

Exploring synergies between health and climate services

Assessing the feasibility of providing climate information to women farmers through health posts in Kaffrine, Senegal

Working Paper No. 131

CGIAR Research Program on Climate Change,
Agriculture and Food Security (CCAFS)

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RESEARCH PROGRAM ON
**Climate Change,
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Abstract

This report details the results of research undertaken in Kaffrine, Senegal in May and June of 2015, which explored the possibility of utilizing rural health posts as a channel of communication of climate information to female farmers. The hypothesis was that since health posts often aim to reach women and other vulnerable populations in rural areas, and because weather events often pose risks to human health, the health posts may have an interest in weather and climate information and may have the means to communicate this information to rural women. A total of 13 key informant interviews exploring this hypothesis were conducted in the Kaffrine region; nine at health posts, and four at other relevant organizations in the region.

The interviewees indicated that all weather and climate information that could impact agriculture could also impact human health, and thus all health post staff interviewed expressed interest both in receiving forecasts and in distributing the information they receive. For example, because health posts organize major community health campaigns about malaria just prior to the rainy season each year, they are interested in receiving the forecasted start date of the rainy season, and in communicating this start date to the residents of their region. Many other examples of climate and human health overlap are explored in this report.

Most interviewees indicated that they would prefer to receive climate information through email or text messages, and said that they would distribute the forecasts via the same channels that they utilize to distribute health information. These channels include community meetings, door-to-door visits, women's association meetings, mosque loudspeakers, radio, television, and posters or other publicly displayed written information. All of these channels have a high probability of reaching women and other vulnerable populations in rural areas. This report details additional channels of communication that could be utilized by organizations in cases where the health posts are unable to communicate climate information.

Keywords

Climate Services; Climate Information; Agriculture; Health; Gender; Kaffrine; Senegal.

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Acronyms

ANACIM	Agence Nationale de l'Aviation Civile et de la Météorologie
CCAFS	CGIAR Research Program on Climate Change, Agriculture and Food Security
CIS	Climate Information Services
SDDR	Service d'Appui Development Regional

Introduction

Over the past several decades, the effects of climate change have become increasingly apparent in many locations in sub-Saharan Africa: rainfall and temperatures are becoming more variable, and extreme weather events are taking place with more frequency. In the Kaffrine region of Senegal, where most residents' livelihoods overwhelmingly depend on rainfed agricultural crops, this variability can have devastating effects. For this reason, Climate Information Services (CIS), which includes the provision of short- and long-term weather forecasts, hold potential to increase both livelihood security and food security of Kaffrine residents. Forecasts regarding temperature, rainy season start and end dates, total rainfall expected during the season, and occurrence of dry spells, storms, and other climate-related patterns and events allow farmers the opportunity to adapt their farming practices to mitigate potential risks. Such adaptations may include changing seed varieties, changing the type of crop that is planted, and/or shifting the date of planting or harvesting a particular crop.

It has been well-documented that female farmers have needs that are distinct from male farmers as far as the type of climate information that could be useful to them; the barriers that prevent women from accessing climate information are also often different and more magnified than those that inhibit men's access (McOmber, Panikowski and McKune). This study focuses on the latter issue, by exploring new avenues for providing CIS to female farmers. Health posts are the principal avenue of focus for this study, for several reasons. First, since many climate and weather patterns affect not only agricultural activity but also human health, health posts are likely to already be interested in receiving and disseminating climate information. Additionally, health posts may already frequently be in contact with rural women, both through women's visits to the posts and through community health campaigns. Lastly, since the health system is nationwide, a pilot project (if successful) could be taken to scale with minimal geographical gaps in coverage, and findings could even be applied in other countries.

This study focused on one principal research question: Could health posts serve as a mechanism through which to disseminate climate information to women farmers in the Kaffrine region? Additional research questions included: Are women farmers already receiving climate information? What types of information are they receiving and through

what channels? and, Is this information useful to them? A tertiary research category focused on gathering advice on alternate information dissemination strategies (outside the health system) that have the potential to reach rural women in Kaffrine. To answer these questions, a total of 13 key informant interviews were conducted with head nurses at health posts, women's association presidents, midwives, and health- and agriculture-related NGO staff in the Kaffrine region.

