



**Communicating with Radio:
What Do We Know?
*Findings from selected rural radio
effectiveness evaluations***

**African Farm Radio Research Initiative (AFRRI)
Farm Radio International
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For more information, contact:

Farm Radio International
1404 Scott Street
Ottawa, ON
Canada
K1Y 4M8
info@farmradio.org
www.farmradio.org
1-888-773-7717



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TABLE OF CONTENTS

Executive Summary	4
Background and Purpose	
Key Findings that Should Guide AFRRRI	
Knowledge Gaps and Corresponding AFRRRI Opportunities	
Recommendations for Improving Effectiveness	
Conclusions	
Introduction	11
1. Evaluating effectiveness and impact	12
Farm and rural radio in Africa	
The African Farm Radio Research Initiative	
AFRRRI research objectives and questions	
Defining effectiveness	
2. Evaluation studies on the effectiveness of farm radio	16
Measuring the impact of media and communications on society	
History of farm and rural radio	
Studies on the effectiveness of farm radio and radio for development	
3. Farm radio effectiveness evaluation in India	19
<i>The Poona farm forum project</i>	
Research methods and instruments	
Major lessons and outcomes	
4. Farm radio evaluations in the Philippines	21
<i>The Radio DZLB School-on-the Air evaluations</i>	
Key research projects	
Research methods and instruments	
Major lessons and outcomes	
5. Impact evaluations in Tanzania	25
<i>The radio listening group campaigns in the 1970s</i>	
Research methods and instruments	
Major lessons and outcomes	
<i>The 'Twende na Wakati' entertainment-education project</i>	
Research methods and instruments	
Major lessons and outcomes	

- 6. Impact evaluations in Malawi** **31**
- Malawi Mass Communication Project in 1966*
 Research methods and instruments
 Major lessons and outcomes
- UNICEF-MBC listenership survey of 1992*
 Research methods and instruments
 Major lessons and outcomes
- The Rural Development Communication Campaign evaluation*
 Research methods and instruments
 Major lessons and outcomes
- Evaluating the Development Broadcasting Unit radio listening club project*
 Research methods and instruments
 Major lessons and outcomes
- 7. The Rural Radio Revival Project in Mali** **41**
- Research methods and instruments
 Major lessons and outcomes
- 8. Impact evaluations in Mozambique** **44**
- The Media Development Project “Barefoot Assessment” methodology*
 Research methods and instruments
 Major lessons and outcomes
- Hazard and sustainable development awareness via Radio Mozambique under the Zambézia Agricultural Development Project (ZADP)*
 Research methods and instruments
 Major lessons and outcomes
- Population Services International HIV/AIDS and STI education radio campaign*
 Research methods and instruments
 Major lessons and outcomes
- 9. Farm radio effectiveness in Ghana** **51**
- Ghana radio forums project*
 Research methods and instruments
 Major lessons and outcomes
- The soil and water conservation management radio campaign*
 Research methods and instruments
 Major lessons and outcomes
- An impact assessment of the role of community radio in the provision of market information to Greater Accra Region*

Research methods and instruments	
Major lessons and outcomes	
<i>The Linking Agricultural Research and Rural Radio in Africa (LARRA) Project</i>	
Research methods and instruments	
Major lessons and outcomes	
10. Soul City health communication campaigns, South Africa	59
Research methods and instruments	
Major lessons and outcomes	
11. Knowledge gaps in farm and rural radio effectiveness	62
12. Conclusions	66
Appendix A Abbreviations	68
Appendix B Summary of research methods and instruments	69
Works Cited	72
Suggested Reading	79

EXECUTIVE SUMMARY

Background and Purpose

The African Farm Radio Research Initiative (AFRRI) is a new project whose purpose is to gather, implement, evaluate and share best practices for using radio-based communication strategies to enhance food security in rural Africa, specifically in Mali, Ghana, Malawi, Uganda and Tanzania. It will also offer capacity-building and training services for radio broadcasters so they can improve their programming for rural listeners.

In each country where AFRRI will be implemented, advisory committees representing farmers' organizations, radio stations, research organizations, government extension agencies and other stakeholders will come together to develop detailed action plans. As well, partner radio stations will produce and broadcast a variety of innovative radio campaigns with and for farmers that address food security priorities. By comparing farmers' knowledge and farming practices before and after the programs are broadcast, AFRRI will discover how radio, along with other communication technologies, can best be used to help smallholder farmers meet their food security objectives.

However, it was determined that prior to completing the research design and initiating the action research projects described above, it was necessary to undertake a complete study of what is already known about farm radio effectiveness in Africa in order to ensure that AFRRI builds on and adds to existing knowledge about how radio-based communication strategies can most effectively help farmers to improve their productivity and food security.

Relatively few program evaluations exist that reveal how radio can influence the food production or food security of farmers. Nonetheless, a larger body of research does exist on the impact of social marketing strategies – often including radio – on health-related behaviour change.

It was therefore determined that the main objectives of this preliminary study would be to discover, review and analyze what has already been documented on links between radio-based communication strategies and rural development outcomes, particularly with regards to smallholder farming and food security outcomes in Africa; and to reveal best radio practices, including optimal formats, schedules, production qualities and station management. This study also aimed to identify what knowledge gaps exist in order to pinpoint challenges and opportunities for AFRRI and to make recommendations on how AFRRI might best improve the effectiveness of radio-based communications.

Key Findings to Guide AFRRRI

Radio does not grow food, nor does it work the fields. As a communication tool, however, radio has proven its power to improve farmers' decision-making by providing them with relevant information and sharpening their analytical perspectives as they undertake decisions that lead to improved farm management, yields, nutrition and food security. This study presents selected case studies that demonstrate how radio has been employed to improve decision-making in agricultural, health and development issues. Building on such cases, the discussion attempts to locate how AFRRRI might best design its farm radio campaigns.

The challenge for agricultural communicators today is to develop and package messages and content that appeal to their target audiences – the farming constituencies. Farm broadcasters need to develop relevant content, but they also need to be concerned about whether or not farmers will listen to their programs. The challenge for AFRRRI therefore goes beyond content generation; the Initiative must consider radio audience development mechanisms in the face of a changing media environment.

A note about the case studies

This report is a critical review of 17 case studies that assess the effectiveness of rural radio. The studies, which are based on experiences in eight different countries, are not the only ones that have attempted to establish a link between radio-for-development strategies and the diffusion of better practices in agricultural and rural development, but they are among the most relevant. As mentioned previously, there are relatively few studies that address these issues; those reviewed here were not selected at random, but were chosen because they were available, had been conducted using defined research methods, and focused on the impact of farm and development radio in promoting sustainable livelihoods, communities and the environment.

While two of the studies discussed here are based on experiences in Asia (India and the Philippines), they are included because, outside of Canada, these farm radio experiments proved to be among the most successful and offer pathways on how to do farm broadcasting today. The other case studies reviewed in this study come from Tanzania, Mali, Malawi, Mozambique, Ghana and South Africa.

1. India

The Indian case studies aimed at establishing the effectiveness of organized radio study groups with regards to participants' knowledge gain. With the help of UNESCO, India's farm forum project was implemented in the Poona region in the 1950s. The government later attempted to introduce the project on a national scale. The evaluation of the Poona forums was carried out by the Tata School of Social Sciences.

Key findings:

- Organized group listening and discussion improves knowledge gain; and
- Multi-channel communication is more effective than single channel communication.

2. Philippines

The Philippines radio schools were employed to help farming and rural communities access more relevant information that would help them improve their agricultural decision-making. The radio schools consisted of radio lectures delivered to farmers who listened to them under classroom conditions.

Key findings:

- While radio school is very effective, radio should not act alone;
- Testimonials and jingles facilitate the best recall and comprehension of messages;
- Farm radio is an effective social lubricant; and
- Farm and development radio content is more effective when generated with and alongside local communities.

3. Tanzania

The Tanzanian radio forum project of the 1970s also attempted to establish the effectiveness of organized listening groups in advancing participants' knowledge gain. In the 1990s, entertainment educational radio dramas were employed as an instrument for facilitating behavioural change in family planning.

Key findings:

- Farm and development radio increases people's development knowledge, but it faces problems of sustained attendance;
- Radio study groups are a considerable help in getting people to adopt better development practices;
- Radio forums strengthen rural decision-making structures; and
- Radio dramas attract a wide and sustained listenership, and influence behavioural change positively.

4. Malawi

In Malawi, the farm forum project of the 1960s used radio as an agricultural extension tool for helping farmers to teach farmers better agricultural practices. The 1990s listenership survey aimed at understanding the listenership patterns and trends for the public broadcasting radio. The Rural Development Communication Campaign, on the other hand, aims at using radio to improve farmers' adoption of technology and innovation. Similarly, the Development Broadcasting Unit employs radio forums as strategies for mobilizing communities to participate actively in development alongside the government.

Key findings:

- Farm radio is very effective in communicating agricultural messages, and is a key component of an agricultural extension program;
- Farm radio forums initiate interest in farming issues, but are not sufficiently effective on their own;
- Late afternoons and early evenings are the best radio listening times;
- Agricultural drama is more effective than a magazine format in attracting high listenership;
- There are poor research linkages among farm broadcasting stakeholders;
- Community-produced radio programs motivate communities to take development action;
- Radio programs created by communities attract high listenership;
- Field-generated programs give people a sense of identity and self-efficacy; and
- It is important to consult communities before establishing radio listening clubs.

5. Mali

In Mali, the Rural Radio Revival (RRR) Project attempted to strengthen the country's nascent democracy by offering rural communities an opportunity to own their communication structures and processes. By employing such pre-intervention assessment strategies, four rural radios in Southern Mali were able to sensitize and empower rural farmers to better organize themselves for cotton growing.

Key findings:

- Listenership studies are a key strategy for determining audience preferences and needs before developing programming.

6. Mozambique

Mozambique's Media Development Project provided an opportunity for the strengthening of governance in the country through the development of media after years of civil war. The "barefoot" assessment methodology developed under the project offers an opportunity for community radio committees and broadcasters to conduct their own evaluations as a strategy for understanding whether or not radio stations are meeting community needs. As well, a pre-intervention assessment of the Zambézia Agricultural Development Project established the importance of radio in agricultural development. Population Services generated a radio-based campaign on HIV/AIDS and sexually transmitted infections that tested the effectiveness of radio as an instrument for facilitating behavioural change.

Key findings:

- Community-generated evaluation instruments are relevant to local situations;
- Participatory evaluation is sustainable; most households own radio sets;
- Local public or community broadcasters enjoy high listenership;
- Radio is the most effective means of reaching the rural communities;

- Drama and magazine are the most popular formats of educational programming;
- Radio spots are popular too, but specific messages are not adequately recalled; and
- Sustained radio listenership is more effective than exposure to a specific campaign.

7. Ghana

In Ghana, the 1960s farm forum project aimed to examine the effectiveness of organized listening clubs in helping farmers gain knowledge. Similarly, the 1990s radio-based soil and water management campaign tested the effectiveness of radio at helping farmers better understand issues of soil and water management. Likewise, Yordy's study on the role of community radio in the provision of market information in the Greater ACCRA region examines the contribution of radio in providing the search costs for buyers and sellers in the fishing industry. The Linking Agricultural Research and Rural Radio (LARRRA) Project tests the importance of radio-researcher-farmer linkages in the generation of relevant agricultural content.

Key findings:

- Radio forums are superior to the use of radio alone;
- Rural radio is a reliable agricultural extension tool;
- Drama is the most popular and effective format of farm-casting;
- Effective radio programmes provide farmers with strategies for generating more income;
- Farm radio must integrate communication-for-development approaches;
- Interviews and focus groups do not yield much information when measuring the specific impact of farm and rural broadcasts;
- Radio listenership is affected by differences in gender and radio set ownership;
- Strong research linkages between broadcasters, agricultural researchers and farmers' organizations improve radio's effectiveness; and
- Farm radio is more effective when linked with new information and communication technologies (ICTs).

8. South Africa

The South African study highlights the role of entertainment educational dramas under the Soul City Series (one to eight) in promoting behaviour change in health and development issues as well as in strengthening collective efficacy and community development.

Key findings:

- Entertainment-educational radio and television dramas are the most effective practice in development programming, and they promote deliberative dialogue around development issues;
- Multimedia approaches increase the reach of development radio programs

Knowledge Gaps and Corresponding AFRRRI Opportunities

Based on its analysis of the 17 case studies whose key findings are described above, this report identifies five knowledge gaps in farm and rural radio effectiveness. For each gap, an AFRRRI research opportunity is suggested.

Knowledge Gap 1: There is a lack of systematically designed farm radio campaigns that integrate evaluation in the planning stage. AFRRRI should promote the adoption of some health communication evaluation approaches. Planning and designing for farm radio programs and initiatives should be based on P-Process and other method-driven or theory-informed communication strategies in which the implementation of the farm radio campaign could be in the form of experimental designs, as was the case in the farm forum campaigns of the 1960s and 1970s (and as is the case in health communication campaigns).

Knowledge Gap 2: There are problems with regular audience surveys. A major challenge in the evaluation of farm and rural broadcasting is how and when to carry out audience surveys. Audience surveys dealing with exposure to farm and development radio programs are scant. In cases where they have been carried out, they have tended to be quite qualitative, composed largely of speculations and opinions from broadcasters or agricultural field officers with little or no skill in farm radio or agricultural communication research. AFRRRI should facilitate the institutionalisation of audience research among public and community broadcasters by capacitating the broadcasters and broadcasting managers working within rural departments of established broadcasting corporations. This could be done through capacity-building sessions and workshops to train radio researchers in conducting audience surveys as part of generating content for their radio programs.

Knowledge Gap 3: Unsustainable and non-participatory evaluations result from donor dependency on effectiveness studies. Although local communities often own rural radio stations, they still depend on donor funding to implement their programming and management initiatives. Consequently, it is often the case that communities own the rural radio structure (equipment, identity and name), but their access to quality and community-centred programming relies on funding from donors – who, in reality, own the station’s “community-ness” and sustainability. AFRRRI has the opportunity to develop and test locally generated evaluation instruments with partner broadcasters. To do this, AFRRRI would have to expand the current development journalism orientation towards media development, in which the focus would be on training broadcasters and management communities to think of generating sustainable and more participatory evaluation instruments and methodologies.

Knowledge Gap 4: Evaluations focus on the impact of just one or two programmes to promote better agricultural practices, nutrition and rural development. Many evaluations tend to focus on the radio campaigns under a specific sponsor, leaving out similar programs by other sponsors – and often, the assessments do not focus on print media campaigns. Working in conjunction with selected agricultural extension departments in African universities, AFRRI should initiate the testing of methodologies that would allow for the evaluation of farm and development programs in relation to other programs that deal with similar issues but are perhaps funded by other donors.

Knowledge Gap 5: Evaluations often disregard other forms of farm broadcasting. With the emergence of new forms of media, information and communication technologies (ICTs) are pushing the boundaries of the traditional approaches towards broadcasting, and radio content is no longer provided strictly through radio. Podcasting and live streaming, for example, ensure that radio content is made available through the Internet or on MP3 players, and users are free to access specific content that responds to their needs at times that suite them. AFRRI should redefine farm broadcasting to include other ICT-facilitated broadcasting and narrowcasting formats. The challenge for AFRRI is to locate itself within the praxis of agricultural extension, which is largely concerned with improving farmers’ decision-making through multi-media approaches.

Conclusions

This study argues that radio-based health communication projects provide a model for the design, implementation and evaluation of farm radio campaigns because they are strategically designed – that is, they are method-driven and informed by theory. They require a great deal of cooperation among communication specialists, broadcasters, health planners and researchers, since communications projects generally take a long time to conceptualize, plan and design. Farm broadcasting campaigns could draw upon the nature and modes of radio-based health communications to improve the effectiveness of using radio to communicate with farmers. This report takes a comparative approach in its discussion of the challenges facing effectiveness studies in farm and rural radio. It also places tremendous responsibility on AFRRI to reinforce research partnerships within the agricultural extension and communication sector in order to strengthen farm radio research.

INTRODUCTION

This report is a critical review of 17 case studies that assess the effectiveness of farm and rural radio in helping smallholder farmers improve their productivity and food security.

These studies, which are based on experiences in eight different countries, are not the only ones that have attempted to establish a link between radio for development strategies and the diffusion of better practices in agricultural and rural development, but they are among the most relevant. There are relatively few studies that address these issues; those reviewed here were not selected at random, but were chosen because they were available, had been conducted using defined research methods, and focused on the impact of farm and development radio in promoting sustainable livelihoods, communities and the environment. While two of the studies discussed here are based on experiences in Asia (India and the Philippines), they are included because, outside of Canada, these farm radio experiments proved the most successful and offer pathways on how to do farm broadcasting today. The other case studies reviewed in this study come from Tanzania, Mali, Malawi, Mozambique, Ghana and South Africa.

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The study preceding this report was funded by AFRRI and carried out largely as a desk research exercise. However, it builds on interviews and focus group discussions that have been conducted in the five AFRRI partner countries and beyond.

1. EVALUATING EFFECTIVENESS AND IMPACT

The key questions this particular study seeks to address are: How effective is farm and rural radio in helping farmers improve their productivity and food security? What knowledge gaps exist with regards to the effectiveness of farm radio, particularly in terms of how this medium addresses agriculture and development questions? A major expected output then would be to identify the role that AFRRRI can play in addressing these knowledge gaps. This report analyzes major radio-for-development evaluation studies conducted in Africa by focusing on their nature, method, approaches, instruments, findings and knowledge gaps. It then offers suggestions regarding how AFRRRI should respond to these research challenges and gaps.

Farm and rural radio in Africa

Farm broadcasting, or “farmcasting,” as Librero (1985) conceptualises the practice, refers to the whole system and structure within broadcasting institutions through which agricultural radio programmes are produced and disseminated to the general public, largely as part of agriculture extension strategies (Manyozo, 2007:121). It is a branch of development journalism that specifically centres on subject matter experts and communicators who rely on radio programming to disseminate technical agricultural knowledge to farming communities (Pickstock, 2006; SADC-CCD, 2006).

Farm radio in Africa emerged in the 1940s and 1950s, when state and public broadcasters started generating agricultural programming intended for rural and farming constituents. Ansu-Kyeremeh (1994) observes that the first rural and farm broadcasting initiatives implemented in Africa were built on centralized processes and structures of broadcasting, in which rural radio was employed as a tool for disseminating development messages and information packaged outside of communities.

