ABSTRACT
Agricultural extension in Senegal is critical to increasing agricultural production among the nation's smallholder farmers who make up 60 percent of the country's 14 million population. The paper argues that whereas the Government has recognized the importance of an integrated rural development approach to holistic development and urges extension workers to become development facilitators it fails to recognize the importance of providing these agents with training in development and communication, otherwise known as “Communication for Development” (C4D). Therefore, the authors urge the government to introduce C4D training for extension workers as an innovative strategy for improving extension effectiveness in Senegal.

Keywords: Communication, extension, local participation, agriculture

INTRODUCTION
Senegal, a developing country in West Africa, is making great progress in its economic development. In 2012, Senegal experienced an economic growth rate of 3.7% of Gross Domestic Product (GDP), up from 2.1% in 2011 and with projected growth rates for 2013 and 2014 at 4.3% and 5.1% respectively. However, a major challenge to the Government of Senegal is how to improve productivity in the country's smallholder farming sector, which accounts for over half of the nation's 14 million population (Bravo-Ureta, Mass, Diouf & Ndoye, 2012; Sagna & Holmes. 1998).

Since 1999, the Government adopted an integrated rural development approach to smallholder farmer development and charged extension workers with a new task of facilitating integration by promoting smallholder farmers' participation and ensuring collaboration among development partners to ensure a
timely and simultaneous delivery of information and material inputs so that these farmers can take advantage of the increasingly unreliable rains caused by climate change (World Bank, 1975).

At the time it was being introduced in the mid-1970s, many concerned observers viewed the IRD approach as complex and that its success will depend on the quality of those charged with its implementation (Hurni, 1980; Coombs et al, 1976). Therefore, this study of extension workers in Senegal, carried out almost 20 years, following the introduction of the IRD approach in the country, was aimed at measuring extension effectiveness, by asking extension workers to reflect on their level of success and to identify training needs for enhancing their effectiveness.

Starting from the mid-1970s, many Sub-Saharan African countries adopted a “new style” of agricultural and rural development programs called “Integrated Rural Development Programs (IRDPs), each worth several million dollars and funded as loans from the World Bank (World Bank, 1975; Hurni, 1980). These IRDPs were designed to reflect the new meaning of development, which had changed from “economic growth” in the 1960s to “holistic” development in the 1970s and beyond. The IRD approach, therefore, tried to address as many problems in a given area, such as a region of a country, through a multifaceted effort (Coombs et al, 1976). Critics and advocates alike, had noted that the IRD approach was complex and its success will depend on the level of local involvement that will compel development officials to take their needs and concerns into account.

Robert McNamara, president of the World Bank at the time, who championed the problem of absolute poverty and the IRD strategy to overcome it, had warned that: “No program will help small farmers if it is designed by those who have no knowledge of their problems and implemented by those who have no interest in their future,” and he added, “experience shows that there is a greater chance of success if the institutions provide for popular participation, local leadership, and decentralization of authority” (p. 25). Thus, human dimension elements, such as local participation, interagency collaboration, and capacity building became the guidelines for the success of the IRDPs.
Kenya, Nigeria and Ghana were the first in Sub-Saharan Africa to experiment with the IRDPs (Agunga, 1983; Chambers, 1980). However, for Senegal, this happened in 1999/2000, preceded by the adoption of the Bank's new extension approach, called the Training and Visit System (T&V) in 1990 (Venkatesan and Kampen, 1998). A brief discussion on the history of extension in Senegal will provide a perspective for the paper. Just after independence (1958 to 1965), the government adopted the National Agricultural Extension Program (NAEP), which took one of three forms: Animation Rurale or Rural Mobilization, Commodity-oriented extension, and the Ministry of Agriculture's government extension service (Sagna and Holmes, 1998). Animation Rurale focused on the sensitization and education of farmers in community development while commodity-oriented extension was similar to project-type extension and promoted the production of cash crops for export (Sagna & Holmes, 1998). Between 1965 and 1990, numerous para-statal executing agencies catering to private agricultural organizations also existed in each of the six agro-ecological area, such as SAED (Building Plots Agency in the River Valley Area), SODEFITEX (Textile Fiber Agency in Eastern of Senegal), SODEVA (Extension and Development Agency in Peanut Area), SOMIVAC (Agency for the Valorization of Casamance Area), and SODESP (Agency for the Development of Pastoralism in the Pastoral Area).