Background

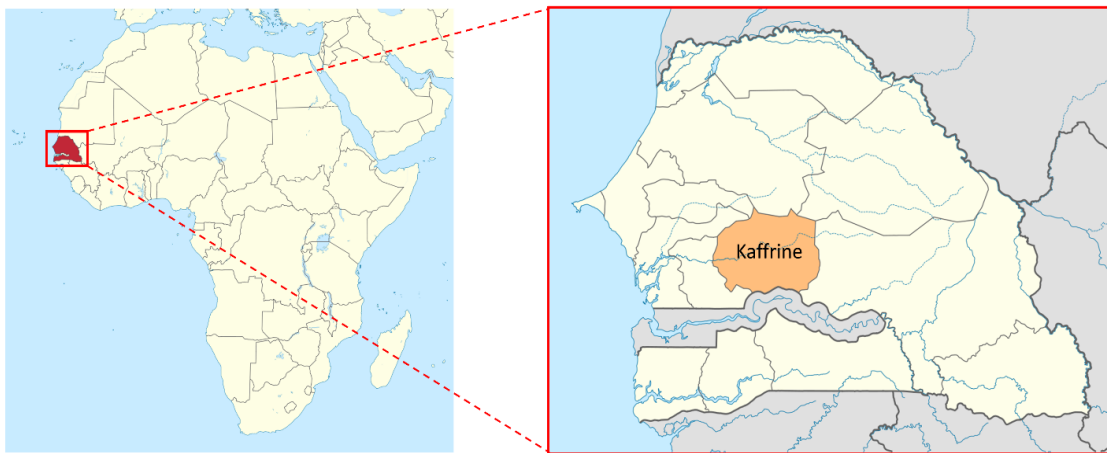


Figure 1: Senegal and Kaffrine region

Kaffrine is Senegal's newest administrative region, created in 2010. It lies in the center of the country's "peanut basin," so-named because of the predominance of peanut production, both for domestic consumption and international export. The region experiences a hot, semi-arid climate and one short major cropping season per year, which coincides with the July-September rainy season. Peanuts are the principal crop cultivated during this season, along with maize, millet, and cowpeas. Vegetables are also grown on a smaller scale during the rainy season (and occasionally during the dry season), usually by women and usually in home or community gardens. Men and women both participate in the cultivation of major grain and legume crops, although previous research has determined that women in Kaffrine are less likely than men to be involved in the sale of cash crops, less likely to have access to means of production (such as carts, horse/donkeys, seeds, and fertilizers), and less likely to own agricultural land (Tall, Kristjanson and Chaudhury).

The regional capital, also named Kaffrine, is located on the country's main highway. The regional administrative offices of the Ministry of Health are located here, as are a few health posts; many other health posts are located throughout the region. Several other governmental organizations and NGOs have administrative offices in the Kaffrine township. The major ethnic group in the Kaffrine region is Wolof; Serer people and Fulani herders are also present to a lesser extent. The vast majority of Kaffrine residents practice Islam. Rates of education and literacy in the region are both very low, especially among women.

Kaffrine was selected as a research site for this study in order to build upon CIS-related research and projects that have been conducted by CCAFS and other entities over the past five years. While Senegal's national meteorological agency (ANACIM) has been providing climate information in some areas of Kaffrine for several years, a 2014 study by Tall, Kristjanson, Chaudhury, McKune, and Zougmore found that men were more likely than women to be able to access and use this information. This is because, among other factors, women were less likely to be literate, less likely to speak French, and less likely to have access to technological means of communication such as text messages and internet. The same study indicates the additional possibility that information relays who were designated to orally transmit climate information—often village chiefs and other local elites—were more likely to communicate the information to men than women.

Since this study explores possibilities for alternative communication mechanisms that may be more likely to reach women, the findings may be useful for ANACIM and other CIS-providing organizations who wish to make their services more gender-equitable. It is important to note that although women are the primary “vulnerable population” in this study, there are many men in Kaffrine who are also disadvantaged by the same constraints outlined above, and many women who are not. Thus, while this study focuses on helping climate information reach women, it does so with the recognition and hope that other vulnerable populations may be reached through this or similar investigations of information channels.

