The current age is considered as the “Information Age” wherein ICTs (Information and Communication Technologies) have become paramount in generating, transmitting, processing and using information of economic and social value. It is known that the existing social system in both rural and urban areas, has huge systemic inequalities and imperfections associated with it. There arises a question of how these ICTs can be used to reduce these systemic inequalities and imperfections through adequate institutional mechanisms.

Enhancing the livelihood of the poor is one crucial problem in social development. There are some initiatives wherein ICTs have been used for enhancing livelihoods. In this paper, one ICT for Development (ICT4D) social business project called “eKutir” in rural Odisha is analyzed from a livelihoods perspective using a framework called the “Sustainable Livelihoods/SL” framework through a case study method. From this analysis, inferences are drawn which might be useful for enhancing other ICT based social businesses initiatives in livelihoods as well as in other areas of development.

Keywords: Livelihoods, ICTs, eKutir, Social Business, Odisha

Introduction

The current age is the “Information Age” or the Post-Industrial age. This refers to two aspects. One aspect is the explosion in the generation of information and its increasing importance in all spheres of human activity. The second aspect is the invention and proliferation of ICTs (Information and Communication Technologies) which has aided the former aspect.

It is known that the existing social system has huge challenges of poverty and inequality associated with it. There arises a question of how these new ICTs can be used to tackle these challenges. While the question of using ICTs as a magic wand or silver bullet for all the problems of development is definitely ruled out, the question of using ICTs to solve some of the development problems with a realistic understanding of its potential remains. One crucial problem in development is enhancing the livelihood of the poor.

In a study on indigenous communities in South Africa, it was found out that improved access to information coupled with ICT skills,
can enhance indigenous peoples’ capabilities to make strategic life choices and uplift their own livelihoods (Chisa & Hoskins, 2014). There are number of examples wherein ICTs have been leveraged to improve lives and livelihoods in developing countries. For example, M-Pesa in Kenya allows workers in cities to send money back to their rural families using basic mobile phones, in Ghana, the Motech project allows community health workers to use feature phones to track ante-natal (and post-natal) care to improve outcomes for both mothers and babies, Gram Vaani’s (GRINS) open-source software is for community radio stations and Ushahidi’s initiatives help the deepening of democracy in Kenya using mobile phones and Google maps (Dearden & Tucker, 2016).

ICT has brought new ways of creating livelihoods for people (Doong & Ho, 2012). Currently there are some extrapolations suggesting that mobile telephony has created more than 7,00,000 jobs in Pakistan and more than 3,000,000 jobs in Africa, of which perhaps around 70 per cent are jobs such as phone call resellers and airtime retailers of the type found in poor communities (PTA 2007 & GSMA 2008). In a study in Zimbabwe, it was found out that ICTs were effective in the dissemination of agricultural information (Tinashe, Mostert & Ocholla, 2015). Hence it is understood from all the above initiatives that the potential for enhancing farmers’ livelihood, enhancing other kind of livelihoods, and enhancing quality of life in general for poor people through a creative usage of ICTs is high.

In this paper, one ICT for Development social business project called “eKutir” in Odisha is analyzed as to how ICTs are helping the livelihood and other needs of the farmers and other rural denizens. A “social business” initiative is one which contains within itself a business logic and also a mechanism which creates social value for the community. The role of ICTs in enhancing the livelihood prospects of farmers is analyzed through a framework called the Sustainable Livelihoods/SL framework. This framework is one of the standard frameworks used in the development sector.

There is both an analytical role and a functional role of information and ICTs vis-à-vis the sustainable livelihoods framework (Duncombe, 2007). The analytical role is for understanding livelihoods and the functional role focuses on the actual role of information in enhancing livelihoods. Both these roles have been explored in this paper. From this study, inferences are drawn for other social businesses with a significant ICT component in not only livelihood but also in other areas of development.
Methodology

A case study based methodology has been followed. Case study has been chosen because the empirical reality of ICT based social business is changing rapidly in the current context and case study research design is best suited to capture the nuanced aspects of this changing reality (Yin, 1989).

