

# WHEN THE DRUM BEATS: RADIO DRAMA AS A VEHICLE FOR BEHAVIOR CHANGE IN CLIMATE CHANGE ADAPTATION AMONGST RURAL SMALL HOLDER FARMERS

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## Abstract

The purpose of this project was to test the efficacy of radio drama and related communication interventions in strengthening the capacity of smallholder farmers and herders to adapt to climate change. Male and female smallholder farmers and herdsman in Northern Nigeria are extremely vulnerable to climate change. Various studies showed that indigenous knowledge alone was not enough to reduce vulnerability in rural farm holdings. Appropriate adaptation technologies researched by agricultural institutes and scientists in the country, which could enable farmers to sustainably use resources, safeguard their livelihoods and reduce rural poverty were inaccessible to the mostly illiterate, rural families. This project aimed to disseminate some of the most critical adaptation information through the medium and format identified by audience research as most accessible and popular: radio and drama respectively and then test the methodology.

Twenty-six episodes of a multi-component radio variety programme, *In Kidiya Chanza*, were designed centering on an entertaining topical radio drama and incorporating an informative expert corner to discuss the drama and the topic of the day. The program aimed to entertain and educate male and female smallholder farmers in Northern Nigeria, on ways of adapting to the climate change issues affecting them. The evaluation involved surveys of experimental (listening) and control (non-listening) groups of randomly-selected smallholders (n=3000) at the pre and post-programme stages of the project. The surveys which collected quantitative and qualitative data were supplemented with in-depth interviews and focus group discussions involving participatory action research methods. Data analysis from respondents, ages ranging from 16-60 years revealed that the radio drama was able to positively influence the adoption of evidence-based climate change adaptation strategies, particularly when drama was supplemented by support groups such as listeners clubs. This project shows that radio drama has the capacity to overcome long held traditions and practices and stimulate real behaviour change when it is entertaining, of high quality, informative and relevant to their needs. People are willing to take what appear to be big risks, to their livelihoods for example, based on impacts and practices they observe in a radio drama. The project also highlights the still largely under-utilized potential of the mass media in positively influencing behaviour change when it is combined with interpersonal communication through peer support groups such as listeners' clubs and discussion groups.

## Background

Nigeria is the most populous country in Africa, with a population of over 140 million. Though rich in natural and mineral resources, it has some of the most depressed social indicators in the world: The country ranked 152 out of 169 in terms of its socio-economic welfare (2015 UNDP *Human Development Report*). Nigeria's economy is highly dependent on oil revenues, which account for about 90 percent of total exports and for over 80 percent of government revenues (US State Dept. 2010). The country's GDP in 2015 was US\$492.986 billion (IMF 2015), and agriculture contributed 26.8 percent, with about 90 percent of the agricultural output coming from the smallholder sector. The agricultural sector provides employment for two-thirds of the active population.

Food security is a serious concern in Nigeria where 64.2 percent of the population live below the poverty line (World Bank, 2015) and crop yields have not kept pace with population growth. According to the Food and Agricultural Organization of the United Nations (FAO 2005), Nigeria is currently unable to meet its food needs.

Farming systems are mainly smallholder-based and agricultural land holdings are scattered. Simple, low-input technology commonly results in low-outputs. Typical farm sizes range from 0.5 ha in the densely populated high-rainfall south to 4 ha in the dry north. Nigeria's wide range of agro-ecological zones allows for a diversity of crop production activities.

However, Nigeria is particularly vulnerable to the effects of climate change. Smallholder farmers in Nigeria, particularly women subsistence farmers, are highly vulnerable to climate change which is already contributing to extreme weather events, rainfall variability, proliferation of pests and crop diseases and high temperature effects (NEST & GCSI, 2004). These hazards of climate change are expected to increase in the future and food insecurity is likely to increase as well. Widespread poverty creates heavy and total dependence on the immediate environment for livelihoods. Most Nigerians are not equipped with knowledge of the reality of climate change and lack information about how to adapt to the impact (NEST & GCSI, 2004).

### ***Expected Climate Change in Nigeria***

Climate change will likely result in an overall reduction in rainfall and also heavier individual rainfall events in a single day. More intense rainstorms will bring floods and increased erosion and the silting of rivers (NEST & GCSI, 2004). With increasing climate change and higher temperatures, the water volume in streams and rivers will decrease to the point of drying up (like Lake Chad in north-east Nigeria). In the future, water resources are expected to be even more vulnerable. Water quality will suffer, as will the human and animal populations that depend on them. Human health will be negatively affected by the resulting changes in food production, livestock, agriculture, etc. (NEST & GCSI, 2004). Changes in climatic and atmospheric composition will likely diminish Nigeria's forests. Extreme weather events such as thunderstorms, heavy winds, and floods devastate farmlands and can lead to crop failure. Higher temperatures will likely encourage the proliferation of disease vectors and drive epidemics in regions where populations do not have prior coping ability. Pests and crop diseases migrate in response to climate variations (e.g. the tsetse fly has extended its range northward) and will potentially pose a threat to livestock in the drier northern areas (NEST & GCSI, 2004). Climatic catastrophes can lead to the displacement of populations and can indirectly lead to conflict and civil unrest (NEST & GCSI, 2004).

