The Economic Impact of Telecommunications on Rural Livelihoods and Poverty Reduction:

a study of rural communities in India (Gujarat), Mozambique and Tanzania

Report of DFID KaR Project 8347

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Summary Report

This summary report is based on a short report of the research which has been published as a separate document by Panos London[1]

This document is an output from a project funded by the UK Department for International Development (DFID) for the benefit of developing countries. The views expressed are not necessarily those of the DFID. The report was completed in June 2005.

TELEPHONES AND LIVELIHOODS : how the telephone impacts on the lives of the rural poor in developing countries

The last five years have seen tremendous growth in telephone ownership and use in developing countries. Until the mid-1990s, telephones were only available in the urban centres of poor countries. Some African countries had telephone densities as low as one per thousand people. Since then, mobile telephone

[1] Copies are available from Panos London, 9 White Lion Street, London N1 9PD, United Kingdom (telephone +44 20 7278 1111; fax +44 20 7278 0345; email info@panos.org.uk; or from the Panos website, www.panos.org.uk

networks have spread rapidly in most low income countries. Many people, even in low income communities, now own telephones; and most adults make some use of them, wherever they are available, usually relying on public kiosks, phone shops or airtime bought from individual phone owners. The mobile phone has become a symbol of the use of new information and communication technologies (or ICTs) in the developing world.

But what impact has the telephone had on livelihoods – on how people live their lives, protect themselves against vulnerability and take opportunities for a more prosperous future? Do people use the telephone for social or business purposes? How important is it to them in emergencies? Does it make a difference to how they obtain the information they need to run their lives? And how does it fit into the pattern of other communication channels they have available?

Very little substantial or detailed research has been done so far on these questions. The research reported in this document assesses the impact of the telephone on the lives of the rural poor in three developing countries – in the state of Gujarat in India; in Mozambique; and in Tanzania.

The research was funded by the British Department for International Development's Knowledge and Research programme, and coordinated by Professor David Souter of ict Development Associates ltd and the University of Strathclyde. Fieldwork for the project was undertaken by the Indian Institute of Management (Ahmedabad), Eduardo Mondlane University in Mozambique and the Commission on Science and Technology in Tanzania. Data analysis was undertaken by Gamos Ltd. The project was managed for DFID by the Commonwealth Telecommunications Organisation.

How the research was done?

The research was undertaken in three different developing countries. In India, the research was undertaken in the western state of Gujarat. In Mozambique and Tanzania, it was undertaken at different locations around the country. The survey was carried out in the second half of 2004.

In each country, three research locations were chosen, and the research was undertaken in around thirty villages clustered around these locations – to ensure a wide variety of characteristics such as distance from markets and telephone facilities. In each location, about 250 adults – mostly heads of households – were interviewed at length about their household circumstances, communications requirements and behaviour, their use of telephones and their attitudes towards them. They were also asked about their use of Internet.

Taken together, the sample includes about 2300 interviews across the three countries. This is one of the largest surveys of telephone behaviour and attitudes to be undertaken in the developing world.

The research findings in brief

Findings from research of this kind are especially significant when they are consistent across different societies. Key findings from this study of the use of telephony were strongly consistent in all three research countries (India, Mozambique and Tanzania).

The research showed that there was a consistent pattern of telephone behaviour in the three countries. Telephones were:

- considered very important for use in emergencies
- extensively used to maintain social networks, especially contact within the family
- valued more for saving money than for earning money
- valued more by richer and better educated people than by the poorer, less educated or more marginal members of society – especially where financial value was concerned
- considered unimportant for information gathering.

Telephone use fell into a pattern of communication flows and communications behaviour which was also consistent in all three countries. Telephone use was most important for emergencies and social networking. Broadcasting was most used and most valued for obtaining general information. Face-to-face communications was much the most important communications medium for specific information on issues such as farming, business and education. Hardly anyone in the sample populations had yet used the Internet.

