MAKING a DIFFERENCE

MEASURING the IMPACT of
INFORMATION on DEVELOPMENT

Proceedings of a workshop
held in Ottawa, Canada
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Paul McConnell

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Ottawa • Cairo • Dakar • Johannesburg • Montevideo
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Impact of Information on Rural Development: Background, Methodology, and Progress

Kingo Mchombu

Introduction

This paper discusses the dynamics of information provision to support development in Africa. For any community to function efficiently and productively, a basic minimum stock of usable information is essential. Every society needs to acquire, store, and exchange this basic stock of information to allow it to survive. The view that information is central to the solution of any society’s economic and social problems, and should be regarded as a factor of production is now widely accepted (Belshaw 1965, p. 128; McAnany 1978, p. 2). Pradervand (1980, p. 56) has gone even further to insist that information is the most basic of all basic needs.

Although information is recognized as an essential resource for social and economic development of the Third World, the fact that it is accorded a low status is proof that its potential value is not yet fully recognized (Mchombu 1992). The contradiction between the vital role of information in development and its lack of official recognition in Africa can hardly escape the attention of Information specialists.

Stone (1993) has called this the apparent dilemma of information being a powerful catalyst to transform society, and yet the apparent weakness of the linkage between information investments and the achievement of specific

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development goals. There is an ironic twist in that our continent, which is the least developed, is the very one that shows the least awakening to the use of information in overcoming underdevelopment.

Part of the reason lies in our politicians and policymakers not having been exposed to evidence that irrefutably demonstrates the contribution of information to development. Saracevic (1980), for example, notes that "there is no systematic body of empirical evidence to support this assertion, especially quantitative evidence."

According to Stone (1993), the challenge, therefore, is to produce valid models in which the socioeconomic impact of information activities could be assessed. In turn, such an orientation would result in the design and creation of impact-bearing information programs and services. If such impact can be demonstrated to decision-makers, resource allocators, and politicians it would increase the support of information as a vital resource in development.

In 1992, therefore, the International Development Research Centre (IDRC) organized a conference on the theme of "Measuring the Impact of Information on Development." Given the exploratory nature of the subject, the need to have lengthy discussions, and the commitments of prospective participants, the organizer decided to hold a computer conference, moderated by Michel Menou, to enable participants to exchange messages for a lengthy period of time (7 months) without interruption.

Although not involved in the computer conference because of unreliable computer facilities at my institution at that time, I was involved as a panellist and was able to send comments directly to the organizer. A workshop held in Nairobi attempted to link the findings of the computer conference to practical applications (Stone 1993, p. 19).

The outcome of the Nairobi workshop, in which we fully participated, was to come up with methodological guidelines and an operational framework on how to carry out assessment studies on the impact of information on development. Both the computer conference and workshop deliberations have been published for wider dissemination (Menou 1993). Currently, there is an active computer discussion group on information impact research and issues of methodology through which we exchange ideas and benefit from each others' experiences.

The current project is one of several ongoing attempts, funded by IDRC, to address this concern. The project grew out of my concern for the provision of information in support of development in rural communities of Southern Africa. A project to identify information needs of rural communities in three SADC member countries (Botswana, Malawi, and Tanzania), called Information Provision for Rural Development (INFORD), was carried out
between 1990 and 1992 (Mchombu 1993). IDRC came up with the funding for the project.

Given the background factors already highlighted, it was perhaps inevitable that when INFORD 2 was designed issues of assessment of information on rural development would take the upper hand. Like its predecessor, INFORD 2, also funded by IDRC, will be carried out in the same rural communities that participated in the first phase and will last for 3 years (1994/5–1996/7).

Aims

Cast in the action research mode, this study investigates the provision of information to support rural development and the impact of such information on development. Specifically, the study aims to:

• Explore the impact of information in rural development and establish conditions under which information can make an impact (or fail to impact) on attitudes, skills, and knowledge of targeted groups and cause them to achieve developmental goals.

• Test various methodologies for the efficient collection, dissemination, and use of indigenous knowledge resources and measure the impact of such indigenous knowledge use on the community's development.

• Identify, gather, and disseminate selected data and information generated from the rural development efforts of the community and measure the impact of increased use of such information.

• Select 'key information needs areas' and facilitate the supply and use of information by the community in these key areas, and measure the changes which take place as a result of the information input.

• Develop a model approach to information support for rural development that would be applicable, in a broad sense, to rural communities in Africa.

• Identify problems and constraints in delivering information in support of rural development.

