MAKING USE OF ICT TO FACILITATE POOR PEOPLE'S ACCESS TO PUBLIC SERVICES:

AN ACTION RESEARCH PROGRAMME

Geeta Sharma (formerly OneWorld South Asia, India) and
Paul Sturges (Loughborough University, UK)*

Published in *Information Development*, 23, 1 [2007] pp.15-23.

INTRODUCTION

Growth in the ICT (Information and Communications Technology) sphere is not confined to the corporations, governments, and individuals of the industrialized countries who already participate in something approximating to the vision of an information and knowledge society. There is also a substantial movement to spread the benefits of ICT to poor and marginalized communities, both in the industrialized countries of the North, and in the less developed countries of the South. This might on the face of it seem an unrealistic enterprise. How can (comparatively) expensive and complex technology benefit those whose access to resources and, more particularly, public services, is already so slight as to be almost nonexistent? How can technology benefit those whose education and skills contain little that seems appropriate to the use of even the most basic of devices? It was answers to such questions that were the subject matter of a small group of linked projects managed by OneWorld South Asia (OWSA), funded by the UK Department for International Development (DFID) 2004-5 in their Knowledge and Research (KaR) Programme, entitled 'Improving Transparency, Quality and Effectiveness of Pro-Poor Public Services using ICTs'**.** (OneWorld South Asia, 2006) This article outlines the group of projects (carried out in India by OWSA and by the national chapters of Transparency International in Croatia, Nigeria and Pakistan), concentrating in more detail on the Indian project.

The projects can be categorized as falling into the ICT in development movement or forming part of the widespread introduction of e-governance into countries certainly not confined to those of the industrialized North. (Garai and Shadrach, 2006) Although the literature is particularly rich in relation to India, the movement can also be identified in Africa (Herselman, Jacobs and Akinsola, 2005) and Latin America (Galperin and Bar, 2006). In India the movement currently focuses on the ambitious Mission 2007 project, which sets the shortest possible timetable to ensure ICT access for all of India's tens of thousands of villages.(Mission 2007, 2006) There are many non-governmental

* Geeta Sharma can now be contacted at geetasharma9@gmail.com . Paul Sturges (Research Adviser to the programme) can be contacted at r.p.sturges@lboro.ac.uk. Both authors offer full tribute and thanks to the many project staff, volunteers and community members whose participation made the programme possible. Paul Sturges particularly thanks Marigold Cleeve of the Department of Information Science, Loughborough University, for invaluable assistance with documentary research.

organizations (NGOs) that are concerned with introducing ICT into deprived communities. Four major players are APC (www.apc.org), Bellanet (www.bellanet.org), IICD (www.iicd.org) and the OneWorld International Foundation (www.oneworld.net) and its network of centres including OneWorld Africa (www.africa.oneworld.net) and OneWorld South Asia (www.oneworldsouthasia.net). Their websites are a rich resource of ideas and case studies of ICT in development. The movement also harmonises very effectively with the UN's Millennium Development Goals, as is illustrated by Daly (2006).

SOCIAL CONTEXT

The problems of the poorest communities in developing countries, and in pockets of deprivation in industrialized countries, are many. The observations and experience of the researchers involved in the projects reported here match and complement those set out in a major recent report by UN-HABITAT (2003) or in books such as those by Davis (2006) Neuwirth (2005) and Kramer (2006), or from India specifically by Upreti (2004) to cite only a selection. Typically only a few residents in poor communities will have a secure source of income. The income that can be obtained from labouring, domestic service, piecework, petty trading, scavenging, begging, prostitution and other means are generally not adequate to cover what would be considered the minimum expense of keeping family members properly housed, fed, and healthy. Mortality rates, including child mortality, are consequently high, and life expectancy is low. Opportunities for education are limited and people's prospects for improving the standard of their lives can seem almost totally absent. Members of a slum community may rent decaying properties, or occupy land that they do not own and do not have permission to occupy. Housing in the very poorest communities is initially improvised from such pieces of wood, plastic, cloth and metal that can be obtained, but over time residents often succeed in constructing much more solid dwellings using conventional building materials. Landlords claim ownership of parts, or all, of slum areas, often with doubtful title themselves. The rent they charge, although small by other standards, is a substantial burden on the inadequate incomes of tenants. Such slum landlords are notoriously unaccountable and exploitive. Overcrowding, dirt, hunger, and disease are everyday experience of the members of poor communities. Standards of family care and community spirit can rapidly deteriorate under such circumstances.