The primary data for this study was collected from the field by this author in 2010 and in 2012. Secondary data has also been collected and used for this study. Since the same field area was studied at two different time periods, a longitudinal study was possible. But the limitation is that, this may not qualify for being a rigorous longitudinal study. So, essentially a case study method has been followed. During 2010, an exploratory case study was done on the eKutir model and in 2012, a descriptive case study was done on the same model.

The case is defined as the eKutir model consisting of the eKutir organization, the FIGs (Farmer Interest Groups) and the social entrepreneurs associated with each FIG. The main unit of analysis is the hub and spokes model of eKutir. The sub-ordinate units of analysis are the FIGs, the eKutir organization, the agricultural input and output supply chains.

DFID SL Framework

The Sustainable Livelihoods Framework is one major framework among the plethora of frameworks used in the development sector. Robert Chambers is a major supporter of a sustainable livelihoods approach. He rightly thought that the way development professionals conceptualizes poverty from an external context is different from how the poor themselves view their lives and their development. Poor perceive poverty in a much more complex and non-linear manner than the simplistic, single dimensional and linear conceptualization of poverty as done by development professionals. The range of strategies employed by the poor is also not only to maximize income, but also to minimise risk and to protect or increase other things that they value. Thus, the sustainable livelihoods framework is taken as the best to capture the multifarious realities of poor people’s lives (Chambers, 1995).

The rationale for using the SL framework for ICT-related issues is that it is comprehensive and it helps us to think about ICTs in a more “bottom-up” way. For example, in the context of a specific
The physical, social, cultural and economic context in which the poor live makes the poor vulnerable. The vulnerability springs from shocks and seasonality in areas like agriculture. The poor deal with this vulnerable context using a variety of livelihood assets at their disposal which could be considered as a kind of “Capital”. This Capital could be of a material or non-material nature. The various kinds of capital are, Human Capital, Social Capital, Natural Capital, Physical Capital and Financial Capital. Human Capital refers to the attributes of the individual poor like formal education, physical well-being etc. Social capital refers to the formal and informal social networks in which the poor could be a member of and which benefit the poor in a tangible and intangible manner. Natural capital refers to the assets like land and water resources that the poor could be having. Physical capital refers to the assets like house, agricultural implements, bicycles etc that the poor could be possessing. Financial capital refers to the monetary capital that the poor possess.

The poor operating within a vulnerability context use the different kinds of capital available with them for engaging with the structures of the social reality in which they operate. There is a bi-
directional influence regarding the engagement of the poor with their reality. That is, the poor influence their reality and their reality in turn influences them and changes their vulnerability context. The reality of the poor consists of the government machinery implementing a set of policies, the market mechanisms with which they operate and the micro, me so and macro, institutional context including the cultural context. The reality of the poor can be separated into two realms, viz, the structural and the processual and one can understand the processual aspect as the dynamic, “in motion” part of the structural aspect.

The poor within a vulnerability context, using the various forms of capital available to them, acting within a local structural and institutional context, evolve certain livelihood strategies for their survival. And these strategies yield certain tangible livelihood outcomes like increased income, better life chances and also certain intangible livelihood outcomes like reduced vulnerability to natural and anthropogenic disasters. Livelihood outcomes also invariably include the creation of livelihood assets through a feedback loop. This, in sum is the “Sustainable Livelihoods” framework to understand the livelihoods of the poor.

**eKutir Social Business Initiative**

In a study in Nigeria, it was found out that ICTs can act as a veritable tool for achieving growth among SMEs (Small & Medium Enterprises) (Adebimpe, 2014). In the Indian context, also this is true and one such SME which leveraged the potential of ICTs for achieving growth not only for itself but also for the community is eKutir.

**eKutiri**s a venture focused on the weaker sections of society and is engaged in innovating new products, services, and sustainable models at the BOP (Bottom of the Pyramid) market. Products and Services created through innovations are ideated, tested in the field, improved, validated, packaged and released to the BOP markets (eKutir2017). The project is implemented at Daspalla, a tribal block in Nayagarh district of Odisha and also in some other locations in Odisha but the empirical observations are from Daspalla.

