications are automated and take place with no human intervention. To ensure the presence of regulatory and operational framework, the Hafiz Program worked closely with the Saudi Arabian Monetary Agency.

Saudi Arabian Monetary Agency (SAMA)

Hafiz Program initiated a series of communication activities with the Saudi Arabian Monetary Agency to get the necessary regulatory support and enable the program to coordinate with the different local banks, where applicants' bank accounts are. These activities resulted in the following actions:

- The Saudi Arabian Monetary Agency corresponded with all Saudi banks to facilitate an anticipated large number of expected activities to open bank accounts, for both females and males.

- The Hafiz Program and the Saudi Arabian Monetary Agency held four workshops with all Saudi banks to explain the program requirements and to answer the banks' questions.

- The Saudi Arabian Monetary Agency conducted a number of system tests to check the readiness and capacity in collaboration with a number of major banks. This step was carried out as a precaution before the actual unemployment allowances are distributed and to discover any potential mishaps the distribution process could face during the actual payments.

Verification of bank account IBAN/National ID Number

A validation process has been clearly defined to ensure a correct match between the bank account number (IBAN) and the National ID Number between what the applicant provided to Hafiz and what the associated bank's records say. The main drive to conducting this exercise was to eliminate all possible sources of fraud and the potential mistakes of paying the allowance to a person other than the eligible one. This automated process was initially conducted for all Hafiz applicants and then the delta sets of newly registered applicants are validated on monthly basis.

The establishment of the Hafiz Program was part of a series of nation-wide employment initiatives taken by the Ministry of Labor and the Human Resources Development Fund, which aimed at supporting unemployed Saudi job seekers to obtain suitable jobs and at providing them with the needed skills to join the Saudi labor market. There are mainly three initiatives that were developed along with the Hafiz Program. These initiatives are Job Placement Centers (Taqaat), e-Training, and e-Employment.

Job Placement Centers (Taqaat)

The Taqaat centers are launched and managed by globally recognized firms. Hafiz applicants are electronically referred to the nearest Taqaat center for job interviews and employment mentoring and supervision. The results of the activities performed at a given Taqaat center for a given Hafiz applicant are feedback to Hafiz Program to update the applicant's records. Taqaat centers' core business is to map the job seekers to potentially matching opportunities available in the market. Opportunities are matched based on the preferred job and location stated in the job seeker's resume in Hafiz. Taqaat centers are monitored by Human Resources Development Fund to enforce standardization and regulatory requirements. Figure 35 and Figure 36 show some of the mentoring and consultation activities that a Taqaat center offers to Hafiz applicants.

Figure 35 A mentor interviewing an applicant

Figure 36 Induction program at the center for the new applicants

E-training

The Hafiz Program aims to train job seekers with appropriate training courses, which help the applicants to join the labor market and to be active members in it. To achieve this goal, and due to the large expected number of applicants with diverse demographics, the program targeted the development of an e-training system. Leveraging the well-established and maintained technological infrastructure in the Kingdom, so that the Hafiz Program relies on electronic systems for distance learning was a strategic decision. The courses selected and designed aimed to provide the applicants with the necessary skills for a job seeker to enter the labor market. Courses such as communication skills, interview tactics, and CV development were among the many basic courses provided online to the Hafiz applicants. It was mandated that applicants should take the allocated courses at the designated time to maintain a good standing status of Hafiz. Failures to maintain this good standing status would result in deducting part of the financial allowances paid to the eligible applicant. Applicants were, on the other hand, made aware of their rights and obligations in addition to the consequences of how disciplined they should be.

E-employment

The creation of job opportunities for job seekers is one of the most important objectives of the Hafiz Program. Accordingly, the program introduced a system of employment matching based on the highest international standards. Relying on technology, both the job seekers and employers are able to explore as many job positions as possible in an environment that maintains both privacy and confidentiality. The automated system matches posted jobs with relevant job seekers who have the relevant qualifications and experience to the posted positions. The referral mechanism of job seekers between Hafiz and the e-employment went through a careful design that resulted in an efficient matching with a sophisticated mechanism of monitoring and measurement and a set of key performance indicators were put into effect to help manage the entire referral process.

The implementation of the Hafiz Program progressed in a rather fast pace. Only eight months were required from the issuance of the Royal Decree to the distribution of the first payment. Table 2 outlines the main milestones of the Hafiz Program in chronological order.

Table 2 Hafiz Program Milestones

Hafiz Milestone	Date (2011)
The issuance of the Royal Decree	February 23
Launch the first phase of Hafiz Program – Initial registration	March 16
Preparation of a draft program policy	May 11
Launch the second phase of Hafiz Program – Complete registration	September 9
Adoption of the final version of the policy of Hafiz Program by the Supreme Economic Council and then the Royal Court,	November 21
Application of eligibility criteria for the first Hafiz payment	December 17
The first Hafiz payment is distributed	December 31

Hafiz Program Added Values – Job Seekers Services

Perhaps one of the most unique features of Hafiz Program was to change the interaction of citizens with job seekers, now dealt as customers. The customer service attitude and sense were among the crucial skills the Hafiz team were trained to perform. With the large expected number of Hafiz applicants and because of the strategic decision to leverage the tools of e-government, the need to define and develop customer services channels arose. The main channel to serve Hafiz applicants was through a unified call center.

Unified call center

A unified call center number dedicated to Hafiz Program was allocated and published. The duties of the unified call center are to provide support and assistance to the Hafiz applicants and to answer their questions. Additionally, the unified call center is the main channel for Hafiz applicants to appeal and submit objections to any situation applicants may face. A snapshot of Hafiz call center is provided in the figure below.
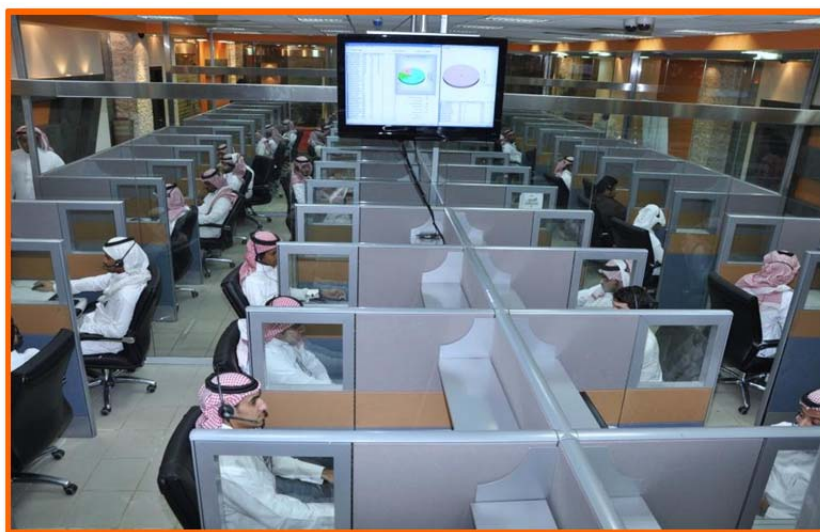
Figure 37 Hafiz Call Center

The unified call center is run as an outsourced service in two different locations in Saudi Arabia. The two locations were selected far enough from each other as an act of precaution to ensure business

continuity in the event of what may cause a disruption of service. Hence, one call center was selected in Riyadh and the second one is located in Jeddah. Both centers have extensive experience in operating similar massive national projects. Each center contains over 300 Saudi employees totaling 600 employees and including staff of both women and men. Moreover, an Interactive Voice Response (IVR) was integrated with the internal systems of the unified call center to provide previously recorded answers to many of the applicants' inquiries. The figure below demonstrates an operational view of the unified call center of Hafiz since the start of operation to date.
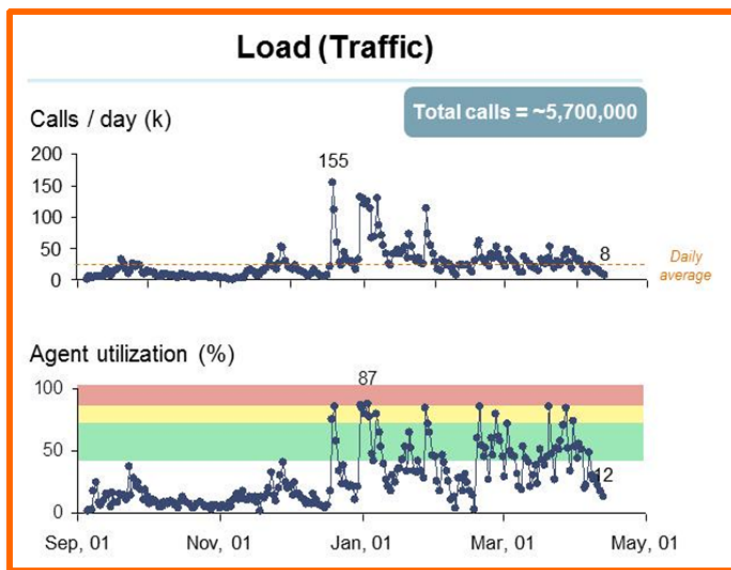
Figure 38 Hafiz Call Center Operational View

Customer Relationship Management (CRM)

The objective of implementing a customer relationship management system is to register applicants' complaints and manage their objections until resolution. The Hafiz's policy and its implementation notes were reflected in the design of the customer relationship management's workflows and the related reports and monitoring tools were devised for the purpose of maintaining a quality of services via standardizing service delivery.