• Find training needs of information workers in offering an effective impact bearing information support service.

The study will also examine the issue of whether concrete evidence can be assembled that shows the relationship between information and development. Basically, the project aims to draw out the key impact-bearing
factors in the successful provision of information in support of rural development.

**Methodological Issues**

This study hopes to provide information support for rural development and measure its impact on the development of rural communities. It involves a complex set of actions. At one level, it will involve the setting up of Community Information Centres in the designated communities, from which the investigation will be carried out. The African rural information environment is one where the average person is not familiar with the operations of a formal information centre and, consequently, information use habits (for such systems) are not fully developed (there is, however, wide use of cultural-oral information systems). Hence, vigorous social marketing is a prerequisite to popularize such services.

A second level of complexity is the selection of an appropriate methodology to measure impact of information on rural development. Assessment of information systems is not totally new. In the past, there have been attempts to assess the performance of libraries on the three criteria of economy, efficiency, and effectiveness. According to Potter (1985, p. 112), this has attempted to answer the questions:

- How economical is the service?
- How efficient is the service in the use of resources?
- How effective is the information service in the service it provides?

The works of Lancaster (1977) and Griffiths (1982) also fall into this category. What is new in the current study series is the concern for the impact such services have made on development. This is an other dimension that has not been adequately tackled in the past.

The impact workshop guidelines mentioned earlier came up with the following suggestions on how to formulate impact studies:

- Data collection and analysis should be as simple as possible.
- Interpretation of the indicators should be straightforward.
- The indicators should point to benefits that are usually given attention by policymakers.
- The indicators should lead to straightforward conclusions, which should be intelligible to those who are going to act on them (Menou 1993, p. 63).
The guidelines also identifies four types of indicators:

- Operational performance indicators, which relate to output (such as productivity, efficiency, cost per output, cost by attribute level, and productivity by attribute level).

- Effectiveness indicators, which relate output to use (such as user satisfaction, turnover rate, amount of use by attribute level, satisfaction by attribute level, and amount of use by satisfaction level).

- Cost-effectiveness indicators, which relate output to use ratios (such as cost per use, cost per user, cost per capita, and cost by satisfaction level).

- Impact indicators, which relate actual to potential use (such as market penetration, user per capita, and needs fill rate) (Menou 1993, p. 64). Martha Stone (1993, p. 12) is more specific on the issue of impact indicators and states that main element is the socioeconomic impact of information activities.

For the purposes of this study, we will concentrate mainly on two types of measurements. First, the evaluation of efficiency and effectiveness and, second, impact measurements. The first is considered essential because without these (interim) measurements, impact might not occur. Impact, refers to the socioeconomic effects of information application on the communities development goals.

To measure impact effectively, one must also monitor the process rather than simply waiting to measure the end result. From the delivery of information to the point where impact occurs (i.e., changes at the rural development practice front) involves several steps. According to Foote et al. (1987), first, is the exposure of the audience to the relevant information; second, assimilation/learning the messages; third, change of behaviours; and fourth, change in current practices as a result of behavioural change. The authors suggest that outcome measurements should be monitored at each level because "if a failure occurred at any point along the path, no further impact would be expected" (Foote et al., p. 117).

The foregoing views are based on the assumption that people are passive subjects to be acted upon and rather reluctant users of information. In contrast, Tandon (1981, p. 299), for example, subscribes to the view that speed of acceptance of change and taking up of action for development can be increased by the use of dialogue that integrates inquiry and intervention. Such dialogue between information providers/researchers may enhance a change in the critical consciousness of communities that may result in much quicker action and impact being achieved. Hall and Dodd (1977), for example, found
that in a public health campaign carried out in Tanzania behaviour change was recorded on almost 2 million people and short-term benefits included the building of 750,000 latrines.

The views of Tandon, and Hall and Dodd, and others are somewhat in conflict with the spirit of the Impact Assessment Guidelines (Menou 1993), which would seem to favour a more traditional research approach to the question of impact assessment with an inclination toward quantitative measurements that would yield data easily understood by politicians and policymakers. We are, however, convinced that a purely traditional research paradigm might not be the best way forward, in the context of impact studies on rural people's development.

Tandon (1981) notes that the traditional paradigm emphasizes the distinction of researcher and subjects. They are seen as two separate parties, and inquiry is the process of researcher's knowledge of the subjects. In the traditional research paradigm, the process of inquiry does not entail any impact on the researcher nor on the subjects (Tandon, p. 299).

