

Case Studies on e-Governance in India

Sustenance of ICT Design Initiatives in e-Governance – Challenges and Ways Forward

(A Case Study of 'KHETI' - Knowledge Help Extension Technology Initiative)

Dr. S. M. Haider Rizvi

Sustenance of ICT Design Initiatives in e-Governance – Challenges and Ways Forward

(A Case Study of 'KHETI' - Knowledge Help Extension Technology Initiative)

Dr. S. M. Haider Rizvi

About the Initiative

This publication is a part of the Capacity Building initiative under the National e-Governance Plan (NeGP) by NeGD with an aim to draw out learnings from various projects implemented in various States/ UTs and sharing this knowledge, in the form of case studies, with the decision makers and implementers to benefit them, by way of knowledge creation and skill building, from these experiences during planning and implementation of various projects under NeGP.

Conceptualised and overseen by the National e-Governance Division (NeGD) of Media lab Asia/DeitY these case studies are submitted by e-Governance Practitioners from Government and Industry/Research Institutions. The cases submitted by the authors are vetted by experts from outside and within the Government for learning and reference value, relevance to future project implementers, planners and to those involved in e-governance capacity Building programs before they are recommended for publication. National Institute for Smart Government (NISG), working on behalf of this NeGD provided program management support and interacted with the authors and subject matter experts in bringing out these published case studies. It is hoped that these case studies drawn from successful and failed e-Governance projects would help practitioners to understand the real-time issues involved, typical dilemmas faced by e-Governance project implementers, and possible solutions to resolve them.

Acknowledgment

NISG sincerely thanks all the authors for documenting and sharing their rich experiences in terms of challenges and lessons learned and allowing us to publish and use these case studies in various training programs of NeGD and NISG. NISG also thanks all the external and internal experts who helped review the submitted cases, providing critical observations and for helping in articulating and presenting the case studies, both for class room use as well as a reference article.

Copyright License

This case study submitted by author/s and accepted for publication under the project of National e-Governance Division (NeGD), Ministry of Communications and Information Technology, Government of India by NISG, the program management agency, is governed by the following license of the Creative Commons. For any specific permission/feedback the publisher may be contacted.

(cc) Creative Common License - Attribution-Share Alike 2.5 Generic

The user is therefore free to make derivative works, with credit to the original author.
<http://creativecommons.org/licenses/by-sa/2.5/in/>

Disclaimer

This publication is a work product produced by external authors with information sourced from their own sources as provided under reference in respective articles and is based on experiences with Projects undertaken directly or as research initiatives closely working with the project owners or with their consent to publish the findings. The authors have provided a plagiarism declaration as per project guidelines and National Institute for Smart Governance (NISG) has put in best efforts to validate the authenticity and learning value of the article submitted. NISG has acted mainly as a content reviewer with support from identified expert resources. NISG is not responsible for any plagiarism violations or copyright infringements and respective authors are fully responsible for the same as per respective declarations provided by them. The case study should not be used as a definite source of data.

The case studies are meant for use as a background and quick reference on the topic(s) by e-Governance practitioners, and should not be treated as a guideline and/or instructions for undertaking the activities covered under any e-Governance project/s. It may also be used in a classroom for discussion by the participants undergoing e-Governance related training programs. The document by no means has any commercial intention and is solely developed for the purpose of knowledge sharing.

NISG-CBKM 79-200/Case Study/10-2014/V2

Printed & Published by
National Institute for Smart Government
www.nisg.org
on behalf of the
National e-Governance Division (NeGD)
Department of Electronics & Information Technology
Ministry of Communications & IT
Government of India

Table of Contents

1. ABSTRACT.....	1
2. KEYWORDS/KEY PHRASES	1
3. NOTE TO PRACTITIONERS (NtP)	1
4. THE PROJECT CONTEXT, TECHNOLOGY AND DESIGNING PROCESSES.....	2
5. PROJECT OVERVIEW - DESIGNING OF KHETI UNDER RURAL E-SERVICES PROJECT FOR LIVELIHOOD PROMOTIONS.....	4
6. IMPACTS OF KHETI	8
7. ISSUES AND CHALLENGES FACED DURING IMPLEMENTATION	9
8. KEY LESSONS LEARNT	14
9. METHODOLOGY ADOPTED IN CASE WRITING	15
10. REFERENCES	16
11. CONTACT DETAILS OF CASE AUTHOR, PROJECT OWNER	17
11. PROJECT CASE FACT SHEET	17

