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Information & Communication Technology for Improving Livelihoods of Tribal Community in India

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Abstract. Development level of a society is a measure of how efficiently the society is harnessing the benefits of different developmental and welfare programs initiated by the government of the day. Tribal in India have been deprived of opportunities because of many factors. One of the important factor is unavailability of suitable infrastructure for the development plan to reach to them. It is widely acknowledged that Information and Communication Technologies (ICTs) have potential to play a vital role in social development. Several projects have attempted to adopt these technologies to improve the reach, enhance the coverage base by minimizing the processing costs and reducing the traditional cycles of output deliverables. ICTs can be used to strengthen and develop the information systems of development plans exclusively for tribal and thereby improving effective monitoring of implementation. The paper attempts to highlight the effectiveness of ICT in improving livelihood of tribals in India.

Keywords: ICT, tribal, infrastructure, e-divide, development cycle, e-preparedness.

1 Introduction

Tribal people have always been there in this country. Many people outside tribals are ignorant towards their existence and their customs. Contrary to the general belief, Indian tribals are not backward. Their beliefs and thinking resembles the city people. There is no system of dowry, there is no caste division, even divorce and widow

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remarriage are socially accepted among them. They are an exemplary society when it comes to social practices yet they live a life of poverty and discrimination. People outside tribals area looks upon them as wild, barbaric and unruly. This is largely because of myth and lack of infrastructure to establish effective communications between inhabitants of mainland and tribals.

The perception of people towards tribals in India has been changing since the time people have started interacting with tribals and many developmental and welfare projects were initiated by the government of the day. Nearly 8.10 % of the total population of India is tribals. Majority of them are in North eastern states, Jharkhand, Odessa, Chhattisgarh, Andhra Pradesh and Andaman & Nicobar Island. No nation can think of development ignoring this size of population and their rich cultural heritage.

There is difference between them and mainland people in respect of what materialistic comfort that they don't have. This 'haves' is wrongly used as measure of cultural index. And once we use wrong measurement indices/parameters, the result and any inference based on this is bound to be misleading. This is what happening with tribals in India. Independence in 1947 did not bring about any difference in their lives. Instead, because of absence of any monetary funds, these people had to leave their native places in search of work which led to the loss of their rich heritage. Many of these places today are converted into holiday destinations and resorts by contractors who are driving out the tribals and taking away their resources. Those people who have escaped such fates and still continue to make artifacts, like masks, paintings, wood cutting etc, get meager prices for their products even though the artifacts are generally sold for large sums of money and most of it, is pocketed by middle-men.

Figure 1: Tribals at different level of their cultural evolution

Sometimes it even leads to the problem of Naxalism. This is largely due to the unawareness among the tribals about their rights, privileges and economic value. ICT may help in filling this gap and therefore our discussion is restricted in this paper to the use of ICT for the improvement of livelihood of tribals in India. There is a section of society who are replacing thier IT gadgets every three months whereas there are these 8.1% populations, a majority of them have not even seen a computer. There is an urgent need to not only fill this e-gap but also to work on methodology to make this technology usable for the upliftment of the tribals.

Figure 2: Tribals at comparatively more evolved level

ICTs are technologies offering new ways for communicating and exchanging information and knowledge. It can be used to enable, strengthen and empower the long deprived tribal community in India. The paper is organized in five sections. Section 2 describes as what steps would be required to introduce ICT in tribal area and how it can be made usable for tribal people. The perceived impact of ICT on the life of tribals is explained in the Section 3. Section 4 contains the details about the possible constraints and limitations that might be faced during initial stage of introducing ICT in tribal area because of the culture of isolation followed by many tribes. The paper is finally concluded in the Section 5.