The objective of “eKutir Social Business” initiative, a project conceived and executed jointly by eKutir, an Indian private company is to build a sustainable, scalable and replicable social business model that aims at the betterment of the people living at the BOP (Bottom of the Pyramid) in the rural areas. This initiative strives to leverage
the power of knowledge and the power of ICTs to improve the livelihoods of the poor. The philosophy of this social business initiative can be summed up through the acronym “PIE” which stands for Participatory, IT enabled, Entrepreneur driven social business. The project runs in partnership with Grameen-Intel Co. (which is a joint venture between Intel and Grameen bank of Bangladesh), World Toilet Organization, Niruthi, Syngenta, BOP Hub and KIIT School of Rural Management.

The first initiative of eKutir was in agriculture. The “entrepreneur” is at the centre of this model. He or she is essentially a social entrepreneur and henceforth wherever the word “entrepreneur” is mentioned in this article, it stands for a social entrepreneur. The entrepreneur is a local person and provides the crucial link between the people at the grassroots and eKutir, the social enterprise. Hence his link with the people with whom he deals with, is an organic one.

In the initial phase, Farmer Interest Groups (FIGs) are formed to aggregate the demand of the farmers and also to provide a critical mass for getting better prices for the products of the farmers. The Entrepreneur acts as a facilitator in forming Farmer Interest Groups (FIGs). The FIGs inculcate the formation of social capital within themselves and this capital is leveraged to get services. Farmers have to pay registration money of 100/- per annum to join as a member of a group. The FIGs will bear the risk and not individual farmers. The entrepreneur makes about Rs.3000/- to Rs.6000/- pm.

eKutir provides ICT based decision making tool to manage risk. A set of ICT based kiosks or Telecenters are established, one for each entrepreneur. The ICT kiosks are called e-hubs and they provide agricultural solutions to farmers. For an e-hub, there has to be minimum 200 members attached to it for it to be economically viable. And the number of members has to be less than 500 for it to be manageable. About 300 farmers are attached to one e-Hub. Every hub is located at a distance of maximum 5-6 kms from each farmer’s household.

Hub & Spokes model is followed in which one master ICT kiosk acts as the hub and other kiosks are situated on the spokes. The server is located in the Hub. The Hub centralizes all the data from the different kiosks situated on the spokes and gives back the required information to the different kiosks situated on the spokes. This serves the purpose of aggregating demand from all the different spokes and sending back information regarding agriculture and other
issues which is valuable for farmers belonging to the FIGs attached to the different spokes. Centralized ICT alert through SMS is provided to all entrepreneurs.

**Fig-2. Hub & Spokes Model**

The computer used is a notebook PC specially designed by Intel for this purpose. It has all features, is physically robust and has an eight hour battery support. The Intel notebook PCs cost about $100 each and these have been given by Grameen Intel for free as of now. There is an offline software package and the data can be transferred to the server at the hub as soon as it becomes online. Internet is through BSNL broadband. The main e-hub has a video conferencing facility.

The most important component of eKutir is for agriculture. eKutir brings all the stakeholders in the agricultural system on the same platform using ICTs to create a win-win situation for all. It is basically a demand driven system in which eKutir tries to provide what the farmer wants. Even a small farmer has to pay money for getting services. Personalized service is being offered to each farmer according to his specific needs. This is called as individualized farmer portfolio approach. All kind of data from all member-farmers are got from them for evolving an individualized portfolio for them.
Since the farmer gets his required farming related advice and transactional assistance through the eKutir system, this helps the farmer optimize his time and resources and to gain the maximum from his land. This advice helps him to reduce risk during input procurement and output sale. Through the FIGs, the farmer gets the benefits of aggregation and collective bargaining. eKutir helps in bettering the agricultural practices of the farmers, both in a technical sense and in a managerial sense.