In 1990, the Government adopted a National Agricultural Extension Program (PNVA), financed by the World Bank, with the T&V System as the cornerstone. T&V was an integral component of the Bank's IRD strategy and was only abandoned in 1999 alongside the IRDPs, which were deemed failures (Venkatesan and Kampen, 1998; Amoako-Tuffour and Armah, 2008). The IRDPs were replaced with yet another IRD strategy called national Poverty Reduction Strategy Programs (PRSPs). However, local participation, integration and capacity building remained the guiding principle for success (Amoako-Tuffour and Armah, 2008). The T&V System was also replaced in 2000, by a “pluralistic and demand-driven” extension approach whereby public sector extension was to compete with private extension providers, such as commodity groups and non-governmental agencies, for smallholder farmers' business (Davidson and Ahmad, 2003).
For Senegal, the problem with managing IRD programming is that donor agencies seem to exert greater control over decisions made by the government. Gage, Sarr and Adoum (2001) note, for example, that donor activity in Senegal is fragmented, with each organization doing its own thing, irrespective of whether it connected with other agencies. For example, rural infrastructural development is the top priority of one donor; however, this donor hardly coordinates its activities with others concerned with agricultural production irrespective of the government's view that coordination is a cardinal principle across ministries for overall national development. The authors also noted that effective agricultural development required “competent, productive, flexible and motivated staff” at all levels of the national development hierarchy—national, regional and grassroots—which was not the case in Senegal. Thus, while the Government of Senegal may be committed to poverty reduction through increased smallholder farmer production, the absence of a well-trained cadre of extension staff may be impeding the effort. Therefore, this study, focused on understanding the training needs of extension workers in Senegal, is of critical importance.

METHODOLOGY
The main purpose of this study was to examine what training Senegalese agricultural extension workers need as a way of improving their professionalism, and thus, productivity and effectiveness. The specific research objectives were as follows:

1. To examine the demographic characteristics of extension workers.
2. To examine extension workers level of competency in the use of social media.
3. To examine extension workers' understanding of extension goals and the extent to which these are being met.
4. To assess extension workers' training needs in communication and development.

This study is based on a survey of 25 grassroots extension workers in two of the six agro-ecological divisions of Senegal and the small group size maybe a limitation of the study since it is not representative of the extension population and, therefore, not generalizable (Dillman, Smyth and Christian, 2009). However, the
findings point to significant issues facing extension in Senegal and, therefore, are worth reporting (Schiffman and Kanuk, 1997). Agricultural extension in Senegal is administered by the National Advisory and Extension Services Agency (ANCAR), established in 2001. Initially, ANCAR was represented in all 11 regions of the country; however, in 2010, this Agency was transformed into a new organization focusing on the six agro-ecological areas: Senegal River Valley, Niayes, Eastern Senegal, Pastoral Area, Peanut Area and Casamance.

This data was collected in June/July 2013 in two areas: Senegal River Valley and Niayes. The Senegal River Valley area, in turn, has two administrative regions: Matam and St Louis, with 20 extension workers total. Copies of the questionnaire, which takes about 30 minutes to complete, were distributed at regional meetings and respondents were instructed to take them home, complete and mail them through the postal office to the researchers. However, only 16 out of the 20 questionnaires distributed were received. The Niayes Area is comprised of three regions—Dakar, Thies and Louga, with a total of 18 extension workers. They had Internet accounts so the questionnaires were emailed as attachments. However, only 9 responded. In all, of the 38 questionnaires distributed, 25 usable questionnaires were returned yielding a response rate of 65%. Overall, the six areas have a total of 120 extension workers, which means roughly 21% of the population responded to the study. We made telephone calls and sent repeated emails but that did not yield more responses. For those in the River Valley, the response rate could have increased if we had provided them with stamped self-addressed envelopes. Also, we could have made it possible for those on email to respond if we had given them money for Internet use at an Internet kiosk (Dillman, 2011).