Abstract

The Knowledge Help Extension Technology Initiative (KHETI) – an Information Communication and Technology (ICT) design solution, has been developed under Rural e-Services Project in India (ReSPI). It was an action research project to bridge socio-economic divide digitally with uses of participatory interactive designing methodologies that resulted in a customised solution for so called ‘less privileged groups’ such as poor farmers. The farmers as the user of technology were co-designers in the designing processes that helped development of an indigenous, contextual and robust designing solution. But, making the users the co-designers didn’t prove a sufficient condition for the successful implementation and sustenance of the technology. It was found that, altogether, different sets of strategies were needed for an e-governance initiative and for that matter KHETI to be mainstreamed and sustained. Based on the learning of ReSPI, the case study highlights towards important areas of challenges in procuring, designing and sustenance of ICT design solutions by and for the poor and marginalised in e-governance realm. It highlights that how KHETI got failed in absence of a business model and a model has been worked out as one of the possible ways for the sustenance of e-governance initiatives that focuses on public-private-community partnership for designing and sustenance of ICT design solutions for empowering poor and marginalised.

The case has been presented by describing the project, the processes used in designing the technology, the features of designed technology, impacts of technology and reasons for discontinuation of ReSPI and KHETI and learning from same for future e-governance projects. It also contains discussions on need of the public private community partnership to meet out the challenges in smooth running and sustenance of KHETI and other e-governance initiative. The case concludes with the lessons learnt.

2. Keywords/Key phrases

Interactive designing, participatory development, ICT, business model, e-governance, sustainability

3. Note to Practitioners

The Information Communication and Technologies (ICTs) has important roles in e-governance initiatives. The ICT design solutions to be used in e-governance initiatives need to be developed in a participatory manner to capture the contextual realities and enhance their applicability. The ICT solutions designed using participatory methodologies would increase the relevance to the users than bringing tailor made solutions from outside. The sustenance of e-Governance initiatives are always under doubt if the ownership is not developed amongst stakeholders from very beginning, so efforts should be made to involve the users and other

stakeholders from the day one especially in planning and management of the initiatives. If the e-governance projects are externally led then 'handing over' after a certain period is not a good idea, rather the roles of the external agencies should be planned to get lessened gradually and automatically come to an end at an appropriate time. Hence the intended beneficiaries should be involved from the start and should take control over the initiative for running, maintenance and sustenance of the initiative.

The feasibility of the services offered under e-governance initiatives should also be gauged in advance so that strategies could be made accordingly for their smooth running and sustenance. The outcomes and achievements from an e-governance initiative should be defined in relation to the given socio-economic realities and success criterion should be made according to the 'stages' and as per 'priorities' identified by the people. One should be mindful of relating the initiatives with the immediate perceived needs of the people as well the larger development needs of the area to boost the chances of success.

In case of projects and initiatives started by external agencies, generally, the budgets are not shared with the intended beneficiaries that create confusion about economic feasibilities of the project. So the primary stakeholders i.e. the beneficiaries of the e-Governance initiatives should be oriented in advance about the nature and objectives of the projects. The boundaries and accountabilities should be developed and agreed upon from very beginning. One should not try to take the e-governance in the other traditional development project mode. If the intended target group is considered simply as recipients it would create disconnect and void and would be indirectly proportional to the success of the project. One should try to run an e-governance initiative in a partnership mode seeking 'due from' and giving 'due to' the stakeholders with a sense of collective responsibility for the failures and successes.

The learning from the discontinuation of KHETI in particular the exhaustion of resources, prematurely, suggests that a business model to mobilise resources and maintain its flow on ongoing basis for e-governance initiatives is a must and should be planned well in advance. Partnerships amongst strategic stakeholders should be explored and building with due recognition and space in the given domain.

4. The Project context, Technology and Designing processes

4.1 Background and pre-implementation scenario

The Rural e-Services Project was one the four primary research projects funded by the Engineering and Physical Sciences Research Council (EPSRC), UK under it's 'Bridging

the Global Digital Divide Network Programme' for bridging digital divide. The other three projects were Storybank, Fair Tracing & VeSeL across the globe.