There is a concept of wealth-sharing in this project wherein wealth that gets generated from this model gets shared amongst the stakeholders, viz, Farmers, Entrepreneurs and the eKutir organization. In the profit, out of Rs.100 got, 50 goes to the entrepreneur, 25 goes to eKutir and 7.5 goes to the eKutir employees and 17.5 is not yet defined. 90% of the total revenue in this model is got from service providers and not farmers. In the seed market, there is no MRP rate and eKutir is able to procure it for the farmers at the rack rate because of an agreement with the input suppliers. All the stakeholders concerned, viz, the Farmers, Entrepreneurs, Employees and eKutir participate in a democratic manner and hence the whole initiative becomes participatory.

Crop-planning is identified through entrepreneur and eKutir software makes the analysis for appropriate crop-planning which will best benefit the farmer. All the risk types in agriculture, viz, Product risk, Finance risk and Human risk are strived to be managed within this project. The architecture is something like the eKutir system being at the front end and the agriculture input companies like seed and fertilizer companies being at the back-end. Provision for 21 days storage for selling at appropriate time has been provided. ICTs have helped in reversing the agriculture market from a supplier's market to a buyer's market. In input management system, eKutir has been very successful. The agri-input companies like the seed companies give information and if that information is wrong, then they are liable.

The agricultural expertise is being provided by OUAT (Orissa University for Agricultural Technology) through a ICT enabled video conferencing facility. The information need of the farmer is asked and answered. This process will be recorded to be shown to new farmers. As relevant data is not available everywhere, farmers value information immensely. Photos of the crop-diseases can also be sent to the experts for their advice. Farming I/Ps can be sourced through an-e-hub as well as physically stored in the e-hub. Innovative agricultural practices have been introduced. For example, soya
cultivation has been started for the first time in Orissa through eKutir. Soil testing through an ICT enabled soil-testing kit is a primary activity for eKutir and it is one of the first things that is done for the farmer. For soil testing, Rs.50/- is taken as fee.

Apart from the above, there are other tools like “Mrittikka” which is a soil nutrient analysis and recommendation software. This is used to recommend optimum level of farm input fertilizer to maximize the benefit that the farmers get. Another tool is “Ankur” which is used for seed selection and recommendation to the farmer. A non-technical innovation is “Farmers Green Card” which is like a financial product which links farmers with other financial institutions.

Since this study was conducted across two different time periods, it was possible to analyze this initiative with a critical perspective. There is a perceptible shift in focus in this initiative from a purely technology led one to one that considers technology as an integral part of a new social business venture. Another issue is that reliance on only agriculture per se does not yield sufficient amount of economic dividend for eKutir and the entrepreneur which will enable the sustenance of this initiative. So, there is a need to dovetail this initiative with other extra-agricultural activities that could possibly yield more economic dividends.

Examples of such extra-agricultural activities include linkage with micro-finance agencies like Basix which was tried by one e-hub entrepreneur. A recent activity outside agriculture that eKutir has taken up is Sanitation. Sanitation is a thrust area in rural development as seen in the emphasis on sanitation in even central government programs like Swachh Bharat. “Sani Tool” is an ICT enabled application to link all the stakeholders of the sanitation eco system. It has been developed in collaboration with Grameenomobia social enterprise. “Sani Tool” application can be embedded in a mobile device or laptop. Sani Tool is used in tandem with World Toilet Organization’s (WTO) Sani Shop social franchise model for government, NGOs or any other organization working in the rural grassroots.

Apart from the above, there is an initiative for e-Learning which happens through the e-hubs. This initiative is of two kinds, one is training for the social entrepreneurs and the other is a basic ICT literacy for the villagers. Another e-Learning initiative is a mobile based Interactive Voice Response System (IVRS) for educating farmers about better farming practices.
DFID SL Framework and eKutir

Here, eKutir is analyzed using the SL framework. The effects caused by eKutir given here are only of an indicative nature and are not exhaustive. Both the current changes brought about by eKutir as well as its future potentialities are seen. First the effect of eKutir on the vulnerability context of the poor consisting of shocks, trends and seasonality is seen. This is shown in Table 1.