Telephone ownership and use

The aim of the survey was to find out more about the impact which telephone use is having on the livelihoods of telephone users. Samples taken for the survey therefore concentrated on areas in which telephone networks are available and on the experience of people who are currently making some use of telephones. Previous research has shown that about 75% of adults make significant use of telephones in rural areas of developing countries where networks are available.[2]

[2] See, *e.g.*, the report of an earlier KaR study coordinated by Gamos Ltd: McKemey K., Scott N., Souter D., Afullo T., Kibombo R. and Sakyi-Dawson O., *Innovative Demand Models for Telecommunications Services* (Gamos Ltd for DFID, 2003)

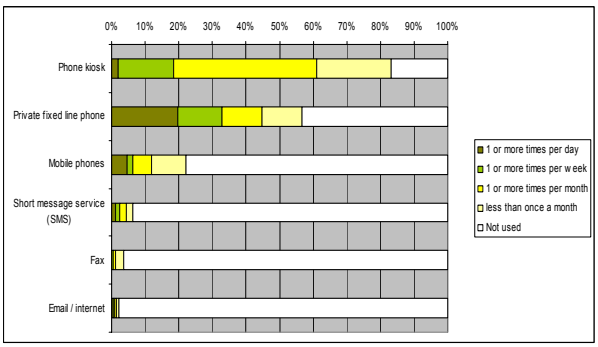
There were some important differences in telephone use between the three countries:

- Fixed telephones are widely available in India. As a result, most telephone use in the Indian sample was of private fixed lines and telephone kiosks. (However, the mobile market is growing rapidly in India.)
- In Africa, by contrast, the fixed telephone network is much less widespread. Mobile phones were much more widely used than fixed phones in Mozambique and Tanzania.

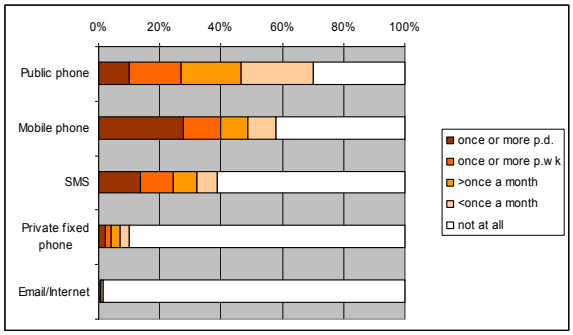
Telephone ownership is growing rapidly and is highly valued. In all three countries, at least 45% of phone owners had acquired their phones within the past year – and at least 33% of those without a telephone said that they wanted to acquire one within the next year. Many of those who owned their own phones nevertheless also made considerable use of public access services such as kiosks or phone shops.

Not everyone in rural areas can afford a phone, of course. In all three countries, it was clear that there was a distinct group of high intensity users – people who owned their own phone and used it more than once a day. These people tended to be high status individuals – in the highest income and educational groups. The poorest and least educated made least use of the telephone.

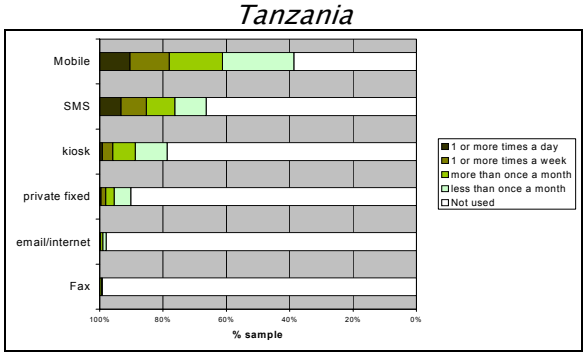
India



Mozambique



Tanzania



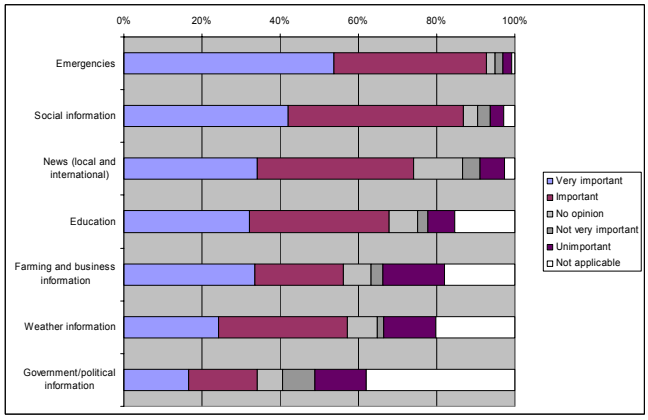
Where telephones are valuable in improving livelihoods, this suggests that they are benefiting higher status groups most and the most marginalised groups least. The rapid growth in telephone ownership is likely to increase the number of beneficiaries considerably over the next few years, but the most marginalised could well be left behind.