There is no denying of the fact that in India, the ICT potentials are enormous but digital divide is huge. The ICTs penetration in India has been comparatively lower than the developed and few of the developing countries. As per the estimates of International Telecom Union Reports 2005 a & b, the tele-density in India was only 8.44, the availability of PCs was to only 1.21% of the population and internet usage was by 3.24%, whereas the tele-density and internet usage for Americas, USA, Europe, China, Asia and the world were 76.51 and 30.89, 122.71 and 63.0, 111.58 and 31.13, 49.74 and 7.23, 33.56 and 8.10 and 46.41 and 13.62 respectively. Similar variations were found in possession of PCs by people. The ICTs penetration in rural India that is home to about 2/3rd of India population, might be further worsened because of the socio-economic and psychological barriers such as lack of awareness about benefits of ICTs, lack of access facilities, language barriers in using the internet, lack of local language information products and lack of motivation to use information over the internet (Rao, 2009). The poor and deprived, generally, are not having access to ICTs and are not getting benefitted from their applications; hence, they might be unaware about innovations and applications and are following the traditional methods and approaches. Hence, there is a need to explore possibilities of penetrating ICTs in various spheres of lives of people more aggressively particularly in the areas of agriculture, health, education and poverty alleviations because the e-governance culture and initiatives need to revitalise the entire sectors of development. It should not be limited to speeding-up the governing processes only at the level of 'supply side' rather the 'demand side' should also be ICT friendly and appropriately literate to optimally utilise the services and question the lapses in e-governance initiatives. At the same time due to increase in population and limited resources the objectives of ensuring good, transparent and accountable governance that facilitate access of services to citizens can't be met without use of ICT applications.

The Rural e-Services Project in India (ReSPI) has been a modest efforts under e-governance to use applications of ICTs in agriculture as agriculture constitutes a major livelihoods sector and most of the rural poor depend on rain-fed agriculture and fragile forests for their livelihoods. The penetration of ICT applications could bring changes to socio-economic conditions of poor in backward regions in particular in rural India. The e-governance initiatives have brought a ray of hope and emerged as a powerful tool to realize the objectives of transparency, accountability, equity, responsiveness, effectiveness, efficiency and rule of law etc (OHCHR Resolutions

2000/64 and 2001/72 for Attributes of Good Governance in Choudhury and Skarstedt, 2005).

The Rural e-Services in India have made a sincere attempt in this direction for the poor farmers in Madhya Pradesh who were deprived of appropriate and scientific timely inputs for their agriculture practices to increase their produce and dealing with the eventualities such as diseases in crops and other natural calamities. Before the running of KHETI services the farmers were largely using the traditional knowledge and information informally supplied by others quarters e.g. companies and shops selling fertilisers, pesticides and other products for enhancing agriculture produce. The ICT design solution KHETI developed under ReSPI was meant to ensure flow of information at various levels for the poor farmers for their livelihoods empowerment.

5. Project Overview - Designing of Kheti under rural e-services project for livelihood promotions

5.1 Description of implemented project

ReSPI was an action research project to develop sustainable ICT solutions for livelihoods empowerment through ensuring flow of timely information on agriculture practices for farmers in remote rural areas in India under Bridging Global Digital Divide Programme. It was conceptualised around the mid of 2006 and formally started at the grassroots (Sironj block of district Vidisha in Madhya Pradesh) in India from April 2007. It was managed by Sheffield Hallam University, U.K in collaborations with Oxford University, UK; Overseas Development Institute, UK/University of West England, UK and Saral Services/Safal Solutions, India. PRADAN, India was other major collaborators and intermediary organisation and the project was implemented at Sironj Crop Producers Company Private Limited (SCPCL) – a cooperative of marginalised farmers.

5.2 Objectives of the project

Initially the project was envisaged to design ICT solutions using participatory interactive methodologies that help farmers in their financial transactions with relevant stakeholders and agencies and also develop their financial profiles under broader objective of bridging the digital divide. But after the entry to the field and a series of participatory exercises with the farmers on their need, the objectives of the project got changed to 'ensuring of agriculture information flow at various levels' through designing an ICT-enabled solution. It was decided to have a design solution which helps farmers and other stakeholders in communicating 'within' and 'outside'

using audio-visual messages to get timely inputs for enhancing agriculture produce besides having features of Agriculture Information Management System (AIMS) and knowledge bank on agriculture.

5.3 The Stakeholders of the project

a. Primary stakeholders

- Farmers and their co-operative - the Sironj Crop Producer Company Limited
- PRADAN – a grassroots NGO and intermediary organisation
- Funding agency - Engineering and Physical Sciences Research Council, United Kingdom
- The collaborating universities - Sheffield Hallam University, U.K; Oxford University, UK; Overseas Development Institute, UK/University of West England, UK
- Software Developer -Saral Services/Safal Solutions, India

b. Secondary stakeholders

- The agriculture department – at the block, district and state levels
- The agriculture experts and academic and research organisations
- The local traders and NGOs/CSOs

5.4 The designing processes – use of participatory ICT methodologies and their outcomes

Ensuring participatory processes in designing has been the pre-requisite to the project, so a variety of interactive ICT designing and agile and participatory development methodologies have been used. To ensure the participation of farmers in designing processes as the co-designers intensive participatory rural appraisal (PRA) techniques such as focus group discussions, interviews, timelines, matrix ranking, chapatti diagramming etc. have been used. The focus always remained to get the technology designed as per their needs and local realities (Chambers, 1994) and make the processes themselves empowering (Oakley, 1991) to people/users where they have control over the processes and decide nature of and features in the designed solution. Besides seeking participation of users at every stage, the software developers/programmers were oriented towards the contextual realities. They were motivated and made to visit field and participate in PRA exercises to respond on needs/demands of users.