### **Research Problem and Justification**

Male and female farmers in northern Nigeria are already experiencing the impact of climate change first hand. Long dry seasons, rainfall variability, extreme weather events such as storms and flash floods, wind and sandstorms, heat waves, proliferation of pests and disease vectors and desertification are just some of the conditions poor subsistent farmers reportedly face in recent years. Since smallholders in this region depend mostly on rain-fed agriculture, unpredictable weather signified by late on-set, early cessation, intense but short rainy seasons and drought all affect their livelihoods adversely.

Scientists, researchers and agronomists have continued to study the phenomenon of climate and its impact on rural livelihoods. They test various adaptation techniques which can significantly reduce smallholders' vulnerability and increase food security. A gap however exists in communicating these beneficial technologies and ideas to those who need them the most. Extension services are stretched and hardly available to them, living as they mostly do in rural hard-to-reach hinterlands, with each farmer reported to have at best 30 minutes of contact only in a year. Of all the available channels of communicating with rural folk, radio is one of the most accessible. It is a popular means for them to connect to sources of information. Programs in their local languages are frequently accessed by them. Storytelling and drama are favorites of Nigerians, particularly females. Using drama to capture the attention of an audience in order to send a message is a communication methodology favored by development workers all over the world. The causes of climate change, its impact on rural livelihoods, and the various methods for adapting to its effects that have been tested are all topics that can be integrated into the entertaining format of drama and disseminated by radio to small holder farmers in order to render them more knowledgeable and skillful to cope. Listening clubs and focus groups can increase the reach and appeal of radio broadcasts by growing a knowledgeable fan base in the community. The positive impact that a radio drama series can have when used in this way has never been researched and categorically ascertained. This project offered the opportunity for filling the gap and providing knowledge on a whole range of issues connected to communicating development with groups such as small older farmers. Over the duration of the project, the farmers' need for adaptation information over-rode those of the

objective of testing the effects of the communication methodology. Project's resources and efforts mostly went into finding solutions to reduce their sensitivity to the impact of climate change.

## General Objective

*To study and improve the usefulness of radio drama as a mechanism for enabling Nigerian farmers to adapt to the impact of climate change*

Though this project started off with this general objective in mind, much of the implementation focussed on responding to the urgent needs of small holder farmers and herdsmen to adaptation information to lessen their sensitivity to climate change. Using formative research, literature review and baseline study, the project was able to investigate ways to package a radio serial drama for disseminating messages on climate change impacts and adaptation strategies to smallholder farmers in Northern Nigeria. Climate change messages were successfully incorporated into two major Nigerian languages, Hausa and Fulfulde and 26 episodes each of were syndicated to seven radio stations. Community Listeners clubs and a quiz contest enabled audience participation. Also, some feedback was received from these sources as well as from listeners who phoned in to the program after it has aired

## Methodology

### ***Climate Change Adaptation Goes Soap!: How a radio serial drama integrated climate change adaptation messages.***

The radio serial drama was created at a 10-day Radio design workshop in Abuja. Prior to the workshop, we had consulted boundary partners to list their priority environmental and livelihood problems which they wanted addressed, The team utilized the formative research findings and the literature review report as well as the climate change resource kit produced by project partner University of Guelph, to help identify the issues. The entire design team spent hours running into days creating stories and characters that will incorporate the adaptation messages. By the end of the workshop, we had several plots and subplots as well as a fictitious village peopled with all kinds of men and women.

With the understanding that our broadcast will cover at least 3 agro-ecological zone and neither the populations nor the livelihoods were homogeneous, we ensured that the plots and characters represent the diverse situations. We created 3 distinct zones as follows, North Guinea Savannah, Sudan Savannah and the Sahel regions and each of these regions were given fictitious names to represent them however, issues affecting each region were discussed. A FGD respondent in Kaduna (*located in Northern Guinea*) explained the climate change situation in the region and stated, ***“we are facing changes in our weather situation, we also know that our fellow farmers in the far northern states of Borno, Yobe, Sokoto and Katsina are facing drought. We don't experience drought but rain is delayed for too long while dry season sets in too quickly unlike the way we experience in the past”***.