Appeal Management

An elaborated appeal management set up was carefully and lawfully designed. The expectation was that there could be cases in which Hafiz applicants become ineligible while the collected eiligiblity data reflect otherwise. The fairness of the Hafiz Program is reflected through the process of appealing the situation the applicant faces. Higher order committees manage the validated appeals and collectively take informed decisions to accept or reject the filed appeals. The appealent then is contacted and informed by the decision and the rational behind it.

Implications and Conclusions

The Hafiz Program is a core component in the formulation of the modern Saudi labor market. For an effective implementation and operation of the Saudi labor market, the Hafiz Program provides an accurate and up-to-date database of Saudi job seekers. The Hafiz Program does not only contain applicants' resumes but also their demographical information leading to deeper insights on job seekers geographical concentration and job seekers' preferences. There are many benefits of the Hafiz Program outside the Saudi labor market arena. Such benefits include a clearer understanding of

the educational and countrywide infrastructure needs. The Hafiz Program is a core element of the country's planning activities in the different sectors and domains.

The implementation and management of the Hafiz Program have never been easy. Faced with an unknown number of applicants, estimations were significantly needed to plan and design the program and its underlying activities. The challenge that the Hafiz Program faced and is still facing is the need to perform monthly an eligibility validation for all the applicants. This validation exercise is limited in time while complex in nature. The complexity stems from the increasing number of public and private agencies that need to be automatically interfaced with. The banking landscape has been confronted by a massive increase in bank account opening requests by potential Hafiz applicants.

It is certainly accurate to state that the use of electronic channels to reach out for citizens and avail Hafiz services automatically was the main drive for its success. It is almost impossible to manually capture the huge number of resumes available now in Hafiz using mere traditional unemployment assistance methodologies. Traditional methods of focusing on the physical interaction with the job seekers are costly and demand larger teams of skilled personnel. When operating under a tight schedule of project implementation and high expectations from the political leadership, resorting to electronic government applications has proven to be the key for success.

C7.6 e-Environment: GreenVoice (Switzerland)

Submitted by ICVolunteers.org

Figure 39 The GreenVoice exhibition has been shown on Quai Wilson during July and August 2011, photo: V. Krebs

As the world we live in becomes increasingly interconnected, the relevance of environmental issues increases exponentially. GreenVoice seeks to transmit this message and to sow the seeds of environmental knowledge and awareness in a hands-on fashion, promoting the best possible use of information and communication technologies in order to make a difference. Wherever you are, and wherever you are from, you can help preserve our environment and our planet for the enjoyment of generations to come.

Promoting environmental education and new consumption patterns through encouraging and rewarding youth involvement is the objective of the GreenVoice programme. However, our initiative is open to all spheres of society such as governments, private companies, associations and ordinary citizens, with a special focus on local youth in colleges, high schools, and middle schools.

The first initiatives of the programme date back to 2007, with a school project involving high school students in a tree planting project called VolTerre.

Online Photography Campaign

The photography exhibition, GreenVoice's centrepiece to date, was launched in 2009 with the goal of allowing photographers from all over the world to illustrate today's environmental challenges and solutions. Photos were accompanied by texts and bios submitted by each photographer. A selection of the best works was shown at La Galerie in Geneva. In 2010, ICVolunteers repeated the experience, while specifically focusing on photos taken by young people. Different exhibitions took place throughout Geneva, from Cité du Temps (Pont de la Machine) to the World Council of Churches, the Maison des Associations and the International School.

Figure 40 The GreenVoice exhibition has been shown on Quai Wilson during July and August 2011, photo: V. Krebs

Since the beginning of the campaign, nearly 1,000 photographs from 100 countries have been received; 92 of which were selected to be exhibited for five weeks on Quai Wilson, a central spot on the Geneva lakeside. The photos reflect the diverse perspectives of volunteer photographers, from the Philippines to Colombia, from Lithuania to Australia, Morocco and Mali, and of course Switzerland. The exhibition depicts their respective multicultural visions, offering the audience a view of the world they may never have seen before. None of this would have been possible without ICV's network of over 13,000 volunteers.

Educational Workshops

Recognising the importance of future generations in the constant struggle to protect the biodiversity of our planet, GreenVoice teamed up with *Passeport Vacances* of the *Département de l'Instruction Publique* of the Republic and Canton of Geneva to bring local children an exciting itinerary filled with nature-oriented workshops, guided tours and other outdoor activities throughout Geneva (Switzerland). Other such activities have also taken place in Rio de Janeiro (Brazil) and the Gex region (France). Since the start of the workshops, several hundred children have had the chance to be involved in various educational activities related to the environment, the discovery of nature, recycling and soil cleaning.

Figure 41 Summer workshops for children aged from 8-13 years are offering specific field activities to children, photo: V. Krebs

In addition to the discovery of nature and the local habitat, children also used computers and technology in innovative ways, though question and answer role playing, online exchanges and computer-assisted environmental map creation.

Video Campaign, Travelling Photo Exhibitions, Online Information Sharing

Through this range of activities, GreenVoice continues to build on its success. Thanks to the effort of volunteers in Geneva and around the world, a video component is currently being developed to complement the photography exhibitions. In addition, ICVolunteers is working hard to take the exhibition to other major cities in Europe, the Americas and Africa.

Seeking to become a showcase for environmental projects, GreenVoice looks forward to opening its website for people to post their ideas, issues and solutions related to the environment, regardless of where they find themselves in the world. Whether in video format, or as a written proposal, this new project will allow access to other individuals, organisations and private sponsors; thus giving way for the sharing of information and increasing synergy between individuals and organisations.

Therefore, the GreenVoice programme contributes to achieving the World Summit on the Information Society (WSIS) goals by encouraging the best possible use of technology, and by involving and enabling volunteers throughout the world to create and share information.

Figure 42 "Students take pride in their environment by keeping it clean",
photo: Mariam Hamed (Gaza Strip – Palestine)

Goals and Timeframe

- Raise awareness among current and future generations about environmental challenges and issues;

- Sow the seeds of environmental knowledge and awareness in a hands-on fashion;

- Transmit the message that regardless of geographical situation, anyone can make a difference;

- Serve as a showcase for environmental projects all around the world;

- Connect individuals and organisations so they may collaborate in the realisation of projects;

- Highlight the need to respect and protect our natural habitat;

- Value our natural heritage;

- Enable young people to acquire Information and Communication Technology (ICT) tools to better explore the theme of sustainable development and become involved in issues that are of interest to them.

Specific Objectives

- Organise photography exhibitions themed around relevant environmental topics;

- Involve volunteers in the preservation of the world's biodiversity and the fight against global warming;

- Work in collaboration with other associations, international organisations, educational institutions and private enterprises to spread education and increase awareness around environmental issues in specific locations such as France, Switzerland, Brazil, Mali, Senegal and throughout the world;

- Create a yearly self-sustaining environmental workshop programme in the city of Geneva and elsewhere.

- Encourage tree planting initiatives;

Figure 43 Locations of the GreenVoice Program participants

Project's added value and importance

The strength of the GreenVoice programme, as with any ICVolunteers project, lies in its volunteers. Every aspect of this multifaceted programme depends on their efforts. Needless to say, the collaboration of other organisations and governmental institutions is pivotal for the establishment of

the photography exhibitions; and the workshops could never be organised without the expertise of the various experts and scientists. The core asset of this programme is the foundation of volunteers who donate their time and skills.

The photographs used in the exhibitions are all taken by volunteers, the workshops are accompanied by volunteers who take care of the children and aid the supervisor, and the administrative work done in the offices of ICVolunteers is also performed by dedicated volunteers.