The participatory exercises helped in identifying the needs of the farmers in general and information need in particular. It was followed by a project establishment meeting to get agreement on the sector/s where application of ICTs could be explored. It was further refined by developing a matrix and hence Agriculture Information Flow System was identified as the 'area' where the solutions could be designed. After establishing the project and agreeing on the focus farmers were facilitated to explore actors and their roles through creating small stories against various cartoon characters on different kinds of communications taking place between them and other stakeholders for seeking inputs in agriculture practices and related areas. The requirements identified from the system by farmers were of three kinds; general, information related and on report and analysis. In general requirements the areas covered were member registration, socio-economic profiling and family details, photo, below poverty line status, modification in member details/profile, addition of

new member profiles, member land plot details, crop profile, experience report profile, seed plot registration, quantity of produce, crop sowing patterns, acre, registered area, crop plan planning and crop inputs, crop produce/land, crop: produce, diseases, inputs, land report/data: kind, slope, plain, water availability, farmers' experience report: audio, video, images, successful experiments and fee details for inputs/services. As far as information related requirements were concerned the farmers wished to have plot wise advice (planned plot), crop advice report (irrigation, POP, fertilizer use, pesticides, chemical) – for specific crop report. In report and analysis, the exchange of information/messages, responded messages, time taken in responding messages, details of messages not responded, reasons for not responding to the messages etc. were covered.

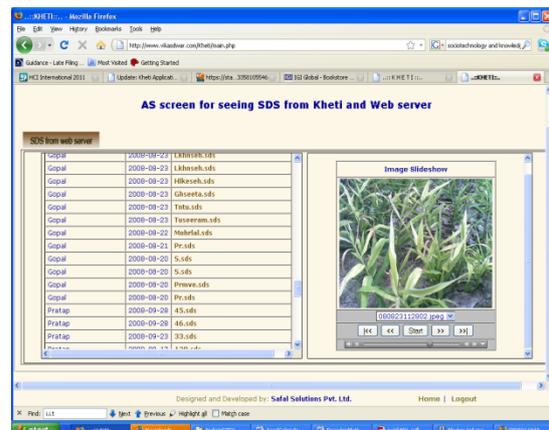


Figure 1: Agriculture Specialist's Web Interface

As an immediate need the farmers wished to have a device where they could exchange information (audio-visual) on their problems/issues in agriculture practices with experts quickly from their places and get timely inputs. The need of having a MIS about the co-operative containing details on socio-demographic profiles of members and patterns of agriculture practices in relation to their land and habitation was identified as the second priority that system should provide to them. The

requirements were converted into mobile and server menus. These requirements were converted into software design with participations of farmers in 'Alpha' and 'Beta' testing. As a significant initiative the 'Beta' testing took place at farmers' place in Sironj. Out of the 12 features identified by the farmers 5 features have been developed.

5.5 About the technology and its functioning

KHETI has been designed on mobile phone platform. It helped in speeding-up communications amongst various stakeholders in particular amongst Agriculture Specialist (AS), farmer representatives and farmers. The farmers could get required information for improving the agriculture practices and enhancing the produce.

The farmer representatives along with the farmers with help of mobiles could create 'Short Dialogue Strips (SDS)' using 6 images and 1.5 minutes voices at their fields/villages and send it to AS by uploading on the web to get back responses on their



Figure 4: SDS Making in Progress

queries, problems and other areas of interest within a cycle of 24 hours. The systems in KHETI have generated knowledge bank and spreading it at large for wider usage, benefits and empowerment of agriculture community.