Rural radio, on the other hand, refers to both broadcasting strategies (where centralized broadcasters produce programmes meant for rural audiences) and decentralized broadcasting stations that are located in rural areas (these can be commercial, community, government or rural networks) (Manyozo, 2007; Hambly Odame and Atibila, 2003). While rural radio focuses on development needs, and is located in local rural areas and within indigenous knowledge structures and processes, community broadcasting focuses on correcting social and economic marginalization and is thus more correctly referred to as an alternative media source (Keita, 2001; White, 1990; Ilboudo, 2001, 2003; Da Matha, 2001; Castello, n.d; Hambly Odame, 2001; Pickstock, 2005).

Considered together, farm and rural radio refer to all radio-based communication processes and structures that allow broadcasters and communities to generate, share and utilize development research and knowledge for the purposes of improving rural and farming livelihoods and creating sustainable communities and environments.

The African Farm Radio Research Initiative

The African Farm Radio Research Initiative (AFRRI) is a project of the Developing Countries Farm Radio Network (DCFRN), which is working with farm broadcasters and relevant organizations from five African countries: Mali, Ghana, Tanzania, Uganda and Malawi. AFRRI is a new project financially supported by a \$4 million dollar grant to World University Service of Canada (WUSC) from the Bill and Melinda Gates Foundation. In partnership with WUSC, the Network is strengthening farm and rural radio broadcasting through AFRRI over a period of four years.

Since George Atkins founded the organization in 1975, DCFRN has always aimed to provide “practical information about low-cost farm methods” as a pathway for enabling farming communities to “increase their food supplies and improve their lives” (DCFRN, n.d). The key DCFRN approaches involve developing farmcasting content and providing learning and training opportunities in farmcasting.

AFRRI research objectives and questions

AFRRI’s key objectives are to gather, implement, evaluate and share best practices in radio-based communication strategies to enhance food security in Mali, Ghana, Malawi, Uganda and Tanzania, where advisory committees representing farmers’ organizations, radio stations, research organizations, government extension agencies and other stakeholders are coming together to participate in the development of detailed action research plans (DCFRN, n.d). The initiative will also offer capacity-building and training services for radio broadcasters so they can improve their programming for rural listeners (DCFRN, n.d).

In collaboration with farmers, AFRRI will facilitate processes by which its partner radio stations will produce and broadcast a variety of innovative radio campaigns that address food security priorities (DCFRN, n.d). By comparing farmers’ knowledge and farming practices before and after the programs are broadcast, AFRRI will discover how radio, along with other new and old information and communication technologies (ICTs), can best be used to help smallholder farmers enhance their food security situations (DCFRN, n.d). AFRRI intends to answer to following questions:

1. *How and in what ways is radio most effective in enabling smallholder farmers in Africa to address food security challenges that they face?*
2. *How can new technologies such as cell phones, satellite radio and MP3 players increase the effectiveness of radio as a sustainable, interactive development communication tool?*

This report therefore examines the nature of the major research carried out to date on the effectiveness of farm radio in improving food security, nutrition, agricultural and rural development in Africa. It then pinpoints the knowledge gaps, and—building on these—identifies the rationale for AFRRI’s research agenda.

Defining effectiveness

Ideas about the developmental impact of farm and rural radio have always revolved around two key questions: Can positive changes within communities be traced back to specific programmes and radio stations? And to what extent are the programmes and stations meeting their audience's aspirations (ID21, 2006)? In discussions of the concept of evaluation, the key issues in the concept of evaluation encompass the systems that govern that assessment, in which researchers examine activities based on inputs and outcomes as well as whether or not indicators can attribute positive changes to the project activities and interventions (Yordy, 2007).

In communication for development, the notion of effectiveness has often been defined in terms of “communication effects”—that is, the changes in knowledge, attitudes and practices that can be attributed to specific radio programs. Three major factors underpin the design and implementation of impact evaluations of development radio. These are: the **process** of developing the radio programs; **exposure** to radio programming; and the decision-making process of **adopting** best practices. In carrying out effectiveness studies, researchers may focus on one, two or all of these elements.

Process: Developing educational and development content

Effectiveness evaluation focuses on establishing whether or not the conceptualization and production of the development radio program was theory-based and method-informed— that is, whether or not it was strategic. In health communications, the Health Communication Partnership (HCP) propounded the P-Process, which the Johns Hopkins University's Centre for Communication Programs (JHU-CCP) defines as a “framework designed to guide communication professionals as they develop a strategic and participatory program with a measurable impact on the intended audience” (HCP, 2003).

Employed largely in the design of health education and communication programs, the P-Process has five principal steps: situation analysis, strategic design, development and testing, implementation and monitoring, and evaluation and re-planning (HCP, 2003). For instance, Bud Hall (1978) discusses the strategic organization of the radio study groups in Tanzania in the 1970s. Sampling *Mtu ni Afya* (Man is Health), *Uchanguzi ni Wako* (The Choice is Yours) and *Wakati wa Furaha* (Time for Rejoicing), Hall explores the planning and organization of these radio-based campaigns in Tanzania from the development of campaign objectives through to the production and distribution of study material and up to the evaluation of the projects themselves.

Situation analysis involves developing a problem statement arising from formative research on the problem, audience communication and training needs, and development priorities (HCP, 2003). This also involves identifying relevant partners as well as levels of knowledge, attitudes and practices towards the problem at hand. *Strategic design* involves establishing communication objectives, approaches and channels as well as developing an implementation, monitoring and evaluation plan (HCP, 2003). *Development and testing* requires communicators to develop “concepts, materials, messages” which should be tested with stakeholders, then revised and retested (JHU-CCP, n.d). *Implementation and monitoring* “emphasizes” participation, flexibility and training in producing and circulating dissemination plans, in building institutional and community capacity, and in managing and monitoring communication programs (Health Communication Partnership, 2003). *Evaluation and planning* centres on measuring and assessing

impact, the results of which should feed into the communication process.

Exposure: Use and ownership of educational and development content

Based on this principle, impact evaluation assessments largely attempt to establish the likeability and acceptability of development radio content by and among intended audiences. The key research questions governing this principle are: Are audiences listening to the radio program? Where are they listening to it? What are the listenership patterns for the radio program? What do they like about the program? To what extent do audiences connect with the program content or characters, if it is a drama? How are audiences making sense of the content?

Impact evaluations therefore focus on how broadcasters' radio practices influence the audience's radio practices. Vargas (1995: 5) conceptualizes audience radio practices as the "customary ways in which audience members use both radio messages and resources provided by broadcasters." Broadcasters' radio practices, on the other hand, are "the daily routines of people producing and transmitting messages as well as institutional ideologies and constraints that frame these routines" (Vargas, 1995: 5).

Building on these ideas, evaluation studies attempt to show the organization of radio listening groups, such as farmers' clubs, and their relationship to the format of the program itself. In discussing the impact of the radio program, *Mtu ni Afya* (Man is Health), Hall (1978) examines the radio programming schedule in relation to the organization, establishment, attendance rates and patterns of (and participation in) study groups, as well as the subsequent use of the actual radio programs. In the case of *Mtu ni Afya*, the statistical evaluation focused on measuring the knowledge gain of study group participants by comparing the pre-test and post-test scores of the experimental groups (Hall, 1978).

Adoption: Implementing the best practices suggested in development radio programs

With regards to this factor, evaluations tend to focus on demonstrating how the decision-making processes of individuals and communities are positively influenced or affected by exposure to specific radio programs. Vaughan and Rogers (2000), for instance, introduce what they call a "Staged Model of Communication Effects" in discussing the impact of a health radio drama, *Twende na Wakati* (Let Us Walk Together). The impact evaluation study preceding their article was actually built on behavioural change theories, such as stages of change, social learning and the diffusion of innovations. In the study, Vaughan and Rogers (2000) theorize that people exposed to developmental dramas go through six stages: pre-contemplation, contemplation, preparation, validation, action and maintenance.

2. EVALUATION STUDIES ON THE EFFECTIVENESS OF FARM RADIO

Measuring the impact of media and communications on society

The social impact of communications first came under scrutiny in the early 1920s, when institutions attempted to measure the impact of media and communications on audience behaviours. Over time, scholars have used two divergent approaches—media effects research and cultural studies approaches—to understand the impact of media messages on societies and individuals (Manyozo, 2007).

Research on media effects has usually focused on understanding the impact of media messages on audience behaviours or opinions. Attempts to explain such effects have been framed around scientific and communication theories such as social learning theory, agenda setting, or spiral of silence. In the early days of media effects research (beginning in the 1920s), the research foci were on the effects of media propaganda, while media violence and mass opinion, and media effects were studied under laboratory-like conditions. The basic methodological approach involved manipulating both dependent and independent variables, with one sample used as a control. Key communication theories employed by the early media effects researchers included the hypodermic syringe model, cultivation theory, two-step flow hypothesis as well as the uses and gratifications model.

The hypodermic syringe model holds that the media are like an injection syringe, transferring ideas and opinions into passive consumers. *The cultivation theory* contends that sustained exposure to, for example, violence portrayed by media will make people less sensitive to such issues. *The two-step flow* centres on the belief that people's experiences of media content are complemented by discussions about it with others, particularly with opinion leaders. The *uses and gratifications* model argues that audiences have control over their exposure to media content by way of personal choices and expectations.

The cultural studies approach is built on Marxist critical paradigms, the focus being on understanding negotiations between consumers and media texts. Building on the scholarship of post-Marxists like Antonio Gramsci or Louis Althusser, scholars (such as Walter Benjamin, Theodor Adorno, Max Horkheimer or Stuart Hall) and schools (like the Birmingham Centre and the Frankfurt School) have attempted to explain issues of ideology, representation and hegemony in relation to how producers encode messages in media content and how audiences decode them. Cultural studies approaches have employed reception analyses in understanding how audiences position themselves in relation to media texts (Manyozo, 2007). *Reception analysis* builds on the uses and gratifications theory to explain how audiences make sense of media content. Such studies have also employed ethnographic research and semiotic analyses as tools.

History of farm and rural radio

Pioneering radio broadcasting experiments began in the 1880s, the most notable scientists being Guglielmo Marconi, Nathan Stubblefield, Thomas Edison, Lee de Forest, Ernst Alexanderson, John Fleming and Heinrich Hertz (Hilliard and Keith, 2001). These early inventions gave rise to some of the first broadcasters, notably Charles Herrold's KQW station and another Pittsburgh-based station, KDKA, which would be accredited as the first radio station "to reach the general public with continuing programming" (Hilliard and Keith, 2001: 21). Later on, universities and colleges engaged in intensive electronic theory experiments (Hilliard and Keith, 2001: 16). By 1921, factory-built radio receivers were used in American homes for the first time (Hilliard and Keith, 2001).

During these pioneering times, radio focused on informative and educational broadcasts. Professor Earl Terry of the University of Wisconsin used to broadcast weather reports on a daily basis as the First World War was being waged (Hilliard and Keith, 2001). Beginning in the 1900s, North American farmer and rural radio hams provided what Robert Hilliard (2003: 202) terms "life-saving information" to remote farms about weather, soil and air, market reports, flood warnings, and other information that could affect farming communities. Later on, major public and national broadcasters embarked on farm radio programming for rural and farm areas, and were eventually joined by the U.S. Department of Agriculture (Hilliard, 2003: 201).

Western-driven rural radio for development experiments were a product of farm broadcasting initiatives executed in both the developed and developing worlds (Donkor, 1979; Jamias, 1991; Manyozo, 2007; Powell, 1979). Farm journalism was born out of the "demand and persistence" of the farmers themselves, who wanted access to "up-to-date market information and news that would affect their farm management decisions" (Powell, 1979: 84; Hilliard 2003: 192-193). The Australian Broadcasting Corporation (ABC) and the Canadian Broadcasting Corporation (CBC) would build on such approaches to produce farm programmes such as *Country Hour* and *Radio Noon* (Australian Broadcasting Corporation, n.d; Powell, 1979). The general approach towards farm and rural broadcasting relied on the dissemination of pre-packaged agricultural information to "mass and faceless" audiences, and would be supplemented by radio forums in the 1940s (Manyozo, 2007).

As organized community-based radio structures meant to facilitate local people's participation in ongoing or impending rural development projects, radio forums originated in Canada in 1941 (Flor, 1995; Rogers, Braun and Vermilion, 1977). Rural radio forums can therefore be understood to have been employed as support communication instruments for modernisation (Rogers, Braun and Vermilion, 1977). Between 1941 and 1965, the Canadian National Farm Radio Forum "brought together rural peoples from across Canada to learn about and develop a deeper understanding of the issues that affected the lives of people in their communities" (Rural Extension Studies, n.d). An important and unique aspect of the Canadian National Farm Radio Forum was that it linked three national agencies interested in the development and education of rural Canadians. The agencies comprised an adult education agency, the national broadcasting corporation and an association of federal farmers (Manyozo, 2007).

The Canadian experience was very different from that of the United States. The U.S. model was oriented towards the “modernization” of rural areas and the subsequent penetration of the market economy, while the Canadian model was highly social welfare-oriented in its perspective. Although its focus was on agricultural issues, the National Farm Radio Forum weekly broadcasts also covered other social change topics. By providing listeners with guiding sheets before broadcasts and encouraging them to report the “outcomes of their discussions” to the Provincial Farm Forum Office, communities were empowered to “contribute to the educational process, sharing views and ideas across the country” (Rural Extension Studies, n.d).

Studies on the effectiveness of farm radio and radio for development

The use and impact of radio in supporting development and formal educational initiatives have received considerable attention from academic and development institutions, probably because of the belief that “broadcasting media have the potential of leaping the illiteracy barrier in conveying rural development messages to village audiences” (Rogers et al, 1977: 365). Although the use of radio to support development interventions preceded its use as an instructional technology within formal education circles, the earliest comprehensive studies on the impact of radio programmes in supporting learning needs dealt with its use as an instructional technology (Manyozo, 2007).

From the 1960s, studies by UNESCO and the World Bank, for instance, attempted to demonstrate how radio was supporting learning needs in primary, secondary and tertiary education institutions in Latin America and Asia. The theoretical framework for these farm broadcasts employed as a form of development reporting was the work of Schramm and Lerner. This was also the period when Rogers (1962, 1993) developed his theoretical thinking on the diffusion of innovations, a communication theory he would later revisit as he began to pay more attention to the social, cultural and economic conditions in which audiences constructed and consumed meanings.

The diffusion of innovations would form the springboard for the western-driven linear and centralized rural radio forum for development projects in India, Ghana, Malawi, Nigeria, Tanzania and some Latin American countries between the 1950s and 1970s (Spain, Jamison and McAnany, 1977). As Powell (1979) notes, the packaging of “essential, educative and interesting information” depends on skilled journalists. The western models of farm and rural radio broadcasting were therefore unsurprisingly centralized, with controlled and careful planning in research and programming (Manyozo, 2007). Despite a belief in the value of persuasion as a major tool in behavioural and social change, Schramm appreciates the importance of locality of communications as well as the participation of communities in the development of communication strategies, arguing that a local communication strategy must be “at the centre of a development strategy” so as to facilitate local decision-making and horizontal communication (1979: 9, 14).

3. FARM RADIO EFFECTIVENESS EVALUATION IN INDIA

The Poona farm forum project

India played a large role in the conceptualisation and implementation of radio for development projects in the 1960s, when the question of people's participation in broadcasting began to preoccupy Indian politicians, communication and development scholars.

But the origins of India's radio-based development communications can actually be traced all the way back to 1933, when "rural radio listening communities" were formed in Bhiwandi to listen to rural broadcasts in the *Marathi*, *Gujarati* and *Kannada* languages (Kumar, 1981: 259). In the 1950s, in collaboration with the United Nations Educational, Scientific and Cultural Organization (UNESCO), the Indian government introduced a carefully designed network of rural radio forums known as the *Charcha Mandals* that were first implemented in the Poona region (Kumar, 1981). India's radio forums provided a "top-down component" of important rural development information, especially on agriculture, that was transformed into horizontal communications through participatory discussions (Masani, 1976).

By 1959, the Indian government had attempted to introduce the rural radio forum project on a national scale, with one forum in each community development block of 200 square miles and a population range of 60,000 to 80,000 (Rogers, Braun and Vermilion, 1977: 371). So significant were India's forums that they became a national program incorporated in the country's third Five-Year Development Plan, with the country aiming to establish 15,000 radio forums by March of 1966 (Rogers, Braun and Vermilion, 1977: 371). India's forums consisted of between 12 and 20 members, dominated by men, farmers and elders. Each forum had a chairperson—usually a village elder or school teacher—as well as a secretary and regular members.

Building on the "successful" communication model of the rural radio forum project, in 1975 the Indian government introduced two rural television projects: the Satellite Instructional Television Experiment (SITE) and the Kheda Communications Project (Kumar, 1981; Melkote and Steeves, 2001). SITE expired in 1976, but the Kheda Project's cycle ended in the mid- to late 1980s (Kumar, 1981: 262). Kumar (1981: 260-262) notes that under the SITE and Kheda Project initiatives, India embarked on both rural television and television for development American Satellite ATS-6, under which "community television sets were installed in village schools and the programmes were received directly" from locally installed satellite receivers.

Research methods and instruments

The Tata School of Social Sciences was tasked with the responsibility of designing and implementing the Poona Project with "UNESCO assistance" (Rogers, Braun and Vermilion, 1977: 365). Taking a laboratory science approach reminiscent of the early media effects era, The Tata School "selected" 40 villages for the project experiment. Out of those 40 villages, half had radio forums, 10 had radio sets for a year before the launch of the experiment, and 10 were given radio receivers as part of the project (Rogers, Braun and Vermilion, 1977: 369).

In terms of research instruments, Rogers et al (1977: 365) cite personal interviews conducted with forum members and direct observation of forums listening to and discussing radio programs as the “main methods used to collect data.”

Major lessons and outcomes

Organized group listening and discussion improves knowledge gain

Building on the effectiveness studies done on the Poona project by Neurath (1969) and Schramm et al (1967, 1976), Rogers, Braun and Vermilion (1977) examine the effectiveness of a radio forum in helping individual learners gain knowledge. The study established that radio forums involving peasants in participatory learning and action led to improvements in the quality of their lives (Rogers, Braun and Vermilion, 1977: 370).