Table-1. Vulnerability Context

<table>
<thead>
<tr>
<th>Aspects of Vulnerability</th>
<th>Effect of eKutir</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shocks</td>
<td>At a social level, the ICT enabled FIGs by fostering social capital helps eKutir members to better face the physical and social shocks that affect the poor. Physical shocks could be in agriculture and non-agricultural areas like drought etc. Social shock could be something like a death in the family etc.</td>
</tr>
<tr>
<td>Trends</td>
<td>eKutir, by providing better information inputs to farmers about the fluctuating market trends helps farmers to cope better with the vagaries of the free market.</td>
</tr>
<tr>
<td>Seasonality</td>
<td>eKutir, by providing information inputs to farmers, helps farmers to plan their crops according to the season. This can protect the farmers from the negative effect of seasonality.</td>
</tr>
</tbody>
</table>

The influence of eKutir on the livelihood assets of the poor as manifested in its effect on different kinds of capital is seen in Table 2.

Table-2. Livelihood Assets

<table>
<thead>
<tr>
<th>Kinds of Capital</th>
<th>Effect of eKutir</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Capital</td>
<td>The e-Learning offered by eKutir can build up the human capital in the areas in which eKutir operates. Also, mere exposure to ICTs per se can improve the confidence and thus can enhance the cultural capital of the villagers.</td>
</tr>
<tr>
<td>Social Capital</td>
<td>The ICT enabled FIGs foster the formation of social capital</td>
</tr>
<tr>
<td>Natural Capital</td>
<td>The Sani Tool ICT initiative betters the natural capital of the area in which eKutir operates by better helping the local people adapt better sanitation techniques and thus make the environment cleaner and safer from a health perspective.</td>
</tr>
<tr>
<td>Physical Capital</td>
<td>eKutir helps farmers procure better physical capital like fertilizers and other agricultural inputs at lower rates</td>
</tr>
<tr>
<td>Financial Capital</td>
<td>Farmers Green Card helps to sustain and improve the financial strength of the farmers</td>
</tr>
</tbody>
</table>

The social processes that are impacted and transformed by eKutir are listed in Table 3.
Table-3. Transforming Processes

<table>
<thead>
<tr>
<th>Transforming Processes</th>
<th>Effect of eKutir</th>
</tr>
</thead>
<tbody>
<tr>
<td>Law</td>
<td>eKutir can have no tangible effect on the law of the land</td>
</tr>
<tr>
<td>Policies</td>
<td>In the long run, eKutir itself by scaling up or by being replicated by other similar initiatives, could help the government evolve pro-farmer policies. These policies could be to do with better supply chains for farm input and output, policies which facilitate ICT enabled best farming practices and policies which foster ICT enabled rural development. All these policies, could lessen the problems that the rural poor could experience.</td>
</tr>
<tr>
<td>Culture</td>
<td>eKutir can have a big impact in the cultural realm by doing away with the fatalistic culture of farmers and giving them a sense of control over their own livelihoods and destiny. It will help to do away with the fear of new technologies and bring in a more tech-savvy culture. Through the FIGs, the culture of co-operation could be instilled. Through e-Learning a more positive attitude towards knowledge will be instilled in the minds of the rural people.</td>
</tr>
</tbody>
</table>

The social structures that are impacted and transformed by eKutir are listed in Table 4.

Table-4. Transforming Structures

<table>
<thead>
<tr>
<th>Transforming Structures</th>
<th>Effect of eKutir</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levels of Government</td>
<td>eKutir currently has no effect on the levels of government bureaucracy. In future, it has the potential of dovetailing with the Panchayat system.</td>
</tr>
<tr>
<td>Private Sector</td>
<td>eKutir entrepreneurs have tied up with financial institutions like Basix and also with agri-input companies like Syngenta Inc. for selling seeds to farmers at a reasonable rate.</td>
</tr>
<tr>
<td>Institutions</td>
<td>The e-Hubs themselves are new institutions in the rural reality which provides a quasi-democratic space for the poor to assert their right for getting better agricultural inputs, information and advice. eKutir also has tie-up with other institutions like WTO(World Toilet Organization), and Grameenomobia social enterprise which changes the institutional landscape of the poor. All these institutions, by providing a social cushioning mechanism, lessen the social and economic shocks that the poor might experience.</td>
</tr>
</tbody>
</table>

