International Federation for Information Process
Working Group 9.4

Social Implications of Computers in Developing Countries

Volume 11, No. 3, December 2001

Editorial

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The 20th International Conference on Technology and Education
ICTE AFRICA 2002
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April 2 - 5, 2002, Potchefstroom, South Africa

MISCELLANEOUS

Volume 11, No. 3, December 2001

Grassroots ICT Projects in India*

Preliminary Hypotheses

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Few concepts have spread as rapidly as 'digital divide' and with it, the hope of using modern ICTs to promote development. Groups as diverse as the United Nations, the G8 at Okinawa, Foundations, national, state and local governments, and private companies have seized upon the hope that the use of ICT's could enable even the poorest of developing nations to "leapfrog" traditional problems of development like poverty, illiteracy, disease, unemployment, hunger, corruption, and social inequalities so as to move rapidly into the modern Information Age.

But the hopes so widely expressed are largely built on an empirical vacuum. We know little about the factors that make for effectiveness or ineffectiveness of grassroots ICT projects in developing nations. Thus, critics can point out that the cost of creating a working Internet connection in a developing nation is the same as that of providing immunization against six fatal childhood diseases to thousands of children. Others have argued that the introduction of ICT's into communities otherwise unchanged will merely heighten existing inequalities. But instead of comparative research to counter or address such claims, we have "stories" – to be sure, largely true stories of successes - from which trustworthy generalizations are impossible.

At least fifty grassroots projects are currently using modern ICT's for development in India. A few of these projects (e.g. Dhar, Pondicherry) have been publicized; the great majority has not. Surprisingly, these projects have rarely been studied; no comparisons have been made between them; they are not in touch with each other; lessons learned in one project are not transmitted to others; appropriate technologies are rarely evaluated; financial sustainability, scalability and cost recovery are seldom addressed; and the opportunity to learn from the diverse, creative Indian experience is so far almost entirely wasted.

The comments below derive from an ongoing study of grassroots ICT projects in India. They are based on site visits as of early 2001, on the observations and comments of Indian colleagues and friends, and on a careful reading of the descriptions of projects I have not yet visited. They are preliminary hypotheses, which I am currently testing, modifying, or changing on the basis of further research in India. Above all, I hope they will be useful to Indian researchers, who can study these issues more intensively than my own superficial survey.

1. There is more talk than action. Plans abound; on the ground realities are much fewer. International, national, state, and local projects and conferences are a dime a dozen. Only a few have substance so far.

2. Nothing is anywhere nearly as simple as it seems. Almost every project is late and runs into unexpected difficulties. One example: the officer involved in computerizing land records in one Indian state recently said more than half of them are legally contested, or in the names of dead people, or illegible, etc, - hence not computerizeable. Yet computerizing land records is on the agenda of almost every Indian State. It would be interesting to know how some states, which claim to have done it, have succeeded.

3. The goal of financial sustainability is rarely achieved. Granting that initial start up costs have to be borne by someone, very few projects even plan for long-term sustainability, and even fewer achieve it. But there are exceptions: the Dhar-Gyandoot Project in Madhya Pradesh for example. The Pondicherry Project has received a further grant with the goal of attempting to become self-sufficient. E.I.D. Parry, which provides inputs for agri-business, has set up a series of info-kiosks in villages, partly to provide better information to farmers about agricultural inputs, harvesting of sugarcanes, and other matters. And some projects, once the initial public or NGO funding disappears, simply disappear as well. An example is the Apple project for rural health workers in Rajasthan a few years back, which was only recently taken up again by CMC (Hyderabad).

4. Information technology should not be simply identified with computers and Internet. Some of the most inventive uses of IT involve radio, television, and embedded chips, potentially useful satellite inventories, etc. The classic example is the use of automated butterfat assessment equipment in Gujarat, which has radically simplified the process of evaluating milk and paying dairy farmers.

5. Starting by consulting at the grassroots is essential. Top down projects simply do not work, and end up by providing information that people don't really need or use, or providing it at an incomprehensible level of technical detail and terminology.

6. The information people initially say they need, may not always be what they end up using. In the M.S. Swaminathan's Pondicherry Project, for example, male farmers originally said they needed information about agriculture; it fact, their largest single usage of village info-kiosks was to get information about government

programs.