National and local government does usually recognize, at least in formal terms, that there is a responsibility to provide facilities and services for the people of such areas. However, services – water supply, sewage disposal, electrical connection and roads – are likely to be absent or completely inadequate. Policing is usually minimal and oppressive rather than protective of local residents. Facilities such as clinics and schools, if they are provided, are likely to be insufficient for the needs of the community in terms of both their number and quality. Where facilities and services do exist, residents in poor communities are likely to be disadvantaged because they lack the necessary documents to register for benefits and services. Migrants from other countries and rural people seeking work in the cities, refugees and other fugitives are disproportionately represented

amongst the population of these areas. In those countries with some form of democratic system there is a certain scope for residents to mobilize and use their electoral opportunities to demand improvements, but this generally results in promises rather than substantial gains.

Inefficiency of services, unaccountability of officials, apathy, lack of information, and corruption, dominate the service provision landscape. The poor get the worst services, whilst at the same time carrying an extra, unpredictable burden of expenditure in the form of bribes to obtain what the law actually entitles them. The obvious response to this complex of negative factors might seem to be efficiency drives and campaigns to enforce anti-corruption laws. Such responses still, however, leave the residents of poor communities as the passive object of struggles between those who are content to oppress them and those who profess to seek to remove the burden of oppression. Alternative solutions, which might empower people to lift the burden themselves, depend first of all on introducing transparency into the system. (Jenkins and Goetz, 1999)

With information about their entitlements, and then where, how and when services are supposed to be available to them, people are placed in a position to take action on their own behalf. However, for transparency to be more than just a source of even greater frustration people need allies to join their struggle. Informal community leaders, campaigning journalists, and populist politicians are potentially such allies. There are also relief and aid agencies, religious organizations, charities and civil society organizations of many kinds that might become involved. The interventions of such organizations range from providing food relief and assistance with the necessities of daily life, to health care and education projects. They also might initiate, join or promote schemes designed to help people themselves make sustainable changes to the community's quality of life. One of the possibilities that can emerge from this form of intervention by NGOs is the possibility of using ICT tools to improve the access of poor people to public services.

THE PROJECTS

The premise of the research was that the effectiveness of the delivery of public services to the poor could be strengthened by the use of ICT. At first glance the idea of introducing some form of ICT into poor communities to empower them through transparency may seem absurd. How can communities with no regular electricity supply, low levels of literacy (let alone computer skills), few if any buildings with communal access and insufficient funds even to feed their members adequately, hope to take advantage of sophisticated technology. The answer is that without some initial outside help they are, indeed, most unlikely to benefit from technology. Yet the question remains, what if some external ally did provide technology theoretically capable of helping them, could such an intervention work in practice? To take the opposite position, what makes ICT attractive is the agility of the technology. Data can be swiftly and conveniently updated; this data can be available at multiple access points; and it is possible to use graphics and video to make data presentation attractive and accessible even to those with

limited skills. There are intriguing indications from some experiments that there is a remarkable potential for the unschooled and semi-literate to master the use of computers if given suitable access (Noronha, 1999). What is more, communication technology need not be complex to use. For instance, the telephone and the video screen present comparatively few problems for general access. The ability of telecommunications investment to benefit the poor has been widely discussed, for instance in Torero and von Braun (2006). Given the right circumstances and appropriate choices, technology *should* be capable of contributing to the betterment of specific aspects of life in poor communities. The projects described in what follows test exactly that suggestion.