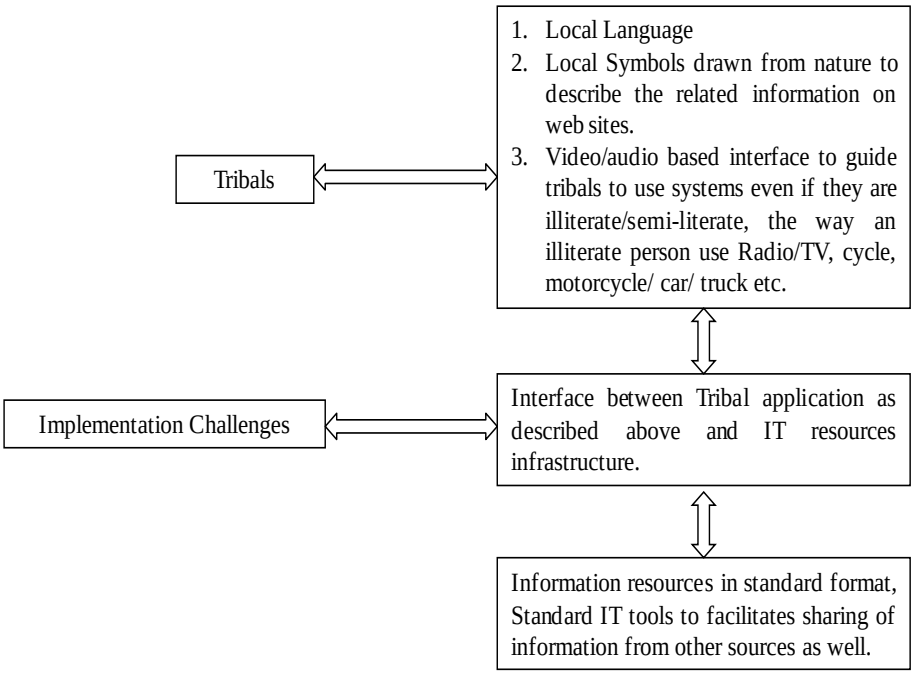
2 ICT for Tribals Development

Information and Communication Technology (ICTs) are extensively used to bring transparency and thereby improving governance. The technology is being used to oversee and monitor the implementation of various welfare and developmental plan in India. Though ICT is in use at various level of e-governance in India, it is worrisome that there is no reliable statistical tool that can be used to measure actual impact of ICT on the livelihood of deprived and under privileged section of the society. ICT is used as an effective tool for enhancing peoples' livelihood through increased access to information relevant to their economy, healthcare, transport, distance learning etc. There are many ICT projects initiated by central Government, State governments and local bodies to uplift the basic livelihood of tribal population in India. Many such projects have been successful in other rural area but not in tribal areas because of many reasons as analyzed below. Their requirement is different, and to make the ICT usable for them, a lot of work is required to be done. It is summarized in the Figure 3.

Tribals follow a very strong system of oral cultures. The collective memory and importance placed on the elders to store information creates a strong system for information flow [8]. There is a need for an effective interface between the traditional and emerging information systems while introducing ICT in tribal areas. This is more

so because tribals are accustomed to receiving information orally from a known and trusted source. It is a challenging task to bring this society to this new digital text based information system. An effective interface model is suggested that may be helpful for sustainable introduction of this technology for the benefits of tribals.

