

Strengthening the Linkages among Climate Change Actors in Agricultural Innovation System in Southeast, Nigeria

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Abstract

Strong linkages among actors will help them learn and share lessons for scaling up successful strategies for capacity strengthening within agricultural innovations systems to adapt to climate change and variable climate conditions. The study investigated factors that could help strengthen linkages among climate change actors in agricultural innovation system in Southeast, Nigeria. A sample of one hundred and seventy six (176) respondents participated in the study. Validated interview schedule and structured questionnaire were used for data collection. Mean scores were employed for data analysis. Statistical results show poor funding (M=2.8) and poor motivation of the actors (M=2.5) among others as factors that constrained the actors from linking with one another. Provision of adequate funding (M=3.12), adequate motivation of actors (M=2.58), regular workshop for actors (M=2.66), provision of adequate finance/credit (M=2.0), regular conferences for actors (M=2.42), favourable government policy (M=2.0), regular training for actors to upgrade skills (M=2.7), quarterly seminar for actors (M=2.42), establishment of coordinating unit/liaison committee (M=3.12) and sharing research information among actors (M=3.12) were revealed as factors that could help strengthen the linkages of the actors. The study recommends that efforts should be geared towards strengthening linkages among the actors as this will give the actors opportunity to learn from one another on how best to tackle problems posed by climate change.

Keywords: Linkage, agricultural innovation system, actors, strengthening, climate change

1. Introduction

An agricultural innovation system (AIS) is defined as a set of organizations and individuals involved in generating, disseminating, adapting and using knowledge for socio-economic significance and the institutional contexts that govern the way interactions and processes take place (Hall, Bockett, Taylor, Sivamohan et al. 2001). In AIS, five sub-systems namely; farmer, policy, research, technology transfer and education could be identified (CTA/UNU-INTECH/KIT, 2005). The actors in each sub-system are farmers, staffs of the Ministry of Agriculture, Research Institute, Agricultural Development Programme (ADP) and University respectively.

In Nigeria especially in the Southeast, there are empirical evidences of the resultant effect of climate change. These effects include among others the disappearance of the 2 to 3 weeks traditional break in rainfall i.e. August break (Chineke, Jagtap & Nwofor, 2010) and very recently, the unusual flooding that ravaged farmlands and farm stead between July and October, 2012. These problems created by climate change could be effectively managed if the actors in the agricultural innovation system interact and learn from one another. Such interactive learning process will be facilitated and enhanced by strong linkages. Linkage implies the communication and working relationship established between two or more organisations pursuing commonly shared objectives in order to have regular contact and improved productivity (Agbam, 2000; Sadighi, 2005). Peterson, Gijsbers & Wilks (2003) defined it as the coordinated channels for exchange or flows of technology, information and resources between organizations in an agricultural innovation system. It could generally be seen as a factor or relationship that connects or ties one thing to another.

In a recent study by Obiora and Madukwe (2013), they noted that there were generally weak linkages among the actors in AIS in South east Nigeria. Such weak linkages could retard efforts geared toward tackling the problems of climate change. Consequently, it is therefore pertinent to determine how such weak linkages could be strengthened so that actors could interact and learn from one another in order to combat the problems accruing from climate change. The paper aims at:

- (i) ascertain factors that constrain the linkages of the actors;
- (ii) determine factors that could help strengthen the linkages among the actors.

3. Results and Discussion

3.1 Factors that constrained the actors from linking with one another

The pooled mean entries in Table 1 show that respondents perceived poor funding (M=2.8), poor motivation (M=2.5), bureaucracy (M=2.1) and inadequate finance (M=2.6) as factors that constrained their linkage with one another. For effective climate change adaptation, actors need to link with one another and such linkage will help to facilitate learning of the actors.

Adequate funding and adequate finance is needed to strengthen links especially if formal linkage type is practiced. With adequate funding, actors in the AIS can organize seminar/workshop on climate change. The

workshop could help fasten and enhance learning on adapting with climate change issues among the actors.
 Table 1. Mean distribution of respondents based on factors constraining linkage