Rogers, Braun and Vermilion (1977: 361) define a radio forum as a “small listening and discussion group that meets regularly to receive a special radio programme, which the members then discuss.” Rogers, Braun and Vermilion further contend that “on the basis of the program and discussion,” community members of a radio forum then decide on what relevant action to take. In this model, the objectives of the radio forum include “encouraging people to solve their local community problems, breaking down rural isolation and developing community leadership,” and not merely disseminating rural development information (Rogers, Braun and Vermilion, 1977: 369).

Multi-channel communication is more effective than single channel communication

Rogers et al (1977: 371) make a case for a multimedia approach by arguing that in a rural radio forum project, “radio is the core medium” that must be augmented by other print and electronic aids, such as “films, pictures, posters, charts and a fortnightly guide for the farm forum programs.”

Forums also provide a sphere for sharing “knowledge and expertise” by enabling “literate and illiterate to leap the illiteracy barrier” (Rogers, Braun and Vermilion, 1977: 365-367). At the structural level, a forum is organized and serviced by a central unit that produces the radio programmes, discussion guides and schedules. That central forum also provides training for the facilitators, monitors and researchers who are responsible for evaluation (Rogers, Braun and Vermilion, 1977: 362). A rural radio forum project brings all these aspects together, helping group members identify with the study and learning materials (Hall, 1978: 30- 31).

Experiences and lessons from the Collecting & Exchange of Local Agricultural Content (CELAC) Project in Uganda as well as the Agricultural Communication Branch in Malawi show that multimedia campaigns in agricultural communications are more effective than those that rely on a single medium. Describing the importance of combining both radio and print agricultural communications, Chinyamunyamu of the National Smallholder Farmers’ Association of Malawi (NASFAM) observes that radio is effective because it has immediate reach—whereas the advantage of print is that messages remain with the farmer and can easily be revisited (CTA, 2005:16). Concurring with Chinyamunyamu, Oumy Ndiaye of the Technical Centre for Agricultural and Rural Cooperation (CTA) confirms that combining radio with other information sources, such as the Internet, strengthens the impact of agricultural communications (CTA, 2005).

4. FARM RADIO EVALUATIONS IN THE PHILIPPINES

The Radio DZLB School-on-the Air evaluations

Librero (1985) introduces and defines the concept of rural educational broadcasting as “the use of radio for non-formal education purposes primarily to support planned social change in the rural setting.” Radio DZLB itself was established in 1962 by the College of Agriculture (University of the Philippines) and was “conceived as an experimental rural radio station” to assist the College’s research on effective ways to disseminate agricultural knowledge and “serve” as an instrument of extension. With funding from the New York-based Agricultural Development Council, Radio DZLB would be launched in 1964 as a largely English and Tagalog language service. By 1968, however, all programs were broadcast in Tagalog and the station focused on farm broadcasting.

Key to the dissemination strategy of this farm and rural broadcasting initiative was the school-on-the-air (*Paaralan sa Pagsasaka*), which was defined as a “specially-designed radio program where the subject matter is presented systematically and in progressive manner with the ultimate goal of achieving desired results under a teaching-learning situation” (Librero, 1985: 67). Radio DZLB would plan and broadcast the first school program in 1970. By 1976, a school-on-the-air program was launched, this time focusing on common rice pests and diseases. Other schools focusing on sorghum followed. It is important to mention that while these schools were targeting specific agricultural practices within the farming calendar, there were other educational and entertaining programs that dealt with the same topics, including programs such as *Cradle of Wealth*, *The Cooperative*, *Women’s Hour*, *Working Together*, *Free Farming*, *Dairy Farming in the Village*, and *Our Forest*.

DZLB broadcasters executed semi-structured and interactive research activities through which they attempted to understand the ethnography of their intended audience—for example, by asking them what they would like to hear on the radio in terms of the length and format of programs (Librero, 1985). DZLB’s research was therefore “problem-oriented, issue-involved, strategy-conscious and multidisciplinary” (Samonte, 1975: 101-111) as well as theoretical, methodological and pragmatic. Its results are “used in implementation and theory-building” (Samonte, 1975: 101-111). Rural educational broadcasting is purposive, audience-oriented, service-oriented, research-based, participatory and strategic, with well-defined objectives. The station has links with development agencies, research institutions, communities and audiences.

Key research projects

Rural youth and the 4-H Club on the Air: In 1968, in collaboration with the Agricultural Productivity Commission, Radio DZLB launched the *4-H Club on the Air* with the willing participation of the youth of Calamba—a city some 50 kilometres south of Manila—who wanted to join the national 4-H Club movement (Librero, 1985).

Dairy farmers and the Milkman's Hour: The Los Baños Dairy Training and Research Institute (DTRI) at UPLB were engaged in a project known as the Los Baños Milk Collection Scheme. The *Milkman's Hour* was a radio program created to support this initiative. It provided technical dairy information and acted as a bulletin board of activities and a knowledge-sharing forum for farmers, making it easier for farmers to adopt innovative practices immediately (Librero, 1985).

Masagana 99 rice production campaign: Under the Philippine government's "bountiful harvest" campaign, *Masagana 99*, an extensive, national rice production scheme was launched in the 1970s with the aim of creating self-sufficiency in rice as the staple food in the Philippines. The Ministry of Agriculture launched a food production initiative that involved a "complete package of technology," a comprehensive credit system without collateral, a market system and a communication campaign that depended largely on radio (Librero, 1985: 43).

The Fishermen's Hour: The Philippine Fisheries Commission asked Radio DZLB to launch a program that would help the Commission disseminate information to fishermen in the Laguna area. *Fishermen's Hour* was introduced as a school program in 1971, but had to be scrapped immediately as there was only minimal (10 per cent) interest in the program among the fishermen themselves—a failure that was attributed largely to the inability of the broadcasters to establish the needs of their target audience (Librero, 1985).

Research methods and instruments

A survey of research methods employed in evaluating the effectiveness of radio-based campaigns carried out by DZLB shows that the researchers preferred social science research methodologies (Librero, 1974, 1985; Gomez, Tetangco, and Vega, 1971; Rimas, 1983; Tabing, 1970).

Tabing (1970) evaluates the effectiveness of the school-on-the-air for the 4-H club members, which dealt with vegetable gardens. The data were collected and analyzed through the effectiveness index and McNemar's test of change. Librero (1985:152) argues that the effectiveness index enabled the researcher to "express the correlation of the listeners' characteristics with the amount of information gained," while the McNemar test examined the "effectiveness" of the school-on-the-air itself.

Librero (1974) attempted to study the attitudes of the rural broadcasters towards the *Masagana 99* rice production campaign as well as the listenership of these radio programs. Librero sampled two groups of respondents comprising 36 rural broadcasters and 153 rural farmers who were "randomly selected." Key issues investigated centred on localness or applicability of information, detailed discussion of information, clarity of presentation, timeliness, and language of information (Librero, 1974).

Gomez, Tetangco, and Vega (1971) also attempted to study the effectiveness of radio programs on homemaking "reinforced by discussion." The study involved 60 women of the Rural Improvement Club, of whom 33 were exposed to the radio program without discussion and 27 were exposed to the radio program and supported by discussions. The study then employed the

Wilcoxon matched-pairs signed rank test to determine any possible differences in the pre-test and post-test scores of respondents.

Rimas (1983) examines the ability of radio audiences to recall and comprehend developmental plugs prepared as straight talk, drama, testimonial and jingle. This study involved 150 randomly selected respondents consisting of 50 housewives, 50 students and 50 farmers. The measurement of effectiveness involved the presentation of two developmental messages in the four aforementioned formats on Radio DZLB.

Major lessons and outcomes

School-on-the air is very effective, but radio should not act alone

Tabing (1970) established the effectiveness of the radio school in helping 4-H club member participants gain sufficient knowledge on growing vegetables. Similarly, Gomez, Tetangco and Vega (1971) established that the use of radio schools alongside dialogical and interpersonal communications facilitates higher knowledge gain among school participants. Apart from the supporting discussions after the programs, field activities as well as discussions with other stakeholders should support radio campaigns. Librero (1985: 32) rightly observes, “Radio can do a lot, but not alone.” He further argues that “subsequent actions, follow-up activities” in the field should be done by other relevant supporting organizations, otherwise “the effort may not be sustained.”

Testimonials and jingles facilitate better recall and comprehension of messages

Rimas (1983) established that while all formats “were effective in delivering developmental messages” and were equally effective in helping audiences to recall and comprehend messages, the testimonial “proved most effective and most preferred followed by the jingle, dramatized spot and straight-announced formats” (Librero, 1985: 151). It was established, however, that there is a “significant relationship” between recall and comprehension and socio-demographic characteristics such as gender, education, economic status and experience, as well as other factors such as needs, the emotional appeal of the messages, and the format of the developmental plug. The testimonial and jingle “facilitated better” recall and comprehension among audiences (Librero, 1985; Rimas, 1983).

Radio DZLB was an effective social lubricant

The station’s programming provided a space in which people could share experiences and facilitate interpersonal relationships (Gomez, 1975: 94). Social lubrication also involved peace and conflict resolution—for example, the case of three peasant farmers who visited DZLB in 1969. These smallholder farmers used Radio DZLB to complain about pests that were destroying their rice, having escaped from a neighbouring farm that was sprayed with pesticides; and secondly, to express their fears of being evicted by some landlords (Librero, 1985). By bringing in relevant stakeholders to conduct discussions on a radio program, the farmers and representatives from the government and commercial farms resolved their differences amicably. Importantly, the peasant farmers were never evicted (Librero, 1985: 37-38).

Farm and development radio content becomes more effective when generated with and alongside local communities

Prior to the introduction of the popular program known as the *Mothers' Club Hour*, a local mothers' club asked Radio DZLB to provide the women with air time. The broadcasters saw in this request a "unique opportunity to experiment on a program produced in cooperation with a target audience" (1985:32). The time, host and content of the program were chosen with input from the women themselves, who "guested the program very often" and even "provided the program's signature tune."

5. IMPACT EVALUATIONS IN TANZANIA

Radio listening group campaigns in the 1970s

Manyozo (2007) observes that rural broadcasting in Tanzania emerged in the 1960s as a response to the growing challenges of illiteracy. Hall and Dodds (1977) observe that by 1973, a larger, “cheap but effective” radio-based study group campaign, *Mtu ni Afya* (Man is Health), was organized and implemented, reaching two million. Adapted from health and literacy campaigns in China and Cuba, Tanzania’s forum project was a multi-media approach “supplemented” by visual aids in the form of films, pictures, posters, charts, and fortnightly listening guides for the farm forum programmes (Rogers, Braun and Vermilion, 1977: 371-372).

It is important to mention that the country’s radio listening groups emerged “independently” within two institutions, namely, the Cooperative Education Centre in Moshi and the Institute of Adult Education in Mbeya (Hall, 1978). Following these broadcast-based learning initiatives were two radio campaigns, *Uchanguzi ni Wako* (The Choice is Yours) and *Wakati wa Furaha* (Time for Rejoicing). Introduced in anticipation of the 1970 parliamentary and presidential elections, *Uchanguzi ni Wako* was an “election study campaign” aimed at describing how government works and stimulating public discussions on the duties and responsibilities of elected representatives (Hall, 1978: 17). *Wakati wa Furaha*, on the other hand, was a “radio study-group” campaign that combined “education with celebration” as a way of strengthening a “sense of nationhood” among Tanzanians (Hall, 1978).

The convenor, who was also the secretary, was vital in organizing meetings and venues and ensuring radio sets were in working order (Rogers, Braun and Vermilion, 1977). The secretary-convenor was likely to be the secretary of the village council, the village level extension worker or the teacher of the village. Listenership centred on weekly or biweekly half-hour programmes on national radio focusing on rural development, “intended to stimulate discussion and action among the participants” (Rogers, Braun and Vermilion, 1977: 371).

The *Mtu ni Afya* (Man is Health) campaign was built on the success of the *Wakati wa Furaha* campaign, which had involved over 20,000 people. The campaign had three aims, namely: to increase public awareness of healthy living; to provide simple information on medical symptoms and the prevention of specific diseases; and to empower literacy campaign participants to continue improving their reading skills (Hall, 1978: 24).

This project involved a “lengthy planning” process of 16 months which included the organization, production, distribution, training and drafting of project proposals submitted to the University of Dar es Salaam, the Ministry of National Education, the Ministry of National Health, the Treasury, and the Swedish International Development Authority (Hall, 1978: 25). To facilitate knowledge dissemination, the radio forum project also included an examination consisting of 25 multiple choice questions on the “health lessons in the radio programmes and textbooks,” the objective being to evaluate the level of knowledge gained in the forums (Hall, 1978: 52).

Research methods and instruments

Measuring knowledge gain for these radio campaigns was “most critical” (Hall, 1978: 18). To assess this knowledge gain, it was important to examine factors that shaped group discussion, participation and management. Research teams examined campaign accounts, training reports, group leader trainee reaction forms, class registration forms, group registration forms, pre-tests and post-tests administered to selected groups, evaluation seminars, and questionnaires completed by district group supervisors (Hall, 1978).

To measure campaign impact, the evaluators selected four study groups located in different regions (Hall, 1978). There were challenges in implementing the social research design, especially with regards to establishing comparative variables. Hall (1978: 51) observes that “unfortunately, the notion of a control group conflicts with the aims of an intensive campaign” since the idea is “to mobilize every person possible,” and as such it is extremely difficult to find a group or individual who will not take part.

For the test, the Institute of Adult Education drafted 25 multiple choice questions on health lessons delivered in the radio programs and accompanying textbooks (Hall, 1978). Pre-testing was carried out among 75 adults, and the resultant revisions trimmed the test questions from 25 to 13.

Hall (1978) notes that the pre-test was offered soon after the study groups started to meet, and the post-test was administered immediately following the final meeting. To understand the influence of radio programs and study groups on the adoption of better health practices, an assessment checklist “based on a list of visible health practices” was developed (Hall, 1978: 55). The checklist included the 12 questions listed in the box below:

1. Is there vegetation growing near the house?
2. Are there depressions, holes, or receptacles of any kind near the house that could hold stagnant water?
3. Is there mosquito netting over the beds in the bedrooms?
4. Is there mosquito netting on the windows?
5. Is there a latrine that meets *Mtu ni Afya*'s standards?
6. Does the latrine have a cover?
7. Is the latrine being used?
8. Is the courtyard around the house free of rubbish?
9. Are there any animal faeces near the house?
10. Are there any rats, other vermin, or other pests visible in or around the house?
11. Does the house have any windows?
12. Are there a lot of flies in or around the house?

Health Practices Checklist (Hall, 1978: 55)

Major lessons and outcomes

Farm and development radio increases people's development knowledge

The *Mtu ni Afya* health education campaign improved people's knowledge of, and practices in relation to, health issues by providing simple information on symptoms, prevention and diseases. The *Mtu ni Afya* study groups showed an average rise in test scores from 43 to 63 per cent, thus gaining about 20 per cent between pre-tests and post-tests, "improving" their collective score by 47 per cent. In contrast, the control groups only gained 9 per cent and an improvement score of 19 per cent (Hall, 1978).

Farm radio faces problems of sustained attendance

Some evidence suggested, however, that, "the groups did not always function smoothly" (Hall, 1978: 47). Attendance rates in most groups ranged between 36 and 67 per cent, with an average participation rate of around 58 per cent. Other problems included limited, slow and uneven distribution of study materials as well as language problems, which irritated many listeners (1978: 42-48).

Radio study groups help people adopt better development practices considerably

Hall (1978) observes that the eight villages studied showed a "rise" in their health practices. Out of a total possible health score of 12, health practices improved from an average score of 3.6 before the radio campaign to 5.5 afterwards—a 60 per cent improvement. About 700 latrines were built or rebuilt; however, due to cost, very few households installed mosquito nets in their rooms. Hall (1978: 60) observes that the villages, houses, people and environment "appeared cleaner," with an increased number of houses free of rubbish within their courtyards.

Radio forums strengthen rural decision-making structures

Rogers et al (1977: 375) observe that in light of the study groups' campaigns, "an atmosphere has been created in which people in rural areas have been able to take control of their own development, politics." This was largely due to increased awareness of general health and development among rural people.

The Twende na Wakati entertainment-education project

Radio Tanzania Dar es Salaam (RTD) is the strongest rural broadcaster in the country because of the popular Kiswahili drama series it runs, such as the weekly 30-minute *Twende na Wakati* (Let's Go with the Times), which has been on air since 1993. With a listenership of over 70 per cent, these developmental dramas have featured challenges that face the majority of rural constituents, such as reproductive health, family planning, women's rights and general development issues (Myers, 2002). As was the case with *Zimachitika* (It Happens) in Malawi, *Twende na Wakati* is constructed on coherent theory and method in the form of social learning theory, Sabido's entertainment-education and behavioural change concepts (Myers, 2002). The dramas are supported by other multimedia campaigns.

Initially developed by RTD in collaboration with Population Communications International Media Impact (PCI Media Impact) and the Tanzania Ministry of Health, *Twende na Wakati* is a story that resonates with ordinary Tanzanians. It features commonplace characters, such as the

family of Fundi Mitindo and Mama Waridi, the nurse Bina, the transitional character Tunu, Mkwanju's wife, and 15 others. Produced with an annual budget of about US\$150,000, *Twende na Wakati*'s sustainability depends on financial and logistical partners that have, over the years, included the United Nations Population Fund (UNFPA), the University of New Mexico, and PCI Media Impact, as well as the Arusha-based Population Family Life and Education Program (POFLEP), the University of Dar es Salaam, the Ministries of Health, Education and Planning, and four other radio broadcasters (Myers, 2002). Myers (2002:59) observes that *Twende na Wakati* "could not be self-sustaining without donor support, because there is an insufficient income base among the listenership to attract commercial sponsorship."

In terms of monitoring and gauging audience reception, broadcasters relied on listeners' letters as well as on diary reports from the family listening groups established across the country (Myers, 2002). The production team organized field-monitoring trips, which also distributed condoms. Impact evaluation assessments revealed that about 82 per cent of listeners adopted an HIV/AIDS prevention strategy after listening to *Twende na Wakati* (Myers, 2002). The assessment also attributed the increase in positive family planning practices to the dramas (Myers, 2002).