The idea was to experiment with introducing greater transparency into the administration of services through partnerships between the service-providing agencies, civil society organizations (in this case the NGOs that participated in the projects) and the community itself. Provision of detail about both the entitlements and processes involved in selected public services, via some kind of ICT tool (broadly defined) was the starting point, but this was to be backed by interactive provision of current detail on the state of services, and a feedback mechanism. The projects were participatory action research in which the community was not a passive subject of investigation, but contributed to the design, conducting and evaluation of the project. This was intended to provide a contrast to the prescriptive, top-down character of the vast majority of ICT development projects, and to anchor the experimental services in the actual experience of the community.

The four country project teams came together on the basis of their willingness to participate. They were from Croatia, an emerging democracy in Central Europe; India, the world's largest parliamentary democracy; Nigeria, a large African country experiencing rapid shifts of political direction since the end of colonial rule; and Pakistan, an Islamic Republic. The countries are diverse, but all have problems to varying degrees with the delivery of public services, which the project teams believed could be addressed, at least in part, by ICT-based solutions. Apart from this common premise, the four projects shared a basic methodology. The project teams held discussions and needs assessment exercises within their own countries so as to identify a specific problem in a particular community that might be susceptible to an ICT solution. The choices were discussed at an early stage at a Workshop held in Zagreb in February 2004, and after some initial false starts, the Croatian team chose to work on the delivery of health and age related services, India on maternal and child health, Nigeria on access to schools, and Pakistan on water supply and sewerage disposal. An appropriate ICT tool for each project was identified on the basis of this process. The project teams were very open on the form of technology that they would apply to their selected problem. The most consistent feature was that all of them included voice-based tools and the Indian project was entirely voice-based. This project might therefore have fallen outside some definitions of ICT, but the significance of voice is not, and cannot be, neglected by the development sector. Here it was given the central place precisely because the comparatively low-tech telephone-based solution was community endorsed and functioned in a way that was much more community led than higher-tech solutions might hope to be.

The central phase of each project was the creation and deployment of the tool: a process that was continuously monitored to allow correction and improvement. The chosen tool needed to be practical, easy to use, and offer the potential for sustainability. Adjustments to the project activity were made during the period on the basis of lessons learned from informal and more structured discussions with community members. Preparations for an evaluation phase were also made whilst the project was in progress. The evaluations in the different countries used a range of techniques, according to their appropriateness to local circumstances. Interviews and less formal conversations were widely used, particular directed at the service providers. Focus groups were used in all the four countries, generally divided by age and gender so as to facilitate relaxed and open communication. The reinforcement and diversification of ideas that focus groups are able to produce was found to be valuable in this very exploratory research. Telephone surveys were not universally used, for obvious reasons, but in Croatia they proved valuable. Observation by project workers, sometimes on a daily basis, was also put to good effect in most contexts.

In Croatia (First, Kljaic and Liovic, 2006) the project team brought together a loose coalition including the Dubrava Clinical Hospital, the Ministry of Health and Social Welfare, the Zagreb Centre for Social Welfare, the providers of soup kitchens, the Croatian Medical Chamber, and the Croatian Red Cross. Zagreb, the capital city and focus of the project, whilst having on the surface the characteristics of a sophisticated European city, also has high levels of unemployment, houses many refugees from the civil wars that affected Croatia, Bosnia and Serbia in the 1990s, and has pockets of deep poverty and deprivation. In focus group discussions the waiting lists for major surgery in government hospitals were identified as insufficiently transparent and vulnerable to corrupt behaviour. The good telephone connections and computer databases of the waiting lists of Dubrava hospital were used to provide the project team with online and printed data that could be made widely available through hospital and soup kitchen notice boards. This was backed by a free telephone complaints and enquiries line, which was run by TI Croatia. The data from this was put in a database, which could be used for monitoring and evaluation. Over and above the effect on access to this important information, the evaluation identified an enhanced awareness of rights, and more positive attitudes towards health care potential amongst those members of the community who came into contact with the service.