The communications (inter and intra audio-visual exchanges) amongst farmers, Munnas (farmer representatives) and AS have been made possible remotely with help of mobile phone and IVRS. For smooth functioning of KHETI besides farmers as recipient of the services and AS, the responder on the queries, need of a person in the villages to assist farmers in making SDSs on their problems and facilitate communication with AS were identified. The farmers themselves desired to have somebody relatively better trained who could assist, initially, in making SDSs, uploading and downloading the same to the server and communicating on their behalf with AS. They named this person as 'Munna' (a popular character in a Hindi feature film *Munna Bhai MBBS*). Having Munnas was also important because that the farmers were not in possession of multi-media mobiles (Nokia Navigator and Nokia N73) with internet connectivity and it was neither feasible for the project to provide such mobile to entire members of the cooperative nor the farmers were financially capable to buy

these high end mobile (in 2008). Other actor was Agriculture Communication Specialist (ACS) – a full time person on the job with qualifications in agriculture and moderate level of technical/ICTs understanding to facilitate the communication and developing and maintaining agriculture knowledge bank and disseminating and exchanging knowledge at various levels. It made functioning of the system very smooth e.g. the service provider has been approached by a farmer for getting solutions to a strange disease in the crop. On visiting the field and observing the problem he thinks that AS should be approached and makes an SDS of the crop disease. Then he sends the details to AS by uploading the SDS on *Vikasdwar* server – a space on the web, who downloaded SDS and got details on his/her system at the cooperative. AS has seen SDS uploaded on *Vikasdwar* and responds back with solutions within a cycle of 24 hours himself or after sharing with other experts, if needed. The role of ACS was like a bridge between the Munnas and AS.

6. Impact of Kheti

The SDSs application in KHETI has emerged as one of the powerful features to provide timely information to farmers on issues and problems in agriculture practices by Agriculture Specialist. The system was rolled out in August 2008 and till April 2009 about 300 queries were handled on various crops; diseases in soybean, gram, wheat and vegetables; falling of leaves, only flowering but not converting in fruits in vegetables; choice of crops in case of unavailability or less availability of water; premature fruits and flowering; soil and seed borne diseases; use of fertilizer – quantity and type; varieties of seed especially certified and foundation seeds; effects of termites attacks on crops and the treatment; choice of crop against the soil type and patterns of crop rotation.

The technology was developed along with the farmers and Munnas (farmers themselves, too). The Munnas were further trained to operate the systems so there was no issue faced in its deployment in the field. The response time from the AS was maximum 24 hours so the farmers were satisfied. In most of the cases farmers got responses on their queries same day. The novelty and one of the biggest features of ReSPI was that farmers and their representatives were able to operate high end mobiles (Nokia Navigator 6110 and Nokia N73) that were provided by the project (one mobile for each village in custody of Munna). They could create SDSs on local problems and issues with help of mobiles and uploaded same on the server. The making of SDS has done using five simple steps with instructions in Hindi, as entire interfaces in the mobile phones were in Hindi. They could also talk to AS using IVRS. Farmers could get solutions to their agriculture problems and related inputs at their respective places/villages.

7. Issues and challenges faced during implementation

7.1 The discontinuation of KHETI services and the learning for future initiatives

KHETI system was rolled out in August 2008 and continued till April 2009. During nine months period of its running about 300 queries were handled on insect attacks on various crops; diseases in soybean, gram, wheat and vegetables; falling of leaves, only flowering but not converting in fruits in vegetables; choice of crops in case of unavailability or less availability of water; premature fruits and flowering; soil and seed borne diseases; use of fertilizer – quantity and type; varieties of seed especially certified and foundation seeds; effects of termites on soil and the treatment; choice of crop against the soil type and patterns of crop rotation. But, with the exhaustion of project funding it was difficult to run the services, as farmers were not willing to pay for the services, the intermediary organisation (PRADAN) though took care to pay for the Agriculture Communication Specialist yet found it difficult to take care for the maintenance of the systems and paying to *Munnas* who were paid Rs. 1000 per month by the project for their services. The implementing agency (the collaborating universities) was more concerned to handing over the project and KHETI to an appropriate partner who could take it forward. Since an appropriate business model for long term sustenance of the project has also not been visualised, so a desired level of ownership from primary stakeholders especially users/farmers with responsibilities of sharing of resource burdens and responsibilities were not in place. Besides the consultations, information and procuring data, the government has not been thought of as an active partner to the project, so the government couldn't be made to take and run the project. The role of private sector has also not been thought of. Hence the KHETI services got stopped functioning from May 2009.

The discontinuation of ReSPI and KHETI has brought many learning that might be useful to stakeholders engaged in running similar projects and/or wish to start similar e-governance initiatives in future. It has been summarised as follows;

- There should have been a business model developed for the project involving public, private and community partners that could have helped in mobilising resources for running such project in a partnership mode with evident gains to each.
- For initiating ReSPI full care was taken to make it participatory and ensure the involvement of the users i.e. farmers at each every stage of the project – deciding the areas for designing of the ICT solution, planning for the designing, the designing processes and the testing of the resultant features in KHETI. Two of

the important things which have been given lots of emphasis and importance were 'entry to the field' and the 'project establishment meeting'. The efforts were made to 'develop ownership of the users in designing' more than in 'ensuring their commitments in sustenance of the project' by paying for services – to run and maintain the systems, payments to the manpower involved and meeting the overhead expenses in running the system. It suggests that equal emphasis could have been levied to find out strategies for sustenance of the project in aftermath of designing of solutions.