Nevertheless, public phone facilities are significantly used by the poor. In all three countries, the study found that low income groups spent a higher proportion of their income on telephony than high income groups. A good deal of spending on telephone use by the poor is likely to be on more important issues (such as emergencies) and in ways that save money (for example, by replacing the need to travel) – but the poorest groups also said that the telephone had a negative financial value for them (unlike the richest groups, who thought it positively beneficial).

Communications priorities

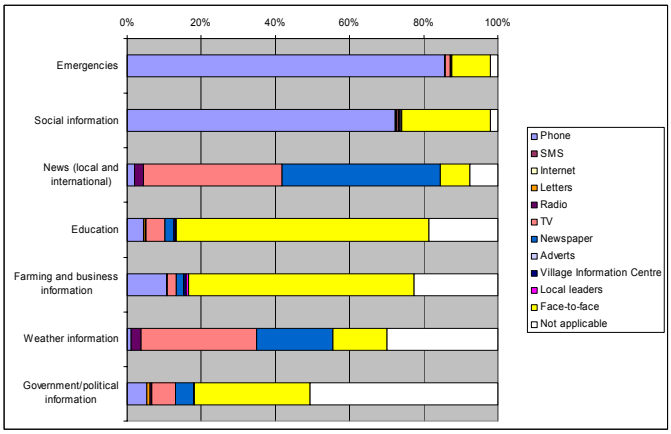
Why do people in rural communities want to communicate? What are their most important communication needs? The survey asked people to identify the importance of different types of communication to them.

The chart on the following page shows the order of priorities identified by people in the Indian sample. This is very similar to the order found in the other two countries. Emergencies and social networking are the communications priorities for all three groups.



Information and communication sources

Different communications methods – and different information sources – are valued for meeting these different needs, as the following chart (also from India) shows.



These findings, too, are very consistent across the three research countries:

- Telephones are the preferred means of communications for emergencies and family networking – though they are less dominant in Africa than in India.
- Mass media are the preferred ICTs for general information such as news and weather – the television and newspapers being preferred in India, and broadcast radio in Africa.
- Face-to-face communications is overwhelmingly the main method of communications for specific information in all three countries, including information about education, farming, business and government services.

The research found that people had high levels of confidence in the mass media (and, to a lesser degree, in local officials, leaders and opinion-formers).

Taken overall, and weighting the importance of issues alongside declared preference for different methods of communication, face-to-face communication was about twice as important to people interviewed in the African samples as broadcast radio, with the telephone coming third. The telephone had, however, become the most important medium of communication when the Indian sample was similarly weighted.

One other point worth noting is the preference for television over radio in India. About two-thirds of households in the Indian sample owned a television, while only about a quarter owned a radio. Broadcast radio, by contrast, was almost overwhelmingly available in the African communities. The difference is probably mostly due to two factors: the much better availability of power in India, and the lack of community and local radio there which is comparable to that available in Mozambique and Tanzania.

The value of the telephone

Much of the survey in all three countries was taken up with questions about people's attitudes towards the telephone – and the value it has for them in their daily lives. Here, too, the findings were strongly consistent across all three countries, suggesting that they are representative of circumstances in rural areas of developing countries in general.

Asked about their primary, secondary and subsidiary uses of telephony, people in all three countries strongly identified emergencies and social networking as their key uses of telephony.

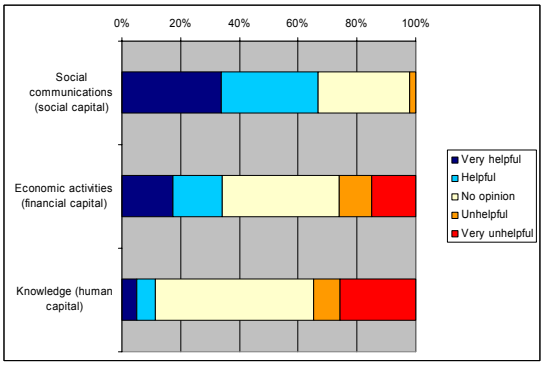
The importance of emergency use of telephony is not surprising, given respondents' identification of emergencies as their primary communications need and the fact that the telephone offers something that no other communications medium can provide – immediate help, especially if it has to come from a distance. This is just as true of urgent needs (for money) as of immediate emergencies (such as those related to health or injury).