Research methods and instruments

In evaluating the effectiveness of *Twende na Wakati*, the project employed a field experimental design that included pre-intervention and post-intervention assessments as well as measurement triangulation of independent sources (Rogers, Vaughan, Swalehe, Rao, Svenkerud and Sood, 1999). Vaughan and Rogers (2000) developed a theory-based model of evaluating an entertainment-education radio soap opera on family planning in Tanzania. This staged model of health communication builds on behavioural change theories, and has been employed to explain how exposure to strategically designed health messages facilitates a process of role-modelling and interpersonal communications (Vaughan and Rogers, 2000). As a result of exposure to specific health messages, individuals go through six stages: pre-contemplation, contemplation, preparation, validation, action, and maintenance, moving from mere awareness of a health issue to a process of identifying with positive role models in the radio dramas (Vaughan and Rogers, 2000).

The aforementioned six stages of adopting better health practices were then tested in an empirical assessment of the effectiveness of *Twende na Wakati*. Vaughan and Rogers (2000) observe that this radio drama series advocated better practices in reproductive health, including contraceptive use, through "entertaining and highly emotional plots, characters, scenes and circumstances" that audiences could make sense of and with which they could easily identify. As with other health communication dramas from Malawi, Malaysia, Thailand, Kenya, and other parts of the world, *Twende na Wakati* depicted all kinds of characters; the bad, the good and those who were bad but were on the road to change.

The whole of Tanzania was a research laboratory for these health dramas. Between 1993 and 1994, the dramas were broadcast twice weekly to the whole country except for Dodoma, where broadcasting started in the middle of 1995 (Vaughan and Rogers, 2000). Dodoma therefore was a control area. However, there were still ways in which the control area could receive

information—for example, via interpersonal relations or short-wave signals. This is what Rogers et al (1999: 198) terms “experimental contamination.”

Prior to the broadcasts in 1993, national audience surveys were conducted to determine the knowledge, attitudes and practices (KAP) levels in relation to reproductive health practices. Such surveys would be repeated annually between 1993 and 1997. The evaluation study was carried out independently of the production process, and involved five instruments: personal interview surveys, analysis of data from 79 Ministry of Health clinics, content analysis of about 300 episode scripts, analysis of listeners’ letters, and analysis of demographic and health surveys (Rogers et al, 1999). Personal interview surveys were conducted from a sample of 2,750 households, and focused on respondents’ characteristics, their exposure to and perceptions of the dramas, and KAP levels with regards to family planning (Rogers, Vaughan, Swalehe, Rao, Svenkerud and Sood, 1999). The *logit loglinear* and *two-way variance analysis* models were employed to measure each dependent variable. *Logistic regression* and *multi-way variance analysis* were used to measure the continuous dependent variables. *Multiple linear regression analysis* was vital in measuring the ward-level change in the dependent variables (Rogers, Vaughan, Swalehe, Rao, Svenkerud and Sood, 1999).

Major lessons and outcomes

Radio dramas attract a wide and sustained listenership

Vaughan and Rogers (2000) observe that the dramas were listened to by a “significant” proportion of Tanzanians—as of 1995, about 53 per cent of people outside Dodoma had listened to the dramas “at least once,” a figure which increased to 58 per cent by 1997. About 61 per cent of these individuals listened to a drama “at least once a week” in 1995. In Dodoma, 75 per cent of people had listened to the dramas “at least once” by 1997 (Vaughan and Rogers, 2000). Rogers et al (1999) note that an average listener listened to about 108 out of 204 episodes between 1993 and 1995.

Radio dramas influence behavioural change positively

In comparing the impact of the dramas in the treatment and control areas, Rogers, Vaughan, Swalehe, Rao, Svenkerud and Sood (1999: 193) observe that *Twende na Wakati* had “strong behavioural effects” and increased listeners’ self-efficacy with regards to family planning. The Tanzanian evaluation was important because planning for the broadcasts involved integrating evaluation considerations. As such, unlike evaluations of entertainment-education elsewhere, the *Twende na Wakati* campaign included “pre-and post intervention measurement of behavioural effects” as well as the establishment of both the treatment and control areas, whose differential impact data would become the centre of comparisons (Rogers et al, 1999).

In terms of listeners’ perceptions of the dramas, between 64 and 77 per cent of audiences viewed *Twende na Wakati* as “very entertaining,” while 70 to 85 per cent thought the dramas were “very educational” (Rogers et al, 1999: 200). Educational messages on family planning were featured in 31 per cent of the episodes analyzed. Role modelling was a key feature, as audiences identified with main characters, especially the positive role models. Support for Mkwaju, the negative role model, decreased from 8 per cent of women and 6 per cent of men in 1994 to 1 per cent in 1997 (Rogers et al, 1999). Letters from listeners demonstrated that the dramas had

“influenced” them to “begin practicing family planning as well as to undertake activities expressing their heightened economic self-efficacy, such as starting a new business” (Rogers et al, 1999:200).

In terms of knowledge of family planning, there was a significant increase of seven percentage points in the treatment and control areas between 1993 and 1995, and again between 1995 and 1997. Understanding of such factors as self-efficacy, number of children, ideal age at marriage for women and approval of family planning had all been improved by the radio dramas. Such data were complemented by clinical data on contraceptive use, which showed that between 1994 and 1998, 25 per cent of new contraceptive users reported that their main source of referral was *Twende na Wakati* (Rogers et al, 1999). In the comparison area of Dodoma, the figure citing the dramas as their source of referral increased from 23 per cent to 41 per cent after the broadcasts began.

6. IMPACT EVALUATIONS IN MALAWI

Malawi Mass Communication Project

During the 1960s Responding to Malawi's challenges of population density, small land surface, lack of minerals, and destructive agricultural practices, the Malawi government and Malawi Broadcasting Corporation (MBC) deliberately intensified the utilization of radio as a communication tool in agricultural development (Mackie, 1971; Manyozo, 2007). Farm broadcasting in Malawi emerged during that decade when the newly independent government introduced the Farmer's Forum Radio Listening Group Project. The choice of radio as an agricultural communications strategy also addressed financial and logistical shortfalls of the Extension Service of the Ministry of Agriculture and Natural Resources with regards to "teaching Malawi's farmers better agricultural methods" (Mackie, 1971: 106). Gerald Klonglan (1967: 2) argues that radio was chosen to intensify rural agricultural communication because it was widely held that it could provide "more exposure faster and cheaper than some alternative media."

The Farmer's Forum Radio Listening Group Project (also known as the forum listening group project) was introduced in 1966. Mackie (1971: 108-109) argues that its introduction proved to be a cost-effective and useful strategy for increasing farmers' knowledge as well as contact between farmers and agricultural service providers. The farm forum programs were broadcast at 13:15 on Wednesdays and repeated at 14:00 on Fridays (Klonglan, 1967). Community-based listening clubs, whose discussions were facilitated by the best extension workers, complemented the farm radio programs.

The Malawi Mass Communication Project, a research initiative of the University of Missouri, carried out a five-week assessment between July and August 1967 to following to measure the impact of the forum project.

Research methods and instruments

The Malawi Mass Communication Project (MMCP) built the evaluation framework on the communication impact model, which was applied in evaluating the forum project, especially in establishing "factors such as differential exposure, comprehension, attitude and action change, and the two-step flow of information" (Klonglan, 1967: 8). Nonetheless, evaluating the effectiveness of the farm forum project was challenging because some groups had no radio sets; as well, there were problems with inaccurate forum attendance registers (Klonglan, 1967). The research exercise was largely based on a form (Appendix 1) that catalogued monthly forum activities, such as attendance, forums ratio by villages, topics covered by each radio program, and innovative initiatives taken by each forum. As such, the MMCP believed that it would be able to establish the role of the farm radio forum as a stimulus towards the adoption of better practices.

Major lessons and outcomes

Farm radio forums initiate interest in farming issues

Klonglan (1967: 43) observes that about 95 per cent of those attending forum meetings arrived between 10 and 40 minutes before the radio program, and during listenership, members “showed a high degree of concentration.” The forum project initiated interest from many rural farmers, so that the number of farmers’ listening groups increased rapidly (Klonglan, 1967; Mackie, 1971). Two months after the first forum broadcasts, more than 100 groups were meeting every week in schools, government buildings and under trees. As a result, agricultural programming increased from less than one hour weekly to about four hours weekly, and programs were broadcast in the afternoon and evenings (Mackie, 1971).

New agriculture programmes were developed, such as the case of *Farmers’ Notebook*, itself a series of *chiChewa* and *chiTumbuka* five-minute agricultural advice slots broadcast three times each day (Manyozo, 2007). As for *Slogans for Progress*, a short development announcement program, the aim was to provide brief and clear agricultural messages. Announcements of development slogans opened with, “Farmers of Malawi, help your country and help yourselves; better farming means better living; for more information, talk to your local field assistant” (Mackie, 1971: 116).

Farm radio is a key part of an agricultural extension program

The evaluation established that there must be a relationship between the farm programs and the field extension worker, and that as such, “farm radio broadcasts would not be considered an activity separate and apart from the educational work being done by extension staff members in the field” (Klonglan, 1967: 3). A key part of the recommendation therefore emphasized that, since extension work is a “cooperative effort,” farm broadcasters should be “actually members of the extension team” (Klonglan, 1967: 3). Recognizing that the “success” of a radio forum project “depends” on the process of designing messages, Klonglan (1967: 31) proposed “having the extension staff at local, area, district, regional and national levels feed information to an extension radio staff.”

Farm radio forum itself is not sufficient

In culturally diverse countries such as Malawi, the linguistic needs of ethnic groups should be taken into consideration through the provision of support print materials in local languages if (as was the case in Malawi) the forum program is broadcast in a national language. Also, it is perhaps vital that the group coordinator “lead a discussion about the radio content” immediately after the radio program (Klonglan, 1967: 43).

UNICEF-MBC listenership survey of 1992

A listenership survey can be broadly defined as an action research assessment of the patterns and trends related to how communities listen to, make sense of, and use radio programming (Manyozo, 2007). Similarly, Rakotoarimana (2001) argues that an audience survey “basically involves examining the behaviour of radio listeners, in order to be able to expose them, in as

effective a manner as possible, to the messages being broadcast.”

The history of radio listenership surveys in Malawi goes back to 1967, when the National Statistical Office (NSO) in the then-capital city of Zomba carried out a survey that was “confined to urban areas,” with an emphasis on establishing favourable listening times, MBC’s audience size, and the number of radios owned by different demographic groups (Uledi-Kamanga, Nazombe and Mills, 1992).

In 1968, the NSO carried out a second radio listenership survey. Its objectives were similar to those of the 1967 survey, but the focus was on rural listenership patterns (Uledi-Kamanga, Nazombe and Mills, 1992). The 1968 listenership survey established that there was increased access and listenership to the public radio in the autumn than in the spring: About 5 per cent of the rural households had functioning radios in the spring, a figure that would increase to 6 per cent in the autumn. In terms of listenership, 7 per cent of the rural households listened to radio in the spring, a figure that would increase to 10 per cent in the autumn (Uledi-Kamanga, Nazombe and Mills, 1992). The study did not explain why ownership and listenership increased in the autumn. One possible explanation could be that in the autumn, most rural households had finished harvesting and selling the surplus. This would boost family incomes, enabling households to purchase dry cell batteries. For financial reasons, the 1968 survey was conducted alongside the 1968 pilot *National Sample Survey of Agriculture* (Uledi-Kamanga, Nazombe and Mills, 1992). Apart from other findings relating to preferential programmes and times, the quantitative surveys established that about 70 per cent of all radio sets in Malawi had both medium- and short-wave bands (Uledi-Kamanga, Nazombe and Mills, 1992).

In 1971, the NSO carried out another radio listenership survey with the aim of establishing the latest data on radio ownership and listening habits at both the individual and social levels (Uledi-Kamanga, Nazombe and Mills, 1992). Among other things, the study established that about 61,000 African households had operating radios and about 41,000 had non-operating radios (Uledi-Kamanga, Nazombe and Mills, 1992). The study also verified that over 30 per cent of non-rural households and 5 per cent of rural households listened to radio.

The fourth survey was executed in 1981 by the Consumer Research Unit of Lever Brothers in the form of an MBC General Media Survey. The aim was to establish radio ownership levels and patterns, stations listened to, print media readership patterns, and the economic status of listeners (Uledi-Kamanga, Nazombe and Mills, 1992). The study established similar patterns to previous studies, in that preference was on news and women’s programmes like *Pa Mtondo* (On the Pounding Mortar) and *Zokonda Amayi* (What Women Like). It is worth noting that over 60 per cent of listeners lived in urban areas (Uledi-Kamanga, Nazombe and Mills, 1992).

A fifth survey was conducted in 1992 by the University of Malawi’s (UNIMA) Centre for Social Research (CSR) on behalf of MBC and the United Nations Children’s Fund (UNICEF). This survey focused on providing an inclusive review of how effectively MBC programmes were satisfying the requirements of the listening population along with the requirements of the corporation itself (Uledi-Kamanga, Nazombe and Mills, 1992). This particular survey, the “largest radio listenership survey ever carried out in Malawi,” reached 18,336 households. The

study was carried out using a questionnaire with 138 questions (Appendix 2). A significant aspect of this survey was that about half of respondents had attained at least primary education.

In commissioning the study, the MBC sought to “assess the effectiveness” of the station’s programmes in “satisfying” its goals (Uledi-Kamanga, Nazombe and Mills, 1992:279). For UNICEF, which sponsored the survey, the study aimed to establish percentage of radio ownership, the financial sustainability of battery-powered radio sets, listenership preferences and patterns, women’s access to radio, and listenership to health and developmental programs, with the focus being on the “messages retained, understood from programmes” (Uledi-Kamanga, Nazombe and Mills, 1992: 284).

Major lessons and outcomes

Late afternoons and early evenings are the best radio listening times

As established by other listenership surveys from Botswana, Chad and by the 1981 Lever Brothers’ general Media Survey, the best listening times fall between 17:00 and 22:00 hours.

Radio set ownership

A percentage of the national sample claimed to have no radio, but relied on other people’s radios, whereas 28 per cent owned two radios and 9 per cent had three or more. Thus it can be estimated that in the 1990s, Malawians owned about 2.8 million radio sets at (Uledi-Kamanga, Nazombe and Mills, 1992).

Listenership to developmental programs

About 95 per cent of the population sample of 18,336 households (a percentage of all households in Malawi in 1990) said they listened to immunization programmes, with the largest percentage of those coming from the northern region. Preferred programmes included *Umoyo ndi Chitukuko m’Malawi* (Health and Development in Malawi), *Pa Mtondo* (On the Pounding Mortar) and *Dokotala wa pa Wailesi* (Radio Doctor) (Uledi-Kamanga, Nazombe and Mills, 1992).

Location and frequency of listenership

Most people listen to radio at home, so listenership is “closely tied to domestic lifestyles and behaviour” (Uledi-Kamanga, Nazombe and Mills, 1992). The other preferred listening location for 42 per cent of respondents was a friend’s house. Another 11 per cent reported listening at work, while 2 to 10 per cent listened to radio in public places. In terms of time, the 05:00-08:00, 10:00-11:00 and 17:00-20:00 slots were found to be popular listening times for male and female middle-aged groups and, to some extent, the older age groups. For women of all ages, the preferred listening time slot was 08:00-11:00 (Uledi-Kamanga, Nazombe and Mills, 1992).

The Rural Development Communication Campaign evaluation

The evaluation mission of the Story Workshop, which comprised Patrick Chimutu, Mavuto Kapyepye and Humphrey Ndlhovu conducted another systematic evaluation of Malawi’s farm broadcasts in 2006 with the aim of measuring the impact of The Story Workshop Educational

Trust's (SWET) EU-funded Rural Development Communication Campaign (RDCC), whose focus is farm broadcasting (Manyozo, 2007). The key objective of the RDCC—introduced in 2002—is to increase agricultural productivity and food security while reducing poverty in Malawi (Manyozo, 2007). The Story Workshop is facilitating the exchange of knowledge among smallholder farmers about best practices and appropriate technologies for sustainable agriculture in Malawi (Manyozo, 2007).

The RDCC Project facilitates the exchange of knowledge among smallholder farmers about the best practices and appropriate technologies for sustainable agriculture; identifies, documents and brings positive changes to the attitudes, practices and policies that contribute to poverty, HIV/AIDS, low agricultural productivity, household food insecurity and a failing export economy; and promotes women's participation in decision-making and income generating (Chimutu, Kapyepye and Ndlhovu, 2006: 11; Likongwe, 2005). Strategies to support the achievement of these objectives have included the formation of clubs, committees and associations to strengthen communities so that they are able to work cooperatively for the common good, and to use that strength to advocate for further training and support (Likongwe, 2005; Manyozo, 2007). The RDCC therefore advocates for policy changes in land use, market and credit access, natural resource management and agricultural extension through public forums, partnerships and the media (Likongwe, 2005; Manyozo, 2007).

The RDCC Project has used two agricultural radio programmes—*Zimachitika* (It happens) and *Mwana Alirenji* (Food Abundance/Security)—as tools for communicating development messages (Chimutu, Kapyepye and Ndlhovu, 2006). *Zimachitika* is a radio drama with two 30-minute episodes each week; *Mwana Alirenji* is a fast-paced farmer-to-farmer magazine with a 30-minute program every week. *Zimachitika* concentrates on food security and HIV/AIDS, while *Mwana Alirenji* highlights good farming practices and solutions developed by farmers themselves (Chimutu, Kapyepye and Ndlhovu, 2006).

Research methods and instruments

The RDCC project evaluation provided “a comprehensive review” of the project performance during its life span. This involved measuring the reach of the RDCC Project strategy of targeting smallholder farmers (Chimutu, Kapyepye and Ndlhovu, 2006). In terms of the methodology for the project, the emphasis was not on establishing the impact of the specific radio-based communication interventions of the RDCC Project, “but rather on the performance of the project in delivery of the interventions through the radio as channel; and also on the uptake or adoption level of the interventions” (Chimutu, Kapyepye and Ndlhovu, 2006:12). The study took a traditional social science research approach, using the radio listening clubs as monitoring tools and using the non-organized listenership as a control. Data collection instruments included interviews, questionnaires, and focus group discussions; analysis involved employing the Scientific Package for Social Scientists (SPSS) as well as document analysis (Chimutu, Kapyepye and Ndlhovu, 2006).