Figure 3: Schematic diagram of a ICT system for Tribals

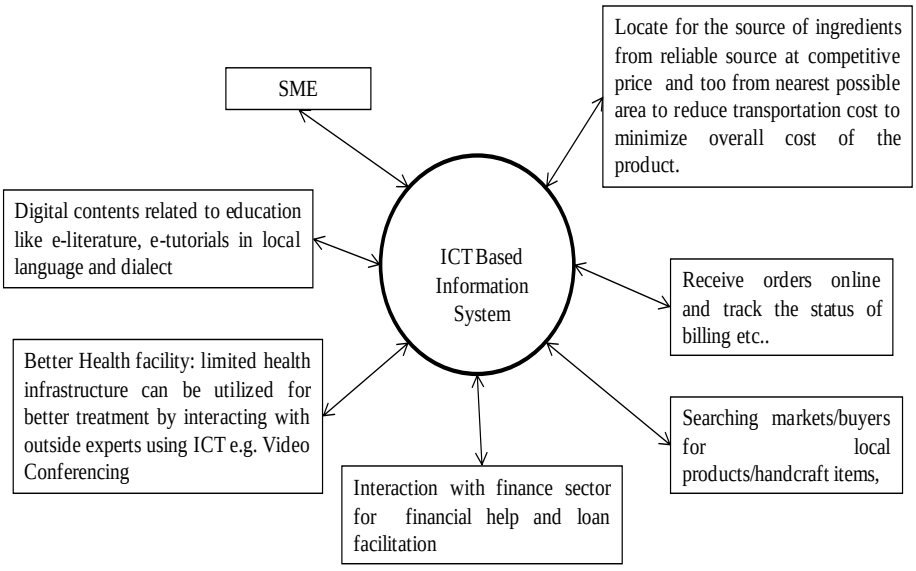


The complexity of this process is very well highlighted by Baron [2] in his observation which goes like, *"We found difficulties in moving from the logic of perceiving the world based on oral tradition and experience and the physical proximity of objects, places and persons, to a logic in which the world is converted into texts, files and windows that are closer to the idea of a virtual reality"*. Beside this social sector projects, ICT may be used for introducing basic educations in tribals' community and improving their ways of living. Initially voice based system needs to be introduced so that tribal may start using the system and get friendly to it. It is important that this voice based interface should understand tribal's tongue and interface should be able to convert this audio into relevant command to perform the desired task so that the system can be utilized for meaningful work.

3 Impact of Some ICT Projects

Information and Communication Technologies (ICT) are used these days at almost every level of decision making process like in the planning, implementation and monitoring. Several social welfare projects and developmental programs have been successfully implemented using ICT under strictly specified timeline. Recently, e-Governance projects have offered easy access to citizen services and improved processing of government-to-citizen transactions. Some of these have attracted even international attention and won prestigious awards. They have become reference models for future e-governance project implementations. However, an equal number of such projects have faced acute problems of sustenance after their successful launch by the dynamic project champions. An analysis of these projects suggests that comprehensive effort is needed to ensure that citizens derive real benefits from such ICT projects. Many back-end government activities need to be re-engineered and desirable process change is required to be introduced to match the citizen expectations by taking advantage of the storage, processing and distribution powers of emerging ICTs. In addition, an image building exercise through exhibition of transparency is essential to remove the distrust among the citizens on the functioning of service delivery mechanisms. Private participation will have to be facilitated to bring in the expertise, cost sharing, speed of implementation, and to offer better value proposition to citizens. The governments will also have to address more serious management issues of identifying and preparing project champions, ensuring appropriate tenures, smooth transition, and internalization. We present here some studies to substantiate our observations [11]. It is important to highlight the a few ICT projects aimed for the benefits of tribals in India.

Figure 4: Different use of ICTs in tribal areas.



Norrish [7] observed once that there is need to move from looking at technology and asking, "What can we do with this?" to looking at peoples' needs and asking, "Which technology might help here?" Many ICT applications in various sectors like banking, transportation, utility bill payments, land records management, pension management, public grievances redressal systems etc have really changed the perception of ICT in general public. Why not the same can be emulated for tribals? Instead of waiting for the time when tribals will be ready to use ICT, it is time to work in the direction to make them ready to use ICT. Thereby ICT will be helpful in reducing the evolving time for the tribals to be e-ready and that too without losing their rich cultural heritage.

4 Constraints and Limitations

Some of the constraints to ICTs in tribal areas are surmountable others require a shift in both human and organizational communication and working patterns which is evolutionary in nature. ICTs heavily depend on physical infrastructure like electricity, telecommunications etc. It should not only be made available at affordable cost but maintained also. ICTs are dependent on national policy and regulation for telecommunications licenses. They require initial capital investment in hardware and software. They also are dependent on the skills and capacity necessary to use, manage and maintain the technology effectively. Majority of the information exchanged via ICTs, whether it is in text format or broadcast orally, takes place in the languages of developed countries only. Steps must be taken to address the needs of other languages and cultures through long term vision to make ICTs accessible to all people specially tribals who do not know any language other than their native tongue. This will require significant investment and support for local content and software design.