S/N	Eco-zone	Crops, Problems, terrain described
1.	Northern Guinea Savannah (Fictitious Place named Kaworana)	Maize, Cassava, yam, soya bean, dry infertile soil, lack of water in the dry season, using a motorbike for commercial taxi; Rocky, hilly terrain Striga, drying streams and river beds, Malaria is epidemic
2.	Sudan Savannah (Fictitious Place named Kakaran Jatau)	Sorghum, Millet, sheep, cattle-rearing, Groundnuts, cow pea. Long dry season, very hot weather, water stress, fuel wood scarcity, Pests proliferation, very deep wells, less forage for livestock, labor shortage, dry infertile soil. Quick cessation of rain, Groundnut oil processing, wind erosion, gullies, sparse vegetation
3.	Sahel (Fictitious Place named Dogon Alheri)	Cattle and sheep herding on the move, annual migration south, milk and yoghurt sale, Millet, Sesame, arid, sand dunes, wind erosion, Dying Oases, desertification, short intense thunder storms, very hot and very dry, no water and no vegetation, constant relocation because dunes are on the move. Precarious livelihood

## **The Research and Evaluation**

The initiative to evaluate the efficacy of radio drama as a means to strengthen the capacity of small holder farmers to adapt to climate change in northern Nigeria involved a survey of 3,000 female and male small holder farmers/herders and rural audiences (Experiment states – 2400, Control states – 600) in two rounds of studies: a baseline survey and an end-line survey.

### ***Study Area***

The study was limited to four broadcast locations in the North and they are: Kano, Kaduna, Katsina and Borno. However, control groups were chosen in locations outside of these broadcast locations. Bauchi and Jigawa served as the control states for this study.

### ***Research Methods***

Both studies adopted a combination of Qualitative and Quantitative methods.

Specifically, Focus Group Interviews (FGDs) and In-Depth Interviews (IDIs) were employed as a form of exploratory enquiry in addition to the quantitative surveys. Participants in FGDs were purposively selected using the age cohort representatives. The survey employed the face-to-face interview method using a fully-structured questionnaire.

### ***Respondents Classification***

Survey respondents for this study consisted of the following:

- i. Experimental target group:* these are female and male small holder farmers and herdsmen between the ages 16 and 60years who have been exposed to the radio drama program in the study locations.
- ii. Control group:* same as the experimental target group except that they have never listened to the radio programme and they were in locations outside of the broadcast areas.
- iii. Listeners' club group:* Also part of the experimental target group but they meet periodically to listen to the Radio Drama and share experiences and are a special category to study.
- iv. Station Manager of broadcast Partners in the study broadcast locations.*

***Survey Sampling Design:*** Probability sampling was used for the survey. The sampling procedure entails a (four-level) multi-stage sampling aimed at selecting eligible persons with equal probability. Specifically these individuals represent age cohorts ranging from 16-60 years of age and the bulk of farmers reside in the rural areas. The selection process is summarized below:

- Randomly selection of the Local Government Area (LGA) in each state.
- In each LGA, a list of prominent farming settlements areas was generated.
- A Random selection of the numbers of settlement required to work in.
- In each settlement, a census of all households was taken which will form the sampling frame.
- Random selection of required numbers of households with replacement where selected households are unavailable or unwilling to participate. All household selected have farmers in the age range for the study.
- A list of people within the age range in each of the selected household was drawn and a respondent picked by balloting method.

### ***Sample Size and Allocation***

- The total sample size of this survey is 3,000. This was obtained by using the P-Size technique. For efficient distribution, this was further shared amongst the four locations in proportion to their respective population. Again, the natural distribution of the gender in each state was taken into consideration.

## **Hypothesis and Results**

*Hypothesis 1 - Radio drama and related programming are effective tools for sharing relevant information with smallholder farmers on how to adapt to and mitigate the effects of climate change.*

### **Findings:**

- ✓ Reports from the listeners club indicate that club members have shared information gained from the broadcast. It was found that 70.8% of FGD participants from the experimental groups said they were aware of the “In Kidiya Chanza” radio drama program.