Nevertheless, in addition to the phone calls and repeated emails, we received feedback from the two regional directors and their assistants who felt the survey was very useful. Likewise, we presented the paper at an extension policy conference in Wageningen, The Netherlands in August 2013, and many of the participants from the African, Caribbean and Pacific (ACP) Region also agreed on the usefulness of the study. The conference was organized by the CTA (Technical Center for Agricultural and Rural
Cooperation). Therefore, we are confident that the study reflects the population.

RESULTS AND DISCUSSION
The findings reported relate to the research objectives: a) demographic characteristics of extension workers; b) extension workers’ level of job satisfaction; c) extension workers’ competency in the use of social media; d) extension workers’ understanding of extension goals and the extent to which these are being met; and e) extension workers’ training needs in communication and development.

With respect to the demographic characteristics, our interest was in four areas: a) gender of respondents; b) highest level of education, c) years of service in extension, d) in-service training attended in the last two years, e) level of satisfaction with their jobs. Of the 25 respondents, 21 (84%) identified themselves as male and three (21%) as female. Sixteen (64%) identified themselves as sub-district officers, four as district officers and one as a regional officer. Only two of the respondents lived in the same area they worked.

The breakdown of participants based on level of education is as follows: only one (4%) respondent had a doctorate degree; seven (28%) had a Master's degree; four (16%) had a Bachelor's degree; two (8%) had an associate degree or diploma certificate; and four (16%) had high school education. However, when participants were asked what level of education they will be satisfied with, the numbers changed significantly. Only one each were satisfied with an associate degree and a bachelor’s degree; 8 (32%) wanted a Master's degree and 11 (44%) doctoral degrees. Eighty-two percent of respondents completed their highest level of education six or more years ago; 13% said three to five years ago and only 4% mentioned less than two years ago. Nearly 50% of respondents (14) have been in extension for six year or more. Twelve have been in extension for 6 – 10 years and two for 11 year or more. While many expressed happiness with their work as extension agents, over 50% were dissatisfied with the resources they had to work with and the cooperation they received from other government ministries and nongovernmental organizations. They were also generally dissatisfied with the progress of decentralization in the country.
Social media or “Information and Communication Technologies” (ICTs) are tools extension workers can use to expand their reach to farmers (Manfre et al., 2013). They reported that use of ICTs or the Internet in Senegal had jumped from 0.4% in 2000 to 8.4% in 2008. Thus, with the prices of Internet equipment on the decline the possibility of using social media as extension tools is high. The study found that whereas the vast number of extension workers had access to social media—18 (72%) had cell phones; 16 (64%) had e-mail accounts; 12 (48%) had laptops; and 10 (40%) had access to desktop computers; however, they were using these for personal purposes not as tools for reaching farmers, particularly, smallholder farmers.

An increasing expectation of extension workers is the extent to which they impact agricultural development in the smallholder farming sector. Twenty-one out of the 25 respondents identified helping smallholder farmers gain access to credit and farm inputs and involving them in decision-making as the main goals of extension. Next, 20 (80%) out of the 25 respondents mentioned facilitating holistic development; and increasing agricultural production as other important extension goals. However, all of them admitted that these goals were not being achieved.