In Pakistan (Omari, Gilani and Rashid, 2006) the project team initially identified the water supply and sewerage disposal sector as an appropriate sphere for intervention. The problems of intermittent and inadequate water supply, contamination, tampering with valves, illegal connections and leakages were all exacerbated by official neglect in informing those affected about problems A broader partnership with Gulshan Town, one of the constituent towns of Karachi, was developed from this initial sectoral interest. Gulshan Town has extensive areas of classic slums with informal housing, low incomes and the attendant problems. TI Pakistan provided the expertise required to develop a web-based complaints center at the town's administrative HQ that would handle the full range of citizen complaints (including those connected with water and sewerage). The center could receive complaints online, by telephone and from personal callers. A publicity

campaign using radio TV, the press and pamphlet distribution was used to make citizens aware of the service. Although the online facility was most used by middle class complainants, the service's availability through more accessible forms of communication guaranteed its accessibility to the poor. Amongst the effects noted in the evaluation were not merely measurable improvements in the information made available about water distribution in the town, but beginnings of attitude change amongst the public servants employed by the town.

The Nigerian project was the only one of the four not brought to a conclusion. The project team identified the problem of access to primary education as capable of responding to a technology-based solution. Discussions with the Enugu State Primary Education Board focused particularly on an area called Oji River, which has 65 primary schools. Consultations with parent teacher associations, representatives of local government, school principals and the State Commission for Education identified key problems as availability of places in the schools and auditing of school accounts to show what funds were allocated to the schools and how they were spent. A web-based model that could make relevant information from the Primary Education Board to parents and the organizations that represent them was designed. However, obtaining the necessary agreements to support the project from the State and other relevant levels of government could not be obtained. The project thus failed at a very fundamental level. Without the necessary agreements to supply information to the project, the creation of an ICT tool was pointless and the experiment could not go further.

The Indian team investigated a number of possible sectors for the proposed intervention, a process that included, for instance, holding detailed discussions with the Delhi Police Department. However, they settled upon maternal and child health care as offering problems and possibilities that could be addressed through the use of an ICT tool. The India Population Project VIII (IPPVIII) had opened 25 hospitals and dispensaries in various areas of Delhi, using large scale finance obtained from multi-lateral funding agencies. These were to provide maternal and child health facilities to slum populations in and around the city. Indications from the reports and appraisals of these facilities suggested disappointingly low levels of use by the intended beneficiaries. For this reason a partnership with IPPVIII was seen as offering scope for the challenging experimentation that will be reported later in this article. From the very beginning the Indian project placed considerable stress on the participatory nature of the research, with community members and service providers consulted and involved throughout in project design, implementation and monitoring.

The four projects outlined above yielded a wealth of small but important insights, many of them of mainly local interest, but some broader lessons were also derived from them. The practical lessons have been distilled into four Toolkit booklets, one from each of the successful projects and an International Toolkit presenting the more widely applicable lessons. (OneWorld South Asia, 2006) Before going on to discuss the Indian project in more detail, the lessons set out in the International Toolkit can be summed up under the following categories: consultation with stakeholders; effective forms of consultation; establishing the relevance of an ICT tool; designing an ICT tool; forming partnerships

with public bodies, NGOs, agencies and community groups; publicizing, popularizing and supporting the use of the tool; monitoring the project; fine tuning the tool; managing crises; evaluating the project; and preparing to hand over a sustainable tool to stakeholders. The nature of the advice and experience offered in the Toolkits can best be illustrated by an account of one of the projects and, as has already been indicated, the Indian case has been chosen for this purpose. It offered the advantage that the Programme Management Team and, in particular, the Research Adviser exercised a more direct oversight of this project and could provide an account that drew on personal involvement and observation. Furthermore, the Indian project probably contained a greater degree of community involvement, as opposed to the NGO initiatives and official cooperation (or non-cooperation) that dominated the other three projects.

THE BADARPUR HOSPITAL PROJECT

The chosen site for the Indian project was the Badarpur Maternity and Child Health Hospital, in the outskirts of Delhi, a location that presented particularly striking, and even emblematic, difficulties. The hospital was built to serve the families of G Block in Mohan Baba Nagar, a slum community of self-built housing on land actually owned by the City Council, but effectively claimed by slum landlords who derive rents from the residents, and also threatened by large scale government infrastructure plans that would use the site. In addition to all or most of the conditions sketched out in an earlier section of this article, G Block is physically divided from Badarpur Hospital by a tumultuously busy main highway that effectively makes any but the most carefully planned visit a totally intimidating enterprise. The members of project team were able to forge an essential relationship with the Project Head of IPPVII, as the way into a working arrangement with the Badarpur Hospital. They also enlisted the cooperation of Prerana, a local NGO focusing on reproductive health issues, which was able to offer assistance with community contacts and outreach.