Communication within the family is the second key use of the telephone identified by the respondents. This is much more important than communication with non-family members, particularly in Mozambique (which has a substantial proportion of migrant workers). Only about 5% of users identified business as their primary use of the telephone, while the proportion that described "gaining new knowledge" as their first, second or third most significant use was very low, under 2.5%.

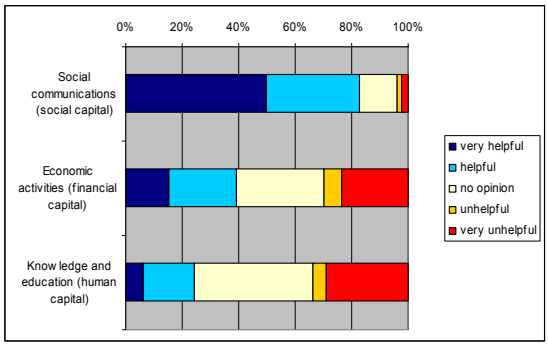
Responses were equally clear and equally consistent across the three countries when interviewees were asked to say how helpful their use of the telephone

(whether private or public) had been for social, economic and knowledge-gathering purposes.

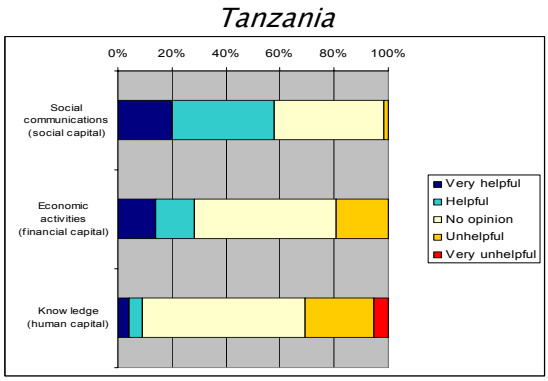
India



Mozambique



Tanzania

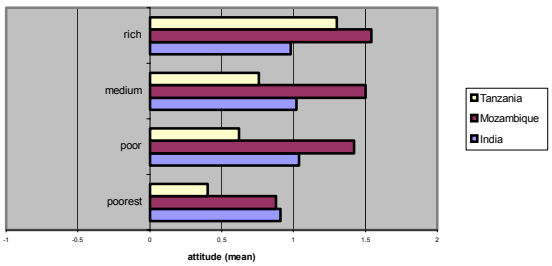


In all three countries, respondents gave:

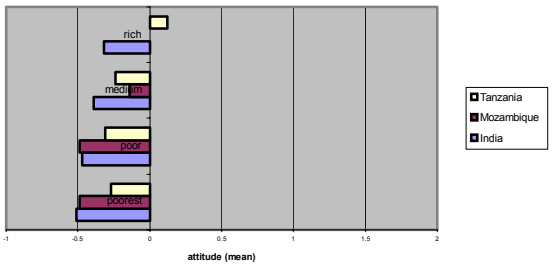
- very high value to the telephone as an instrument for social networking
- mixed value to the telephone as an instrument for economic activities
- and very low or negative value to the telephone as an instrument for knowledge-gathering.

The findings on the social and knowledge-gathering values of the telephone were also consistent across all significant socio-economic groups – including economic and educational status groups – as well as by gender and other demographic criteria. The following charts illustrate this for economic status groups in the three countries.

Social networking

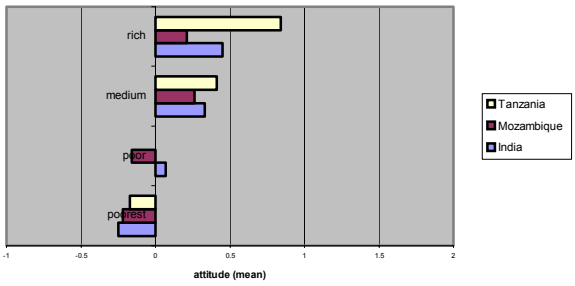


Information-gathering



It is a very different story for economic activities, however, as shown by the third in this series of charts. Here, it can be seen that the telephone is considered to have economic value by higher income groups, but to have negative economic value by lower income groups.