- It was thought, rather taken for granted by the implementers that the intermediary organisation i.e. PRADAN, who got agreed to paid for Agriculture Communication Specialist – an important role identified and employed for running the services, and users would pay for the services once the implementing agency i.e. Sheffield Hallam University withdraws from the project site and once their resources are over. But, perhaps, it was one of the areas that could have been thought and planned in a better manner.
- The farmers were not 'asked to' or 'made to' pay from very beginning in buying of infrastructures – computers, server, internet and telephone connections and the rent for the office space so they didn't get used to pay for the development and establishment of the project. Otherwise also in such project that has sufficient resources for such purpose don't believe in putting burdens to the recipient of services rather believe more in facilitating to maximum extent possible. But it has been learnt that the farmers should have been asked to share the economic burden in the project from very beginning and in this they either have backed out or would have been agreed and habituated to pay.
- The other factors that need mention is that the services were operated only for about nine months, so they couldn't fully realised the advantages of having such services in their surroundings. The project could have planned to run the services for about two years to get them accustomed to using of such services and importance in their lives especially in improving agriculture practices and enhancing agriculture produce.
- The government and other local development stakeholders were not part of the project and were not involved in the processes of developing the solution. It was not needed as far as designing of ICT solutions were concerned but the role of government agencies and institutions is certainly crucial because of resources – the money and manpower structures the government have at various levels. Had

the government been involved in the project it could have been contacted to run and sustain the services beyond the project period.

- The project, basically, was formulated and initiated by three collaborative foreign universities, of course with the help of a local intermediary organisation, hence the 'research goals' of highlighting the need of the target groups and designing on the same using participatory processes got dominance over the 'development goals' of sustenance of services and the occurrence of development changes in the lives of the farmers. The post designing phase could have been planned in a better manner.
- There was no formal business model thought and formulated, so apparently there was no scope of 'accomplishment of business interests' of stakeholders. The stakeholders such as private sector agencies and CSOs/NGOs could have been allured through incentives on their involvement.

7.2 The challenges in sustenance of the project and ways forward

The running of KHETI uncovered few challenges which must be addressed to refine and adapt the solution and to improve it on route to adoption and sustenance. One of the major challenge was devising economic model that is suitable and agreed upon by entire stakeholders i.e. farmers, service providers, farmers' co-operative, government, network operators, handset makers etc. But it couldn't be done because of the apparent practical reasons as it was difficult for the poor farmers to procure a technology and pay for designing and running of ICT solutions. They neither had capacity nor had willingness to pay. The government ownership and control wouldn't have helped in buying ownership and accountability from the community. The private sector wouldn't associate unless and until they don't see a measurable gain. Some workable solution could have been worked out by accommodating and safeguarding interests of various stakeholders. But, the commitment to ensure participation and dependency on the users/beneficiaries in ReSPI has resulted in a so called 'non-sustained ICT designed solution' developed under a research project.

One has to be realistic while suggesting a successful and sustainable model. Based on experiences from ReSPI and other e-governance initiatives an effort has been made to formulate a feasible business model for sustenance of such e-governance initiatives with participations from public, private and community stakeholders with apparent gains to each, as follows;

7.3 Procurement and designing ICT design solutions for poor: developing a model for public-private-community partnership

7.3.1 Need for public-private-community partnerships

The experiences from socio-economic development interventions for poor and marginalised in general and the ReSPI in particular suggest that it is difficult to have a business model with rural poor community where costing for an intervention to them is full and direct. In cases where initial costs to a project are fully borne by an external agency, even then, it is difficult to ensure community contribution for its sustenance in long run. For example, for e-Kuppam project initially started with full sponsorship by HCL, later BASIX found it difficult to run the interventions with the community. Even after putting their best of efforts they were not able to get matching revenue for the services offered (findings based on visit to e-Kuppam and discussions with functionaries).

The partnerships which take shapes in absence of a well thought, discussed and emerged manner, unfortunately, are never seen as partnerships rather it is always 'external' and short lived. To bridge such a gap there has to be equal ownerships and accountabilities. Charities and donations are not going to last for long; rather, these further aggravate problems. There is always a deep rooted impact of the past practices i.e. getting things – product and services, free that has almost become their psyche. Even after relating with obvious gains and manifold returns there is a lull (in majority of the cases) on paying back to the services. There is a need to have long terms strategic marketing plans for corporate/business houses coming into partnerships for their interests besides public good and commitments for Corporate Social Responsibilities.