In the period April to May 2004 baseline assessments were carried out in G Block community, using focus groups and informal meetings with community leaders and residents. (Sharma, Jadav, Mishra and Bhattacharya, 2006, 32-33). This served the purpose of providing community views on the relationship with the Badarpur Hospital, whilst simultaneously building up a network of contacts and building community awareness of project personnel and their intentions. The assessments indicated that local people did not seek to access the hospital's services because: they had limited awareness of its service; there were no communication channels to the services (except for a network of community workers known as basti sevikas); supposedly free medical services involved hidden costs; relations with the hospital staff were not friendly; and people already had their own health care seeking behaviour patterns. Alternative sources of care that were used included traditional medical practitioners (referred to as quacks), dais (community midwives) who were responsible for nearly 70% of deliveries to local mothers), private doctors and clinics, and, in emergencies, the larger government hospitals such as Safdarjung Hospital and the All India Institute of Medical Sciences. The conclusion drawn on the basis of this was that there was a need for a neutral tool that

allowed the exchange of information, could be used to raise awareness of services, allowed people to request services, and offered potential for improved understanding between the community and the hospital.

The selection and design of a tool involved further consultation with the community, but also with the hospital staff and other official stakeholders whose cooperation with any solution that was proposed would be essential. Some simple, and rather obvious conclusions emerged from this process. Community members were not comfortable with any solution involving text (most of them did not even read newspapers). They had no real knowledge of new technology and would only contemplate the use of technology with which they were already familiar. They were unable, or unwilling, to pay to use any communication service that might be offered. The service providers in the hospital also rejected any tool that was too complicated and were not inclined to accept training to use and maintain a tool. They were unhappy with the idea of a tool that recorded data, or taking on any other documentation exercise. In between these two sets of priorities it became clear that voice communication, in fact a simple toll free telephone line connecting the community and the hospital was the appropriate solution. Alternatives such as wireless and broadcast technology were rejected on grounds of expense and complexity, but an interactive voice recording system (IVRS) was added for monitoring purposes. At times when it was not staffed, the telephone would provide recorded messages about hospital services and record messages from enquirers for later response.

During a six-month implementation phase (October 2004 to March 2005) a suitable focal point was identified for the installation of the telephone. Within the community this had to be in a prominent, central location, easily accessed by women, allowing project access for maintenance, providing protection of access and offering a sense of community ownership. A perfect location did not offer itself, but installation in a local grocery shop run by an acknowledged community leader and his wife met the majority of the requirements. In the hospital there was the issue of placing the telephone somewhere that would guarantee that suitable staff would be on hand to answer patient enquiries. The maternity ward, which had 24 hour staffing, was selected for this purpose. Embedding the tool effectively in the community was a high priority. OWSA and Prerana volunteers conducted an intense programme of publicity and familiarization. Publicity included the distribution of written material, performance of street plays and obtaining television and press coverage of the launch of the experiment. There was also door to door visiting, which included instruction in the use of the system, meetings with community group, and discussions with the basti sevikas and the hospital's auxiliary nurses and midwives so as to encourage them to promote the project.

Between October and early December 2004 the system only allowed people to use the telephone in two ways. The IVRS facility allowed them to listen to recorded messages that included information on the hospital's services and opening times, plus health tips and advice. The messages were updated by the hospital staff so that the availability of doctors, days and times when specific services were offered, and, importantly, any times when expected services might be unavailable. Hospital staff also noted and responded to queries and took feedback from callers. This phase could only be described as a very

tentative beginning and, not surprisingly, the number of calls recorded (86) was not high, with more than half of these wasted (in that no message was recorded). Some of the wasted calls were the result of technical problems, but others were more interesting. The women who called often only managed a nervous giggle before ringing off. They were clearly inexperienced telephone users whose first trial of the service was more than they could cope with immediately. Calls of this type were only received in the very earliest phase of the project, suggesting that familiarity improved callers' capacity to use the service.