Tandon explains that in inquiry and intervention both the researcher and the subject learn from each other, they also learn together from the situation that they are a part of and are engaged in studying. Thus, impact is not only on the subjects, i.e., rural people but also on the researcher (information providers) and those who are involved in the whole process (Tandon, p. 299).

The foregoing suggestions are extremely attractive. My conviction has grown since coming into contact with the works of Brenda Dervin (Dervin 1983; Dervin and Dewdney 1986; Dervin and Nilan 1986). Dervin (1983) calls for the necessity of regarding the user as a thinking, self-controlling human being, rather than an "empty bucket" to be filled with information. She adds that users make sense of the information provided in relation to their world, time, place, problems, etc. At the same time, before the information is accepted, the user already has some sense, from experience, on which he or she relies until this sense runs out. She concludes that "people seek information from wherever they can get it," and many find information relevant to their interests of the moment in almost everything they see, read, or hear while the situation is active in their minds (Dervin 1983, p. 172).

On the question of impact, Dervin noted that impacts must be seen from the users reality and point of view, rather than the popular impact measurements desired by systems in terms of quantitative exposures for accountability purposes, e.g., number of registered users, library circulation, proportion of users attending an activity, etc. Although this aspect of the current research is still being developed, it is anticipated that the methodology used will combine both the quantitative aspects envisaged in the guidelines but
also with the strong foundation of dialogue and intervention suggested by Tandon and the sense-making approach of Brenda Dervin.

Yet another complexity, according to McAnany (1978), is the extent impact is influenced by the availability of other inputs required to bring about change. The potential for impact is much greater in those cases where few other inputs are needed, for example, information impact on agriculture is usually limited by the need for noninformational inputs such as fertilizers, seeds, and tools, whereas in health, most ideas may be put into practice at a low cost.

Along the same lines, Grunig (1971) found in Colombian peasants that, although information can help an individual adapt to a changing situation, it can do little to change the situation. For example, agricultural information, will hardly make an impact in a situation where the targeted group consists of landless peasants. This has been referred to as the structural context. There is need, therefore, to determine the weight (or contribution) of information in each change situation or context so that we can assess more accurately the extent of the information-derived impact of each situation.

The Menou report (1993) had also suggested that benefits likely to accrue to the beneficiaries be identified to develop indicators for measuring whether they (benefits) have been realized. Moyo (1995, personal communication), however, notes that such benefits are a result of a compound set of factors, such as macro technological developments, political and economic changes, weather and seasonal changes, and the fact that human development is a naturally occurring phenomenon, hence even without the intervention, some development would have occurred anyway. According to her, there is a need to know the current pace of development before one can measure the acceleration that occurs as a result of additional information support.

From INFORD 1 to INFORD 2

An integral part of this research project involves setting up information services outlets in the six rural communities that participated in phase one of this study (INFORD 1). The information needs identified in phase one will form the point of departure for INFORD 2. Phase one followed mostly a traditional research paradigm (with the partial exception of one section), but it offers a starting point. The information needs uncovered in phase one, briefly highlighted in the following, will be cast in terms of anticipated benefits, and indicators for measuring the impact of the information will be developed.
Phase I Study and Summary

Phase one of this study was carried out between 1990 and 1992, and a report titled "Information Needs and Seeking Patterns for Rural People's Development in Africa" (Mchombu 1993) was the result. The findings show that rural information needs fall into two categories: information needs common to all rural communities (studied), and needs that are location specific.

Common Rural Information Needs

- Information on income generation (projects, nonfarm incomes, and money-saving initiatives).
- Community leadership.
- Literacy support.
- Basic economics (petty business, finance/loans and how to get them, and survival of small businesses).
- Government policies on rural development (health, agriculture, education, cooperatives, etc.).
- Soil conservation, fertility restoration, and soil erosion.

The location-specific information needs are presented in the following under the respective countries/villages.

**Malawi: Village 1 (Chiwamba)**
- Agriculture — tobacco (modern farming, marketing, international atmosphere).
- Health and sanitation (hygienic handling of local brews, malaria prevention, hookworms prevention, etc.).

**Malawi: Village 2 (Bandawe)**
- Alternative crop to rice (cotton?)
- Health and hygiene (malaria, hookworms, chest infections)
- Fishing information — migration on the lake and marketing information.