Figure 44 "Students take pride in their environment by keeping it clean",
photo: Mariam Hamed (Gaza Strip – Palestine)

This program could easily be replicated in other countries as long as the organization maintains an appropriate synergy with the local governmental institutions. Nature workshops can be organized in even the most remote places, where tree planting initiatives may replace identifying underwater life. Regarding the photography campaign, given the capacity for global interrelation of information and communication technologies, the GreenVoice program has the potential of reaching many countries and cities.

Challenges

It has not been easy to find financial partners for GreenVoice and its photography exhibitions. Despite the commitment to the environment guaranteed by many private businesses, GreenVoice had to, in more than one instance, resort to its own financing. For the continuation of the project, GreenVoice is looking for additional partners to join them, specifically to help with the various project-related costs.

Figure 45 "India is undergoing rapid changes, due to technology and an increasing demand on natural resources", photo: Chakrobarly Sudipto, India

Conclusion

The issues, which our planet and societies are currently facing regarding the environment will only continue to grow in size and importance. Rather than solving problems as they arise, the best long-term solution is to educate ourselves and each other about the urgency of these issues and the importance of being a mindful, active citizen. By aiming our program towards the younger generations, GreenVoice hopes to ensure a future where decisions are made in full consciousness of their repercussion on the environment.

Technology can be a two-sided sword, as it can serve as a positive tool of communication and sharing of ideas, but also leaves a considerable imprint on the environment. Through the GreenVoice program, ICVolunteers attempts to utilize information and communication technologies to their best possible extent while communicating, and minimizing the negative aspect of modern technologies and consumption patterns. Using the Web to showcase environmental projects is one example.

Figure 46 "Homeless boy in Girón finds love and hope in her adopted pet",
photo: Andrés Felipe Valenzuela Parra (Colombia)

For more information about ICVolunteers and GreenVoice, see www.icvolunteers.org and www.greenvoice.info. Videos are available at www.vimeo.com/cybervolunteers. Anyone interested in GreenVoice is invited to join in and participate. be it through the contribution of ideas, photographs, videos and donations.

Figure 47 "Man is so small, yet has such a tremendous impact on nature",
photo: Lina Ernjak, Croatia (Argentina)

Other projects of ICVolunteers

The E-TIC.net programme aims to provide tools and training components so that small farmers, herders and fishermen are better able to sell their products. Through the targeted use of online technologies and mobile phones, a decentralised field study allowed highlighting issues related to farming and herding practices. Among them are the use of conventional methods, the overuse of pesticides and fertilisers that ultimately lead to soil impoverishment and the contamination of rivers, home to local fish. An AgriGuide and the targeted use of drawings, illustrations, videos and mobile phones provide concrete answers to some of the questions raised. Through data collection, the creation of online and offline resources and a series of training courses for field connectors (youth, women, community radio journalists), the ETIC programme aims to provide knowledge relevant for efficient and effective farm management. For more information, go to www.e-tic.net and www.icvolunteers.org.

MigraLingua.org is a programme, which aims to accompany migrants who have arrived in a country where they do not speak the local language. It assists migrants in their daily tasks, in particular those linked to school and education. ICVolunteers provides linguistic accompaniment, which allows migrants not only to overcome their reluctance to invest in some areas of their social environment, but also to develop their desire and ability to become active citizens in the host society. Such a service enhances social cohesion and stability in the community by promoting trust, the resolution of conflicts and collegiality. Feelings of exclusion and isolation, whether real or perceived, are found to be reduced. For more information, go to www.migralinuga.org

C7.7 e-Agriculture: e-Agriculture Community

Submitted by the Food and Agriculture Organization of the United Nations (FAO), Office of Knowledge Exchange, Research and Extension

Background

Following the World Summit on the Information Society (WSIS), a UN interagency working group conducted a global survey in 2006 that identified the term *e agriculture* with improved 'information dissemination, access and exchange, and communication and participation process improvements around rural development'[21]. The same survey also identified a desire among development practitioners to learn more about the use of new information and communication technologies and their peers who were using them to support development work.

Building on this, a community of practice was conceived and launched in 2007 by a multi-stakeholder group of organizations that believe in the critical role of information and communication technology in agricultural development[22]. Known as the e-Agriculture Community, it underpins actions related to "WSIS Action Line C7: e-agriculture" and facilitates the knowledge exchange and networking necessary to achieve the agricultural development goals of the World Summit on the Information Society.

Figure 48 Photo credit: Peru Telefonica

E-Agriculture is a global community of practice, made of people from all over the world who exchange information, ideas, and resources related to the use of information and communication technology for sustainable agriculture and rural development. Facilitated by the Knowledge and Capacity for Development branch of the Food and Agriculture Organization, the e-Agriculture Community today has grown to

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21   Masiello-Riome, C., Heller, N., Rudgard, S. & Schneider, R. 2008. Analysis of e-Agriculture Survey. Agricultural Information Worldwide, 1, 11-18.

22   e-Agriculture. 2012. Founding Partners [Online]. Rome. Available: www.e-agriculture.org/founding-partners [Accessed 21 April 2012].

over 8,400 registered members from over 160 countries and territories[23]. Members include individual stakeholders such as information and communication specialists, researchers, farmers, students, policy makers, business people, development practitioners, and others.

The e-Agriculture Community is active on three levels:

- Online with a space for sharing and collaboration at www.e-agriculture.org and through the creative use of social media

- At face-to-face events, including information and communication technology for development (ICT4D) conferences and meetings

- Through the projects and interventions of members in developing countries

Figure 49 Photo credit: ICRISAT

Critical issues are elucidated and addressed through discussion forums, policy briefs and case studies. Online activities allow the Community to reach tens of thousands of individuals annually, a level of participation that could not be achieved otherwise. The Community recognizes that in its simplest form, knowledge exchange is about starting constructive dialogue. That is why one of the most popular activities is the e-Agriculture online forum series, where topics are demand-driven, and led by partner institutions who specialize in different areas of e-agriculture.

Partnerships with international, regional and national institutions are critical to the continuing success of the e-Agriculture Community, with organizations and individuals from both the public and private sector offering their time and knowledge to support the Community and enhance the use of information and communication technology for sustainable agricultural development and food security.

Goals & timeframe

The mission of the e-Agriculture Community is to serve as a catalyst for institutions and individuals in agriculture, forestry, fisheries, natural resource management and rural development to share knowledge, learn from others, and improve decision making about the vital role of information and communication technologies to empower rural communities, improve rural livelihoods, and build sustainable agriculture and food security. This mission guides the Community's actions in the long-term.

Several important issues were identified during 2011. The Community examined the critical role of gender in information and communication technology and the agriculture domain. The Community also focused on enhancing agricultural markets, and creating sustainable and scalable information advisory services with information and communication technology. Mobile technology, which has the fastest growth rate of any information and communication technologies in the developing world, and

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[23]   e-Agriculture. 2012. What's here now [Online]. Rome. Available: www.e-agriculture.org/ [Accessed 21 April 2012].

how it can be brought to improve the agricultural sector, is of particular interest to the Community. These sectoral interests were rounded out by actions to address the challenges of capturing information and communication technology's impact in agricultural initiatives.

In 2011 there was a special campaign aligned with the conclusion of the International Year of Youth. Partnering with the Young Professionals Platform for Agricultural Research for Development, the Community published a series of articles written by young people about information and communication technology, agriculture and youth. Giving a voice to the "digital generation" in the agricultural sector is essential to the future of rural development and food security. The World Bank and the Community initiated an important collaboration to further develop resources for the recently launched "ICT in Agriculture" Sourcebook.

Project's added value and importance

Figure 50 Photo credit: DIMITRA

The value of the e-Agriculture Community can be seen from the viewpoint of both its individual members and of institutional partners.

The Community responded to a need, and provides a different service compared to what is otherwise available, working as an "umbrella" for most of the initiatives and knowledge in the subject, providing with a community solely focused on e-Agriculture, and representing the perspective and the resources of the major organizations involved. E-Agriculture strives to be a single knowledge repository in a fragmented environment, easily accessible, a large community with focus on a specific topic, and provide access to informational and other resources of major organizations in the field.

From the institutional perspective, the Community provides an opportunity for organizations in the field to better influence policy development, and to have an easily accessible window on new advances, and on new market for its services/product. E-Agriculture has critical mass for advocating policies and interventions, offers potential new audience interested in the field and new channel of distribution.

The continued growth of registered members on the e-Agriculture Community website and level of interaction confirm that the value of this community continues to hold.

Challenges

The e-Agriculture Community faces financial limitations that constrain possibilities for further expansion, and thereby limit the potential of this dynamic Community. As there are no funds solely dedicated to the e-Agriculture Community, and limited resources to support its in-country activities and multi-lingual development.