Economic actitivies



This finding is repeated in other status categories – such as educational status, telephone ownership and frequency of telephone use – suggesting that the telephone is having a positive economic impact on the more prosperous members of society but not on those who are more marginalised. For these more marginalised groups, the value of the telephone lies overwhelmingly in its availability for emergencies and its contribution to family networks.

More detailed questioning on particular livelihoods issues – reported in the full research report – further emphasises these findings. In particular, it emphasises once again the overwhelming importance of emergency use for all social and

economic groups, and the very low rating attached to telephony for information-gathering. It also emphasises the importance of certain functional characteristics of telephony in establishing its value: notably, its immediacy (speed of communications), its interactivity, and the ability to get things done at a distance (its value in reducing remoteness).

Gender issues

Household data of the kind generated by the survey have limited value for gender analysis because they are collected on a household rather than an individual basis. It is clear, however, that on average women tend to fall into more marginalised groups within the sample than men, and are therefore – for example – less likely to make frequent use of telephony or to perceive economic benefit arising from it.

The research team hopes to complement the work done for this survey with further work that will more clearly identify differences which the impact of telephony is having on individuals by gender, age and other demographic categories.

Use of the Internet

It was hoped that this research would provide information about use of and attitudes towards the Internet as well as telephony in the populations surveyed. In practice, however, in spite of the availability of Internet facilities in local towns, less than 2% of those surveyed had ever made any use of these. There are therefore insufficient data to make any assessment of Internet use, other than to say that the Internet has not to date had any significant impact on the communications resources used by these rural populations.

Impact on other communications media

There is some evidence in the survey that use of the telephone is having a significant impact on social behaviour. A high proportion of respondents said that there had been a reduction in their use of social visits, face-to-face communication and travel since the telephone became available. This is not, however, necessarily very significant. The availability of the telephone is certain to lead to some substitution of these other activities, particularly where less important visits and discussions are concerned. It seems likely that these responses are reporting this substitution effect for such less important activities rather than for more significant visits and meetings.

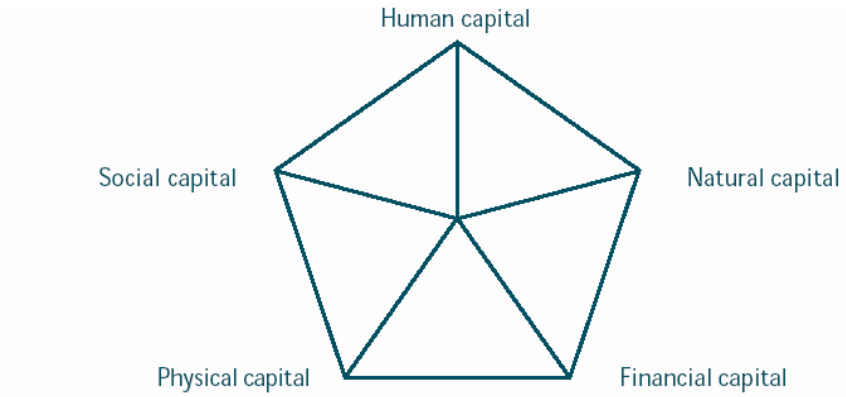
Much more important is the impact which the telephone is having on postal services. The large majority of respondents in all three countries reported a very large reduction in their use of postal services since the telephone became

available, and this is sure to have a lasting impact on the economic viability of national postal services.

Telephony and livelihoods

The main purpose of the study was to look at the impact of telephones on the livelihoods of low-income rural communities.

Sustainable livelihoods analysis looks at people's livelihoods in terms of five different types of assets:



As expected, the results showed that the telephone has little impact on natural capital (land, water *etc.*) or on physical capital (resources such as housing, farm equipment and so forth).

More important is the impact revealed on the three areas of livelihood capital which are often discussed in relation to telecommunications – social, financial and human capital.