**Botswana: Village 3 and 4 (Mogobane and Kopong):**
- Information for seasonal/casual employment.
- Vocational training opportunities.
- Farming under drought conditions.
- Livestock husbandry.
Tanzania: Village 5 (Kisarawe II):
- Farming (cashewnut, fruit tree, coconuts farming, horticulture).
- Cooperatives.
- Health and sanitation (mosquito-borne diseases).
- Health of young children.

Tanzania: Village 6 (Marindi):
- Farming (Coffee — modern farming, marketing, use of pesticides).
- Keeping cross-bred dairy cattle.
- Cooperatives.
- Health and sanitation.

The investigation also included how indigenous knowledge resources of each of the communities are perceived and used by the community. Findings show that most of the villagers were hostile to the use of indigenous knowledge, but there was still considerable use of such information in the struggle for daily survival. There is no system in place to bequeath this knowledge to the younger generation as communication links for this purpose have been cut.

There was a need to create channels for the communication of indigenous knowledge to the young (primary school children) and incorporate useful elements in the development process. The broad purpose of any future study is to change the negative perception toward indigenous knowledge, which is perceived as a barrier to development.

**Linking Information Needs to Impact Assessment**

To link information needs to impact assessment, we have to propose benefits of information under each need, types of services, and products that will lead to these impacts and indicators that we will look for during assessments.

This exercise must be finalized after consulting the respective communities, but what follows is a tentative elaboration of a possible outline on selective information needs (space will not allow a comprehensive elaboration). In each community, one of the information needs areas will be chosen for measuring impact on development.
Need: Income Generation

- **Anticipated Benefit:**
  Find opportunities to earn off farm incomes,
  Identify opportunities to earn extra incomes from agricultural products,
  Learn about small businesses,
  Be aware of basic economics and simple accounting procedures,
  and
  Increase cash incomes in household.

- **Relevant Services and Products:**
  Information of sources of rural finance,
  Information on how rural people in other parts generate more rural incomes,
  Information on how to process and preserve foodstuffs,
  Information on market prices for agricultural produce and seasonal fluctuations,
  How to start and manage small projects,
  Booklets on basic economics and basic accounting,
  How to keep away from bankruptcy, and
  How cooperative activities operate.

Need: Employment

- **Anticipated Benefits:**
  Self-improvement,
  Improved chances of finding work,
  Improved chances of acquiring training, and
  Awareness of self-employment opportunities (including small-scale commercial farming).

- **Services and Products (to provide benefits):**
  Information on local job opportunities,
  Newspapers with vacancies,
  Information on self-employment opportunities,
  Information on courses and training schemes,
  Careers literature, and
  Directories of vocational training institutions.
Need: Soil Conservation Measures

• **Anticipated Benefits:**
  Improved management of land and water resources,
  Improved land use practices,
  Increase in agricultural productivity, and
  Improved soil fertility restoration practices.

• **Services and Products (to provide benefits):**
  Information on how to make manure from organic matter,
  Information on range management practices,
  Use of fertilizers, prices, advantages, problems, etc., and
  Information on local/government bylaws on conservation.

Need: Information on Community Leadership

• **Anticipated Benefits:**
  Improved leadership in the community;
  Increase VDC capacity to diagnose community problems, formulate action, and monitor/supervise implementation;
  Improved record keeping by the community government,
  Appreciate need for accountability and democratic participation, and
  Improvement in the motivation and mobilisation of people for development.

• **Services and Products:**
  Information on community development and management,
  The history of the community and its development,
  How to keep minutes of meetings and monitor implementation,
  Information on the development of other communities in other parts of the world,
  News of ongoing projects in the village,
  News of government programs that affect the village, and
  News of other programs the community can take advantage of.

Need: Health Information

• **Anticipated Benefits:**
  Awareness of how the most prevalent diseases spread,
Improved chances of taking measures against common diseases,
Improved attendance at clinics/health centres for under fives,
Improvement in family nutrition through better mix of existing foods, and
Safer handling of pesticides, and agricultural drugs.

- **Services and Products (to provide benefits):**
  Information on common diseases and their control measures,
  News of scheduled clinics for under fives,
  Information on nutritious foods locally available,
  Awareness of poor food habits, and
  Information on safe handling of pesticides and what to do in case of poisoning.

**Research Activities**

**Dissemination of Information**

First, in the planned sequence of major events involved in this study, the dissemination of information will entail establishment of the Community Information Centres, using participative and dialogue approaches, including consultations with the respective communities and formation of a management committee at the grassroots level.