Through focused collaboration with the Instituto Interamericano de Cooperación para la Agricultura (IICA) and other partners in Latin America there has been a notable improvement in activity from the

Spanish-speaking members and in Spanish content. Improving engagement with French speaking community members continues to require attention.

Conclusion

Figure 51 Photo credit: Franz Martin

The success of the Community depends to a great extent on the active engagement of a wide range of stakeholders, while maintaining a reasonable focus on a common (and commonly understood) interest. The web-based collaboration component of the e-Agriculture Community's activities is the most popular and effective tool to engage with its members. The platform relies solely on volunteer efforts to lead discussions and assist in providing content, which contributes towards the development of policies and good practices. For this the Community is grateful to the individuals and organizations, many who are not mentioned in this report and who have willingly taken on leading roles in the Community's activities.

The Community continues to collect resources and good practices focused on specifically identified "Key Topics" that arise from the Community members' main areas of interest. These now include:

- Information and communication technology and agricultural value chains

- Information and communication technology, agriculture and gender issues

- Mobile telephony in rural areas

- Public-private Partnerships for rural information and communication technology

- "ICT in Agriculture" Sourcebook (published by the World Bank)

The e-Agriculture Community will focus on expanding its mechanisms for knowledge sharing around lessons learned through in-country interventions, in particular as relates to the identified Key Topics. These lessons will be drawn from the activities of e-Agriculture Community members, encompassing national and regional level interventions on information exchange and communication, from which successful elements will be expanded and scaled up. The mechanisms will foster the capturing and sharing of lessons through the e-Agriculture Community's online platform, and through other major participating institutions in support of capacity development.

In addition to its role in the ICT for agriculture sector, the e-Agriculture Community has provided valuable insight into the development and management of communities of practice[24]. The Community has been studied and reported on in several instances.

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24 Loumbeva, N., Salokhe, G., Kolshus, K. & Lamoureux, L. 2009. Report of the Review of the Pilot Phase of FAO Thematic Knowledge Networks. Agricultural Information and Knowledge Management Papers. Rome: Food and Agriculture Organizations of the United Nations.

C7.8 e-Science: Automatic Meteorological Stations Network (Argentina)[25]
Submitted by Universidad de la Punta, Argentina

Background

Figure 52 Meteorological Stations, installation works

As a strategy to drive San Luis inhabitants towards equal and sustainable growth, supported by information and communication technology, the San Luis Government organized a digital agenda and entrusted La Punta University to carry it out.

The objective of the agenda is to contribute to improve the quality of life of the community through knowledge facilitated by the use of technologies, which raises the scientific and socio-cultural level. The digital agenda consists of 235 initiatives structured around six topics (infrastructure, education, technology, production, legal framework and electronic government). One of these initiatives is the Automatic Meteorological Stations Network.

During the last decades, significant climate tendencies were registered within the Argentinian territory. These tendencies are most probably linked to the current global climate change. Since the 1960s, precipitations have notably increased, reaching annual average levels much higher than those registered any time before.

All activities related to hydric, road, and urban infrastructures, forestation, irrigation, agriculture in dry land, and cattle farming are highly sensitive to climate, and hence to these changes. This is why **climate information in real time is of great interest**. Climate information is necessary, though not enough, for the planning of those activities, since the whole planet, as it is well known, is undergoing rapid climate changes. Therefore, in the next decades, **the project intends to lead to the development of climate scenarios in San Luis**, with the most advanced model techniques. This way, preventive actions and adaptation policies will be taken in advance to avoid the inconveniences of late and palliative, and surely more expensive, adaptations.

Goals

General:

To improve the adaptation of San Luis to the current climate changes and to changes that may occur in the next decades.

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[25]   Also published in: Barros, V., Da Rold García, P. F. & Munizaga, A. 2009. Meteorological Stations Network: initiative of San Luis Digital agenda. San Luis, Argentina: Universidad de La Punta.

Specific:

- To make public information on weather conditions available in real time everywhere in the province;

- To facilitate the improvement of weather forecasts in the province;

- To estimate wind power resources in the province;

- To generate reliable statistic on climate to be used in different fields of production and knowledge;

- To monitor eventual variations in local climate;

- To facilitate the development of climate change scenarios for the next decades;

- To facilitate the conduction of studies on vulnerability and adaptation to climate change.

The Meteorological Stations Network

At present, there are 65 base stations installed in urban or rural areas, which measure rainfall and temperature data. 15 have been kept in the laboratory as a reserve for contingencies. Several stations have additional sensors to measure pressure, humidity, wind, radiation, soil temperature and humidity.

The network provides public information on weather conditions in real time, improving weather forecasts and saving the data into a database. Basic information is generated to facilitate research on models for soil humidity, development of wind power resources and climate change scenarios for the next decades. In the short and long term, some stations will be used to monitor eventual climate variations.

Figure 53 Dr. Vicente Barros, together with ULP experts, went around the province to determine the places where meteorological stations will be installed.

The platform www.clima.edu.ar

The Meteorological Stations Network's information were first published the same day that the website was launched. Since then, all information gathered has been published on the climate website of San Luis.

All data about the different locations can be accessed online, as well as charts and figures of the entire province. Questions about previously published data can also be raised. Information can be downloaded for free in Excel format.

The website is designed to be of easy access and so that users can find different options of their interest.

Challenges

The Meteorological Stations Network is constituted by automatic meteorological stations, which automatically transmit information in real time. As information is automatically transmitted without any human intervention to the website, filters have been implemented to avoid common errors.

In general, automatic meteorological networks used to have other means of communication, such as radios or satellites, since automatic stations are frequently located in remote locations, with no

Internet access, as it is the case in the Amazonas. This peculiarity, which denotes the advances in San Luis, has lead to a need to adjust the communications systems of the stations, which has been done rapidly and successfully.

Dealing with an automatic network does not mean that it should not be backed with individuals to ensure its proper functioning. Other automatic networks in the country have failed in the past, and still do in the present, precisely for not considering this aspect.

At the very best, the number of staff supervising the Meteorological Stations Network does not exceed four full-time members. Hence, the efficacy in terms of the number of employees involved is extremely high. Another advantage of automatic observation is reliability, as it is less exposed to humans, it is also less prone to errors, be them involuntary or as the result of negligence. By assuming that for permanent observation a meteorological station requires at least five observers, all 65 stations together would otherwise require two hundred and twenty five observers.

Conclusion

The Meteorological Stations Network can be broadly considered a success. In a very short time, and with relatively few resources, a unique system in the country has been successfully introduced. The number of users is increasing and so is, as expected, the requirements for more and better services. This success is incumbent upon the involved staff, and also upon the working methodology adopted at La Punta University, which ensured the project was accomplished in a fast and efficient way. The fact that Meteorological Stations Network has been accomplished by overcoming obstacles relatively fast must not lead to underestimate its complexity, with numerous elements of different nature involved.

In a short period, not only has the Meteorological Stations Network served with providing public information for general and agricultural use, but it has also been used for hydrological alerts. The information that the Meteorological Stations Network provides has been incorporated to world precipitation maps, provided daily by the US National Oceanic and Atmospheric Administration (NOAA), combining land observations and satellite support. Likewise, data are incorporated to the fire prediction system, carried out daily by the Brazilian Center for Weather Forecasts and Climate Studies (CPTEC). Wind data obtained have already led to a first evaluation of locations for wind and energy potentials. The data are the bases for climate scenarios developed for the province by the Sea and Atmosphere Research Center (CIMA) of the CONICET (National Council for Scientific and Techno-logical Research).

C8. Cultural diversity and identity, linguistic diversity and local content: Telecentre.org Community Learning Programme (Philippines)

Submitted by the Telecentre.org Foundation, Philippines

Background

The Telecentre.org Community Learning Program is an initiative from Telecentre.org Foundation that helps to facilitate the sharing of ideas, resources, learning, and best practices among members of the telecentre community (i.e. telecentre managers and users, ICT stakeholders in the academe and research, non-profit, government, and private sector) through the following tools:

- Community sites in multiple languages. – Through these sites, member interaction is encouraged via blogs, forum discussion groups, sharing of photos, videos, etc., and the conduct of online (e.g. webinars, contests, etc.) and face-to-face events (e.g. 3rd Global Forum on Telecentres) for the community. Interaction in these community sites is also complemented with the maintenance of connected social media accounts.

Figure 54 Telecentre.org Community Sites are currently
available in 5 languages: English, Arabic, French, Arabic, Russian, and Spanish

- Online Library – A free repository of multimedia resources on telecentre- and ICT4D-issues and practices in multiple languages.

- Global Telecentre Map – A growing database of telecentres and telecentre networks across the globe.