In addition to assessing their training needs in communication and development, extension workers responded to questions on the T&V System, the structure of extension and their relationships with other development agencies. Responses on whether the T&V system was a success were mixed. However, only 40% of the 25 respondents felt it was a success. Respondents felt that extension reforms in the country were too frequent and are often made without their input. A slight majority (52%) felt that smallholder farmers cannot pay for extension services. The vast majority (72%) to be accessible to field workers in other ministries and NGOs extension must be located in a neutral organization outside the Ministry of Agriculture. Another large majority, 84% of respondents, agreed that extension workers should be able to use scientific findings to influence extension policy, such as providing concrete evidence of their impact on farmers.

Rogers' diffusion of innovations model, described in Rogers and Shoemaker (1971) showed how extension workers can use
communication as an effective tool for interacting with farmers, especially smallholder farmers. He argues that extension workers lack homophily (the mirror opposite of heterophily), that is, they are not alike, in that whereas extension workers tend to be oriented towards city life; smallholder farmers are ruralites. Thus, Rogers affirms that to be effective, extension workers need good communication skills. However, a general theme that came across clearly in our study is that extension workers need communication training whereas much of what they get is agricultural training (Awa, 1990; Ascroft and Masilela, 1994). From the table, it might appear that the researchers asked leading questions and, therefore, got implied answers. However, many authors acknowledge the centrality of communication in social change. Axley (1996), for example, stated that: “Today’s most pressing organizational and management challenges—leadership, empowerment, shaping organizational culture, building effective teams, and managing change—hinge on communication activities, and can best be understood and met in terms of communication and communicating” (Preface). Therefore, however the questions were phrased, they reflected an important need. Also, the questionnaire was pilot-tested with experts in communication and extension. As shown in the table, the majority felt that as development facilitators, extension workers need training in communication, N=21 (84%). Also, 80% of them agreed that communication is necessary for: a) coordination, b) integration, c) participation, d) building linkages, and e) forming partnerships. There was also a general agreement that communication is necessary for decentralization and furthermore, that all development ministries, such as agriculture, health, gender and the environment have communication needs.
Table 1 - Extension workers' need for communication training

<table>
<thead>
<tr>
<th>Statement</th>
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<tbody>
<tr>
<td>Development facilitators need communication training</td>
<td>84</td>
</tr>
<tr>
<td>Communication is necessary for coordination</td>
<td>80</td>
</tr>
<tr>
<td>Communication is necessary for integration</td>
<td>80</td>
</tr>
<tr>
<td>Communication is necessary for participation</td>
<td>80</td>
</tr>
<tr>
<td>Communication is necessary for building linkages</td>
<td>80</td>
</tr>
<tr>
<td>Communication is at the heart of development</td>
<td>80</td>
</tr>
<tr>
<td>Communication brings development partners together.</td>
<td>80</td>
</tr>
<tr>
<td>Communication is essential for decentralization</td>
<td>76</td>
</tr>
<tr>
<td>All development ministries have need for communication</td>
<td>72</td>
</tr>
<tr>
<td>Community radio spreads information to areas without extension workers</td>
<td>68</td>
</tr>
<tr>
<td>Extension workers need training in communication</td>
<td>68</td>
</tr>
</tbody>
</table>

The integrated approach adopted by African governments in 2000 stresses that development is a holistic process and can only be achieved through an integrated approach. However, to achieve holistic development, it assumes that extension workers have training in development theory and how to bring it about. Table 2 shows, however, that the extension workers have virtually no training in development or in communication. The overwhelming majority said it is necessary for extension workers to understand development theory, policy and practice and express need for this training.