The population sample consisted of 200 people. Half were females; 82.2 per cent were married; 72.3 per cent had literacy skills; and 22.3 per cent had no education (Chimutu, Kapyepye and Ndlhovu, 2006). Radio ownership in the population sample was about 72.8 per cent. For the

organized radio listenership, 83.2 per cent listened to *Zimachitika* while 78.7 per cent listened to *Mwana Alirenji*. The evaluation does not show what percentage were listening to both programmes, but it did explain the fact that entertainment education is a better practice in farm broadcasting than the educational magazine format, and that farm broadcasting that takes a general development broadcasting approach and includes other development issues is more popular than programming restricted solely to farming topics. For the non-organized club members, 72.5 per cent listened to *Zimachitika* while 65.7 per cent listened to *Mwana Alirenji*. The study did not establish the frequency of listenership.

A major problem with this evaluative approach is that it does not examine the exposure to and impact of other agricultural communication initiatives; the research did not examine other information sources for farming communities. It is as though the two radio programs exist in a vacuum, without support from other agricultural programs or farm newsletters, such as *Za Achikumbi* (About Farmers), published by the Ministry of Agriculture. Yet evidence suggests that farm radio programs are more effective when supported by other media (CTA, 2005).

Major lessons and outcomes

Agricultural drama is more effective than a magazine format in attracting high listenership

The evaluation revealed that entertainment education is a better practice in farm broadcasting as it offers listeners an opportunity to easily retain information through their association with certain characters, as described by one *Zimachitika* listener, Rhoda Kamwaza, from Mulanje:

I closely follow Ndaona and her friend Zunzo. Last year, the two girls worked tirelessly on their garden where they had planted tomatoes and vegetables. They sold their produce and their money amounted to MK40,000 [US\$290]. I was really impressed [...] I planted tomatoes and vegetables about a quarter of an acre. [...] I have transplanted 500 seedlings last month. I am expecting to get not less than 5000 tomatoes [and at] the average price of MK5, [I am expecting to get] MK25000. I know my income status will never be the same (Chimutu, Kapyepye and Ndlhovu, 2006: 17).

Realizing the effectiveness of drama as a better practice in farm broadcasting, the program producers at the Story Workshop have started taking *Zimachitika* to the rural villager, where the radio actors modify their dramas for the village stage (Manyozo, 2007).

Farm radio is very effective in communicating agricultural messages

In the case of *Zimachitika* and *Mwana Alirenji*, listeners were able to “recall messages they learnt from the two programmes” (Chimutu, Kapyepye and Ndlhovu, 2006). The research team examined over 4,000 listeners’ letters to both *Zimachitika* and *Mwana Alirenji* producers, in which rural farmers express their knowledge of the programme content and how they have translated that content into farm practice. Others have begun diversifying crops to reduce overdependence on maize. They have also engaged in soil improvement, the use of compost manure, tree planting, rotation systems, micro-enterprises, small-scale irrigation, better environmental conservation, nutrition, and home economics (Chimutu, Kapyepye and Ndlhovu, 2006; Manyozo, 2007).

There are poor research linkages among farm broadcasting stakeholders

In evaluating the RDCC project that required Story Workshop to generate the two farm programmes—*Zimachitika* (It Happens) and *Mwana Alirenji* (Food Security)—Chimutu, Kapyepye and Ndlhovu (2006:7) established that the organization “did not take full advantage of institutions that worked in the same areas.” SWET’s networking was focused only on organizations that sourced funds from the same donors, especially the European Union. Chimutu, Kapyepye and Ndlhovu (2006:7) further note that, “linkages with other such institutions as World Vision, ADRA [spell out], and the Ministry of Agriculture were not strong.” The evaluation therefore highlighted the idea that agricultural communications in the country would have been more effective had there been greater collaboration among service providers such as SWET or the Ministry of Agriculture.

Chimutu, Kapyepye and Ndlhovu (2006) argue that “effective linkages and networking are an essential element” for the development of any agricultural communications initiative. Farm broadcasters could strengthen the effectiveness of their projects by networking with relevant government departments, especially the extension system, as well as relevant development organizations and stakeholders within the farming communities (especially their representative associations). In Malawi, SWET could link up and institutionalize networks with District Assemblies, District Executive Committees, Directors of Planning and Development and radio listening clubs established by the Development Broadcasting Unit and the Ministry of Agriculture (Chimutu, Kapyepye and Ndlhovu, 2006).

Evaluating the Development Broadcasting Unit radio listening club project

The Development Broadcasting Unit (DBU) was established in 1999 within the Malawi Broadcasting Corporation (MBC) with the aim of generating development-oriented programming through participatory communication initiatives. Another of its goals was to promote democratic and critical dialogue around development issues (Sisya, 2003: 3; DBU, 2000, 2005). Partially independent, the DBU is managed by a steering committee of 12, consisting of civil society institution members, academia and key development partners. Complementing DBU’s research and training initiatives are development journalists, group facilitators and producers, and a team leader (Chirwa, Kayanula and Lijenda, 2000).

By focusing on empowering communities to define themselves and their understanding of the world through radio, the DBU is laying a foundation stone for democracy by promoting dialectical and dialogical discourses on civil rights and citizenship. The establishment of the village-based radio listening clubs should thus be understood in the context of existing broadcasting approaches, where broadcasters have not been able to engage directly with the largest constituency in the country—which is rural, largely illiterate, economically disadvantaged and agrarian.

Among the participatory radio projects that DBU was implementing by 2007 were the *Kanthu N’khama* (Hard Work Pays) programs. Produced at the DBU, *Kanthu N’khama* is a magazine radio program broadcast every Saturday afternoon between 14:00 and 14:30 hours on MBC

Radio One (Manyozo, 2007). The DBU employs a rights-based approach to participatory programming by providing people an opportunity to demand their rights to development.

The format of the *Kanthu N'khama* programme consists of a five-minute review of the previous programme followed by 10 minutes of village voices raised by communities, drama excerpts performed by RLCs, and finally 15 minutes of action-oriented responses from service providers (Chirwa *et al*, 2000: 9; Sisy, 2005: Interview). In each *Kanthu N'khama* programme, presenter and producer Susan Sisy begins by reviewing a previous week's programme by featuring a short insert from that particular programme. She then summarises the resolutions agreed upon during the dialogue with the service provider. She addresses her audience directly by arguing, "but let us not forget where we are today."

The production of the program is carried out within a network of radio listening clubs established across the country by the DBU (Sisy, 2003: 3). Through a participatory broadcasting approach that enables "local communities to directly inform the programming they receive," the pilot phase of the *Ndizathuzomwe* project involved producing a radio series of 26 episodes through the Radio Listening Clubs (RLCs) (Chirwa *et al*, 2000: 4). Probably drawing on the work of the Federation of African Media Women in the Southern African Development Community (FAMW-SADC), the DBU (DBU, 2000) defines an RLC as a community-based group that uses radio programs to facilitate development discourse within their own community.

Research methods and instruments

In a tracer study of *Kanthu N'khama*, Chirwa, Kayanula and Lijenda (2000) employed three research methods: a review of project documents, two standardised questionnaires, and focus group discussions. The standardized questionnaires comprised the main questionnaire and control questionnaires, which were for areas without radio listening clubs as well as for service providers (Chirwa *et al*, 2000). A population sample of between 10 and 12 informants was administered at each listening club.

The field research exercise was carried out in eight of Malawi's 28 districts. Four of the research sites had radio listening clubs and the other four did not (Chirwa *et al*, 2000). Interviews with "selected services providers" supplemented the data obtained from these sites, since some of them, especially from Thyolo, Mwanza, Dedza and Nkhotakota, were "rather uncommitted to the exercise" (Chirwa *et al*, 2000: 7). Focus group interviews were also conducted with a total of 135 participants.

Major lessons and outcomes

Community-produced radio programs motivate communities to take development action

Chirwa *et al* (2000) observe that as a result of *Kanthu N'khama*, communities have taken up development initiatives with relevant service providers. This has been possible because of the bottom-up production process, which has enabled communities to open up and unblock communications lines with government bureaucracy (Manyozo, 2007). The participatory broadcasting approach has empowered communities to the point of summoning high public

officers—such as cabinet ministers—to villages to account for decisions or services provided by their respective departments (Sisya, 2003). In Mulanje district, for instance, a Health Surveillance Assistant (HSA) from the Ministry of Health was asked to vacate a building the community had constructed as an Under-Five Clinic. For two years, the community allowed the HSA to occupy the clinic without paying any rental fee since his house had just been swept away by floods. When the community discovered, however, that the HSA had been claiming his house allowance from the government, they demanded him to pay the arrears in rental fees (Manyozo, 2007). Similarly, in Mchinji district, there was a case of hospital staff misusing hospital drugs. The District Health Officer was invited to the community to discuss this problem with the community, and it was rectified immediately (Manyozo, 2007).

Radio programs created by communities attract high listenership

As a field-generated program, *Kanthu N'khama* (Hard Work Pays) promotes a sense of ownership of the national airwaves because it enables communities to determine program content through their chosen discourse, such that the day and time of broadcast have been chosen by the communities themselves (Chirwa *et al.*, 2000; Manyozo, 2007; Sisya, 2003). Chirwa *et al.* (2000) observes that when it comes to listening to *Kanthu N'khama*, about 77 per cent of members indicated that they experience a high turnout of non-members, largely because they are interested in development issues, are invited, and are curious or just want to be heard on the radio.

Among the preferred radio programs, *Kanthu N'khama* was rated highest, followed by agricultural programs, *Nkhani za M'maboma* (District News), radio plays, *Mauthenga Achisoni* (Funeral Notices), and *Pabwalo* (At the Public Forum). The keys to *Kanthu N'khama's* popularity are its informative nature, its presentation style, its ability to facilitate dialogue, and members' interest in being heard on national radio (Chirwa *et al.*, 2000).

Field-generated programs give people a sense of identity and self-efficacy

The radio listening clubs believe that their active involvement in generating and producing program content is giving *mphamvu* (*chiChewa* for power) to local people, enabling them to voice their aspirations. As empowered citizens with *mphamvu*, members of radio listening clubs have actively involved themselves in establishing development initiatives in their areas, such as infrastructural or income-generating activities (Manyozo, 2007).

The self-efficacy of individuals has also improved as a result of their involvement in radio production. Within their communities, radio listening club members are respected and admired, yet at the same time feared (Manyozo, 2007). The members are “considered lions because we ask very difficult questions,” and as a result, many service providers are “scared to visit this village.” Before visiting the area to address meetings, political and development leaders ask the club to provide them with written questions that the members are likely to raise, “but we tell them we don't prepare questions, our questions arise out of someone's presentation” (Manyozo, 2007: 179).

Communities view development as infrastructure

In analyzing programs generated from 14 radio listening clubs, Chirwa *et al.* (2000) established that key development issues emerging from communities were very material and not related to policy. Programs raised concerns about water problems, income-generating activities, land issues, school blocks, irrigation pumps, bridges and other social services. Chirwa *et al.* (2000: 10)

again argues that such a reductionist concept of development arises from the absence of definitions and approaches towards development in the country; the political emphasis has always been on infrastructural development.

It is important to consult communities before establishing radio listening clubs

Although the DBU Project documents emphasized community participation, Chirwa et al (2000: 13) established a general “feeling among the respondents, that the consultation was not adequate.” There were cases in which communities were made to “come up” with names for their clubs as well as lists of committee members on the same day the club concept was being introduced (Chirwa et al, 2000: 13). Instead, consultation should have been a lengthy process of negotiating with villages, local leaders, stakeholders and other opinion makers, such as teachers (Chirwa et al, 2000).

7. THE RURAL RADIO REVIVAL PROJECT IN MALI

After Mali became a multi-party democracy in the 1990s, the government introduced and implemented media reforms aimed at enabling rural citizens to have access to the media. In 1993, with funding from UNDP, ITU and UNESCO, and in collaboration with the Mali Telecommunications Company (SOTELMA) and the Mali Radio Broadcasting Office, the Malian government carried out an assessment of all radio and television FM frequencies in order to promote “neighbourhood communication” throughout the country (Sangaré, 2001). Sangaré (2001) observes that this particular study did identify over 100 sites for the possible installation of radio and television transmitters. Recognizing the inability of Radio Mali to footprint the majority of population centres in the regional and rural areas, UNICEF funded the Rural Radio Development Project between 1993 and 1995.

Sangaré (2001) observes that after 1991, there was a growing interest from international development organisations in supporting and strengthening democracy and good governance in Mali. Such support, observes Sangaré (2001), encompassed the financing of a workshop for the establishment of a national policy on communication funded by the Food Agriculture Organization (FAO) and the United Nations Development Program (UNDP); financing of the first phase of the rural radio revival project in Mali between 1993 and 1995 (funded by FAO and UNICEF); installation of four local rural radio networks, financed by the Cultural and Technical Cooperation Agency (ACCT); financing a research study on the creation of a directional plan for the development of radio in Mali (supported by UNDP, UNESCO and the International Telecommunications Union); and financing the second phase of the rural radio revival project (supported by the Dutch Government).

The first phase of the project aimed to create new regional and local “neighbourhood radio stations” that would facilitate capacity-building, permit audience evaluation and be sustainable (Sangaré, 2001). By the end of June 1995, 102 sites had been identified and 106 “radio agents” had been trained to manage them. The first four radio stations were established at Niono, Kadiolo, Bandiagara and Kidal (Sangaré, 2001).

The second phase of the Rural Radio Revival Project operated between 1997 and 2000, with financial and logistical support from the Dutch government and FAO. The first stations to benefit from this support were Bougouni, Bla, Kolondieba and Koutiala (Sangaré, 2001). Sangaré (2001) observes that the involvement of local people in the establishment and management of these regional stations was critical to the sustainability of the project. The idea was to ensure that the communities became “proprietors of these radio networks.” To achieve this, communities were sensitized and mobilized prior to establishing the radio networks; they were involved in the setting up of management committees and the creation of program content; and they were trained in the fundamentals of radio production (Sangaré, 2001).

Research methods and instruments

After the four radio stations had been established in the Mali-South region, a study was carried out to determine whether or not they had been well-received by the local populations. At that

time, the radio stations had their own traditional practices of carrying out audience assessments on preferred programming, patterns of listenership and quality of transmissions. These traditional methods relied on listener mail, brief opinion reports from village representatives, monthly coordination meetings organized by radio clubs, criticism and comments from listeners visiting the stations, and broadcasters' field trips (Sangaré, 2001).

Under FAO's coordination, the Rural Radio Revival Project developed a "new methodology" on how to conduct follow-up and impact evaluation studies (Sangaré, 2001). This new methodology was built on three tools: listeners' mailed-in opinions, evaluation records showing the educational and informational impact on listeners, and semi-structured focus group discussions on listenership (Sangaré, 2001). Another suggested instrument in evaluating program impact was the focus group. Sangaré (2001) argues that in this strategy, a radio broadcaster engages in dialogical discussions with small groups of listeners, "stimulating" them to exchange ideas about the radio station and its programming.

In analyzing mail from listeners, the radio stations employed a fluid form of discourse analysis, as the focus had to be on "key words, themes, problems, events, frequency, the dominant tendency" which would help in identifying the "manifest contents" raised by listeners (Sangaré, 2001). The letters would then be filed according to subject and place of origin.

With regards to follow-up and evaluation of the impact of the radio programs, the FAO-moderated training emphasized the development of objectives for all rural radio programming, which would later become indicators against which the programmes would be evaluated (Sangaré, 2001). The evaluation instrument also allowed the examination of the radio programmes' contribution to social and economic development by comparing those with "ideal behaviour" and those without these behaviours (Sangaré, 2001). Apart from developing station and audience profiles, the data collection instrument employed by Mali's rural radio stations examined issues such as comprehension levels and levels of the programmes' contributions.

In October 2000, following the FAO-sponsored rural radio training workshops coordinated by Jean-Pierre Ilboudo, some rural networks began to engage in impact evaluation exercises (Sangaré, 2001). Such evaluation studies are largely concerned with establishing information and communication needs as a platform for developing programming content, as well as evaluating the quality and impact of this content (Sangaré, 2001). Today, the focus of such evaluations is on establishing listenership patterns and preferences, and determining whether or not farming groups "change their farming practices as a result" of such rural radio programme resources (Chapman, Blench, Kranjac-Berisavljevic and Zakariah, 2003: 4). In 1999, four rural radio stations in southern Mali—Kolondieba, Bougouni, Koutiala, and Bla—sensitized and empowered farmers' groups to better organize themselves for cotton growing (Chapman, Blench, Kranjac-Berisavljevic' and Zakariah, 2003).

Major lessons and outcomes

Sangaré (2001) explains that evaluations encompassed sifting through a package of about 130 listeners' letters, most of which dealt with youth issues. The letters revealed poor reception of radio signals in some communities, health problems, agricultural conflicts, and dissatisfaction

with entertainment and informational programming. Other letters complained of poor quality of the presentations, but at the same time revealed their favourite and preferred programmes.

Focus group discussions were employed mainly to determine the educational impact of the programming, especially for those promoting development. Questions focused on establishing listeners' exposure to development messages; on the radio stations that provided the specific development messages; on the listeners' readiness and ability to try new products or strategies after hearing about them on development programmes; and on people's perceptions of the new strategies or products that they had adopted (Sangaré, 2001).

8. IMPACT EVALUATIONS IN MOZAMBIQUE

The Media Development Project: “Barefoot Assessment” Methodology

Mozambique’s Media Development Project started in 1998 as a collaborative initiative between UNESCO-Mozambique and UNDP, with the aim of “strengthening democracy and governance” by developing media in Mozambique. The plan was to better support the processes of decentralization and pluralism along with media independence (Media Development Project, n.d). The project aims to build the capacity of journalists and editors, support the emerging independent print press, build the capacity of communities to establish and sustain community radio stations, support the national public broadcaster, strengthen the role of women in the media, and provide capacity-building in development journalism, especially with regards to HIV/AIDS reporting (Media Development Project, n.d). For the community radio sector, the project focuses on achieving the following key objectives: emphasizing community ownership of the stations; training and capacity-building of communities; providing technical sustainability; developing a financial partnership strategy; developing local content with community participation; and, importantly, participatory evaluation (Jallov, 2005: 23).