The Telecentre.org Community Learning Program's scope is global, covering six geographic regions (Africa, Asia-Pacific, Eurasia, Europe, Latin American and the Caribbean, and Middle East and North Africa), and largely implemented through an international team of Community Learning Coordinators supervised by Telecentre.org Foundation's Community Learning Manager. These Community Learning Coordinators, which are based in eight different countries around the world, are tasked

with maintaining the various community sites and organizing online events and other activities for the telecentre community.

Figure 55 The Telecentre.org Community Learning Programme Team[26]

The Community Learning Programme provides telecentre community members access and opportunity to share information on telecentre and information, communication and technology for development (ICT4D) practices, tools, and other relevant information in five different languages. Because telecentre.org respects and acknowledges the importance of cultural and linguistic diversity, the conduct of online events for its community members are implemented through all five language sites and across six geographic regions. We also make an effort to bring in tools such as the Microsoft Translator widget and Amara (formerly Universal Subtitles), which facilitate access to website content in a variety of languages.

Goals & timeframe

The goal of the Community Learning Programme is "to build a vibrant and dynamic community emanating from active sharing of knowledge". In other words, the programme work towards making sure that the global online telecentre community is active and vibrant and uses the online resources and informal learning to enrich their own communities. The following are the short-term (2012) goals of the programme:

- To improve online services based on collected member feedback
- To expand the online community
- To improve the existing repository of resources
- To strengthen the capacity of online community leaders

Project's added value and importance

The Community Learning Programme's main strength lies in its global scope and highly diverse membership, which leads to the exchange of knowledge and information that is not only globally

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[26]   From left to right: Cleopa Otieno (Anglophone Africa), Vida Gabe (Communications and Community Learning Manager), Seuwandi Yapa (Asia-Pacific), Eiko Kawamura (Latin America and the Caribbean), Marius Adaha (Francophone Africa).
Not pictured: Nabil Eid, Ahmed Shaban (Middle East and North Africa), Mariam Tevzadze (Eurasia), Lize de Clercq (Europe)

relevant but also reflects the local perspective of people from different corners of the world. Because the main structure and guidelines for the establishment and maintenance of the community sites have already been developed by Telecentre.org Foundation and costs are comparatively minimal, the programme can easily be expanded to other languages and geographic regions.

Challenges

Many of the implementation challenges for this programme have also been the project's greatest strengths. Because of the programme's global scope, for example, coordination among the different Community Learning Coordinators requires extra effort to ensure that differences (e.g. cultural, linguistic, time zone and schedule, etc.) are accommodated. We have found that overcoming this particular challenge requires finding the right kind of dedicated people to work with and finding common ground (i.e. a fixed meeting time that works for all team members) amidst the diversity.

Another challenge we face in the implementation of the programme is the difficulty in measuring its impact on the community. Online activity is typically measured through the collection of website analysis tools and the collation of data pertaining to number of blog posts, comments, photos and videos for instance. When using this metric, our assessment of the programme's usefulness sometimes fails to measure its impact on a specific group of people who are not visibly active in the community. This specific group do not typically post blogs, comment, or display direct interaction with other members of the site, but nonetheless, take the information that is being shared and use these in meaningful ways. To gather more information on the impact and use of the learning programme, two sets of surveys were recently distributed among community members intended to gather more insight on perceptions and practices related to the community sites and connected to social media accounts. The analysis of the data obtained from these surveys is still on-going.

Conclusion

The Telecentre.org Community Learning Programme was established to build a vibrant and dynamic community emanating from active sharing of knowledge. Through this programme we have shown that knowledge sharing can transpire in a variety of means, using a variety of resources. We engage our members through our community sites in multiple languages, connected social media accounts, the building of an Online Library and Global Map of Telecentres and by organizing a wide variety of online and face-to-face events.

One of the crucial lessons to be drawn from the implementation of this programme is the importance of remaining appreciative and respectful of each other's cultural and linguistic backgrounds in order to facilitate open communication and continuous knowledge sharing. While people's background and life experiences will differ vastly in some respects, technology can be used to assist us in working through these differences to find common ground.

Figure 56 Telecentre.org

C9 Media: Building A Community Newswire (India)

Submitted by Video Volunteers, India

Background

Video Volunteers identifies, trains and empowers grassroots media producers who create change in and for voiceless communities in the developing world. With 100 remunerated community producers working full-time, Video Volunteers is one of the largest social change media networks in the world. More than 500 videos on topics like child marriage, temple prostitution, insurgent conflict, atrocities against Dalits and peace between Hindus and Muslims have been produced, and have been seen by more than 300,000 people in live outdoor screenings in slums and villages. Every day people are watching new videos online, and countless more have seen Video Volunteers' work on television channels in India.

The impact has been to provide information to people, to develop local leaders, to get people and government to take action, to reduce corruption, to enable the poor to advocate for themselves and to give an income to people in slums and villages. Video Volunteers has records of more than 17,000 villagers and slum dwellers taking concrete action after seeing our films, bringing direct benefit to more than 600,000 people. Video Volunteers is unique for its deep knowledge of the communities they work and for their on-the-ground presence. The model is low-cost and scalable, and enables them to create a network of media producers in the developing world that provides unique content to news stations, non-governmental organizations' campaigns and foundations alike. The near-term goal is to become a stringers network with a presence in each of India's 645 districts, giving news stations access to areas of the country that were previously expensive to report from, while enabling those communities to bring attention to their issues.

The work has received awards or funding from Ashoka, The Knight News Challenge, Echoing Green, Edelweiss, TED, UNDP, UNESCO, the Tech Awards, the Development Gateway Awards, the Junior Chamber International, Waldzell, and YouTube, among others. They have been covered on National Public Radio, Fast Company Magazine, Chronicle of Philanthropy, Al Jazeera, Nickelodeon, Times of India and Hindustan Times, among others.

Viewers can visit the IndiaUnheard website to watch one new video posted daily, and search the database of videos and articles by theme (health, gender, environment, corruption etc.) or by region. Stories being covered include atrocious factory conditions in central India and local schools in which children are forced to pay bribes to take their exams. The young boy who reported this story, himself a graduate of this school, got the local authorities to demote the teacher and stop the bribery for 500 students. Other stories include land grabbing of Tribals in Eastern India, and corruption in programs

aimed at helping the poor build houses, and secure rations. A video by the organization's community correspondent, Rohini, herself a former farm worker, on the wage discrepancy between men and women farm laborers resulted in 600 women being paid the minimum wage after she helped them to go on strike, an impact she captured on video. Video Volunteers also have numerous videos that document the process of community media, such as a compilation of many videos, one on our program creating hyper local Community Video Units, and one on their training process. More information can be requested by e-mail at: info@videovolunteers.org.

Motivations for starting Video Volunteers

The founders of Video Volunteers believed that media was critical to solutions to poverty going viral at the village level. They believed that grassroots media was needed to scale the best practices developed by non-governmental organizations and saw that the sector was currently hugely undeveloped in India

They wanted to create sustainable and scalable models of community media. Although the world was full of short term participatory video projects few of these projects were looking in depth at developing revenue streams, looking at length and duration of impact, and interacting with the mainstream media. They wanted to create such models so that media projects around the world could learn from these best practices. They were touched by the impact of Video Volunteers' early projects, particularly projects where they had taught video to rural women, and where they saw the huge transformation it made on them. It drove communities to talk about sensitive issues like child marriage and domestic violence.

Target audience

The direct beneficiaries are the community correspondents, many of whom transit out of low skill jobs (or no jobs) to become the voice of their communities. They become community leaders and learn to earn a living through their creativity and local knowledge. Other direct beneficiaries are the people in their communities who benefit directly from an impact a community correspondent is able to make in a village (for instance, a community member whose health clinic is functioning better because the correspondent got an impact). Indirect beneficiaries are the people in their communities who are given a voice through these films.

The need for Video Volunteers

The problem Video Volunteers is addressing is the voicelessness of the poor. The poor lack channels to make their needs heard to authorities and to the media, and the media ignores their issues. This disconnect between the rural poor and authorities perpetuates poor governance and makes it impossible for the poor who are unable to hold authorities accountable. Additionally, the media cannot play its role in promoting transparency by providing an accurate picture of the nation.

In India and around the globe, the mainstream media do not tell stories from marginalized communities. A study published in September 2011 by the Economic and Political Weekly showed that India's highest circulated English and Hindi dailies devote only a minuscule proportion of their

total coverage (about 2%) to rural India's issues, crises and anxieties. The remaining 98% is urban stories. The result is that the majority of the world's population are left without any sort of media representation, and over 625 million people in India alone are voiceless. In their 2002 study called Video Volunteers Voices of the Poor", the World Bank asked 20,000 living on less than two dollars a day to identify the single greatest hurdle to their advancement. Even above food, shelter and education people answered: 'the lack of a voice'. The poor feel the government does not listen to them.

