Title: Connecting Community with Knowledge: Novel Strategy of ICT Convergence

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About ICT Convergence:

Access to ICT and ICT-supported educational experiences potentially offers learners valuable opportunities to learn new skills and new competencies for effective functioning in the twenty-first century, and should arguably become part of the entitlement of citizens. It is also on the basis that large amounts of money have been allocated to the realization of IT-in-education master plans in many countries. However, success in implementation depends greatly on the understanding and readiness of the many stakeholders involved in the process. On the other hand, the shelf-life of ICT products and configurations is generally very short. A strongly ICT infrastructure-led development plan may thus lead to wastage of valuable resources if the teachers are not prepared, or if the understanding of the purpose is merely a technological one, such that the impact of the introduction of technology becomes rather limited.

It is common in the education field to identify cases of successful implementation and to disseminate it to others for adoption. It is often anticipated that such dissemination will need to provide detailed descriptions of the infrastructure, technical know-how, support available, curriculum context of the implementation and how it was conducted. However, the dissemination of innovation cannot be successful if the learning within or across institutions in this process is simply conceptualized as one of replication.

Leadership is essential in innovation adoption as it requires that everyone involved go through a deep learning process and undertake a role change at an individual level, while the institution as a whole will need to undergo a cultural change in order to become a learning organization. For adoption of innovation to be successful, it has to be a creative, innovative process for all those involved in the adoption.

It is widely recognized that participation in all the levels of community development process and joint consultation as one of the community is an approach that will lead to more sustainable community development. Communication and knowledge management are essential contributing factors to the emergence of such participation and consultation.

The advanced capacity of information and communication technologies has resulted in a variety of information being more rapidly disseminated to increased recipients. Such higher-level of information technology as Web 2.0 has brought about the so-called "Read/Write Web" phenomenon that the web users can do more than retrieving information; they can also send their own data. An improved two-way communication makes it more convenient for people to express their opinions and collaborate through networks.

Owing to diverse communication tools, such as weblog, podcast, and video online, citizen journalism is increasingly practiced. Such occurrence results in more perspectives on information and news, especially from those directly concerned, such as affected people, local media, or social development organizations. It is thus important that community knowledge management and citizen journalism are promoted so that those directly involved can share their knowledge, problems and proposals among themselves within the communities as well as forwarding them to the media for wider public dissemination and discussion.

Citizen journalism relies on four major factors to enable the use of ICT tools to effectively manage and disseminate news and information. First is the knowledge to use the software and tools to produce and disseminate the content. Second is the knowledge management, ranging from collecting, analyzing and presenting the knowledge to target groups. Third is the ability to provide wider access to communications networks at reasonable expenses. And fourth is the freedom to get access to and disseminate information and news, including access to resources that will promote the efficiency of information management and its public dissemination.

As a result of the aforementioned technology and factors, numerous alternative media are available, including alternative websites, radio, or community television. This is instrumental in widening the communication within and between communities, thus facilitating internal and external exchanges of community information and knowledge. These ICT channels will, in turn, either benefit community's own development or provide useful information and knowledge that other communities can put to good use.

However, digital divides still exist to limit access to the communications system and information tools, such as computers and the Internet, skills in using technology, language barriers, and restrictions on freedom of expression. These are significant obstacles to the operation of the media and non-governmental organizations working in the Bhitarkanika mangrove ecosystem in coastal region of Odisha. To solve such problems, it is necessary that networks of information and communication technology experts well-versed in media work and social development are established to give information technology-related assistance and support to the coastal communities.

It is understood that how vital it is to develop the information and communication technology of the media in the coastal areas. The Sandhan Foundation also finds the use of strategic ICT convergence, an appropriate alternative as it is free of copyright royalty payments, allows for modifications suitable for particular uses of each locality, and is fundamental to the information and communication work.

About Coastal Orissa:

Every creature living eats something and in turn serves as food for something else. Trees provide shade and oxygen and collect rainwater in their leaves. They are the home to many creatures, large and small, which in turn are host to microscopic parasites and bacterium. We think of them as some of the simplest organisms, yet even a single tree can serve as a habitat, an entire ecosystem full of unique species in some areas of the tropical rainforest. This is the multi dimensional scenario of coastal biodiversity of Odisha.