The Media Development Project in Mozambique tested a barefoot assessment methodology that could prove beneficial to farm and rural radio broadcasting, but would require time and perhaps a coordinating agency to reach out to other rural broadcasters as well. A former director of Mozambique’s Media Development Project, Jallov (2005) introduces the notion of “barefoot impact assessment methodology” as a way of measuring the impact of community radio stations as well as their programming. Jallov’s barefoot assessment methodology provides a blueprint for participatory evaluations of development broadcasting initiatives. The concept of participatory evaluation was explored and developed further by the Media Project through the engagement of a consultant to develop preliminary instruments and tools with which to measure the impact of the various community radio initiatives that are introduced in communities (Jallov, 2001, 2005).

Research methods and instruments

The barefoot methodology tested by the Mozambican Media Development Project set out to measure levels of impacts using three different tools. First is the “internal check-up,” which is an assessment of the community involvement in the management and operational activities of the community radio network (Jallov, 2005: 23, 27). Second is the employment of reception analysis to assess how relevant the programmes are to the needs of the community in question (Jallov, 2005: 23). Third is the assessment of the impact of local programming on local development (Jallov, 2005: 23). A community mobiliser—a person holding a paid position at a community radio station—is central to the implementation of these tools (Jallov, 2005: 23).

In measuring the “*community-ness*” of a radio station, the question remains whether or not the radio station is implementing principles of access and participation (Jallov, 2005: 25). Jallov highlights the importance of the “half yearly internal service check” in areas such as staffing, volunteer structure, programmes, community involvement, sustainability, satisfaction and work

action plans (2005: 25-26). The expected output has been to ensure that all community groups are being represented in the management of the station without dominance by one ideological or demographic interest. This service check is conducted using a form completed by the community mobilizer.

With regards to understanding the locality of the programme content, Jallof (2005: 27-29) introduces an indigenized reception analysis model. This framework is built around qualitative instruments, such as: regularly listening to the community through dialogues between staffers and communities; registering listener opinions by developing a profile of sex, age, village, favourite programme and suggestions when listeners phone in; registering letters from listeners that also contain complaints; recording responses to questions on the backs of message slips announcing births, deaths or other community events; interviewing people who live near station broadcasters; and interviewing people at major public events. In examining the social change impact of local radio programming, Jallof (2005: 30-31) emphasizes the reliability of focus group discussions in establishing how the communities imagine themselves and how radio is helping them to face local development challenges.

Despite the participatory ethos running through it, the barefoot methodology relies on centralized implementation. In its preliminary development, the evaluation model was conceived by an external consultant, who developed the “initial overall objectives,” and a “set of qualitative indicators for assessing impact” (Jallof, 2005: 24). Rather than relying on community experiments with villagers, the processes of testing and implementation relied largely on a national coach whose work involved training and advising, and encompassed “simplifying the assessment tools and making them palatable” to community radio stations (Jallof, 2005: 27).

Major lessons and outcomes

Community-generated evaluation instruments are relevant to local situations

Many impact evaluations are generated by donor needs, and usually, as Gumucio (2001) points out, evaluation research and evaluation tools on most donor-funded projects are designed in social and cultural contexts that are distanced from the evaluation situations, and further complicated by the fact that researchers themselves “are generally not familiar with the social, political and cultural context of the place.”

Participatory evaluation is sustainable

The barefoot methodology does indeed have positive considerations for development broadcasting evaluation (Manyozo, 2007). The model is economically sustainable, as it relies on a community mobilizer whom the management committee can afford to employ at the station. The model is an honest attempt at involving communities in participatory evaluation and empowering the local radio station management committees to continuously engage themselves with feedback from listeners in an organized manner.

Hazard and sustainable development awareness via Radio Mozambique under the Zambézia Agricultural Development Project (ZADP)

The background to this 2003 survey on the role of radio in agricultural development was established in 2001, when the Zambézia Agricultural Development Project (ZADP) established a radio component and tasked it with the objective of bringing “information on key development topics to the people of Zambézia” (Collins, 2003: 1). In 2003, the School of Applied Sciences of the Northumbria University, in collaboration with the Mediae Company, was consulted as part of the Zambézia Agricultural Development Project to conduct an assessment of how radio broadcasting could facilitate popular participation in government-initiated poverty reduction initiatives (Collins, 2003). The radio survey was meant to “assess from a sample survey of households in four districts of Zambézia the popularity and effectiveness of ZADP/Radio Mozambique and community broadcasting in communicating hazards and development issues” (Collins, 2003: 1). Evaluating such objectives involves assessing issues such as the people’s ability to recall content, their sense of engagement with events run in association with the broadcasts, and the level of knowledge acquired through the broadcasts (Collins, 2003: 1).

Research methodology and instruments

Based on a “stratified” and “random” sampling, the research involved carrying out 600 Portuguese-language interviews in four districts of Zambézia (Nicoadala, Alto Molocùè, Gurúè and Milange), which encompassed 150 households per district. The aim was to “facilitate a realistic impression of radio engagement with local hazard and development issues” for respondents living within 10 kilometres of district capitols. The interviews were constructed on a questionnaire that took about three-quarters of an hour to administer (Collins, 2003). The questionnaire included both close-ended and open-ended questions.

Major lessons and outcomes

Most households own radio sets

The research established that 50 per cent of households have functioning radios. Between 2 and 8 per cent of households have two members who own a radio (Collins, 2003). The survey also showed that the price of radio sets continues to drop. However, the batteries are slightly expensive and people had to travel distances as far as 40 kilometres to buy them (Collins, 2003).

Female and collaborative listenership to radio

The survey indicated that about 33 per cent of households “have at least one female” aged 14 years or younger who listens to the radio. A “significantly higher percentage” of listeners are below 24 years of age, with a greater number of female listeners than male listeners (Collins, 2003). About 22 per cent of households have members “who mainly listen with someone else,” and a further 7 per cent listen to the radio that way (Collins, 2003). Across the board, 77 per cent listen to a non-household radio. Between 66 and 76 per cent of the listenership comprises people who listen to radios owned by neighbours or friends, hence listenership is also a process of socialization.

Local public or community broadcasters enjoy high listenership

In Quelimane, there is “high listenership” of the local stations of the public broadcaster, Radio Mozambique. Some 53 per cent of communities from Gurúè and 23 per cent from Milange listen to RM Quelimane every day, probably because listeners prefer the clear, strong signals sent by local radio stations (Collins, 2003). Between 34 and 55 per cent indicated the use of Portuguese within their households apart from other minority languages. The most popular listening times fall between 16:00 and 20:00.

Radio is the most effective means of reaching rural communities

Collins (2003: 11) observes that radio listenership remains high in the four districts in Zambézia. Listeners observe that they have implemented some positive behaviours as the result of listening to a radio program. For instance, between 39 and 47 per cent in Alto Molocúè note that they “have been successful in implementing something learnt from the radio” (Collins, 2003: 7). Radio is considered the most reliable source of information; the survey indicated that most listeners had heard programs on HIV/AIDS, malaria, diarrhoea, and crop production, with “notable differences” between districts (Collins, 2003: 7).

Drama and magazine are the most listened-to formats of educational programming

The survey indicated that there is “significantly more parity between listenership for the radio drama and for the radio magazine” (Collins, 2003: 8). About 19 per cent of respondents listened to radio dramas twice a week, while 18 per cent listened to them once a week; 17 per cent listened to radio magazine twice a week while 9 per cent listened to them once a week (Collins, 2003).

Population Services International HIV/AIDS and STI education radio campaign

Between 1997 and 1998, Population Services International (PSI) carried out a radio campaign to promote better practices with regards to sexually transmitted infections and HIV/AIDS (Karlyn, 2001). The key approach of the campaign was the use of strategically designed and targeted radio messages in which “targeting” itself is a communication process of “segmenting the population into unique and distinguishable groups” at which media and marketing products are directed (Karlyn, 2001:439).

Karlyn (2001) observes that PSI’s behavioural change communication strategy for sexually transmitted infection (STI) and HIV/AIDS prevention in Mozambique, as in other parts of the world where the organization works, involved the social marketing of condoms (and in the case of Mozambique, *JeitO* condoms). This social marketing initiative was meant to address the rising number HIV/AIDS infections that had resulted from a combination of factors including the civil war, the increasing movement of people, and liberal social values. Behavioural change communications in this case, was just a strategy to “create” and “increase demand” as well as “ensure supply” for condoms and other relevant health products (Karlyn, 2001: 440).

At the inception of the behavioural change communications, radio jingles such as *Só Com JeitO* (Only with *JeitO*) were employed to launch the *JeitO* condom brand in the country in 1995 (Karlyn, 2001). The radio campaign was supplemented by interpersonal communication activities that included peer education debates, street theatre and other mass media initiatives (Karlyn, 2001). Karlyn (2001) observes that between 1995 and 1998, the campaign broadcast 18,000 peer education debates to an audience of about half a million; there were about 3,000 theatre performances to audiences of about 300,000.

PSI's communication strategy rested on extensive market research, opinion surveys, pre-tests, post-tests and follow-up evaluations (Karlyn, 2001). The organization prefers a multi-media approach to the design and implementation of its behavioural change communication campaigns, and as such, radio spots were programmed to coincide with theatre events, peer education debates and sales promotion" (Karlyn, 2001: 440). The objective was to ensure the "best compatibility and consistency" and some sort of "synergism between channels and messages" (Karlyn, 2001: 440). The most visible part of this multimedia social marketing effort was the national radio campaign *So A Vida Oferece Flores* (Only Life Offers Flowers), which comprised nine spots designed to "reinforce" key messages using the same personalities, music and themes (Karlyn, 2001: 441). These spots were translated into 10 other local languages, and targeted youth between 13 and 20 years of age as well as adults between 21 and 41. Radio Mozambique (RM) and the provincial RM stations were major outlets for the spots.

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Research methods and instruments

In evaluating the impact of the radio campaign, PSI principally focused on the "overall coverage attained" through the radio spots, which included "general recall rate, message retention per target group and behavioural impact of the campaign," especially among targeted groups (Karlyn, 2001).

Collecting data was a two-week exercise that relied on interviews, especially with the 13-49 age group, since people in this category are considered to be at the highest risk of acquiring STIs and HIV/AIDS. The study was conducted in 75 health districts in both urban and rural areas (Karlyn, 2001).

In terms of sampling, a two-stage random sample employed a "self-weighted selection of clusters using probability of selection proportional to the population size" as well as listing those "present at a selected location over a fixed period of time" (Karlyn, 2001: 441). Within each cluster, 10 respondents were interviewed; in total, 754 interviews were conducted. Among the interview subjects, 18.7 per cent were young females, 22.1 per cent were young men, 17.8 per cent were adult women and 41.4 per cent were adult men.

Among the dependent variables, exposure to radio programming was a “principal indicator used to measure the utility of radio as a mass media instrument” (Karlyn, 2001: 442). Measuring exposure entailed examining message recall of the campaign, and this required interviewers to raise probing and open-ended questions. Probably building on Bandura’s (1977) social learning theory, the study also attempted to measure self-efficacy “as an intermediate indicator of behaviour change” (Karlyn, 2001: 443).

A key aspect of the research methods involved running a multivariate regression model using multiple classification analysis, which enabled the attribution of perceived change in risk behaviour to a specific radio campaign (Karlyn, 2001). This was done by diminishing the unadjusted effect of a predictor variable “after adjusting for other factors” (Karlyn, 2001: 443).

Major lessons and outcomes

Radio spots are popular, but specific messages are not adequately recalled

The study established that out of the 754 respondents consulted, 52.4 per cent had heard of the radio campaign, with a higher percentage of adult men (62.5 per cent) than women (37.3 per cent) reporting awareness. Importantly, about 50 per cent of respondents were able to recall one or more specific messages delivered through the radio spots (Karlyn, 2001). Over 50 per cent of male respondents were actually able to recall specific details of messages, compared to 33 per cent of women, probably because there was “limited grasp” of the messages (Karlyn, 2001:445). The study established that the lower educational levels of women (compared to men) could explain their inability to recall specific details of messages.

Karlyn (2001) observes that only 32.4 per cent of men and 24.4 per cent of women were able to “identify one or more prevention issues raised in the radio campaign.” The problems involved in using radio spots to deliver key development messages on their own were evident in the fact that only 29.6 per cent of men and 23.6 per cent of women could “repeat” key messages of the radio campaign, probably because “recall of issues and messages shows a strong positive correlation with level of education” (Karlyn, 2001: 446).

The evaluation also revealed the “limited success” of “targeting specific spots to specific groups” (Karlyn, 2001: 447). Spot number six, for instance, actually targeted adult females and was meant to promote communication and condom use in marital relationships (Karlyn, 2001). Although the spot was “the most popular” and had “pre-tested well,” a mere 16.4 per cent of both men and women could recall its details during evaluation, and instead of appealing to the targeted women, the spot had apparently “appealed strongly to men,” as 21.8 per cent could recall its detail compared to the 13.4 per cent of adult females (Karlyn, 2001: 447).

Multimedia communications can market a health product

The research revealed that about 95 per cent of respondents admitted having heard of the *JeitO* brand, although 41.2 per cent knew of *JeitO* but were not exposed to the radio campaign. Over 53.2 per cent reported being exposed to the *JeitO* brand through theatre performances, 64 per cent through radio, and 65.9 per cent through peer debates (Karlyn, 2001). While about 60 per

cent of respondents had been exposed to more than one communications campaign, adult males “reported the highest rate of exposure” (Karlyn, 2001: 447).

Sustained radio listenership is more effective than exposure to a specific campaign

The study established that the effectiveness of a radio campaign in influencing individual self-efficacy and behaviour change depends greatly on respondents’ ability to recall specific messages, since this is what motivates them to change their behaviour (Karlyn, 2001: 450). The major explanation for this could be that actually, “listening to the radio once or more per week appears to have a stronger impact on the respondent behaviour than having heard the radio campaign” (Karlyn, 2001: 447). The study showed that attempts to exchange risky for positive behaviour (and “reported success”) is higher among frequent listeners (Karlyn, 2001: 447). Nevertheless, the ability to recall important radio messages had a “strong effect on intent, attempt and success” in implementing behaviour change, as 95.3 per cent of those who could recall messages “intended” to change behaviour compared to 67.6 per cent of those who could not (Karlyn, 2001: 447).

9. FARM RADIO EFFECTIVENESS IN GHANA

Ghana radio forums project

One of the first countries to gain political independence in the 1950s, Ghana also led the very first experiments in farm and rural radio on the continent. The former head of the Rural Broadcasting Corporation in Accra, Abbey-Mensah (2001) observes that rural broadcasting in Ghana began in 1962 after a broadcaster from the Ghana Broadcasting Corporation (GBC) received rural broadcasting training at the Australian Broadcasting Corporation. Program content focused on educating, informing and entertaining rural constituents in local languages. The GBC immediately began to produce programming on nation building and development issues (Ansu-Kyeremeh, 1994).

Part of GBC's rural broadcasting strategy was the employment of the radio forum to mobilize and educate rural constituents towards the achievement of national development goals. Ansu-Kyeremeh (1994: 99-100) argues that the concept of the rural radio forum was employed as a channel for communicating "innovative ideas and techniques in agriculture, health, mass literacy, and others." Ansu-Kyeremeh (1994:100) finds two major problems with these forums: their external design, control and funding, and their lack of an indigenous base.

The Ghana Radio Forums Project was introduced in the 1964 with "technical and financial assistance" from the External Office of Canada and UNESCO (Rogers, Braun and Vermilion, 1977). These forums comprised:

[Twenty] half-hour broadcasts, each on a Sunday evening at 18:15 hours, on such topics as government economic policy and programs; education and cultural institutions; agricultural marketing; health and family living; and citizenship and community self-help. The radio receivers had a fixed frequency so the villagers could not listen to any other broadcasting station except Radio Ghana. [...] Evidence [showed] that radio forums are effective for the conditions of rural Ghana and that radio forums are superior to the use of radio alone. [...] The project in Ghana can be considered successful when evaluated in terms of its stated purpose of transmitting information and stimulating rural people toward increased self-help activities (Rogers, Braun and Vermilion, 1977: 372).

Research methods and instruments

The objective of the project was to "determine the effectiveness of rural radio forums as a method of educating adults and stimulating village self-help efforts" (Rogers, Braun and Vermilion, 1977: 372). Probably building on the scientifically oriented media effects approaches, 80 villages were sampled for experimentation—40 as treatment and the other 40 as controls (Rogers, Braun and Vermilion, 1977). In the "experimental" villages, 20 had one forum per village and the other 20 had two forums per village (Rogers, Braun and Vermilion, 1977).

Major lessons and outcomes

Radio forums are superior to the use of radio alone

Evaluations from farm radio forum projects implemented in Ghana and other countries such as Nigeria, Brazil and India established that “the efficiency of radio forums in diffusing innovations is much greater” than for “literacy-reading classes or community newspapers” (Rogers, Braun and Vermilion, 1977: 373). These forums were considered to be a successful and superior strategy for knowledge acquisition compared to individual, unorganized reception (Hall and Dodds, 1977). It is evident, however, that the design and implementation of Ghana’s pioneering Radio Forums Project opened up questions of external and internal validity—that is, whether or not the experiment results would remain unchanged in different contexts. Without access to alternative stations and other electronic media, rural communities probably participated in the radio project because they had no other choices; “receivers had fixed frequency so the villagers could not listen to” other stations except Radio Ghana.

Radio plus other communication tools are superior to radio alone

In analysing the knowledge gain between villages with and without one radio forum each, Rogers et al (1977) established that the multimedia approach to radio for development “combined with interpersonal discussion was superior in achieving the continued use of the innovation and in securing the desired consequences of the innovations” (Rogers, Braun and Vermilion, 1977: 373).