Another social problem Video Volunteers is tackling is that communities lack platforms for discussion and dialog. Community screenings, during which people discuss issues and are inspired and moved to action, become crucial spaces for people to talk about solutions, not just problems.

Because so few people at the 'base of the pyramid' produce content, their needs and knowledge do not reach out to authorities. So the poor are unable to advocate for themselves and policy makers design programs without listening to the people the programs are intended to benefit. Most development and aid programs are still "top down" and so do not result in lasting change. One of the reasons there is relatively little community-led development is that hardly any investment is made for the "minds" of the poor, in critical thinking, public speaking, debate and leadership training that is critical if communities are to come up with their locally-imagined solutions to their problems. The poor must have a voice and access to information if they are to fight corruption, exercise their franchise, advocate for themselves with authority, and participate as equal members in the global media dialog.

There is a myth, perpetuated by media and internet companies that, thanks to the Internet, there is a mass of content in the world, and that the only problem is the curation of this content. This is simply not true. There is in fact very little content on the Internet produced from the poorest parts of the world. The content will not come out of these areas unless people go to these communities, train them and tell them their voice matters.

Goals & timeframe

In the long term, Video Volunteers believes that every village in India should have someone who knows how to use a communications technology as simple as a Rs700 video-enabled cell phone, to document human rights abuses as well as local successes. Similarly, this person will know how to push that information out into a strong distribution system focused on connecting the rural poor amongst themselves, and with the world. This person is called a community correspondent; they are changemakers armed with technology and trained to produce complex, creative content.

Video Volunteer's five year goal is to create a network of 645 community correspondents, one in each district of India, so that throughout the country, a reporter trained to

represent community needs (not the needs of a corporate media house) is accessible in less than one day to all poor people in India.

Impact

- Enable the poor to be creators of content, not just recipients of information and subjects of news stories

- Empower individuals with little education to begin new careers that harness their creative and intellectual skills as opposed to their menial skills

- Provide information to communities, which they use to take action, solve problems, reduce corruption and enable government to truly 'listen' to the needs of the poor.

- Make the media landscape more democratic and diverse and hence strengthen democracy

Project's added value and importance

The organization's strength is the poor who produce content and who bring out an articulated voice for the rural poor. Though there are many projects around the world that train youth extremely well to produce videos, the organization's programs differ from most of those in the duration of impact on the producers (people keep doing this for years) and in the organization's focus on creating models of community media that earn revenue. This revenue impacts the community on an on-going and regular basis without a massive 'push' from outside trainers.

Replicability of the project in other countries

The project cannot be 'easily' replicated, but it certainly can. Many people have already replicated parts of it, whether it is the training model, the experience of working with the mainstream media, or looking at sustainability options.

Challenges

It is challenging to work with highly marginalized people in situations that demand a mode of working they are not used to. So for a media network like Video Volunteers, taking commissions from the media for productions is often very challenging. To overcome it, the organization either lowers clients' expectations or tries out various incentives. Video Volunteers has to give the Community Correspondents lots of time to work on projects, especially for women who are managing families as well.

It is challenging to get the mainstream media to take content produced by the poor. Though it is possible to sell the content, making those deals happens is so challenging that it may be better to give the content for free.

People can face threats to their safety, and so the organization has had to develop strict protocols to be followed when problems arise.

Conclusion

Marginalized individuals and communities can be creators of their own content and it can be disseminated on a local, regional and international level. Individuals can be taught skills that will enable them to begin new careers that harness their creative and intellectual skills as opposed to their menial ones. Communities can use media to take action, solve problems, and reduce corruption. Governments should be convinced to listen more to the needs of the poor. By listening to the poor, the media landscape will become more democratic and diverse and this will strengthen democracy.

C10 Ethical dimensions of the Information Society: Promotion of the Information Society among people with disabilities (Montenegro)

Submitted by the Ministry of Information Society and Telecommunications, Montenegro

Background

In order to promote the Information Society in Montenegro, the Ministry for Information Society and Telecommunications has designed its activities in this field according to the concept of work with specific target groups. In that sense, the Ministry created numerous projects, designed for elementary and middle school students, university students, public sector employees, members of national minorities, pensioners, as well as projects for disabled people.

When it comes to disabled people, the Ministry for Information Society and Telecommunications has designed several projects to meet their needs. The Ministry has carried out the project of digital education according to the European Computer Driving License standards. During this year the Ministry plans to continue with this project, following the program from the Ministry Action Plan.

The Ministry has donated a significant number of computers (laptop and desktop computers) to non-governmental organizations and associations dealing with disabled people, through the project "National PC Program". This project has significantly raised the level of digital literacy of disabled people in Montenegro. The realization of the project "Portal for persons with disabilities", which can be accessed on the following address www.disabilityinfo.me, represents the highlight of the Ministry's cooperation with these organizations.

This project was created in close cooperation with the Association of Youth with Disabilities of Montenegro. The main idea of this project is to create a place where all the information concerning organizations dealing with disabled people is accessible on a single portal, such as their contact data, activities or membership details.

The main benefit of this project is that it is easily accessible to all the potentially interested visitors, and that it gathers all the relevant information in one single platform in a fast and simple way. Technically speaking, during the work on this Portal, the Ministry has respected all the specific needs

and requests of disabled people as users. For instance, the Platform was designed so that partially sighted people can use it.

Such a Portal did not exist anywhere in the whole region prior to the implementation of this project. The Ministry's experience so far proves that disabled people needed this kind of web portal and that it has eased their everyday life.

Goals & timeframe

The final aim of the project "Portal for the persons with disabilities" is to ensure the inclusion of these people in the Information Society in Montenegro, and in all social processes in general. The Ministry for Information Society and Telecommunication also aims to inform the public directly about the life and work of these people, their activities, needs and problems.

Project's added value and importance

The main characteristic of this project is that it enables the persons with disabilities to use modern technologies in their everyday life, and to experience all the advantages offered by the information and communication technologies. This is an example where modern technologies bridge differences between people. A similar technology can offer opportunities to facilitate everyone's needs that are inherently different. The Ministry feels that it is very important that actors in all countries create portals similar to this one, because it can grandly enable communication between disabled people.

Challenges

The main challenge arose during the finalization of the preparations, before the activation of the portal. How could the ministry gather information? A certain number of non-nongovernmental organizations that deal with disabled people helped us with this, but the greatest help came from the members of the Association of Youth with Disabilities of Montenegro.

After the design work was finished, the next steps were to program the remaining part of the platform, input the data, and advertise the information about the trial version of the portal. The next challenge arose after this phase: how could the Ministry make the Portal sustainable? A redaction team, consisting of members from the Association of Youth with Disabilities of Montenegro, ensures the continuation by publishing regular news on the Portal. The members of the redaction are also in charge of the economic sustainability of the portal. For instance, one part of the website is dedicated to advertisement banners. The Ministry thinks that a significant number of companies from various areas will be interested in placing their banners on the website. This will provide resources for the work of the redaction team.

Conclusion

The Ministry thinks that the creation of the "Portal for the persons with disabilities" has significantly fostered the promotion of the Information Society in Montenegro among disabled people. The portal is likely to become the best place for all the interested parties to be kept informed about activities regarding life and work of disable people.

Moreover, the Government of Montenegro, and in particularly the Ministry for Information Society and Telecommunications, have expressed through this project their willingness to put modern technologies at the service of disabled people. These aims are also completely compatible with the WSIS goals of building an inclusive information society.

C11. International and regional cooperation: WSIS Cooperation: Research Study and Preparation of International Strategic Documents for the Information Society

Submitted by the Information Technology Organization of the Islamic Republic of Iran and Iran University of Science and Technology

Background

The Declaration of Principles and Plan of Action was introduced in Geneva in 2003 and put into motion in Tunis in 2005. It was agreed that all participants would prepare a detailed implementation and review report, in a ten-year period, and discuss their initiatives and objectives. An overall review has been scheduled for an international conference in 2014/2015, which is likely to result in another ten-year agreement.

The Islamic Republic of Iran took part in the summit in Geneva and Tunis, and in the annual forums of the WSIS. In 2011, the Information Technology Organization of the Islamic Republic of Iran (ITO), the body in charge of managing information technology in Iran, announced a research project entitled "Research Study and Preparation International Strategic Documents for Information Society". This research project was assigned to Iran University of Science and Technology (IUST). The project targets the study of previous documents produced in relation to WSIS, both in the country and internationally, and to streamline and update the national documents which had either already expired, or did not exist.