Odisha with a coast line of 482 KM is rich in natural resources. Long period of neglect, mismanagement, lack of proper vision and long term plan based on resource endowments have given the state the dubious distinction of the poorest state. The dead lock needs to be broken with an urge based on the spirit of adventure and determination so that the state emerges as a vibrant state with an equally vibrant economy without of course compromising the environmental norms. The development then becomes sustainable. Orissa's poverty is far higher than the national average of 26.1 percent. The poverty scenario of Orissa is more concentrated in coastal-rural areas.

As far as the social and economic backwardness is concerned the marine fishers who exclusively depend on marine fishing are economically poor, geographically isolated, physically segregated, socially despised. The community is facing the problems of poverty, vulnerability and marginalization because of no innovative empowerment with the support of developmental education.

Coastal Community Resource Center:

The Sandhan Foundation of Bhubaneswar, in conjunction with the UNEP-GPA and the Government of Odisha, has begun an innovative project: the Coastal Community Resource Center (CCRC), located at village Gupti. The CCRC project site is located in one of the entry parts of the National Park and 'Ramsar-site' of Bhitarkanika Mangrove Ecosystem, an internationally known egg-laying site of the endangered 'Olive Ridley' Sea Turtles. It is 150 km away from Bhubaneswar, the capital of Orissa State in India. The fisher folks, local people, Bangaldesh Refugee settlers and others have been involved in this CCRC peoples' movement.

UNEP-GPA Coastal Community Resource Center at village Gupti of Bhitarkanika.

Role of CCRC:

The CCRC, an innovative management model in the coastal village 'Gupti' has taken care of the aspirations of the coastal communities with implementation of alternate livelihood workshops, trainings and syndicated demonstrative activities like horticulture based kitchen garden promotion in all coastal households to divert their excessive attention on fish and crabs to green vegetables and leaves. Every cultivation in this regard is demonstrated in CCRC campus and then its procedure, and caretaking is discussed with the communities. It is found that the coastal communities have shown interest in preparing kitchen gardens in their own communities. It helps both ways by making the waste land cultivable and meeting the need of bio-vitamins from the green yield.

CCRC grows as a platform to disseminate new knowledge and experiences using ICT innovations and develops a field laboratory for school children and other students of Higher Education, to study the bio-diversity and natural processes in the mangrove ecosystem. The Community based Coastal/Mangrove Resource Center is designed to demonstrate ICT-led educational strategies to mobilize fishing communities in particular and other associated people in general to conserve and restore the mangrove ecosystem.

Initially, the communities were in a hesitant mood because of a spectacular pack of progress in government schemes and impractical promises but after six months they were ready to know the long-term developmental avenues for sustainable growth and prosperity. Visits by experts from a variety of fields and their person to person interaction have rejuvenated the community folks to walk with CCRC project-mission. The coastal children are exposed to new forms of ICT learning with computer gadgets, laptops, syndicated art training to understand the contributions of mangroves and coastal-wetland-marine resources to their life.

ICT on Ecological Agriculture:

In contrast with traditional agriculture, ecological agriculture is an aggregation of varied values with particular emphasis on economic feasibility, social equity and cultural applicability. Using local renewable resources and economically agricultural technologies, ecological agriculture commits to improve the capacity of self-sufficiency and independence of local communities to assure of stable incomes by minimizing outer inputs into agricultural systems.

It associates the community with the environment people depend on to survive. For this program, we dedicated to reinforce the agricultural practice of farmers' traditional knowledge that is beneficial to the environment, and to expand the traditional knowledge through participatory development so as to enhance technological innovations of ecological agriculture in local areas. For this program, we managed to extend "participatory technology development", encouraging people of all walks of life to participate in the programs and to make their own decisions. Activities undertaken included: Establishment of farmer Field Schools.

We aimed to build up a platform for farmers with similar problems, where they can discuss together for proper solutions, such as experience sharing, demonstrations and small-size experiment, etc. The basic purpose of farmer field school is to profoundly comprehend farmers; needs so as to enable the farmers, technology extension staff and program coordinators to find solutions (whether science and technology or traditional vernacular knowledge).

Stimulating farmers' enthusiasm of applying scientific knowledge by farmer field school CCRC plays an active role in cooperation with local governmental technology extension organizations and manages to stimulate farmers' enthusiasm of applying scientific knowledge through farmer field school, bringing technologies beneficial to sustainable agriculture development to rural and impoverished areas in Yunnan Province. Farmer field school usually consists of several groups that are composed of agronomists with specialized knowledge and farmers with similar interests and demands. They get together regularly discussing on a specific topic of interest and topics they chose are diversified and comprehensive ranging from insect integral control, organic farming, to livestock, earth conservation and handcrafting. The farmer field school functions similarly with learning group or with learning plan designated for a particular technology. Farmer field school is particularly useful for learning in the field which demands management and conceptual comprehending. The basic elements of a farmer field school include farmers, class coordinator, trainers and a place (a ground or the farm field).