7. Local language content is a prerequisite for any successful project. I have elsewhere written about the problems of the standardization of code for the major Indian languages. The bottom line is that, despite many brilliant efforts, and despite widespread awareness of this problem on the part of the Government of India and of many state governments, every major Indian language suffers from multiple schemes of coding and fonts, and hence, the absence of inter-operability between programs involving distinct codes. The governments of states like Tamil Nadu and Karnataka are acutely aware of this problem, but lack the ability to enforce the use of common standard. This technical problem dramatically complicates the development of local software and of local IT use throughout India.

8. The development of locally relevant content is essential, and the nature of that content varies from region to region. Without accessible local content that addresses the real problems of local people in their own language, and in terms which they can understand, "ICT for the common man" projects are bound to fail. There is some evidence that radio programs, especially designed to appeal to ordinary people, may be more effective than computers in reaching people about topics like best agricultural practices, family planning services, etc. Almost 100% of the Indian population has access to radio; perhaps 30% has access to television occasionally, and well under 1% has access to the Internet and the Web. Whatever the mode of communication, the need to present locally relevant information intelligibly both in terms of language and in terms of the level of explanation is imperative.

9. E-governance is one of the most promising uses of ICT's. In practice, e-governance involves two distinguishable activities. First is the computerization of government functions themselves, as discussed especially by Chief Minister Naidu in Andhra Pradesh. This proposes connecting the central state government to district officials, and computerizing registrations, legal proceedings, land records, state offices, etc. for the benefit of the administrators of the state. This type of e-governance also exists at the level of the Centre; some years back, nearly all districts were connected via email to Delhi. (But one study suggests that these connections are rarely used.)

Second, e-governance may mean government-to-people and people-to-government connections whereby citizens obtain direct access to records, rules, and information about entitlements that they need or want in their daily lives. The most successful example of this I know is in the Dhar – Gyandoot Project, where more than a dozen official documents are available, and defined as legally valid if obtained from village cyber-kiosks under the right circumstances. This use serves to make public records immediately available and to eliminate the lengthy trips, long waits, and frequent bribes necessary to obtain vital documents.

Both forms of e-governance are difficult and costly to implement. They also run into strong resistance, since they eliminate middlemen and others whose jobs and

incomes depend upon the relative inaccessibility of government documents.

10. E-commerce, in the sense of customer-to-business on-line buying within India, is probably many years away for a majority of Indians. But the operational, internal computerization of small and medium businesses has already begun in the larger cities, with notable gains in efficiency. At the Union level, the computerization of the railroad reservation system and the banking system are notable examples of Indian successes. If small business software packages were available in local languages, some observers believe small and medium size merchants in cities, towns, and villages would quickly adopt them.

11. Commercially funded ICT networks have considerable promise . For example Warana Project in Maharashtra, though heavily funded initially by the state of Maharashtra and Delhi, is currently funded by the sugar cane cooperatives in the area, and offers tangible benefits to sugar producers and to sugar cane growers in the area. The E.I.D. Parry project in Nellikuppam, Tamil Nadu is funded by Parry, which expects advantages in terms of improved information to their producers about best agricultural practices. ITC-IBD has set up a series of IT “chaupals” for soya, shrimp and coffee farmers with the goal of reducing the costs of production that currently go to middlemen. In such cases, commercial interests may justify the expense of establishing rural info-kiosks, which can also provide much general information in addition to specific product information.

12. The market for "indigenous crafts" is a niche market in a few rich countries. E-commerce from countries like India to Europe, the United States, or Japan has enormous logistic problems. It is not a realistic solution to the use of IT for poverty alleviation for any but a tiny fraction of Indians. For example, the recent claim of one state government that millions of local women are to be involved in the export of local crafts turns out to be a promissory note that is likely never to come due. Furthermore, if it does turn out that there is a big market in wealthy countries for an “indigenous” product, local crafts people are almost always beaten out by industrial producers.

13. A successful commercial IT sector does not necessarily “trickle down” to ordinary Indians. Proposals by state governments to develop “information technology for the masses” often place primary emphasis on developing software technology parks, improving education at the higher levels of information technology, etc. These are laudable and necessary goals if India is to continue its astonishing growth rate in information technology.