The impact of the telephone on social capital revealed by the survey is considerable. The telephone is important and considered to have high value in all three countries for social networking, particularly within the family. It is providing significant added value in this area, especially where family members live remotely (as migrant workers or in the diaspora), as well as substituting for some face-to-face communications.

The impact of the telephone on economic activities is mixed. The telephone is considered to have value by a high proportion of users when it comes to saving money (for example, by substituting for transport or postal costs), but it is not considered to have value by most users when it comes to earning income. Only the more prosperous, educated and successful are finding it valuable in this area. Lower income and lower education status groups, by contrast, find it unhelpful. The telephone may well, therefore, tend to increase the differential in financial capital between the more prosperous and the more marginalised within society.

The telephone is having no impact on information-gathering, the primary component of human capital in this context, in any of the three sample populations. For all groups, face-to-face communications remains the overwhelming medium of communications for information-gathering. The Internet has also failed to achieve any significant degree of usage in this area. This clear rejection of the telephone, in particular, for knowledge-gathering has significant implications for policymakers designing public information and other development strategies.

The most substantial value of the telephone in terms of livelihoods is in its impact on overall vulnerability, particularly in emergencies. The telephone here has exceptional added value compared with other communications media, in particular because of its immediacy, interactivity and ability to secure assistance from afar.

Recommendations to policymakers

The findings of this study provide the first detailed evidence of the impact of telephony on communications behaviour and livelihoods in rural communities in developing countries. The strong consistency of many of the findings across the three research countries suggests that they are likely to be relevant in many other similar contexts.

Communications flows are much slower to change than communications technologies. Policymakers in government, business, development agencies and other stakeholder groups would do well to focus on the established and trusted communications patterns within beneficiary communities and build upon these when seeking to influence behaviour or achieve development or business goals. The overwhelming importance of social communications needs within telephony and the high degree of preference attached to mass media and face-to-face communications are particularly important in this context.

New media and new technologies are most readily adopted within populations when they meet established needs or offer substantial added value – and ease of access – in comparison with existing media and technologies. Telephony offers a much better way of meeting high value priorities such as emergency support and family networking, but is seen as less effective than face-to-face communications in providing information. Broadcasting is highly valued for its general information provision and its entertainment value. In the surveyed populations, the Internet faces considerable barriers to use, including cost, skill requirements and lack of valued content as well as difficulty of access and lack of experience in use. Take-up is also likely to be slower with more complex technologies.

Telecommunications access is highly valued by all sections of the community, particularly because of its potential role in emergencies. This implies that universal access has substantial social value, irrespective of revenue that may be derived from it by telecommunications operators – reinforcing the value of universal access strategies and funds from a public policy perspective. However, the high level of use of the telephone for social networking implies that subsidised access should not be required in most rural locations – a finding corroborated by experience in Uganda, where unsubsidised wireless access now covers over 85% of the population of a low-income rural country.

The high value attached to broadcasting and to face-to-face communications suggests that policymakers should pay particular attention to the role of these information intermediaries in applying ICTs to development. Broadcasting – radio in Africa, but television in India – is particularly useful for disseminating information of general value, both where urgent action is required and in gradual transformation of behaviour patterns (for example, health promotion). Information intermediaries such as local opinion-leaders and agricultural extension officers can give much more detailed and specific advice. The telephone, SMS, fax machine and (when and where available) Internet can be effectively deployed to support their work even where they are of limited value in providing information directly to target beneficiaries.

The survey's findings concerning the economic value of telephony are also of significance. It would appear from the findings that higher status groups are finding the telephone of positive economic value, but that this experience is not shared by lower status groups. This suggests that the telephone may be increasing the differential between rich and poor, prosperous and marginalised at this stage of its adoption and distribution. Governments, development agencies and NGOs should keep a close eye on this issue to mitigate any tendency for ICTs to contribute to the growth of inequality.

Further research along the lines of this study would be appropriate, especially in building a broader range of experience and assessing the impact of telephony and other ICTs over time. Telephony, in particular, is being adopted at a very rapid rate and it is vital to understand trends over time in the impact this is having on livelihoods, as well as taking occasional snapshots of the current picture. More attention should also be paid to the value which people attach to different forms of broadcasting and broadcasting content, to differences between women and men in the adoption of telephony, and to the changing impact of telephony and Internet on business and other income-generating activities.