However, it appears as a contradiction of terms as extension workers also say they were trained in integrated rural development implementation, N=18 (72%). It may well be that extension workers responded to certain aspects of the study so as not to appear ill-informed. For example, respondents said they were involved in project evaluation and were trained in poverty reduction strategy programming, which seems to contradict with their earlier statement that extension strategies are changed without their knowledge.
Table 2 - Views of extension workers on development

<table>
<thead>
<tr>
<th>Statement</th>
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<tbody>
<tr>
<td>Understanding development theory is essential for extension workers</td>
<td>80</td>
</tr>
<tr>
<td>Understanding development policy is essential for extension workers</td>
<td>80</td>
</tr>
<tr>
<td>Understanding development practice is essential for extension workers</td>
<td>80</td>
</tr>
<tr>
<td>Extension workers need training in development</td>
<td>76</td>
</tr>
<tr>
<td>Extension workers are involved in development planning</td>
<td>72</td>
</tr>
<tr>
<td>I was trained in integrated rural development implementation</td>
<td>68</td>
</tr>
<tr>
<td>The development process is complex</td>
<td>60</td>
</tr>
<tr>
<td>Extension workers lack the training to cope with the complexity of the development process</td>
<td>52</td>
</tr>
<tr>
<td>Community-driven development is a success in my area</td>
<td>48</td>
</tr>
<tr>
<td>I was trained in poverty reduction strategy programming</td>
<td>48</td>
</tr>
<tr>
<td>Community-driven development is a success in my area</td>
<td>48</td>
</tr>
</tbody>
</table>

**CONCLUSIONS AND RECOMMENDATIONS**

This study was conducted based on the conviction that to effectively execute their new role as facilitators of integrated rural development, Senegalese extension workers need training that will help them to cope more effectively with the sophisticated nature of IRD programming. Rondinelli (1993) reviewed over 100 IRD programs in Sub-Saharan Africa and concluded that they failed due to lack of attention to the communication aspects, namely, how to bring about participation, integration and capacity building. He also noted that extension workers charged with these tasks lack the sophistication to cope with these activities unassisted.

Our study supports Rondinelli’s field assessment. We believe that the human dimension elements that were prescribed as necessary for IRD success—participation, integration and capacity building—are still valid, 40 years later. What is more disturbing, these guidelines have rarely been followed.

A Bill & Melinda Gates 2013 Challenge Grant called Innovations in Feedback & Accountability Systems for Agricultural Development: Grant Challenges Explorations Round 12, argued
that: “Smallholder farmers should be full participants in defining, implementing, and evaluating projects intended to improve their farms and lives” but they are not being involved; “Smallholders and implementing agencies should work hand-in-hand in a joint learning process” but they are not; and “Accountability should be multi-directional—implementing organizations should be accountable to smallholder farmers” but they are not.

We argue that agricultural extension is critical to agricultural and rural development in Senegal. The high rate of illiteracy of the farming population makes the need for extension even more critical. However, the effectiveness of extension in Senegal is also dependent, in large part, on the qualifications of the extension workers themselves, their training and the resources they have to work with. It can be argued that under the IRD approach donor funding is plentiful and can be more effectively managed if smallholder farmers were involved to demand greater accountability. This is where extension can make a significant contribution by organizing these farmers—men, women and the youth in agriculture.

We believe that an understanding of the dynamics and complexities of the development process, such as the principle that local participation must guide the development process, is critical to transforming the top-down development decision-making process into a bottom-up framework whereby communities can hold their governments and donor agencies accountable. A community-driven approach to development which is the rhetoric of all donor agencies requires an effective extension system to make it a reality. How that can be done is beyond the scope of this paper. However, the reader is encouraged to refer to a paper by one of the authors (Agunga, 2012), who offers a model for bringing about community-driven development. The World Bank (2007) report, World Congress on Communication for Development: Lessons, Challenges, and the Way Forward also acknowledges that, “communication is integral to development and to achieving the Millennium Development Goals. For this reason, communication must be built into development planning and embedded in strategies for poverty reduction, health planning, and governance” (p. xxvii).
Therefore, the Government of Senegal can approach the Bank for funding to experiment with a communication approach to development. However, the reader must be warned that not all communication makes genuine participation possible. Therefore, developing countries must rely on communication experts who can devise and implement the best and most appropriate strategies.

REFERENCES