- ✓ The survey findings indicate a higher level of awareness as nearly all farmers [97%] were aware of the *In Kidiya Chanza/To Mbaggu Walaike* radio drama. As expected, all members [100%] of the listeners' club were aware of the program, with a highly substantial proportion of respondents in the experimental group [96.8%] also claiming to be aware of the program. Awareness of the program was found to be higher among female respondents [98.5%], than male respondents [93.7%].
- ✓ Specifically, respondents averred to have learnt from the radio drama among others:
  - Best practice on soil management, especially compost and use of animal dung.
  - New methods of cocoyam cultivation.
  - Tips on home management and family planning.
  - Reducing labour cost this farming season.
  - How to preserve seeds against next planting season
  - The effect of weather changes on livestock (cattle) and the alternative ways of managing.
  - The dangers of some human activities which contributes to environmental degradation.
  - Also, in a comment sent by one of the radio listeners after listening to the drama, he advised that people should stop cutting down trees.
- These findings confirm that radio drama and related programming are effective tools for sharing information with small holder farmers on how to adapt to and mitigate the effect of climate change.

*Hypothesis 2 - The effectiveness of radio-dramas can be dramatically increased if these are inserted within a development project on the subject and when focus groups and listening clubs are organized*

#### **Findings:**

There were many testimonials following Radio Listeners' Club (RLC) meetings that certainly prove that such an add-on activity might actually enhance the effectiveness of the channel and format of radio drama. Here are a few of these:

A farmer and RLC member in Zaria whose farm is at Kafin Madani community... shared with fellow members... that a land was sold to him at giveaway price because they thought the land was completely impoverished and depleted. He said listening to the drama broadcast encouraged him to use compost and planted legumes which made him to achieve a lot as a result. In fact he pointed out that other farmers learned from him and they began to listen to the broadcast.

Another member in Bizara community said he networked with other non-members in his community to share information he gained from the broadcast and others he learned from fellow

A woman member from a RLC remarked that the radio broadcast has broadened her thinking to appreciate the dangers of some human activities which contribute to environmental degradation. She said some of the climate change issues they observe and experience daily but did not realize its effect until they began to listen to the In Kidi Ya Chanza radio drama programme.

One male member named Sha'aibu Haruna Bello said the advice he received from the programme made it possible for him to reduce labour cost this farming season; so he was so very happy.

A female member from Biu in Borno State said after listening to the drama programme she is now conscious of the choice of seeds to plant and she is also making efforts to preserve the good seeds for the next planting season.

A RLC member reported the remarks made by a relation of his who visited them from another state and was opportune to listen to the programme. The visitor said: ***"I came to Kaduna State as a visitor and I listened to the drama programme on Nagarta Radio, I enjoyed the programme; it is educative and entertaining. Please we need the programme in my state, Jigawa"***.

A Fulani member of the RLC who also listened to the Fulfulde version of the drama programme (*To Baggo Wailake*) said he now understands the effect of weather changes on their livestock (cattle) and he is particularly happy that the programme is educating nomads on alternative ways of managing their herds. He said the drama is really 'empowering'.

Our assessment of the value of the group listening and discussion to radio programming is highly favorable based on the testimonials of participants. Radio listening is often a personal and individual activity but adding the group activities seemed to have encouraged discussions of problem solving and support for new technologies advanced by the project which might ordinarily have been overwhelming for an individual to embark upon.

- From the foregoing, there is enough to support the hypothesis that the effectiveness of radio dramas can be dramatically increased if these are inserted within a development project on the subject and when listening clubs are organized.

Hypothesis – 3 *Smallholder women and men farmers will listen to and learn from educational radio drama when it is entertaining, high-quality and informative.*

### **Findings:**

Respondents were asked to strongly agree or strongly disagree with some values of “In Kidi Ya Chanza” on a rating scale of 1 – 5. A mean score [MS] was calculated. The closer to 1 of the mean score, the higher the level of agreement and the closer to mean score of 5, the higher the level of disagreement. The original responses provided on a five-point Likert-type scale were then converted to a three-point scale. On such a scale, the highest MS would be three (3) and the lowest MS would be one (1).

These results would indicate that the program was highly adjudged among both the listeners club respondents and other experimental respondents as:

- Interesting [2.74 MS]
- Entertaining [2.7 MS]
- Educational [2.56 MS]
- Informative [2.64 MS]
- Capable of inducing positive action [2.61 MS]

Most respondents affirmed to have taken action as a result of information obtained from the program [92,5% in the non-RLC experimental group, and 96.5% in RLCs].

Also, similar proportion of the target audience averred to have discussed issues for the program with other people.

- The findings indicate that female farmers [92.3%] were slightly more likely to have taken action than male farmers [89.4%]
- This also attest to the submission that small holder women and men farmers will listen to and learn from educational radio drama when it is entertaining, high quality and informative.

### **Lessons learned and Conclusion**

- Radio drama has the ability to help people overcome their fear of change and let go of long held practices.
- Radio drama provides practical examples which people can be build their confidence in order to emulate.
- Past studies showed women were too busy for radio and media-based enter education; this study reveals that assumption is not always correct.

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