Worthwhile generalization from the very small number of recorded queries was impossible, but five main types of query could be identified: family planning, pediatric problems, menopause-related, menstruation-related, and pregnancy and delivery matters. The cautious inference drawn by the project team, supported to some extent by the ongoing focus group activity, was that pregnant women considered the assistance of the dais and family tradition gave them sufficient guidance, but that there was plenty of scope for further help in the other four areas. The use of the telephone, a neutral, faceless tool, seemed to free the women callers from some of their inhibitions in approaching hospital staff face to face. Callers explained gynaecological problems, such as menstrual irregularity and symptoms of the menopause, quite freely. Adolescent girls also seemed willing to seek guidance on sexual rights and needs over the phone. The real success of this phase was, however, that it was a genuine step in breaking down the communication barriers that had rendered the hospital a thoroughly ineffective facility for the G Block community.

On the basis of community reaction, limited though it might have been, the project team was convinced that if a real time facility could replace the IVRS service community members would use it. There were a number of problems, including major ones, to be overcome if this were to be implemented. The first of these was that hospital staff and authorities were still apprehensive about criticism and review. Glaring inadequacies in the hospital (a lack of water supply that obliged women who were to have their children delivered there to bring their own buckets of water, was the most outrageous) would obviously emerge with the introduction of more transparency. The hospital was particularly unwilling to take up grievances relating to services and staff. It also would not accept queries requiring specific health advice or counseling, despite callers' willingness to use the telephone for such purposes. The community 'ownership' of the telephone point was also a problem. The shop owner who hosted it had begun to develop a proprietary attitude and was demanding remuneration for his own input, originally offered as a community service. He was also spreading his own views on the project within the community and to partner organizations and the media.

Nevertheless, the project was moved forward into a new, interactive, phase from December 7th 2005 onwards. This was extremely tentative in the first place, with one hour per day during which the phone would be staffed and queries answered. It was difficult to get the message across to the community that they could make interactive calls during this hour, but a further phase of publicity along the lines used in the previous October, again in partnership with Prerana, increased the community's awareness of the

service. Frustration with the one-hour limitation led to pressure to make it available all day. This pressure and the increasingly relaxed attitude of the hospital staff towards the work of responding to telephone enquiries led in March 2005 to the phone being made available during the whole of the working day (0900- 1600). The role of community pressure in encouraging a new attitude towards the tool on the part of the hospital authorities was clearly crucial. The service then continued in a fully implemented phase until the end of June. During the whole period in which the telephone was available interactively (both part time and full time) a total of 360 queries was logged. This was despite three periods when the equipment was out of order, and despite a period of personal differences between the shopkeeper who hosted the community handset and a paid community helper who assisted with the use of the phone and logged queries. The content of callers' queries suggests the extent to which the telephone link came to be accepted. Although pediatric and gynaecological problems dominated, callers raised a wide range of other health problems.

Evaluation of the project was not, however, based on a simple count and analysis of the calls made via the system. In May a series of focus groups, intended to be as true to the participatory principle as possible, was organized in the community, led by volunteers and attended by project staff as observers. Seven such meetings were held (three with women over twenty, two with women younger than 20, one with community leaders and one with male members of the community). Meetings with the service providers were organized during the same period, covering nursing staff, basti sevikas, auxiliary nurses and midwives, and local dais. The Project Director of IPPVIII was also interviewed. As might be expected with a small intervention such as this, confined to a limited period of time, the effects identified were not dramatic or large scale. The meetings showed that awareness of the existence and purposes of the tool was uneven across the community. Activists who been targeted by the publicity campaigns were the most aware, but girls and younger women were much less likely to know about it. However, despite such limitations, some quite strong messages emerged from the evaluation process.