Second, it will involve negotiations with several stakeholders, principally the national libraries of the respective countries, village extension workers, teachers, and nursers to brief them on the project and solicit their cooperation. Part of the collection of the CIC will be borrowed from respective public libraries through their book box services or village reading rooms to act as a start up resource for the centre while a dedicated collection is being assembled.

Third, information delivery strategies will be set up, including - Monthly News-sheet, lending of books/ booklets, Provision of Newspapers, Provision of Farm magazines, and Provision of audio-visual information through audio and video cassette, and formation of discussion groups.

**Baseline Data Collection**

A vast amount of background data was collected during phase one of this study, time has passed and some changes have occurred. Updating data
will thus be collected on the key areas identified as important for information provision to take place.

Collection of Routine Data/Statistics on CIC Activities

These data are aimed at indicating level of use of activities and trends over time. When compared to the total population, for example, it will reveal use per capita, groups making most use of certain services, etc.

Collection of Anecdotes from Members of the Community

Reactions of individuals and groups on the use of information and its effect on their work, thinking, development, etc., will be recorded on a continuous basis. Anecdotes will be collected using the sense-making and dialogue methods. Such anecdotes will be analyzed by categories and by linking them to the environment of the user, context, problems, and changes that have occurred (if any) to the user's life as a result of information use. If a large enough body of anecdotes is collected, content analysis will be used to divide them to broad groups and other variables of interest to this study.

Interviews

Interviews will be held after a year of information provision in the respective communities. The aim of the interviews will be to track the impact of information on cognitive structures and community development. The study will be quantitative and based on a small sample of between 20 and 30 respondents in each of the respective communities.

This small-scale study will also attempt to monitor the general impression of the CIC innovation on the community. The interviews will attempt to link variables of gender, age, and education/literacy levels and income levels to exposure, learning, behavioral change, and information use impact on individual and community development goals. Small-scale ancillary studies will be carried out during the second year to observe if new practices have been introduced in farms, health practices, etc., as a result of the information input and to monitor community reactions to the CIC services.

Main Impact Assessment

The aim of this major research activity will be to establish if the information provided has led to development gains in the community. This will
have both qualitative and quantitative aspects. An attempt will be made to trace the various information products/services offered vis à vis the key information needs to find the impact such information has had on the different target groups in the community, from their own perspective, and what have been the factors (environmental and otherwise) that contributed to the outcome. This final stage will also involve holding a similar study in several communities (ideally one village in each country) that did not have exposure to the information support activities to find out whether there are any differences between the control communities and the communities that participated in the study.

**Progress**

At the time of writing, several activities related to this project have taken place. Phase one findings have been reported back to the respective communities. This took place in December 1994. Negotiation with authorities in the villages aimed at starting the second phase are at an advanced stage. In all cases, the communities have received the possibility of starting a Community Information Centre with great enthusiasm.

Rural communities are not static, and since 1990 when phase one took place, many changes have taken place. In Malawi, for example, the one-party regime of Dr Banda has been replaced by a multiparty system, and there is a new spirit of hope and confidence in the two rural communities. In Tanzania, the one-party state has been forced to accept multiparty politics, and people who have lived under a monolithic party system all their lives have a choice now of more than 20 political parties.

Most find this disconcerting in the light of very limited firsthand information on what these changes entail and what these parties stand for. In Botswana, things are more stable, but the ruling party lost considerable ground in a recent election (1994) and, in one of the villages, I found the that the village chief had passed away and his place taken by his well-educated son who has shown great enthusiasm for this project.

The search for suitable premises from which to offer the service in the communities has shown that only two communities can offer premises (one a former tea room, the other a village reading room) to start a very basic service. One village has offered a building whose roof was blown off during a storm and estimates for repair are awaited. Three of the villages are finding it difficult to come up with suitable premises. These are some of the challenges of working in an African rural environment where basic facilities are often not
yet in place. Clearly, each village may have to move at its own pace. Shortly, between now and July, we hope to have recruited information facilitators to work in each of the CICs after giving them initial training.

**Conclusion**

We feel reasonably confident that this research aimed at measuring the impact of information on rural development, like its predecessor (INFORD 1), will come up with interesting findings concerning the research problems described in the foregoing. Not the least in importance, perhaps, is the possibility of revisiting the whole process of designing information services, which may come up with concrete ways of designing impact-driven information systems. The twin concepts of dialogue, and sense-making, for example, hold great promise for finding and meeting the information needs of users and potential users. Although the task is far from easy, it is a challenge worth undertaking.

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