7.3.2 Model for public-private-community partnerships

A model of livelihoods promotion and other developmental gains through ICTs involving the major three domains of the society – public, private and community could be inferred from ReSPI experiences. To start and make an ICT intervention sustainable there are three major areas of investment technology development, technology deployment and maintenance technology usage and payment for services that might be taken care by the public/government, private and community respectively.

i. Technology development – the public domain

The major area of investment among the three is the technology development and that could be taken care by public/government institutions. The government is having many interventions 'here and there' in agriculture and other developmental sectors that could be brought together to have focused interventions for socio-economic development of people. There are sizeable public funds and other resources available at the disposal of government under various schemes/programmes that might very well be pooled, converged and used for such purposes.

ii. Technology deployment and maintenance – the private domain

The deployment related expenses and maintenance, which need relatively lesser resource than in technology development could be taken care by the private sector. Private sector besides fulfilling the commitment of corporate social responsibility would also gain a market for selling their agriculture related products such as fertilisers, insecticides, pesticides etc. It will be a win-win-win situation for the private public and community stakeholders because the public agencies would find partners to share burden of resources, for private sector it would be an easy entry to the rural market and also the target groups. This would, also, develop a sense of trust and confidence towards private agencies. The magnitude of return for private sectors in doing so would be far more than the contributions made by them. All these would ultimately benefit the community and vice-versa.

iii. Technology usage and payment for services – community domain

The third area of investment of service usage should be borne by the users themselves. The users being participants throughout technology designing would realise the importance of these in promotions of their livelihoods. In the value matrix developed during the execution of ReSPI, it was found that majority of farmers were willing to pay for such services. In a recently conducted PRA exercise with stakeholders, for developing this case study, users or co-designers of KHETI candidly admitted that withdrawal of KHETI services was a huge loss to them but, they were not in position to provide alternative ways of running the services. They were, verbally, ready to pay for services but while asked for suggesting arrangements they were not very forthcoming. The farmers, still, expects external help to run and sustain services. Sharing idea of partnership impressed them and they got ready to take care of some of the responsibilities along with others. If public-private-community partnership model is applied, as highlighted in the case study, would give wonderful results.

8. Key Lessons

The case study has dealt with two major aspects of ‘participatory designing of the ICT solutions’ and ‘sustaining the running and usage of ICT solutions’ for poor and marginalised. It has highlighted certain areas that would need serious considerations to make e-Governance projects and initiatives effective. Few major areas that need to be highlighted could be summarised as below.

- For procuring and designing of ICT solutions and e-governance initiatives, use of participatory processes along with prospective users and other stakeholders seems must. It would help in getting appropriate and customised technologies based on the needs of users (Dearden and Rizvi, 2008). The participatory processes would help in developing ownership towards the e-governance initiatives, implanting monitoring mechanisms and accountabilities in technology deployment and usage for meaningful developmental gains.
- Users’ insights are valuable for designing processes and for appropriateness and effectiveness of technology. It helps in preventing loss as results of failed technologies. The methods need inventing all the time to bring liveliness in designing process.
- The role of software developers in developing features using participatory interactive designing and agile methodologies is very crucial, so there is need to take them along and building their capacities in general and develop empathy in them towards the poor and marginalised users in particular. Besides bridging the divide digitally, there is a need to bridge the divide between designers/developers and users communities.
- The ReSPI experiences suggest that designing of technology must be accompanied with a robust business model for the sustenance of technology in long run. The development of business model should be realistic that safeguards interest of various stakeholders. There should be no harm in entertaining the profit motives of partners involved. There has to be clarity on the nature and extent of involvement and accountabilities of the partners as per their stakes and degree of involvement (Dearden, Rizvi and Gupta, 2010). The suggested public-private-community partnership model might be realistic and effective for developing and running such e-governance initiatives, but it should not be on the lines of the arrangement suggested in running community service centres (CSC) which hasn’t adopted a participatory decision making process.
- There is a need to have accountability and policy frameworks for effectiveness of e-governance initiatives and systemic change along with the change in peoples’ mindset.
- The ‘taking off’ and ‘running of services’ with the project funding under a e-governance initiatives is easy but for the sustenance of services in long run the projects must be run in

partnership mode. Stakeholders' analysis and developing partnerships at the very start of the project seems must.

9. Methodology adopted in case writing

For developing the case the author visited twice to the field and interacted with users of KHETI. The methodology used for developing the case study is as follows;

- Documentation and experiences from the project and developments in its aftermath.
- Visits to field, meetings, interviews and focus group discussions with farmers, project partners and other stakeholders.
- A review of literature on the experiences and finding from other similar initiatives.