The project consists of three phases. The first phase was about internal and foreign documents about information society. In this phase all internal documents and a great number of international documents concerning WSIS were collected so they could be used in the next two phases. In the second phase, the best international documents of the first phase were studied, focusing on their approaches and success. In phase three, based on finding of the first two phases, the most important areas were determined and supporting documents were created. As a result, several subjects were set as targets for the review of the WSIS outcomes. These subjects emphasized on the particularities and importance of the WSIS meetings, the related published reports and the procedure of preparing the international reports. After a long discussion on the proposed subjects, four topics were selected to create documents for WSIS international activities. The supporting documents will be published as a four-volume book in spring 2012 and will be distributed to all relevant organizations and companies. The proposed topics are the following:

Indexes of achievement of the WSIS targets of different countries (from 2005 to 2011), Calendar of international events and meetings relating to WSIS activities and challenges, Preparation of international reports for WSIS, and WSIS Basic Concepts and Principles.

The first three volumes aim to extend the international presence of Iran, to introduce WSIS success stories, and to serve as a source for the exchange of experience amongst participating countries. The fourth volume aims to explain the principles and concepts of WSIS for newly recruited managers and experts.

In order to generate data for final international documentations, governmental organizations and private sector activities that touch upon any WSIS Action Lines and WSIS Targets should be monitored. Beside the study of domestic and international documents on WSIS and beside making a general list of them, the representative of all relevant governmental organizations and private sector companies were invited to cooperate. Consequently to this, the Information Technology Organization established the Iran National Committee for WSIS in the summer 2011.

The results of the research and studies on domestic and international documents, which were produced in phases one and two of the project, were presented and discussed at the National Committee for WSIS. Two main workgroups were created: the Strategic Planning workgroup and the Targets and Action Lines Coordination workgroup. Some subsidiary workgroups also exist in the organizations that are active in fostering different WSIS Action Lines.

Goals & timeframe

Domestic and international documents relevant to the WSIS were first gathered and studied in order to have an exact view of the situation on the WSIS Targets and to update the Action Lines. The main goal was to analyze the situation and to present the results to the Iran National Committee for WSIS. This analysis highlighted the trend of implementation of each WSIS Target and Action Line for each country. A software was developed to extract statistics from the reports on WSIS published by countries in Action Lines C1 to C11 from 2005 to 2011. The statistics showed the relevance of certain subjects for different countries. It also showed how the priorities of Targets and Action Lines changed during past years.

Developed especially for research purposes, the software can report the situation from 2004 to 2011 according to the submissions' date, subject, target, organization, country, level of implementation (national, regional, and international), related action lines, and millennium development goals. Figure 55 shows a screenshot of the software.

Supporting Documents

It is impossible to implement the WSIS Targets and Action Lines without evaluating their progresses. It is therefore crucial to have a document about WSIS targets and their indexes of development. This can be used to help national legislators and decision-makers to simultaneously implement the national plan and to cooperate with other countries in order to reach the WSIS targets.

In addition, it is necessary to have information about the current states of progress of other countries in the achievement of their respective WSIS targets. Therefore the second supporting document entitled "Indexes of WSIS target development and the state of other countries – first program of WSIS, interim report" was prepared by studying the indexes indicated in WSIS documents.

Figure 57 Statistical software to analyze the WSIS related reports
published by countries from 2005 to 2011

The representative of organization involved in WSIS also needed to be informed of all international events. The second volume of the supporting document hence focused on a calendar of events. This was not a simple calendar. The general information of each event, such as topics and issues raised during the sessions, the number and type of attendees, and the location and time of the sessions were reported. The relevance to WSIS Targets and Action Lines were also determined as much as possible.

The third requirement is uniformity in data gathering and in making the reports. The third supporting document entitled "Guidelines for preparing international reports for WSIS" was prepared in order to overcome the mentioned problems. This document is about the preparation procedure of international reports related to WSIS. The document was developed based on the history of implemented projects, reports sent from Iran to WSIS from 2005 to 2011 and 200 selected reports from developing and developed countries. While preparing the third supporting document, other results were derived from investigating the weaknesses and strengths of registered activities, preventing the implementation of identical plans, and analyzing countries' activities relating to information and communication technology in order to engage in future cooperation.

The aforementioned three supporting documents helped managers and directors of governmental organizations and private companies to prepare reports that may be presented at an international level. Since information technology has covered a wide range of topics, and since there are many issues involving WSIS Action Lines, the basic concepts should be understood. Achieving the targets without understanding the concepts behind the Action Line is impossible. This matter is even more important when many actions that should be done by two or more organizations are not consistently implemented.

If there are no common understandings between managers and experts in these organizations, almost all the plans will lead to failure. The last supporting document entitled "A documentary on WSIS, scientific introduction based on its action lines" was prepared using one hundred international

references. This book has a comprehensive conclusion on each WSIS action line. Each chapter of this book addresses experts from Iran and other countries.

National Committee for WSIS

In addition to the supporting documents that were made, many other activities were done during this project to trigger all relevant organizations that have a role in fostering any WSIS Action Lines to be more active than before. After starting the project, it was obvious that on one hand, collecting the information requires association with administration and international institutions and on the other hand, that this information is useful for those institutions. As previously described, a committee called "National Committee for WSIS" was formed. It consists of the representatives of governmental organizations, of the private sector, of national and international institutions in Iran (such as the UNESCO national committee, the Governmental Advisory Committee, the Commission on Science and Technology for Development). Figure 56 shows the organization of the committee. There are two main workgroups: the first one leads the strategic planning for the WSIS activities and the second one coordinates the activities regarding the Targets and Action Lines.
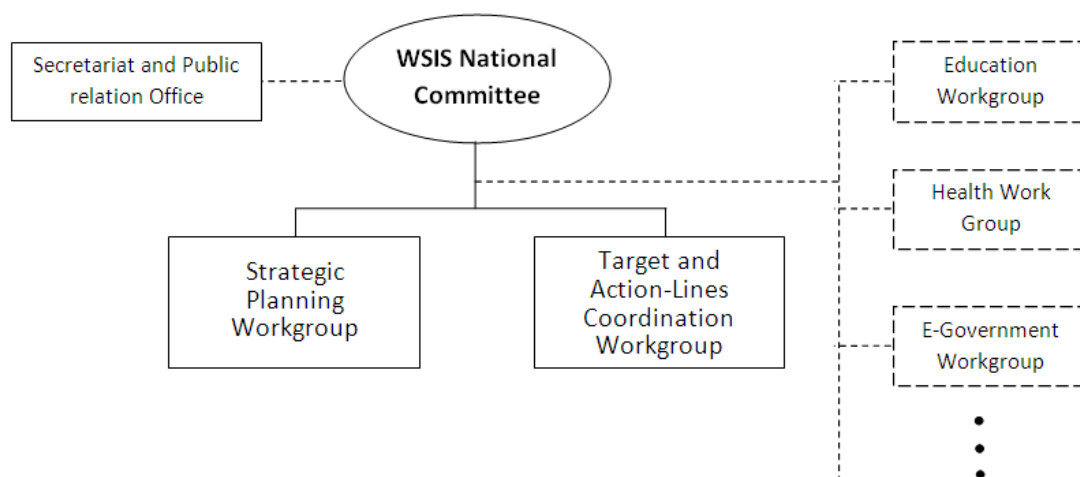
Figure 58 Iran WSIS National Committee

The Strategic Planning workgroup:

- Analyzes previous decisions (2006 to 2011)

- Updates the calendar of meetings for decision making

- Organizes national or regional meetings in Iran (with the priority given to holding a national meeting every year)

- Proposes strategic policies at the national level

- Prepares proposals for decision-making sessions and presents it to the committee. This aims to maximize the impact on the preparation process for WSIS+10 (2012 to 2014)

- Planes for participation at the corresponding meetings.

The Administrative coordination workgroup for Targets and strategies:

- Assigns responsibilities and national obligations on WSIS domains
- Prepares and/or updates the list of the most important meetings and sessions
- Calls for reports based on a uniform template and the indexes for an information society
- Prepares the periodic reports and receive the approval of the committee
- Recommends national plan updates to achieve the WSIS Targets
- Participates in international meetings and reports them

There are subsidiary workgroups in Figure 58 focusing on the organization, which are active in the WSIS Action Lines in preparing reports or in forwarding proposals to the Strategic Planning workgroup.

The committee held regular meetings every two weeks during 2011 and 2012 to organize the country's activities aimed to achieve the WSIS outcomes by 2015.