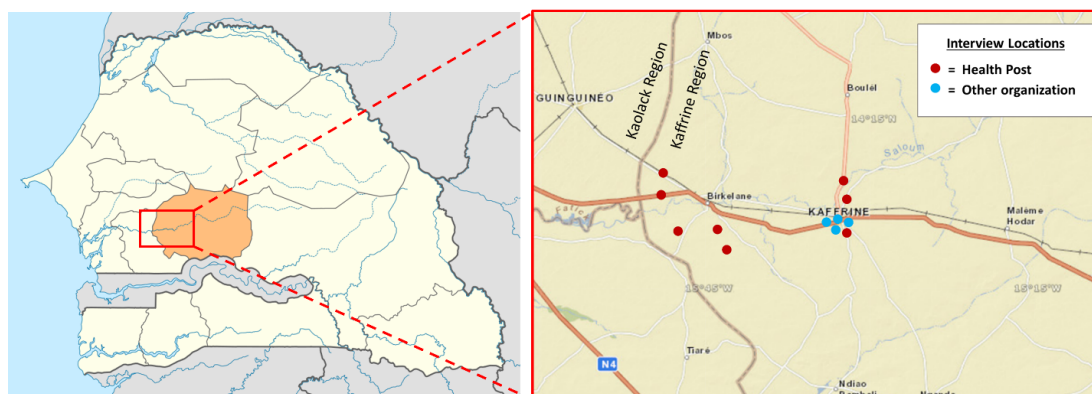


Figure 2: Kaffrine region and key informant interview locations

Research Design & Methodology

A total of 13 key informant interviews were conducted in the Kaffrine region in late May and early June of 2015. Eight interviews were conducted in sites within 10 kilometers of the center of the town of Kaffrine, and the remaining five interviews were conducted near the town of Birkilane, about 30 kilometers west of the Kaffrine township. Contact information for the health post chief nurses (analogous to directors) was obtained through the regional Ministry of Health administrative office. The initial five health post contacts, all female chief nurses located near the town of Birkilane, were provided by an interim Ministry of Health director. These chief nurses were recommended because they personally known to the director, and because they were women and thus might have insight that would be relevant to the research. Additional interviews were conducted at health posts that were known to local taxi drivers. In total, eleven women and four men were interviewed at eight health posts and four other organizations: the Ministry of Health regional administrative offices, a hospital, World Vision, and an agricultural NGO called SDDR (Service d'Appui Development Regional).

Interviews were conducted in Wolof and French, with questions and answers translated by a Senegalese research assistant in real time to and from English. Notes were typed in English during the interviews, and were later compiled, coded, and analyzed according to topic in MaxQDA (version 11), a software package for analyzing qualitative data.

Findings

Feedback on Current Climate Information Provision

ANACIM has been collaborating with various organizations in Kaffrine over the last several years to provide climate information to rural farmers. However, it is not well-documented whether this information is reaching vulnerable populations, and whether it is useful to them. We therefore discussed this with most of the interviewees.

The overall consensus was that most women had access to some type of climate information. A few key informant interview respondents stated that women in their area had no access at all to climate or weather forecasts, but most stated that women received (or at least, could easily receive) climate information through community radio, and, to a lesser extent, television. This information included (but was not limited to) rainy season start date, daily temperature and rainfall forecasts, and storm warnings. Although several chief nurses mentioned that they themselves regularly check forecasts through internet services on their mobile phones, they all said that no one in the communities they worked in did this, because of low literacy levels and limited access to mobile phone technology. One interviewee, who helps coordinate a CIS project with ANACIM, felt that women in the area where that project operates have very good access to climate information. The project she referenced uses a combination of radio, SMSs, and information relays to disseminate climate information. However, she was the only interviewee that mentioned this project.

With the exception of a few interviewees, most expressed that even though women often had the potential to access climate information, most did not regularly seek it out. The most commonly cited reason for this, mentioned by nearly all respondents, was a perception that the forecasts were often inaccurate, and were thus not very useful. Additionally, it was often mentioned that many people had limited time to listen to the radio or to watch TV, and when they did have time, they preferred to listen to or watch programs that were entertaining (such as dramas) rather than programs about the weather. In one community, a chief nurse stated that women there did not work on their own farms (or those of their husbands'); rather, they were paid to work on other people's farms. Thus, since they did not have a say in agricultural decision-making, they were not interested in weather forecasts. It is possible that women in

other villages who usually work on their husband's land (rather than their own) also have little input on agricultural decisions, and thus would not be positively impacted by CIS; however, this possibility was not explored in depth.

When asked if people in their area would change their farming practices based on a weather forecast (such as the rainy season start date or a predicted drought), the majority of interviewees said no, usually again citing the perception of forecast inaccuracy. One interviewee expressed that even if farmers in her area wanted to change their farming practices in response to climate information, many of them couldn't because of a lack of access to tools and seeds. However, two respondents, who were themselves rural female farmers, stated that if for example a lot of rain was predicted during the rainy season, they would use a flood-tolerant seed variety. The respondent who coordinates CIS projects with ANACIM also stated that she knew of farmers who changed seed varieties because of climate information they received.