Farmer field school stresses that each problem should be comprehended thoroughly and it involves a systematic process. Take potato planting as an example, each question arising from the entire planting process from seed screening, land selection, tilling to harvest needs to be resolved. Some practical experience should be shared and extended among farmers. For this, we have taken a strategy to make farmers themselves the participants of the program and encourage them to resolve problems independently based on their own scientific knowledge with the aid of innovative technological ICT convergence. And on farmer symposiums, the farmers would as well propose some problems for organizers and trainers to resolve. As a result, the farmers on the one hand, learn scientific knowledge through ICT on their own initiatives with great enthusiasm, and on the other hand, the organizers and trainers will screen scientific knowledge that is really useful to farmers so as to better meet their needs and wants.

Adapted from the recommendations of regional networks of media and development workers, the action strategy is focusing on four topics with practiced objectives, as follows:

•E-management: management of organizations and information;
•E-advocacy: electronic advocacy and social ICT media strategies;
•E-infrastructure: informatics infrastructure for social development; and
•Open participation paradigm: Free Software, Creative Commons and read/write culture.

Objectives:

1.To create common learning space whereby participants can exchange their ICT knowledge and skills;
2.To enable those working with the media at grassroots level to enhance their practical skills in four areas: management of organizations and information, e-advocacy, basic structure of information for social development, and promotion of the concepts on the open source software;
3.To expand the network of open source software users to include regional media organizations;
4.To build networks of ICT trainers and educators that can disseminate the knowledge in the region;
5.To press for a variety of learning activities at regional and national levels; and
6.To create collaborative networks whereby ICT experts, media organizations, NGOs and social activists make use of ICT for social development.

CCRC Young Eco-Army:

After the 'Super-Cyclone-1999' the coastal fabric of Orissa has got devastated and thus seen extreme poverty. Extreme poverty persists due to lack of mission-zeal and appropriate opportunities. To begin this mission-zeal the CCRC Young Eco-Army has been formed to attend education to spread awareness on wise use of coastal resources. The Center's Community Schooling objective is to educate the coastal children and young people about the importance of wise management of the mangrove forest both for their own health, protection from the effects of climate change, and for sustainable development. They learn here the awareness campaign messages for coastal resource conservation through ICT equipped curriculum and convince their parents, villagers not to destroy the mangrove vegetation for selfish gain. This practice is developed to widen their access to learning opportunities in the failed schooling system in these inhospitable coastal situations. This has been further improved to army the CCRC mission voluntarily. They are being trained to become the carriers of messages to the community folks on the programs of CCRC Community Schooling.

Volunteer ICT Teacher:

It is the need and demand of the time to dress a changed role to teachers who should act as a Mentor, Motivator and Counselor what we have introduced in our CCRC as Volunteer-mentor and others to run the activities of our Community Schooling. They are motivated to attach thrust not on imparting bookish 'knowledge' but act on identifying the strengths and ready to play counseling to put the community children in the right path of learning. Other than a guardian they are leading as catalysts to promote the potential creative abilities of the community students.

The much-discussed 'Type' indicators are the basis to act as the guideline to identify strength and weaknesses of the students. They are acting as the facilitators to change the "Personality-Type" to upward the homogeneity of serving conservation-education in spirit and philosophy. This experiment to introduce ICT Volunteer-Teacher from the community itself has magnified the success scenario in this innovative endeavor in these most poorly advanced coastal village situations.

Conclusion:

The Sandhan Foundation realizes how vital it is to develop the information and communication technology (ICT). The effective use of information and communication technology and the expansion of ICT knowledge networks in the Bhitarkanika Mangrove areas is working to expand the specialist networks, provide training of new generation actors, produce regional trainers, and disseminate and exchange new technologies and techniques. Of particular attention will be those issues directly concerned with and of practical use to the region's current situations. Realizing the growing importance and influences of the Internet and mobile technologies welcomes new partners to be the co-organizer and curriculum designer. The CCRC strives hard to grow as an ICT consulting social enterprise with expertise in social media technologies and mobile applications, particularly in the areas of healthcare, knowledge management, digital library, and online activism.

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