The soil and water conservation management radio campaign

The research project, *Resource degradation in sub-Saharan Africa: Policies to support sustainable soil fertility management and soil and water conservation among resource-poor farmers in semi-arid areas* was a collaborative project involving Ghana, Senegal, Tanzania, Uganda, Nigeria and Burkina Faso. The development and institutional partners included the UK government’s Department for International Development (DFID), the Overseas Development Institute, and the University of Development Studies. A research team was set up in 2001 to experiment with radio-based communications to “support sustainable soil fertility management and soil and water conservation among resource-poor farmers in semi-arid areas” (Chapman, Blench, Kranjac-Berisavljevic and Zakariah, 2003:6). Chapman et al (2003) describe the negotiations among these stakeholders with regards to the “best method of disseminating research results to farms considering the extension services inadequacy in the countries.”

A key strategic component of the project was the delivery of needed agricultural information in minority languages, as the tradition had been to employ nationally or provincially dominant languages, a practice that often resulted in messages not reaching their intended audiences (Chapman et al 2003; Ansu-Keyeremeh, 1992). The FM stations established in northern Ghana represented an attempt to consider the needs of minority language speakers. Northern Ghana had, by the 1980s, already started experimenting with broadcasting development-oriented content in minority languages, as was the case with Upper Region Radio (URA) station, followed by Radio Savanna (Chapman et al, 2004). URA broadcasts in the languages of Dagbani and Gonja.

The use of rural radio as a pathway for agricultural extension in Ghana emerged in the 1980s

with a UNESCO-funded Wonsuom Project, a community-based communication for development initiative in Swedru District managed by the University of Ghana (Chapman, Blench, Kranjac-Berisavljevic and Zakariah, 2003). Over the years, more community broadcasters have undertaken the challenge of radio-based agricultural communications.

The resulting hour-long programmes on soil and water conservation were spiced with discussion talk, music and jingles, and drama storylines centred on male farmers debating soil and water conservation with their families (Chapman, Blench, Kranjac-Berisavljevic and Zakariah, 2003). These farm programmes, broadcast in the afternoon between 16:00 and 17:00 hours, explored contentious issues such as managing sloping land, agro forestry, bush burning and using organic fertilizers. To establish the impact of the farm dramas, the research team administered questionnaires three times: in a baseline survey before the broadcasts in March 2001; after the broadcasts in June 2001; and after the harvest period (Chapman, Blench, Kranjac-Berisavljevic and Zakariah, 2003).

The radio programs were largely about “male farmers discussing” soil and water management on their land with each other and their families, during which a villager attempts to elucidate local knowledge and practices on reducing soil erosion using contour ploughing (Chapman et al, 2003). In the drama component, the programs featured an extension officer and a farmer “being challenged by farmers as to why they should change their current practices” (Chapman et al, 2003: 7). Topics included bush-burning, the use of chemical fertilizer as well as animal and green manure, agro-forestry production, land-growing of cash crops, and soil and water conservation methods (Chapman et al, 2003).

The “core of the program therefore, was to be a drama” whose script was developed and expounded by six local theatre troupes, making sure that it reflected local situations, languages and concerns (Chapman et al, 2003: 7). The farm program was a radio magazine that featured drama, topical talk and discussion “interspersed” with jingles and traditional music (Chapman et al, 2003: 7). The preparation of the drama script involved a wide range of research stakeholders from the faculty of Agriculture and the University of Development Studies as well as local NGOs (Chapman et al, 2003).

Research methods and instruments

The research team attempted to gauge the impact of radio-based agricultural communication in six local languages so as “to extend the reach of the messages” (Chapman et al 2003: 7). Chapman, Blench, Kranjac-Berisavljevic and Zakariah (2003:7) note that the main objectives of such an impact assessment were to identify target communities where farmers follow radio broadcasts in their local language; to assess the general level of knowledge about soil and water conservation (SWC) methods prior to the broadcast; to discover what level of knowledge or understanding of SWC had been gained from the radio programme immediately after the broadcast; and to gauge the extent to which farmers enjoyed the programme format and felt the information was accessible.

The impact of these radio programs was evaluated through a sample survey in which “groups of ten farmers were interviewed before the first transmission to create a baseline and to assess the

level of their knowledge of and attitudes towards soil and water conservation” (Chapman et al, 2003: 8). The selection criteria for farmers required that they listen to the radio regularly and depend on farming for their livelihoods. These farmers were requested to listen to the programs (Chapman et al, 2003). Post-broadcast, the “impact of the radio program was measured again” to establish whether “farmers had actually applied the knowledge gained through the program, to their crop cultivation practices” (Chapman et al, 2003: 8).

The evaluation study itself was conducted during the 2001 cultivation season, during which 60 farmers were selected for the study, representing 10 for each language (Chapman et al, 2003). Semi-structured interview questionnaires, a key research instrument, asked questions related to the objectives of the study, which were: to identify communities where farmers follow farm broadcasts in local languages; to assess pre-broadcast knowledge levels on soil and water conservation; to discover how much soil and water conservation knowledge had been gained from the radio program; and to gauge the reception of the farm programs among the farming community (Chapman et al, 2003:8).

Major lessons and outcomes

Rural radio is a reliable agricultural extension tool

The study established the fact that rural radio has the ability to speak in the accent of the local community (Chapman, Blench, Kranjac-Berisavljevic and Zakariah, 2003). About 75 per cent of respondents reported that they had understood the programs very well. Rural radio enables the “translation” of agricultural information from the research community to the languages, cultures and nuances of the local farming community. Fully 100 per cent of respondents said they realised that bush burning was a “harmful practice” (Chapman et al, 2003: 9). Farmers had realised that bush burning destroyed the soil (44 per cent), trees (5.6 per cent) and the grass used in roofing houses (5.6 per cent). As a result of the radio program, 61 per cent of respondents said they “did not cut the trees on their farms,” although another 33 per cent did in order to obtain fuel wood, rafters, or more space for food crops (Chapman et al, 2003). The study established that farm-casters should not just deliver extension messages, but rather work towards “understanding the local farmers and their knowledge” of the agricultural subject being explored (Chapman, Blench, Kranjac-Berisavljevic and Zakariah, 2003:4).

Drama is the most popular and effective format of farm-casting

The radio dramas helped farmers gain significant knowledge of soil and water conservation, which was not strong before the broadcasts. Some 41 per cent of listeners reported enjoying drama the most, while 31 per cent preferred discussions (Chapman et al, 2003). In total, 83 per cent of people believed that the radio messages they had heard were true. Audiences perceived the main messages to be about proper soil and water conservation, tree planting, use of animal manure, preventing bush burning, making compost manure, and effective use of crop residues (Chapman, Blench, Kranjac-Berisavljevic and Zakariah (2003:8).

With regards to bush burning, a prevalent habit before the radio programmes, farmers had known all along that it was a “harmful practice,” but the radio programmes “had reinforced their decision not to burn” (Chapman, Blench, Kranjac-Berisavljevic and Zakariah, 2003:8). Perhaps the impact of the program would have been greater had it been broadcast continuously over

many cultivating periods (Chapman, Blench, Kranjac-Berisavljevic and Zakariah, 2003). Farm-casting is “well received by the target audience,” and the dramatic format in which it is presented is very “popular and easily understood” (Chapman et al, 2003: 9).

Effective radio programmes provide farmers with strategies for generating more income

Chapman et al (2003) argue that lessons learned from radio-based agricultural extension in Ghana established that effective farm-casting radio programming shows farmers the various opportunities for generating income from their farm. They note that such programming involves “discussion and training on topics that help to combine growing traditional crops with supplementary activity that does not require high levels of investment or risk in terms of ceasing existing activities” (Chapman et al, 2003: 6). In the case of Simli community radio, the agricultural programmes benefiting farmers are those “that can provide farmers with a direct income-earning opportunity” by offering information on topics like bee keeping, rearing grass-cutters and giant snail production (Chapman, Blench, Kranjac-Berisavljevic and Zakariah, 2003:6).

Farm radio needs to integrate communication for development approaches

Chapman et al (2003: 10) recommend that “national communication and media strategies incorporate pluralistic approaches to media within the more traditional centralized broadcasting and information systems,” a proposal advanced by FAO’s 1996 Burkina Faso rural radio workshop. This would include, among other strategies, the mainstreaming of “information and communication development strategies in cross-sectoral budgetary planning processes” (Chapman et al, 2003).

An impact assessment of the role of community radio in the provision of market information to Greater Accra Region

Building largely on empirical research traditions, Yordy (2007) examines the role and impact of community broadcasting in providing market information in the fishing communities of the Greater Accra Region of Ghana. Yordy (2007:9) attributes the widely varying market prices for fish to what he terms “market failure,” a consequence of which is that “price information is highly variable” in the rural areas. This particular study investigated the “relationship between the presence of a particular communication technology (radio) and the effort involved in discovering prices (search costs) for buyers and sellers” (Yordy, 2007:11).

The challenge facing Ghana is that although organizations such as Ghana’s Cocoa Marketing Board provide timely and relevant market information, the “bulk of national price information is only available within government bodies” (Yordy, 2007: 29). The study therefore had to assess the quality and quantity of market information in fishing villages, which involved establishing the amount, “reliability, completeness and timeliness” of available price information in the artisanal fishing communities of the Greater Accra Region of Ghana (Yordy: 2007: 12).

Research methods and instruments

Employing an experimental research design with treatment groups, the study attempted to

quantitatively evaluate the influence and impact of community broadcasting on markets and market processes by comparing two communities—one with access to community radio and another with no community radio (based on both spatial and temporal criteria) (Yordy, 2007).

As Yordy (2007: 82) points out, measuring impact in this study involved employing the “Difference-in-Difference Estimator” that allows for comparison between pre- and post-intervention scenarios as well as the change between the counterfactual and treatment groups. The evaluation assessment also employed the propensity matching technique as well as the simple matching method. Building on the matching method, “physical and linguistic barriers” were used to select the sample villages of Prampram and Akplabanya with regards to their participation in community radio (Yordy, 2007).

The primary data collection relied on informant interviews, questionnaires and focus group discussions involving fishmonger traders and fishers (Yordy, 2007). Secondary data were collected in Canada and Ghana. This study employed triangulation as a strategy of inquiry.

Major lessons and outcomes

Rural radio broadcasting provides meaningful agricultural information to rural farmers in collaboration with other rural media channels

Community radios played a big part in providing timely, relevant and meaningful market information to fishers and fishmonger traders in the Greater Region of Accra. Radio also provided meaningful information available through cooperatives and extension agents (Yordy, 2007). However, an important finding emerging from the study is that not all aspects of agricultural information can be addressed successfully by rural or community radio alone. There are other aspects of agricultural information that require support from other media channels. The evaluation study revealed that Prampram respondents “tended to prefer extension agents over radio” as sources of information and training, while Akplabanya respondents preferred newspapers (Yordy, 2007: 155). Opinion-makers, such as fishmonger traders, were also preferred as sources of market information.

Interviews and focus groups do not yield much information when measuring the specific impact of farm and rural broadcasts

Yordy (2007: 124) established the inability of focus groups to yield “sufficient information to determine whether fishmonger-traders or fishers were happy with their gross marketing margins or whether there was any relationship between those margins and search costs.” Although the fishers and fishmongers expressed dissatisfaction with the operating market prices, the focus groups and interviews failed to clarify the depth of the link and relationship between search costs and gross marketing margins (Yordy, 2007). Focus groups were also unable to yield “sufficient information” that would enable comparative analysis between the participating and non-participating villages with regards to market channels used. As such, it may appear as though market information provided via community radio had no impact on market processes.

Radio listenership is affected by differences in gender and radio ownership

The study established the presence of “significant” listenership preferences between males and females. Females preferred Dangme language programming, whereas males listened to

programming in English and other languages. This “served as a potential barrier” to women’s listenership, as such women demonstrated “lower levels of access to market information” (Yordy, 2007: 137).

Ownership of a radio is not a reliable indicator of listenership. Radio ownership was lower in Prampram than in Akplabanya. About 77 per cent of females and 91 per cent of men in Akplabanya owned sets, compared to 64 per cent of females and 77 per cent of males in Prampram (Yordy, 2007). Yet the study established that despite having fewer radio sets, Prampram’s radio listenership was higher than Akplabanya’s: about 90 per cent of both women and men in Prampram listened to radio stations, compared to 76 per cent of women and 80 per cent of men in Akplabanya (Yordy, 2007). Other factors impacting the pattern of listenership included educational levels, language considerations, the “jargon” of market reports, and numeracy skills (Yordy, 2007). Access to the local community stations, related to language and frequency of programming, helps individuals to achieve satisfaction with the quality and quantity of market information. As such, “an individual’s satisfaction with the amount of market information may depend on the presence of community radio as a communication medium” (Yordy, 2007:220). The presence of community radio signals improved the bargaining power of fishmongers as well.

Linking Agricultural Research and Rural Radio in Africa (LARRRA) Project

A major challenge facing farm-casting in Africa has been the weak partnerships that exist among agricultural researchers, extension workers, farming communities and farm-casters (Hambly Odame, 2001; ISNAR, 2002). In recognition of this factor, DCFRN, the University of Guelph and ISNAR set up a project that would strengthen farm-casters’ management and sharing of knowledge and research generated from International Public Goods (IPGs) in Cameroon, Ghana, Mali and Uganda. This was the context in which the LARRRA Project emerged in 2000.

The LARRRA Project started by carrying out two key assessments: an analysis of the field of farm and rural radio in the four countries; and a Training Needs and Organizational Constraints Assessment (ISNAR, 2002; DCFRN, 2003). As a result of the TNA study, a key component of the LARRRA Project became capacity building. The LARRRA Project developed a training model based on the concept of experiential learning, which centres on continuity and interaction (Kolb and Fry, 1975; ISNAR, 2002).

Research methods and instruments

In Northern Ghana, the LARRRA Project used to work in collaboration with an initiative known as the Communication for Research and Development, or COMFORD (Hambly Odame and Atibila, 2003). The key partners in COMFORD were the Savanna Agricultural Research Institute (SARI), the Community Welfare Foundation (COMWELF), and URA-FM Radio, with two million listeners (Hambly Odame and Atibila, 2003).

In terms of management, COMWELF coordinated research, management, planning and training facilitation; SARI was responsible for providing specialist advice in agronomy, especially on

sweet potato growing, to both farming communities and farm-casters; and URA-FM radio was responsible for all aspects of farm broadcasting, from script-writing and audience development to the development of the trainers' module (Hambly Odame and Atibila, 2003). This farmer-research-radio project has actively involved farming communities through COMWELF, which has been key to the project's "sustainability and replicability" (Hambly Odame and Atibila, 2003).

Major lessons and outcomes

Strong research linkages between broadcasters, agricultural researchers and farmers' organizations improve radio's effectiveness

LARRRA's experiential linkage learning strategy strengthened the knowledge-sharing capacity of researchers, farm-casters and extension workers through "programming with increasing relevance and impact for the resource-poor farmers" (Cardey, Hambly Odame, Leggett and Franca, 2003). The LARRRA Project teams were involved with about 50 farmers' groups, 12 schools, an orphanage, about 1,000 individual farmers, 81 primary school teachers, and 44 agricultural radio programmes (Cardey, Hambly-Odame, Leggett and Franca, 2003).

In Cameroon, research collaboration between farm-casters, the LARRRA Project and extension workers resulted in the use of radio to support integrated pest management initiatives with regards to the prevalence of the stalk borer in the Buea region. The Buea Research Station responded to this concern by "integrating more pest management strategies in the maize program with information related to land preparation and weed/pest control" (Cardey, Hambly Odame, Leggett and Franca, 2003:60). Similarly, in Ghana, radio programs promoting sweet potato growing resulted in increased collaboration with communities to expand this kind of farming (Cardey, Hambly Odame, Leggett and Franca, 2003). More radio programs were needed to reinforce "further demonstrations, and included interaction and discussions with farmers at three demonstrations sites," which were supported on the ground by the provision of sweet potato vines to farmers (Cardey, Hambly Odame, Leggett and Franca, 2003:60).

Farm radio becomes more effective when linked with new ICTs

Hambly Odame and Atibila (2003) observe that since 1986, URA-FM has produced community-oriented and developmental programs, and that on the COMFORD project, the radio station has benefited from ICT access in taking "technical information from the research station and translat[ing] it both literally and figuratively" into the accent and language understood by audiences in Northern Ghana. The email, computer and internet services have "facilitated the reaching of consensus and agreement on project objectives and activities" (Hambly Odame and Atibila, 2003:11).

10. SOUL CITY HEALTH COMMUNICATION CAMPAIGNS, SOUTH AFRICA

The Soul City Institute for Health and Development Communication employs mass media as a mobilization and empowerment tool to motivate South Africans to undertake better practices and make better choices in health and development (Soul City, n.d). It uses a multimedia and educational entertainment approach that relies on radio and television dramas augmented by print materials such as comic books (Soul City, n.d). The Soul City health and development campaigns have been implemented in phases known as Series.

Launched in 1994, Series One dealt with HIV/AIDS and mother and child health. Series Two, launched in 1996, focused on HIV/AIDS, tobacco and tuberculosis as well as land and housing. In 1997, the third Series engaged issues of HIV/AIDS, land and housing, household energy, violence and alcohol misuse. In 1999, Series Four addressed issues of violence against women in relation to women's rights. In 2001, the fifth Series launched and covered topics of HIV/AIDS, small business development, rape and disability. Series Six was introduced in 2003 and dealt with HIV/AIDS, asthma, depression and adult basic education. Series Seven dealt with health and developmental issues of volunteerism, equity in the health system, HIV/AIDS, masculinity and manhood, and cervical cancer. Like the rest of the Series, the eighth Series also deals with HIV/AIDS and other community development issues such as alcoholism, maternal health and antenatal care (Soul City, n.d).

Scheepers et al (2004: 122) observe that the effectiveness and popularity of Soul City arises out of its multimedia approach and its ability to provide "constructive, pro-social modelling," as well as its "plausible strategies" located within real and familiar settings and characters (Soul City, 2000: 12). The organization's communications plan comprised of 13 episodes of one-hour television dramas, 60 episodes of radio drama broadcast in nine languages, and three information booklets distributed nationally (Soul City, 2000).