Feasibility of Providing Climate Information through Health Posts

All of the chief nurses that we interviewed expressed interest (which usually seemed quite genuine) in receiving climate information from ANACIM. Additionally, they all said they would be very willing to distribute this information to people in villages where they worked, and would make a particular effort to reach women. Although this may seem contradictory in light of the lukewarm feedback on CIS, the nurses were quick to point out the potential impacts of weather and climate patterns and events on human health. Most chief nurses were particularly interested in forecasts regarding the rainy season start date, since the rainy season coincides with a number of health issues, including malaria, respiratory infections, water-borne illnesses (including diarrhea), and dermatological problems. Malaria seemed to be a particularly pertinent issue, as many posts (especially those located near the town of Kaffrine) organized community health campaigns right before the rainy season in order to train village residents on malaria transmission and prevention. For some posts, this seemed to be one of the few times that health post staff (who were very busy) would actually go out into the communities to deliver information. The rainy season end date was of interest to one interviewee, who stated that her post usually encourages breastfeeding women to wait until the end of the rainy season to wean small children. This is because harvest begins at the end

of the rainy season, which provides families adequate income to purchase nutritionally adequate food for small children.

Nurses also cited health issues related to heat waves, which some said have become more common in recent years; forewarnings about heat waves would allow them to deliver preventative messages about hydration and high blood pressure. Similarly, forecasts about unusually cold temperatures and/or wind could prompt messages about preventing respiratory infections. Forecasts about fog and dust might be related to information about asthma. Several nurses mentioned that they see an uptick in patients when the weather (especially temperature) dramatically changes in a short timespan.

Although the nurses did not offer to relay agriculture-related information or advice, and some stated explicitly that they were (understandably) unwilling to do so, nearly all of the climate information that has the potential to influence agricultural activity overlaps with human health issues, as just described. Thus, if health workers were to be successful in delivering climate information to farmers, the farmers could then use this information not only to take preventative measures for their physical health, but also for the productivity of their farms. Most chief nurses said that they would prefer to receive climate information in the form of text messages, although some said that email would also be an acceptable form of communication.

When asked about the specific information channels that health posts could use to provide climate information to rural residents, respondents described a variety of options. Many chief nurses first mentioned that they could pass on climate information during community-based health campaigns, during which health post staff travel out to villages to deliver preventative health messages. Most campaigns gather village members together in a central location (such as a “talking tree,” known as a “palaver tree”), by use of a village crier or griot who uses a loudspeaker or a drum to call everyone together. However, some campaigns consist of door-to-door visits, which were deemed to be much more effective but more time-consuming. The frequency with which these campaigns take place seemed to vary by site. In the five health posts in Birkilane, nearly all of which were empty (except for staff) at the time of the interviews, community-based campaigns were mentioned more frequently and seemed to take place regularly throughout the year. In contrast, the chief nurses in the three posts near Kaffrine, all of which had a large line of patients waiting for attention when we arrived,

seemed to imply that community-based campaigns only took place once or twice a year. Not surprisingly, the posts in Birkilane reported being charged with overseeing an average of 6-10 villages, while those near Kaffrine reported providing care for residents of upwards of 20 or 30 surrounding villages.

The second-most-commonly mentioned possible information delivery channel was an organized gathering at the health post, either of selected leaders and residents of the community where the health post is located, or of whichever patients happened to be there on a particular day. The people that attended this gathering could then spread information by word-of-mouth to residents of their community. One downside of this mechanism is that residents of villages that are located far from the health post would have limited access to information; however, this may be the best option in posts where frequent community-based campaigns are not feasible. Alternatively, one chief nurse stated that her health post was frequently in contact with the chiefs and imams from surrounding villages who would serve as information relays, spreading health information in their communities by word-of-mouth or over the mosque loudspeakers. Also, a few nurses stated that they would be willing to display printed information inside the health post, although they pointed out that other communications should still take place as well due to low literacy levels.