Livelihood Strategies and Outcomes

The poor villagers, within their eKutir mediated vulnerability context, using their eKutir mediated livelihood assets, within their eKutir mediated structural context, using the eKutir mediated
processes evolve certain eKutir enabled livelihood strategies. Examples of such eKutir enabled strategies would be better planning for agricultural inputs, for better yield of crops etc. This finally results in better livelihood outcomes like better prices for farmers' produce. The enhanced livelihood outcomes lead to formation of livelihood assets through a feedback loop. The different livelihood assets include the different forms of capital.

Along with the strategies for better livelihoods, eKutir also helps the villagers to come up with better strategies and outcomes to do with sanitation and education. Better sanitation and education outcomes will also help farmers' livelihood outcomes by bolstering their health and the education status and ipso facto will enable them to better concentrate and strategize on their livelihoods.

Another indirect livelihood outcome could be called as the “Digital Provide”. The Digital Provide refers to the positive dividends that those who do not directly own/relate to ICTs get from the externalities that ICTs bring in (Heeks, 2010). Through the eKutir model, ICTs bring in better efficiency in the agricultural supply chain as well as output markets. This, in the long run can also help the farmers who are a part of the same community but who are not associated with eKutir. The same logic will apply to sanitation and education also. The Sani Tool initiative of eKutir will make the general physical environment of the community more hygienic which will benefit even the people who are not associated with eKutir. The e-learning initiative, by having a learning and teaching multiplier effect will also have a similar consequence.

Conclusion

This paper adds on to previous research like that of Heeks and Arun (2010) which had shown that ICTs enable the development of additional livelihood assets, the enactment of new livelihood strategies and therefore produces improved livelihood outcomes. eKutir is a social business initiative which throws up exciting new possibilities in the development realm. The most salient aspect of the eKutir initiative is that it creates a win-win situation for both the poor villagers and the social enterprise that engages with them.

The “Digital Divide” refers to the differential access to ICTs and the resultant extra technological disparities therein (Kumar, 2007). The Digital Divide has an economic component. And this component connotes the difference in economic status between people having access to ICTs and people not having that access. eKutir shows
that the economic component of the digital divide can be tackled by creatively designing ICT based social business interventions and thereby enhancing the livelihoods and economic status of the poor.

In 2010, there was a high reliance on ICTs within the eKutir initiative. This was in conformity with the ICT4D 1.0 generational framework. The ICT4D 1.0 framework is the second generation of ICT4D initiatives that primarily emphasize the power of new ICTs per se for bringing about transformation in the development space (Heeks, 2009). But later on, it was understood that the imperative of social business innovation is more than the imperative of pure technology per se. Hence the project has been modified accordingly and this was observed in 2012. In 2012, the initiative was compatible with the third generational ICT4D 2.0 framework which emphasize ICTs being a platform for social innovation. The need for this shift in focus from an ICT centric perspective to a social innovation centric perspective was emphasized by an earlier paper of this author (Kumar, 2011).

Since this study was conducted with a longitudinal perspective, it was possible to get some new insights. The e-hubs which seemed robust in 2010, could not sustain themselves based on pure agriculture related activities and this was noticed when the hubs were visited in 2012. So, there is a need to dovetail this activity with other value adding activities like e-Learning, sanitation related activities etc. This will generate economies of scope for sustaining the e-hubs.

The eKutir model has the potential for scalability and replicability. There is a need to link up this model with the Panchyat system to make this model more robust. The Panchayat system is already a well-established institution in the rural grassroots with a constitutional backing.

All the three points mentioned above could be pointers for other ICT intensive social business initiatives in livelihood and other areas of development.

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