But there is little evidence that the growth of the software industry is reflected in improved living conditions, more schools, greater justice, better health, more jobs, or other benefits for ordinary Indians. The development of the Bangalore region goes hand in hand with the persistence of Karnataka as one of the poorer states in India. Critics of Chief Minister Naidu in Andhra Pradesh claim that his stress on information technologies has not helped relieve the poverty of the average citizen of

the state. One project, however, Nilgiri Networks, has created a software center in Ooty with the goal of spreading the benefits of the IT boom to outlying regions.

14. Apparently "technical decisions" concerning IT regulation, bandwidth allocation, pricing mechanisms, transmission standards, etc., can have profound effects on whether or not information technologies benefit ordinary Indians. Professor Jhunjhunwala at IIT – Madras has given many examples in his writings. One case is the requirement that ISP providers guarantee to "cover" an entire state. This effectively precluded local entrepreneurs from providing Internet connectivity in small and medium towns. It thus stood in the way of an Internet service provider phenomenon akin to the local initiatives that have helped spread satellite television rapidly in India. Analysis of the impact of technical, regulatory, and technological decisions on "IT for the common man" is largely absent.

15. The wheel is constantly reinvented. I can identify at least four dozen "grassroots projects" in India, some of which I have visited. The people in these projects are not usually in touch with each other, rarely publish or write anything about what they are doing, and - if they are public officials - are constantly transferred here, there, and everywhere. There is little accumulation of knowledge, not even the most preliminary kinds of on-the-site evaluation, little possibility of learning from the successes and failures of other projects.

The kind of expensive, detailed evaluation that the Grameen Bank cell phone project in Bangladesh has undergone is unlikely at this point. (And in any case, the research concludes the project works financially because of the unusual regulatory structure and financing of telecom in Bangladesh.) But we desperately need efforts to learn from comparative studies of existing projects what works, what does not work, how local conditions affect outcomes, etc.

16. You cannot believe a lot of what you are told. At one meeting, for example, the audience was told that satellite water temperature data for the Bay of Bengal is being provided to offshore fisherman. A member of the audience asked why this information had only been available for two out of the last 365 days. The speaker replied, "Cloud cover". Other projects that are publicized turn out, on a site visit, to have closed, or not yet to be in operation, or to have deteriorated from the stated original goals.

17. Until the costs of the "last mile", of basic IT devices, and of local language software are brought down, the goal of "wiring India" will remain unachieved. My heroes in this area are Ashok Jhunjhunwala at IIT-Madras, Vijay Chandru and his colleagues at the Indian Institute of Science, and Rajeev Sangal of the IIIT-Hyderabad. They are doing world class work on lowering the cost of the "last mile", on producing a low cost ($200) "Simputer", and on sophisticated machine translation of India's languages. The India-Linux movement is also lively and enthusiastic; projects like the Simputer project use Linux because it is simple and free. But they run into obstacles, not least of all with GOI regulations, with

multinationals, and with companies that have a financial interest in having India import European, Japanese, or American technologies.

Low-cost technological solutions alone are of course not solutions to the problems of development, but they are prerequisites for IT in India.

18. The "IT for the masses", "bridging the digital divide" movement has an inordinate amount of exaggeration and wishful thinking. But there are in fact real cases of IT projects that actually help poor people in India to meet their basic needs and assert their fundamental rights. We need to define the characteristics of those projects and try to spread the word about what works and what does not.

I trust it is clear that I am not convinced that ICTs are invariably, or even usually, the best answer to poverty, injustice, illness, inequality, discrimination, exploitation, hunger, etc. But at the same time, I think that Bill Gates overstates his point when he says poor people need medicine and not computers. The challenge is to learn if, when, and how information technologies (of all kinds) can be the most cost-effective means to help people, especially poor people, meet their basic needs and assert their fundamental rights.

** The project as of mid-2001 had been supported from a variety of sources; including a Nippon Electric Company grant administered by the Provost's Fund at MIT and the Ford Foundation (New Delhi). I am grateful for the many project directors, workers, and citizens who have generously taken time to explain their work, to colleagues who have added their insights, to Prof. Roddam Narasimha, F.R.S., Director of the National Institute of Advanced Studies (NIAS), Indian Institute of Science, and to my colleagues at NIAS for the warmth of their hospitality.*