Other Possible Information Distribution Mechanisms

Non-health-post interviewees provided assessments of the measures mentioned by the chief nurses, and gave a few additional suggestions. Most concluded that door-to-door visits would be the most effective mechanism for reaching the largest number of people and ensuring that marginalized populations were reached. If the health post staff did not have time to conduct these visits, then climate information could be directly communicated (through phone call or SMS) to key community members who would be compensated for spreading this information through door-to-door visits. Some suggested that the chief or imam (usually the most-respected community members) designate who should serve as the information relays. Others respondents pointed to the existence of women known as “badienou gokhs” (badienou = “aunt,” gokh = “community”). These are women who are well-known and well-respected in their community, who often serve as informal information distribution channels due to their frequent contact with many community members. While this is not a formally assigned role, interviewees indicated that badienou gokhs are ubiquitous throughout Senegal, found in

nearly every community. Many badienou gokhs already deliver health-related information to their community members. If they were willing and able to conduct door-to-door visits, badienou gokhs might serve as a very effective information distribution channel. Again, interviewees indicated that they should probably be compensated for this work.

Some interviewees mentioned the possibility of delivering messages at meetings of women's associations. These associations are also ubiquitous throughout the country, with multiple groups often found even in very small communities. The associations are usually limited to around 30 members and meet 2-3 times per month. The main activity of women's associations is pooling small amount of money, which is distributed on a rotating basis to group members or to community projects. The groups are usually very structured, with assigned presidents and, sometimes, a leader of presidents. One such leader-of-presidents happened to be at a health post during one of our interviews, and she stated that she would be very interested in receiving and distributing climate information. Several interviewees—the midwives at the Kaffrine hospital and a program director at World Vision—stated that they frequently deliver information at women's association meetings. They said they find this to be a very effective channel since the women are a “captive audience,” both because of the small group size and because most members are likely to attend because of their commitment to the group. While in some places it might be possible to have a health post worker deliver messages at women's association meetings, this is unlikely to be feasible in all locations.

Although literacy levels (especially among women) were very low in most locations, they were higher in some communities. Therefore, there were some suggestions to post written information about climate forecasts throughout communities, as is already being done by ANACIM in several locations in Kaffrine. In these locations, mass-SMS campaigns might also be effective, though potentially expensive. One interviewee mentioned that the phone company Sonatel had been sending text messages during a recent heat wave reminding people to drink water. For those who can't read, respondents suggested expanding and enhancing climate-related programming on TV and radio. Making these programs more attention-grabbing was especially emphasized. Village criers, griots, and mosque speakers, all used by health posts in some locations, were also deemed by other interviewees to be effective distribution mechanisms. However, it should be noted that distributing non-religious information over mosque loudspeakers is seen as inappropriate in some locations (Tall,

Kristjanson and Chaudhury). Lastly, some respondents pointed out that theater groups sometimes deliver various types of information, and perhaps could be used to deliver climate-related messages.

Conclusion

Health posts in Kaffrine are eager to receive and distribute weather and climate forecasts, due to the various threats that weather and climate pose to human health. There are a number of ways in which posts already communicate with women and other vulnerable populations in rural communities throughout Kaffrine, suggesting that health posts hold great potential to serve as distribution mechanisms for weather and climate information. However, there is variability in health posts' capacity to reach the most marginalized populations, largely due to variation in the number of villages for which posts provide service. In areas where posts are limited in their information-distribution capacity, it may be wise to utilize alternative distribution mechanisms in addition to collaborating with health posts. In total, interviewees mentioned eight possible information distribution mechanisms, many of which are utilized by health posts but could be utilized directly by ANACIM or other climate information providers: (a) community meetings (led by community health workers, village criers or griots, village chiefs, imams, assigned and compensated information relays, etc.); (b) door-to-door visits (led by any of the people listed above); (c) women's association meetings; (d) mosque loudspeakers; (e) radio; (f) television; (g) posters or other publicly displayed written information; (h) theater groups.

It would likely be most effective to use as many of the above communication channels as possible, in order to reach the widest audience. Additionally, even though climate information is already being provided through many of the above channels, the fact that most interviewees stated that most people aren't accessing or utilizing climate information suggests that these efforts should be enhanced, both in terms of volume and quality.

It is worth noting that although health posts may be effective in helping climate information reach rural farmers, this information cannot be considered "integrated;" that is, accompanied with agricultural support and development assistance that enables farmers to act on received information (Tall, Jay and Hansen, *Scaling Up Climate Services for Farmers in Africa and*

South Asia Workshop Report). Therefore, efforts to provide gender-equitable agricultural and development assistance in rural areas should continue in the region so that farmers may act upon the forecasts they receive.

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