The members of the National Committee for WSIS who have actively attended the sessions are listed below:

1. Mr. Ali HakimJavadi, Vice Minister of ICT and Chairman of ITO.
2. Mr. Saeid Mahdion, Vice Chairman of the Board of ITO and Iran Representative at the Governmental Advisory Committee.
3. Mr. Ali Asghar Ansari, Vice Chairman Information Technology Organization of Iran.
4. Mr. Nasrullah Jahangard, Islamic Republic of Iran Coordinator for WSIS 2003 and 2005, Senior Researcher at the Research Institute for ICT (ITRC).
5. Dr. Hadi Shahriar Shahhoseini, WSIS-Iran-2012 Conference Chair, Assistant Professor at Iran University of Science and Technology.
6. Mr. Behnam Valizadeh, Information Technology Organization of Islamic Republic of Iran.
7. Mr. Alireza Asgharian, Communications Regulatory Authority (CRA) of Islamic Republic of Iran.
8. Mr. Mohammad Masood Abootalebi, Deputy-Director of Islamic Republic of Iran Broadcasting (IRIB).
9. Mr. Peyman Saadat, WSIS Expert, Iran Ministry of Foreign Affair.
10. Mr. Seyedarash Vakilian, Information Technology and Digital Media Development Center, Iran Ministry of Culture and Islamic Guidance.
11. Mr. Yousef Noori, Director-General of IT, Iran Ministry of Education.
12. Dr. Hossein Riazi, Iran Ministry of Health and Medical Education.
13. Dr. Davood Zareian, Director-General for International affair, Telecommunication Company of Iran.
14. Dr. Seyed Omid Fatemi, President of Iranian Research Institute for Information Science and Technology.
15. Dr. Farhad Etemadi, Head of Communication Section in the Iranian National Commission for UNESCO.
16. Dr. Mahmood Molanejad, Iran Representative in Commission on Science and Technology for Development (CSTD).
17. Mr. Saeid Sallarian, Deputy Director of Supreme Council of Information and Communication Technology (SCICT).

18. Ms. Azadeh Danade, Iranian ICT Guild Organization.
19. Dr. Kazem Motamednejad, Expert on WSIS
20. Mr. Ali Shemirani, Expert on WSIS

National Conference

The National committee for WSIS decided to hold an annual national conference. After determining the goals and objectives of the conference, it was called "The National Conference on Preparation for WSIS+10 Summit 2015 (WSIS-Iran-2012)".

The objectives of this conference were:

- Investigating the challenges in the decision-making procedure for 2015.

- Describing national actions and achievements in the field of information society.

- Investigating the records and reports of completed activities with respect to indexes of information society.

- Monitoring and following up on receiving information from workgroups.

- Updating action programs across governmental organizations and the private sector aimed at achieving the WSIS Targets.

- Creating a national synergy in the field of information society.

- Creating of opportunity to enhance the capabilities of companies and non-governmental organizations in the field of information society.

Iran University of Science and Technology (IUST) and Information Technology Organization of the Islamic Republic of Iran (ITO) were co-organizers of the conference. The Steering Committee and Program Committee were formed of policymakers and academia, and the Executive Committee was formed of members from both Iran University of Science and Technology and Information Technology Organization.

The conference was held at the Shahid Ghandi Conference Center, ICT Ministry Building, Tehran, Iran on 4 March 2012.

The organization who presented their experiences, goals and reports for the past five years of implementation of WSIS Action Lines included: the ICT Ministry, the Ministry of Health and Medical Education, the Ministry of Science & Technology Research, the Ministry of Education, the Ministry of culture and Islamic Guidance, Communications Regulatory Authority (CRA) of the Islamic Republic of Iran, Telecommunication Company of Iran and the Iranian National Commission for UNESCO.

There were also two keynote addresses during the conference and a roundtable about the coming challenges for 2015.

Figure 59 WSIS-Iran-2012 conference: call for participation

Figure 60 WSIS-Iran-2012 conference webpage

Figure 61 WSIS-Iran-2012 Conference keynote address (ICT Vice Minister Ali Hakimjavadi)
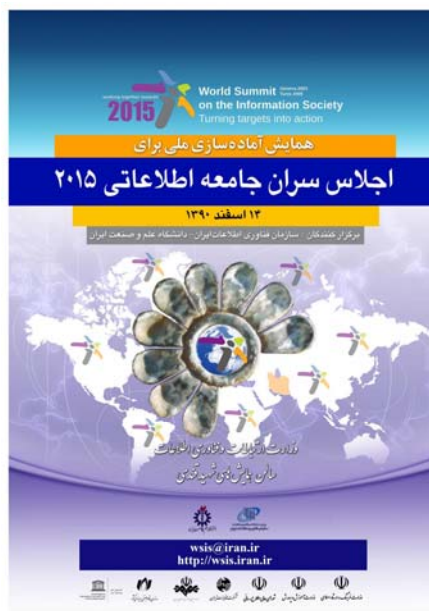

Figure 62 WSIS-Iran-2012 Conference roundtable

Figure 63 WSIS-Iran-2012 conference poster

Project's added value and importance

This project has many benefits, which enhance its strength and make it desirable to be replicated in other countries. Implementing such a project does not need too much budget and only requires experienced and expert members. Not only is it easy to implement such a project, but it also facilitates the cooperation of different organizations running activities in this domain. Some of the major benefits of this project are:

- Involving academia in producing supporting documents for international strategic documents.

- Establishing a National Committee for developing the coordination between ministries and organizations related to WSIS.

- Informing other countries to notify them about similar projects within WSIS scope.

- This research can be replicated in other countries to obtain the aforementioned benefits.

- Regional activities may be increased if neighboring countries have the same approach in implementing WSIS action lines, as a result of the organized activities stemming from such a project.

Challenges

Implementing such a great and useful project is not challenge free and if there were no plans to overcome these obstacles, the project would be likely to fail. This section lists the major challenges faced during the implementation of the project and the solutions found to overcome them.

- Collecting the required information from related organizations is difficult; this is due to the large number of organizations and their widespread activities.

- Difficulties in coordinating the related organizations.

- Specifying the native indexes and measuring them.

- Equivalent projects in different countries are not reported in the appropriate time.

Solutions that were used to overcome these challenges were:

- To have the National Committees holding regular session

- To establish several conferences at the national level to make converge organizations involved in the WSIS process

- To develop an appropriate template and framework that can be used in preparing national reports.

Conclusion

In this article, a success story was offered about enabling international cooperation in Iran. The project was followed by a great motivation from the governmental organizations, private sector and academic entities involved in it. The first target was to prepare four strategic documents concerning the international activities of the country in the domains related to WSIS. On top of that, many other activities were carried out, like establishing the National Committee for WSIS, holding a national conference, creating a concordance between different organizations and producing a software. During the implementation phase, many challenges arose but were overcome by adopting solutions such as holding regular meeting. The procedure may be replicated in other countries and may enhance regional WSIS related activities in the neighboring countries.[27]

Final Conclusion

The case studies from all five regions, namely Africa, Asia and Pacific, Eastern Europe, Latin America and the Caribbean, and Western Europe and North America, have highlighted practices fostering the implementation of the WSIS goals.[28] All stakeholders are encouraged to take part in the WSIS Stocktaking Process to ensure the fostering of an inclusive Information Society. Resolution 2011/16 on 'Assessment of the progress made in the implementation of and follow-up to the outcomes of the World Summit on the Information Society' 'encourages all stakeholders to continue to contribute information to the stocktaking database on the implementation of the goals established by the World Summit'.[29]

In this context, we invite all stakeholders to participate in the WSIS Stocktaking Process by visiting and submitting projects to the WSIS Stocktaking platform. This publication aggregates and showcases ICTs related projects that support the vision and goals of an Information Society as highlighted in the WSIS Outcome Documents WSIS Project Prizes 2012 provided international visibility and created enthusiasm and momentum for information and communication related projects. The publication emphasized the achievements of these projects in implementing the WSIS outcomes and in spreading the WSIS' values, while helping to foster them. We would like to thank all stakeholders for their active participation in the contest, sharing best practices and for their continued involvement in the dynamic WSIS Stocktaking Process.

Building upon this year's success, the next WSIS Project Prizes will take place in 2013, taking into consideration the recommendations of stakeholders from WSIS Forum 2012. The call for submissions will be launched soon and we strongly encourage all stakeholders to monitor the latest updates on the WSIS Project Prizes 2013.

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[28]   WSIS Stocktaking Database, www.wsis.org/stocktaking

[29]   ECOSOC Resolution 2011/16 Assessment of the progress made in the implementation of and follow-up to the outcomes of the World Summit on the Information Society, para 4

www.wsis.org/stocktaking/prizes