- Attitude change both in the community and at the hospital was observed from all angles and attributed to the project. Users of the telephone service and visitors to the hospital were said by hospital staff to be more aware of the services and their rights, and more confident in articulating them. Community members said that they found hospital staff more polite and accommodating than before.
- Use of the hospital increased and was more effective because users had better awareness of what to expect and when to visit. This increase was quite striking with, for instance, the hospital logging only 12-14 deliveries per month and reaching 40-50 as the project developed. The Chief Medical Officer was also happy to claim at least some of the credit for this because of the efforts that he now devoted to encouraging use.
- Problems in the hospital were addressed with greater effect under the increased scrutiny brought about by the project. The water supply problems were solved during the course of the project and the more effective campaign for action was generally attributed to the better mobilization of staff and community. Unreliable

attendance by hospital staff also showed improvement once their attention was likely to be demanded throughout the day.

- A vision of what the hospital might be able to achieve in the future had begun to develop along with the greater awareness and confidence in its effectiveness that emerged during the project. The call for wider medical information in the calls made to the hospital was paralleled by suggestions for the provision of more general health care, including services for men, made in the focus groups. Suggestions emerged for an ambulance service to take people from G Block to Badarpur Hospital, rather then just to the bigger and better equipped general hospitals.

CONCLUSIONS

All of the projects in the programme pointed to some solid lessons for the introduction of ICT into the process of providing public services to communities living in poverty. The lessons were not, however, mainly concerned with the technology itself, but more with the ways in which technology can be introduced and embedded in the community to best effect. The first of these was present in the failed Nigerian project, which showed the central importance of bringing service providers into some degree of partnership with those who wish to introduce more transparency into the system. Whilst it is possible to envisage a kind of 'whistleblower' service based on data not provided by the system itself, and operating purely as an external challenge and stimulus, this would tend to be of comparatively limited use. The projects in Croatia, Pakistan and India all built on some form of explicit partnership arrangement with the service providers, however grudgingly they might have entered into this partnership. The partnership did not merely guarantee the necessary flow of data, but it also provided the beginnings of the leverage that could bring about change in the service providing institution.

All of the projects confirmed that tools making use of some form of ICT were capable of performing a useful function in the context of public service provision and that people would use them, find them helpful and begin to take more control of their interaction with officialdom. The question that was introduced in the Introduction to this article as to how far technology was of use to the poorest and least privileged whose knowledge and skills do not obviously fit them to make confident use of ICT was addressed most usefully by the Indian project. The approach was, however, not aimed at a complete answer to the question. By concentrating on voice technology, the telephone link between Mohan Baba Nagar's G Block and the Badarpur Hospital set out to confirm that a form of ICT which is more than one hundred years old, but not necessarily used easily for official purposes by urban slum dwellers, could be put to good effect. The question is not entirely self-contained, however. Voice technologies are now being developed as a major aspect of computer and Internet use and communication, so casting light on telephone use in an urban slum actually reveals things of relevance to more than just the matter in hand. The suggestion is that even telephone use in relation to public services requires some learning and adjustment on the part of its users. This said, the research suggests this learning and

adjustment can quite swiftly be accomplished by useful numbers of members of poor communities.

What the Indian project tells us most about is the way in which a tool providing access to information and communication functions most effectively in society. First of all, such a tool does need the type of input that NGOs like the research partners OneWorld South Asia and Transparency International can provide. They investigated the kinds of information, the types of technology and the receptiveness of both service users and providers before setting up the experimental systems. They then publicized the systems and nursed (or offered handholding, in the words of the Toolkits) the community in its early stages of engagement with using the ICT tool. The acceptance and effectiveness of such tools is questionable without such support, whether from an interested NGO, or from involved community members themselves. In favourable circumstances it is clear that the tool can perform its basic function, but more than that it can encourage other positive change. What must be stressed here is that it would be much too strong to suggest that it is simply the tool itself that brings about change. The project teams are at pains to stress that it is activities associated with the tool that most obviously bring about change. In G Block it was arguably the regular presence of OneWorld South Asia and Prerana staff publicizing, mediating and observing (in fact, just being there with people and encouraging them) that led to the connection of water supply to Badarpur hospital, or an enhanced acceptance of their responsibilities by hospital staff. This does not invalidate optimistic views of the potential of ICT in helping the poor access public services; it merely qualifies such optimism in a positive and helpful way. ICT projects are at least a catalyst, and very probably a great deal more.