Research methods and instruments

The Soul City Institute for Health and Development Communication acknowledges the challenges of evaluating social and behavioural change resulting from health communication interventions, probably due to the multiplicity of "health-related variables" (Scheepers et al, 2004: 134). To understand audience profiles, reception, knowledge gain, self-efficacy, community development, and social change, the Soul City Series evaluation approaches employed a range of quantitative and qualitative methods and instruments. The key strategy has been the national representative pre-intervention and post-intervention survey with the same individuals through the use of Chi Square Analyses, Test for Proportions and Time Models (Soul City, 2005). The objectives of such evaluations revolved around the ability of audience members to understand and retain key messages; how the campaign had increased their knowledge; whether or not they had changed their attitudes and behaviours; and whether or not they had used the communication materials to facilitate and improve interpersonal communication on health and development issues (Soul City, 2005).

The Series Three evaluation, for instance, examined the individual and social contexts of attitudes through a longitudinal evaluation of four sites in South Africa: New Brighton, Eastonside, Senekal and Belfast. For Soul City Series Four, scale analysis and multivariate logistic regression analysis were employed to establish the relationship between social change and the media intervention strategy. The key was to attribute specific behavioural change and knowledge gain to people's exposure to Soul City IV media interventions (Scheepers et al, 2004). This involved conducting a pre-intervention and post-intervention national survey between 1999 and 2000. The surveys relied on structured interviews; the involvement of both urban and rural survey sites (one of each); the national qualitative impact assessment, which involved focus group discussions and interviews; the evaluation of organizational relationships involving Soul City Institute; and the compilation of a database of organizations and institutes reached by Soul City (Scheepers et al, 2004).

Major lessons and outcomes

Entertainment-educational radio and television dramas are the most effective practice in development programming

During the Soul City Series Six, about 46 per cent of participants had watched most television episodes compared to 36 per cent who had listened to the campaign's episodes on radio (Soul City, 2005). It must be pointed out, however, that the radio episodes had been translated into about eight indigenous languages, which enabled rural and regional communities to be exposed to the campaign by radio. Among adult audiences, the popularity of the *Soul City* drama series was pegged at 32.9 per cent, compared to the most popular drama series, *Generations*, which was preferred by 42.7 per cent of adult audiences (Soul City, 2005). Surprisingly, among the reasons cited by sampled viewers for listening to and watching Soul City, the series' entertainment value was not mentioned. Instead, about 22 per cent cited its educational importance (particularly with regards to HIV/AIDS) as well as its ability to reflect real life and show people how to solve problems (Soul City, 2005).

Scheepers et al (2004) established that entertainment-educational dramas provide audiences with the "opportunity to model and adopt new behaviour through vicarious reinforcement, emotional engagement, identification with characters and mental rehearsal." Qualitative interviews point to parasocial interactions of audiences with characters and settings from the Soul City dramas, "emerging in a context where they relate change in their lives" to Soul City IV (Scheepers et al, 2004). The Soul City drama series provide audiences with an opportunity for "pro-social role modelling" because entertaining dramas "enable the audience to critically reflect on their own attitudes and behaviour and then leave them with a sense that they have choices" (Scheepers et al, 2004: 125).

Multimedia approaches increase the reach of development radio programs

The evaluation established that the combined approaches of the campaign "created a supportive environment for facilitating behavioural change and for maintaining positive behaviour" (Scheepers et al, 2004:125). The fourth Series reached about 17 million South Africans, primarily through radio and television: about 75 per cent of urban and 60 per cent of rural people

were exposed to the television dramas, while 52 per cent of urban and 68 per cent of rural people were exposed to the radio dramas (Soul City, 2000).

Entertainment-educational dramas promote deliberative dialogue around development issues

Impact evaluation of Soul City Three showed that the campaign had succeeded in generating “widespread” discussion and debate in communities with regards to the social issues raised in the radio and television programs (Soul City, n.d). The evaluations of the Soul City radio and television drama series established that the health communication campaigns “raised public debate nationally and within communities” about domestic violence and HIV/AIDS (Scheepers et al, 2004). The qualitative assessment also revealed increased community empowerment and collective efficacy: for example, one impoverished community named their location after the drama series. The Soul City series increased its audience’s levels of knowledge and awareness, which strengthened and stimulated interpersonal dialogue within communities and other social networks (Scheepers et al, 2004).

11. KNOWLEDGE GAPS IN FARM AND RURAL RADIO EFFECTIVENESS

Knowledge gap number one: Lack of systematically designed farm radio campaigns that integrate evaluation in the planning stage

Lessons from health communications point to the fact that campaigns are usually method-driven and theory-informed; as such, questions of indicators and evaluations are part of the planning stage, well before the campaign has even designed the first messages or radio scripts. The staged model of communications, as well as the P-Process, enables the conceptualization of impact evaluation as well as instruments and methods to formulate a foundation stone for the development of suitable campaign radio programming.

The Johns Hopkins University's Centre for Communication Programs defines the P-Process as a "framework designed to guide communication professionals as they develop a strategic and participatory program with a measurable impact on the intended audience" (HCP, 2003). Employed largely in the design of health education and communication programs, the P-Process has five principal steps: situation analysis, strategic design, development and testing, implementation and monitoring, and evaluation and re-planning (HCP, 2003). For more information, see the section of this report entitled, "Defining effectiveness."

The cases of *Twende na Wakati* in Tanzania, *Soul City* in South Africa, the PSI radio jingle campaign on STIs and HIV/AIDS in Mozambique, as well as the early farm radio campaigns in India, Ghana and Nigeria show that researchers would carry out pre-intervention surveys to determine levels of knowledge and awareness of particular development issues. These levels would become part of the post-intervention assessments, in which regression analysis models have been employed to establish how much social change on the ground can be attributed to specific media interventions. The inability of farm radio planners to carry out pre-intervention assessments has meant the absence of regression analysis approaches in farm radio evaluations.

Knowledge gap number two: The problems of regular audience surveys

A major challenge in the evaluation of farm and rural broadcasting is how and when to carry out audience surveys. Audience surveys dealing with exposure to farm and development radio programs are scant. In cases where they have been carried out, they have tended to be quite qualitative, composed largely of speculations and opinions from broadcasters or agricultural field officers with little or no skills in farm radio or agricultural communication research (Manyozo, 2007).

Rakotoarimana (2001) discusses the conundrum of research instruments, arguing that it is

important to “establish all the methodological frames of reference that are adapted to the situation, and to the local realities.” Rakotoarimana (2001) and Gumucio (2001) raise concerns about questions to be asked, understanding of the local setting, the objectives of the research itself, research sites, and the data collection tools. In dealing with audience surveys and impact evaluations of rural broadcasting, tools and methods should be adapted to the rural context (Rakotoarimana, 2001).

Emphasizing quantitative research approaches in carrying out an audience survey, research teams must be concerned with collecting information in “calculable figures, and precise statistical measures in reply to preliminary questions” (Rakotoarimana, 2001). Key questions should therefore revolve around the people and groups listening to the radio, the number of people listening to the radio, at what times, under what conditions and for how long, which radio stations they listen to, why they listen to radio, and which programmes and subjects they prefer (Rakotoarimana, 2001). Whatever the consequence, the questionnaire should use as its reference point the fundamental objective of farm and rural radio, which is to dialogue with its audience—whose socio-economic background must also be established as part of the research.

Audience surveys should not be looked at as a process of collecting data, but as a process of initiating dialogue with the audience. As such, the qualitative surveys offer an opportunity to understand audience tendencies, relationships, motivations and causalities that cannot be established quantitatively (Rakotoarimana, 2001). Building on a rural radio research methodology by François Querre, Rakotoarimana (2001) therefore contends that interviews should be looked at as deliberative forums, and proposes the use of qualitative instruments such as the village public programme.

In the AFRRRI partner countries, the public broadcasters have departments responsible for rural and development programming. Uganda Broadcasting Corporation, for instance, has a Farm and Environment Section that is responsible for producing content in 21 languages, including English. The Malawi Broadcasting Corporation has the Development Broadcasting Unit, responsible for producing rural development programs alongside rural communities. Similarly, the Ghana Broadcasting Corporation has the Rural Broadcasting Corporation, whose programs have centred on agriculture and rural development. Such rural and development broadcasting units have tended to create radio programs without carrying out audience surveys, largely because of lack of funding and insufficient skills and capacity. This is also true of community broadcasting stations, which have neither rural departments nor audience research capacities.

Knowledge gap number three: Unsustainable and non-participatory evaluations resulting from donor dependency on effectiveness studies

In conducting reviews of entertainment-educational dramas, Myers (2002: 10) observed that 100 per cent of the projects evaluated “are dependent on external financing to some degree, at least at the beginning.” Although local communities principally own rural radio stations, they still depend on donor funding to implement their programming and management initiatives. Dzimwe and Nkhotakota have relied on UNESCO and AMARC-Africa; *Mudzi Wathu* was established with USAID funding to deal with HIV/AIDS issues in Mchinji district. Consequently,

community involvement in programming and management of the station programming—as frequently requested by listeners’ letters—could only be realised through funding and not fundraising. The result is that the community owns the rural radio structure (equipment, identity and name) but their access to quality and community-centred programming has to be through funding from donors—who, in reality, own the station’s *community-ness* and sustainability (Manyozo, 2007).

Knowledge gap number four: Evaluations focus on the impact of one or two programmes

When carrying out impact evaluations of agricultural and development programming in Africa, researchers have usually focused on examining the ability of one or two radio programs to promote better agricultural practices, nutrition and rural development. Save for the case of the Soul City Series in South Africa, whose evaluations cover radio, television and print media campaigns, many evaluations tend to focus on the radio campaigns under a specific sponsor, leaving out similar programs by other sponsors—and often, the assessments do not focus on print media campaigns. In Malawi, for instance, although the Agricultural Communication Branch produces farm newsletters and puppet theatres alongside farm radio, assessments have tended to highlight the impact of radio programs only. Supporting print and electronic media are, therefore, usually discarded even if they were part of the campaign.

AFRI opportunity: Working in conjunction with selected agricultural extension departments in African universities, AFFRI should initiate the testing of methodologies that would allow for the evaluation of farm and development programs in relation to other programs that deal with similar issues, but are perhaps funded by other donors. Most public broadcasters have more than one program on farming funded by different donors. When these donors commission effectiveness studies, they tend to focus on their radio campaigns only, leaving out similar programs funded by other donors.

Knowledge gap number five: Evaluations disregard other forms of farm broadcasting

With the emergence of new forms of media, information and communication technologies (ICTs) are pushing the boundaries of the traditional approaches towards broadcasting, and radio content is no longer strictly provided through radio. Podcasting and live streaming, for instance, ensure that radio content is made available through the Internet, and users are free to access specific content that responds to their needs. Hambly and Whaites (2006) emphasize that, “rural radio including new digital formats with other ICTs are highly relevant.”

In Uganda, for instance, the Collecting and Exchanging of Local Agriculture Content (CELAC) Project aims to use ICT methods and knowledge sharing to enhance poverty reduction and food security (CELAC, n.d). The CELAC Project seeks to collect and exchange this local agricultural content that works from the farmers. CELAC employs a number of radio-linked ICTs in the generation and dissemination of its agricultural content to rural farmers through its website, monthly and quarterly newsletters, SMS services, radio call-in programs, and the use of theatre and music (CELAC, n.d). The radio programs are edited and burnt on CDs, which are then

distributed to farmers in their local languages, and the same content is also uploaded on the Internet as podcasts. Hambly and Whaites (2006) rightly argue for the creation of strong links between the old ICT of radio and new ICTs of Internet, podcasts or SMS services—the implication being that evaluating the effectiveness of farm radio has to encompass the new ICTs that are redefining radio broadcasting.

12. CONCLUSIONS

Radio is the most accessible of all information and knowledge-sharing sources and instruments on the African continent, yet its importance is underestimated during development policy formulation (Manyozo, 2007; Yordy, 2007). For farming communities living on the periphery of information technologies and societies, radio is the only window to global reality. The research appraised in this report does point to the fact that radio is a potent tool for communicating with and alongside farming communities.

Farm radio broadcasting originally emerged as an agricultural extension tool and pathway, probably to reach rural and remote farming communities that could not be accessed easily otherwise. The practice came about as a strategy to provide relevant agricultural information. Farmcasting took on added responsibilities, such as strengthening the agricultural extension services on the African continent where the numbers of extension officers were too small to meet the demands of the growing populations. Largely due to ignorance and illiteracy, farm radio thus needed to become an agricultural educational tool to support the educational and advisory responsibilities created by the inadequate and sometimes inefficient extension system.

Beginning in the 1970s, the Developing Countries Farm Radio Network (DCFRN) began a process of institutionalizing farm radio broadcasting, turning the practice into a fully fledged, broadcast-based agricultural extension network. For both DCFRN and AFRRI, the challenge now is to establish a compromise between farm radio as communication on one hand, and farm radio as agricultural extension on the other. Defining and locating farm radio would affect the way content is generated and evaluations are carried out.

Radio-based health communications provide a model for the design, implementation and evaluation of farm radio campaigns because they are strategically designed—that is, they are theory-informed and method-driven. There is a great deal of cooperation among communication specialists, broadcasters and health planners and researchers in the conceptualization of communication projects, which usually take a long time to plan and design. Farm broadcasting campaigns can build on and benefit from the systematic approaches of the health communication campaigns. This report takes a comparative approach towards discussing the challenges facing effectiveness studies in farm and rural radio, and places a huge responsibility on AFRRI to begin to strengthen research partnerships within the agricultural communication sector in order to capacitate farm radio research.

There is a need for the AFRRI project to build capacity in farm radio research that takes into consideration the communication and evaluation strategy designs employed in health communications. There is an opportunity for AFRRI to promote the employment of farmer participatory research that includes approaches such as PRCA, in which content and research instruments are generated in collaboration with farming constituents.

The greatest opportunity for AFRRI emerges out of a finding from the evaluation of the radio-based reproductive health campaign from Mozambique, which established that sustained radio listenership is more effective than exposure to a specific campaign. As such, apart from focusing

on promoting listenership to farm radio, AFRRI should also establish communication mechanisms for the promotion of radio listenership itself, which is being challenged by the spread of television and other new ICTs. The traditional observation that radio is the most effective means of communication in rural Africa is being tested.

Appendix A: Abbreviations

AFRI	The African Farm Radio Research Initiative
CELAC	Collecting and Exchange of Local Agricultural Content
CTA	Technical Centre for Agricultural and Rural Cooperation
DBU	Development Broadcasting Unit
DCFRN	Developing Countries Farm Radio Network
FAO	Food and Agriculture Organization
GBC	Ghana Broadcasting Corporation
HCP	Health Communication Partnership
JHU-CCP	Johns Hopkins University Centre for Communication Programs
LARRRA	Linking Agricultural Research and Rural Radio in Africa
PRCA	Participatory Rural Communication Appraisal
MAMWA	Malawi Media Women's Association
MBC	Malawi Broadcasting Corporation
PCI	Population Communications International Media Impact
PSI	Population Services International
RDCC	Rural Development Communication Campaign
RLC	Radio Listening Club
RTD	Radio Tanzania Dar es Salaam
SADC	Southern Africa Development Community
SADC-CCD	SADC Centre of Communication for Development
TfD	Theatre for Development
UBC	Uganda Broadcasting Corporation
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
ZADP	Zambézia Agricultural Development Project

Appendix B: Summary of Research Methods

Country	Effectiveness Study	Research Methods/Instruments
India	Poona radio forums	Experimental design involving 40 villages, half as treatment and the other half as a control group Questionnaires Personal interviews Observations of forum activities
Philippines	Radio DZLB School-on-the Air evaluation	Experimental assessment surveys involving effectiveness index on randomly selected samples Questionnaires Interviews
Tanzania	Radio listening group campaigns in the 1970s	Experimental assessment surveys with treatment and control samples Questionnaires Multiple choice test Documented analysis of accounts, training reports, group leader trainee reaction forms, class registration forms, group registration forms, pre-tests and post-tests administered to selected groups, evaluation seminars Assessment checklist of visible health practices
	<i>Twende na Wakati</i> - Let's Walk Together Family Health Campaign	Field model of health communication – field experimental design that involved pre-post-intervention assessments and measurement triangulation Questionnaire surveys Personal interview surveys Analysis of data from 79 health clinics Content analysis of 300 episode scripts Analysis of listeners' letters Analysis of demographic and health surveys
Malawi	Malawi Mass Communication Project, 1966	Communication impact model Interviews with officials, policy-makers and forum coordinators Analysis of forum reports based on a form that recorded forum activities, attendance, forums ratio by villages, topics covered in radio programs and innovative initiatives by forum
	UNICEF-MBC 1992	Science listenership survey involving

	listenership survey	100 households 136-question questionnaire
	The Rural Development Communication Campaign	al survey Interviews Questionnaires Focus group discussions Document analysis of project report and listeners' letters
	The Development Broadcasting Unit radio listening club project	er study of radio program Review of project documents Two standardised questionnaires Focus group discussions
Mali	The Rural Radio Revival Project	native research surveys Listeners' opinioned mail Evaluation records showing the educational and informational impact on listeners Semi-structured focus group discussions Reports from coordination meetings organized by radio clubs Criticism and comments from listeners visiting the stations Broadcasters' field trips
Mozambique	The Media Development Project "Barefoot Assessment" methodology	efoot Assessment" methodology Internal check-up on operations and management of a community radio station Reception analysis of community radio programming Service-check form completed by community mobilizer
	The Zambézia Agricultural Development Project via Radio	ience survey relying on stratified and om sampling 600 interviews Questionnaires
	Population Services International HIV/AIDS and STI education radio campaign	ivariate regression model that employed iple classification analysis Questionnaires 754 interviews Document analysis
Ghana	Ghana radio forums project	Field experimental design that sampled 80 villages: half as treatment, half as control Questionnaires Interviews Test
	The soil and water conservation management	Experimental design survey involving 60 farmers

	radio campaign	semi-structured interview questionnaires
	The role of community radio in the provision of market information to the Greater Accra Region	Experimental research design that employed the difference-in-difference estimator Questionnaires Informant interviews Focus group discussions
	The Linking Agricultural Research and Rural Radio (LARRRA) Project	Experiential learning assessment Anecdotes and experiences of broadcasters and farmers' groups in relation to farm radio programs Informant interviews
South Africa	Soul City health communication campaigns	Experimental national representative pre-intervention and post-intervention surveys with the same individuals Structured interviews National qualitative impact assessment Focus group discussions Evaluation of organizational relationships involving the Soul City Institute Chi Square Analyses, Test for Proportions and Time Models Multivariate logistic regression analysis

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