Grassroots IT in India

Preliminary Hypotheses

Kenneth Keniston, MIT

1. *There is a great deal more talk than action.* Plans abound: on the ground realities are relatively few. 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 IAS officer involved in computerizing land records in Karnataka (Project Bhoomi) recently said more than half of them are contested or in the names of dead people or illegible, etc., - hence not computerizable. Yet computerizing land records is on the agenda of almost every Indian state. It would be interesting to know how states like A.P., which claims to have done it, have succeeded, if at all.

3. *The goal of financial sustainability is rarely achieved.* Granting that initial start up costs have to be born by some one, very few projects even plan for long-term sustainability, and even fewer achieve it. But there are exceptions: the Dhar-Gyandoot project in M.P. is close. The Pondicherry project has received a second grant from IRDC with the goal of attempting to become self-sufficient. A company called Parry, which provides inputs for agri-business, is proposing to set up a series of info-kiosks in villages, partly to advertise and partly to provide better information to farmers about agricultural practices and other matters. There is talk that the big soap companies are interested in sponsoring rural info-kiosks. But much of this is on the drawing boards, and many projects, once the initial public or NGO funding disappears, simply disappear as well. Example: an Apple project for rural health workers in Rajasthan a few years back.

4. *Information technology should not be simply identifiable 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 Gujurat, which has radically simplified the process of evaluation milk and paying dairy farmers.

5. *Starting by consulting at the grassroots is essential.* Top down projects rarely work, and end up by providing information that people don't really need of 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 Pondicherry Project, for example, male farmers said they needed information about agriculture; in fact, their largest single usage of the 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 Indic 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 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 complicates the development of local software and of local markets throughout all of India.

8. The development of locally relevant content is essential, and the nature of that content varies from region to region. Without accessible, local language content that addresses the real problems of local people in vernacular language, and in terms of which they can understand, "ICT for the common man" projects are bouts 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 information intelligibly both in terms of language and in terms of the level 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 tow distinguishable activities. First is the computerization of government functions themselves, as discussed especially by Chief Minister Naidu in Andhra Pradesh; this connects the central state government to district officials, computerizes registrations, legal proceedings, land records, 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. (In practice, however, a study has shown that these connections are rarely, if ever, used.) Second, e-governance may mean government-to-people connections whereby citizens obtain direct access to records, rules, and other 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 almost 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, to eliminate lengthy trips, long waits, and frequent bribes necessary to obtain vital documents.

Both forms of e-governance are difficult to implement and run into 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 business-to-customer 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 info networks have considerable promise. For example Warana Project in Maharastra, though heavily funded initially by the state of Maharastra and by Delhi, is also funded by the sugar cane cooperatives in the area, and might eventually become self-sufficient because of the benefits it offers to sugar producers and to sugar cane growers in the area. The Parry experiment in Tamil Nadu will be funded by Parry, which expects advantages not only in terms of advertising, but also in terms of improved information to their producers about best agricultural practices. In both cases, commercial interests may justify the expenses of establishing rural info-kiosks, which provide much information in addition to specific products information.

12. A successful commercial IT sector does not necessarily "trickle down" to ordinary Indians. Several proposals by state governments to develop "information technology for the masses" place 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 if any evidence that the growth of the software industry is reflected in improved living conditions, 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; cities of Chief Minister Naidu claim that his stress on information technologies has not helped relieve the poverty of the average citizen of Andhra Pradesh. One project, the Nilgiri Networks, has deliberately set out to create a software center in Ooty with the goal of spreading the benefits of the Indian IT boom to outlying regions.

13. Apparently "technical decisions" concerning IT regulation, bandwidth allocation, pricing mechanisms, etc. 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 particularly telling case is the requirement that ISP providers guarantee to "cover" an entire state. This effectively precludes local entrepreneurs from providing Internet connectivity in small and medium towns. If this stands in the way of an Internet service provider phenomenon akin to the local initiatives that have helped spread satellite television rapidly in India. Analyses of the impact of technical, regulatory, and technological decisions on "IT for the common man" is largely absent.

14. 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 technical problems. It is not a realistic "Solution to the use of IT for development for any but a tiny fraction of Indians. For example, the recent claim of the government of Andhra Pradesh that
"millions" of local women are involved in the export of local crafts turns out to be a gross exaggeration and 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.

15. *The wheel is constantly reinvented.* I can identify almost two dozen "grassroots projects" in India, some of which I have visited. The people in these projects are not 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, no effort to learn.

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 only because of the unusual regulatory structure of telecom in Bangladesh.) But we desperately need efforts to learn from comparative studies of existing projects what works, what doesn't work, and how local conditions affect outcomes, etc.

16. *You cannot believe a lot of what you are told.* At one recent meeting, for example, I was told by an official that ISRO is providing satellite water temperature data for the Bay of Bengal to offshore fishermen. A member of the audience said that this information had only been available for two out of the last 365 days. The ISRO official replied, "Cloud cover". Indeed, the whole issue of satellites providing water temperature, weather forecasting, and other data turns out to be very complicated, with many claims by ISRO and counter claims by others.

17. *Until the costs of the "last mile", of basic IT devices, and of software are brought down, the goal of "wiring India" will remain unachieved.* My heroes in this area are Ashok Jhunjhunwala at IIT-Chennai and Vijay Chandru at the Indian Institute of Science. They are doing world-class work respectively on lowering the cost of the "last mile" and producing a low cost ($200) "Simputer". Both are smart, savvy, with organized business plans.

The India-Linux movement also is lively and enthusiastic; projects like the Chandru project use Linux because it is simple and free. But they run into many obstacles, not least of all with the GOI regulations, with Microsoft, and with foreign companies that have an interest in having India import European or American technologies.

Technological solutions are of course not solutions to the whole problem, but they are prerequisites in a country like India where almost everyone is poor.

18. *The "IT for the masses", "bridging the digital divide" movement has an inordinate amount of exaggerating and wishful thinking.* But there are in fact real cases of IT projects that actually help poor people in India 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 doesn't.

I trust it is clear from this that I am not convinced that IT is invariably, or even usually, the best answer to poverty, injustice, illness, inequity, discrimination, exploitation, hunger, etc. But at the
same time, I think Bill Gates overstates his point when he says poor people need medicine and not computers. The challenge is to ask when, 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.

February 2001