It is difficult to get private investment in tribal areas because return on investment, which is a major criterion for any private investment, is not feasible for quite a reasonable period of time. Only source of fund that can be expected is from government. The other source could be donors who can play a role in 'kick starting' information delivery systems where the private sector is not likely to venture in the short term. These limitations and other constraints can be minimized by introducing following measures.

Capacity Building: The short term objective of introducing ICTs in tribal area should be to equip them with basic techniques, customized to suit them, so that they can get benefitted by the ICTs. Thereby the process will help in developing manpower and infrastructure for long term objective of reducing the evolution period of tribals to compete with people in mainland.

Citizen Services Portal: It should be designed to initially collect feedback, about the way tribals want this portal to be so that they can use it. A robot based kiosk that learns from tribals, convert this audio/video based learning into text and transmit it to

the developer sitting at server end. The developer thereafter designs an interface application for tribals as suggested in Figure 3.

Connectivity: Though it is not a constraint, technology wise, but geographical area where tribals normally resides, poses problems because of deep forests, hilly area and unavailability of cables. The problem may be overcome through wireless (mobile-both voice & data) communication, line of sight is always a problem in this reasons. Once these basic issues are redresses, connectivity to the outside world can easily be provided.

Local participation: It is essential to involve local residents to understand the way the tribals can be educated and to use ICTs and thereby to develop an interface that is friendly to them. It can help in understanding their requirement and thereby finding a solution acceptable to them rather than imposing on them. If ICTs is implemented as it is, it will not be accepted by them. Local person should be identified and he/she should be made coordinator for better coordination with the tribals. Otherwise it will be taken by them as intrusion in their area/domain and they will not come forward.

Local language: Since tribals are not accustomed to the languages used in ICT these days, it will be a challenging task to bring ICT to the level of languages used and understood by tribals. Interfaces as suggested in Figure 3, is essential for introduction of ICTs in tribal areas.

Single Window Solution: It is really a challenge to attract tribals to the realm of ICT and to retain attracted to it for sometimes. Once it is achieved, next level of implementation of ICT projects will be easier, comparatively. However, once distracted, in the initial stage because of any reason, it be near impossible to bring them back. So the task is not only challenging from technical points but also from sensitivity points of view. If they get information or whatever little services they wish to get from government agencies using ICTs, provision must be made to do the same immediately to convince them by action the usability of ICT.

Value for Citizens: The state and central governments have several schemes to offer to the tribals. Any project financed by central government (both planned and unplanned) ensures that a certain part (%) of the total fund must be spent in North Eastern region/ tribal region. It is to ensure that tribals are not left out from the process of development. However monitoring and proper implementation is still an issue. ICT may help in bridging this gap.

5. Conclusion

The Information and Communication Technologies is useful in facilitating the design of solutions to deliver government services for social development at the door step of tribals. The approach is already experimented and successfully implemented in many e-governance projects. ICT projects involve all stakeholders such as government officials, legislators, regulatory agencies, citizens, voluntary organizations, technology consultants, vendors, academics, researchers, funding agencies, and media in the design level. Most of these were accomplished using the

public-private-partnership (PPP) model. The benefits derived from such projects were very significant as seen from the mentioned e-SEVA projects.

This paper is the based on the study of the impact of different national level ICT projects implemented in India for the development of rural mass. Despite the bottleneck in the form of computer illiteracy and lack of e-preparedness, ICT has shown that it can reduce the cycle of implementation plan and hence immediate results deliverables. Guidelines can be drawn for action in the field, for example to evaluate specific ICT for development initiatives in tribal area. Our invitation to the research community is to continue to reflect, explore and ultimately influence the use of ICT in e-deprived areas.

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