10. REFERENCES

- [1] A. Dearden and H. Rizvi, "Adapting Participatory and Agile Software Methods to Participatory Rural Development" In J. Simonsen, T. Robertson and D. Hakken (Eds.) *PDC 2008 -Experiences and Challenges*, Indiana University Press, pp. 221 – 225, 2008.
- [2] A. Dearden and H. Rizvi, "A Deeply Embedded SocioTechnical Strategy for Designing ICT for Development," *International Journal of Sociotechnology and Knowledge Development*, vol. 1, no. 4, IGI Publishing, USA. October – December 2009
- [3] A. Dearden, H. Rizvi and S. Gupta, "Roles and Responsibilities in agile ICT for Development, "appeared in *Proceedings of India HCI 2010 / Interaction Design for International Development 2010*, Mumbai, India, March 22nd – 24th 2010, BCS Electronic Workshops in computing (eWIC) series.
- [4] FAO. *Dimensions of Need, An atlas of food and agriculture*. FAO, Rome, Italy, 1995.
- [5] International Telecoms Union, "e-Agriculture Survey Analysis", available from: www.itu.int/wsis/c7/e-agriculture/docs/survey-analysis-2007.pdf, 2007. Accessed on June 30, 2012.
- [6] ITU (2005a). "Basic Indicators.", 2006 from: http://www.itu.int/ITU-D/ict/statistics/at_glance/basic04.pdf. Accessed on June 30, 2012.
- [7] ITU (2005b). "Information Technology." Accessed January 30, 2006 from:http://www.itu.int/ITU-D/ict/statistics/at_glance/Internet04.pdf. Accessed on June 30, 2012.
- [8] P. Oakley, "Projects with People. The Practices of Participation in Rural Development", International Labour Office, Geneva, 1991.
- [9] R. Gandhi, R. Veeraraghavan, K. Toyoma and V. Ramprasad, "Digital Green: Participatory Video for Agricultural Extension", In *Proceedings of ICTD*, pp. 21–30, 2007.
- [10] R. Chambers, "The Origin and Practice of PRA", *World Development*, vol. 22, no. 7, pp. 953-969, 1994.
- [11] S. S. Rao *Role of ICTS in India Rural Communities*, *The Journal of Community Informatics*, Vol. 5, No. 1, 2009.

11. Contact details of case author, project owner

Contact Details	
Case Author	Project Owner
<p>Dr. S. M. Haider Rizvi Director 3e Research H. No. 24/II, Sector A, Indra Vihar Colony Airport Road, Lalghati Bhopal – 462030 M.P. India Telephone: Landline. +91 755 2740770 Mobile. +91 9826954386 Email: drsmhaider@gmail.com doctorhaider@gmail.com</p>	<p>Dr. A. M. Dearden Professor Interactive Systems Design Communication & Computing Research Centre, Sheffield Hallam University, Cantor Building, 153 Arundel Street, Sheffield, S1 2NU, UK Telephone: Off. +44 114 225 6878 Resi. +44 1904638840 Mobile.+44 7729511237 Email: A.M.Dearden@shu.ac.uk</p>

12. Project case fact sheet

Sl. No.	Activity	Time Line
1.	Project Conceptualisation	June 2006
2.	Project Initiation in Field	April 2007
3.	Technology Designing Processes	April 2007 – September 2008
4.	Technology Roll Out	September-October 2008
5.	Application/Running of Technology	October 2008 – March 2009
6.	Discontinuation of KHETI Application	April 2009
7.	Dissemination of Sharing of Learning in India and Globally (05 Research Papers in International Paper Reviewed Journal and Sharing in 06 International Conferences)	June 2007 onwards
8.	Received Manthan South Asia Award 2009	December 2009
9.	Sharing, Dissemination and Exploration for Replication	Ongoing



**National Institute for
Smart Government**

Hyderabad

YSR Bhavan, Financial District, Nanakramguda,
Hyderabad - 500032
Telangana, India.
Ph: 040-66545352, Fax: 040-66545300

Delhi

Mahanagar Door Sanchar Sadan, 9, CGO Complex,
Residential Complex,
1st floor New Delhi-110003
Ph: +91-11-24321445, Fax : +91-11-24321444
Website : www.nisg.org



National e-Governance Division

Department of Electronics and Information Technology (DeitY)
Ministry of Communications & Information Technology
(Government of India)
Electronics Niketan, 6, CGO Complex,
Lodhi Road, New Delhi- 110 003
India
Ph. +91-11-30481624
Website: www.negp.gov.in