REFERENCES

Daly, J., 2006. *Information and communications technology applied to the Millennium Development Goals*. Available at www.geocities.com/stconsultant/ictdgmain.html , [10.8.06].

Davis, M. 2006. *Planet of slums*. London: Verso.

First, A., Kljaic, M., and Liovic, V., 2006. *Knowledge and Research Programme on Improving Efficiency of Pro-poor Public Services: Croatia National Report, November 2005*. New Delhi: OneWorld South Asia. Available at < http://propoorict.ekduniya.net/FinalReportsandToolkits/ >, [10.08.2006].

Galperin, H. and Bar, F., 2006. *The Microtelco opportunity: evidence from Latin America*. International Development Research Centre. Available at < http://www-rcf.usc.edu/~fbar/Publications/Microtelcos-Galperin-Bar-ITID-3_2.pdf >, [10.11.2006].

Garai, A. and Shadrach, B., 2006. *Taking ITC to Every Indian Village: Opportunities and Challenges.* New Delhi: OneWorld South Asia. Available at < http://ekduniya.net/129/ >, [18.8.2006].

Herselman, M., Jacobs, S., and Akinsola, O., 2005. ICT provision to disadvantaged urban communities: a study in South Africa and Nigeria. *International Journal of Education and Development Using ICT*. 1(3), pp37-45.

Jenkins, R. and Goetz, A.M., 1999. Accounts and accountability: theoretical implications of the right to information movement in India. *Third World Quarterly*, 20(3), pp603-22.

Kramer, M., 2006. *Dispossessed: life in our world's urban slums*. Maryknoll, N.Y.: Orbis Books.

Mission 2007, 2006. *Mission 2007: Every Village a Knowledge Centre*. Available at www.mission2007.org , [18.8.06].

Neuwirth, R., 2005. *Shadow cities: a billion squatters, a new urban world*. New York; London: Routledge.

Noronha, F., 1999. Indian experiment shows how slum-kids readily take to computers. *Bytes for All*, Online issue 1, Aug 1999. < http://www.bytesforall.org/1st/fred.htm >, [10.08.2006].

Omari, S., Gilani, S., and Rashid, S., 2006. *Knowledge and Research Programme on Improving Efficiency of Pro-poor Public Services: Pakistan National Report, November 2005*. New Delhi: OneWorld South Asia. Available at < http://propoorict.ekduniya.net/FinalReportsandToolkits/ >, [10.08.2006].

OneWorld South Asia, 2006. *DFID KaR Action Research on: Improving transparency, efficiency and effectiveness of pro-poor government services: final reports and toolkits*. Available at < http://propoorict.ekduniya.net/FinalReportsandToolkits/ >, [10.08.2006].

Sharma, G., Jadav, S., Mishra, A., and Bhattacharya, K., 2006. *Knowledge and Research Programme on Improving Efficiency of Pro-poor Public Services: India National Report*. New Delhi, OneWorld South Asia. Available at < http://propoorict.ekduniya.net/FinalReportsandToolkits/ >, [10.08.2006].

Sharma, G., Raj, N., and Shadrach, B., 2006. *Knowledge and Research Programme on improving efficiency of Pro-poor Public Services: International Report, November 2005*. New Delhi, OneWorld South Asia. Available at < http://propoorict.ekduniya.net/FinalReportsandToolkits/ >, [10.08.2006].

Torero, M. and von Braun, J., 2006. *Information and Communication Technologies for Development and Poverty Reduction: the Potential of telecommunications*. Washington,

DC: International Food Policy Research Institute and Baltimore, MD: Johns Hopkins University Press.

UN-HABITAT, 2003. *The challenge of slums: global report on human settlements*. London: Earthscan on behalf of the United Nations Human Settlements Program.

Upreti, H.C., 2004. *Urban slums and dimensions of poverty*. Jaipur, Pointer.