Actors Constraints	Research n=12 M=2	Education n=68 M=2	Policy n=24 M=2	Tech.transfer n=21 M=2	Farmer n=40 M=2	Pooled mean M=2
Poor funding	2.6	3.0	2.8	3.0	3.0	2.8
Poor motivation	2.5	2.5	2.2	3.0	2.5	2.5
Farmers' conservatism	2.0	1.5	2.2	2.3	1.0	1.8
Bureaucracy	2.0	2.0	2.8	2.3	1.5	2.1
Inadequate finance/credit	2.0	2.0	3.0	3.0	3.0	2.6
Weak legal framework	1.5	1.8	1.5	1.5	1.5	1.6
Poor government policy	1.0	1.5	1.5	1.0	1.8	1.4
Inadequate physical resources	1.5	1.0	1.0	1.0	1.5	1.2

3.2 Factors that could strengthen the linkages of the actors

Data in Table 2 show factors that could strengthen the weak links among the actors. It shows that adequate funding (M=3.12), adequate motivation of actors (M=2.58), regular workshop for actors (M=2.66), provision of adequate finance/credit (M=2.0), regular conferences for actors (M=2.42), favourable government policy (M=2.0), regular training for actors to upgrade skills (M=2.7), quarterly seminar for actors (M=2.42), establishment of coordinating unit/liaison committee (M=3.12) and sharing research information among actors (M=3.12) as possible factors that could strengthen the linkages of the actors.

Building networks of relevant actors requires vision, funding, skills and commitment –all these may be in short supply, explaining why strong linkages may be lacking (Gijsbers, 2009). The weak linkage among the actors will retard learning of the actors and makes sharing lessons for scaling up successful strategies for climate change adaptation and mitigation difficult if not impossible and hence the need for strengthening the linkages. Weak linkage also implies a poor information flow with negative effect on learning and overall long-term competitiveness. Importantly, strong farmer-technology transfer linkage need to be strengthened as it will strengthen farmers' capacity to access and use quality information, training and products in order to adapt to climate change. Adequate funding and adequate finance is needed to strengthen links, with adequate funding, actors in the AIS can organize seminar/workshop on climate change. The workshop could help fasten and enhance learning on adapting with climate change issues among the actors.

Table 2. Mean distribution of respondents on factors that could strengthen the linkages of the actors

Actors Factors	Research n=12 M=2	Education n=68 M=2	Policy n=24 M=2	Tech.transfer n=21 M=2	Farmer n=40 M=2	Pooled mean M=2
Adequate funding for actors	3.4	3.2	3.0	3.0	3.0	3.12
Institutionalized legal framework	1.2	1.5	1.2	2.0	2.0	1.58
Adequate motivation of actors	3.0	2.5	2.2	3.0	2.0	2.58
Regular workshop for actors	3.0	3.0	2.8	3.0	1.5	2.66
Provision of adequate finance/credit	2.0	2.0	2.0	2.0	2.0	2.0
Regular conferences for actors	2.5	3.0	2.5	2.5	1.6	2.42
Favourable government policy	2.0	2.5	1.5	2.0	2.0	2.0
Regular training for actors to upgrade skills	3.0	2.5	2.5	3.0	2.5	2.7
Quarterly seminar for actors	2.5	3.0	2.5	2.5	1.6	2.42
Establishment of coordinating unit/liaison committee	3.4	3.2	3.0	3.0	3.0	3.12
Rich fiscal government policies	2.2	1.0	1.5	2.0	1.0	1.54
Sharing research information among actors	3.4	3.2	3.0	3.0	3.0	3.12

4. Conclusion

Actors need to collaborate and link in order to build capacities and also learn and share lessons for scaling up

successful strategies for effective climate change adaptation and mitigation. Constraints to the linkages of the actors in AIS were poor funding (M=2.8), poor motivation (M=2.5), bureaucracy (M=2.1) and inadequate finance (M=2.6). Factors that could help strengthen the linkages of the actors included provision of adequate funding (M=3.12), adequate motivation of actors (M=2.58), regular workshop for actors (M=2.66), provision of adequate finance/credit (M=2.0), regular conferences for actors (M=2.42), favourable government policy (M=2.0), regular training for actors to upgrade skills (M=2.7), quarterly seminar for actors (M=2.42), establishment of coordinating unit/liaison committee (M=3.12) and sharing research information among actors (M=3.12).

The study recommends that efforts should be geared towards strengthening linkages among the actors as this will give the actors opportunity to learn from one another on how best to tackle problems posed by climate change. Also, the Federal government of Nigeria and other relevant agencies should provide adequate funding to the actors. Such funds could be used in organizing workshops/seminars/conferences where actors come and learn and share lessons for scaling up successful strategies for climate change adaptation and mitigation.

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